APPENDIX M
DRAFT STREAM ASSESSMENT REPORT

TECHNICAL REPORT APPENDICES

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I-69 EVANSVILLE TO INDIANAPOLIS

Tier 2 Studies

Draft Stream Assessment Report

Section 5, SR 37 to SR 39

October 2012

Prepared for

Federal Highway Administration and
Indiana Department of Transportation

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1.0 INTRODUCTION

In March of 2004 the Tier 1 Record of Decision (ROD) for I-69 was issued identifying Alternative 3C as the preferred corridor for I-69 and paving the way for the initiation of Tier 2 Studies. The 142-mile I-69 project corridor (approximately 2,000 feet wide) from Evansville to Indianapolis was divided into six sections for the purpose of these studies. Each of the six Tier 2 section study teams will determine the final alignment of the interstate within the approved corridor. This document includes environmental studies and engineering assessments by the Tier 2, Section 5 studies team which has culminated in a recommendation of a preferred interstate alignment within Section 5 of the approved Alternative 3C corridor: Preferred Alternative 8.

The termini of Section 5, as approved in the Tier 1 ROD for I-69, dated March 24, 2004, are SR 37 south of Bloomington in Monroe County and SR 39 near Martinsville in Morgan County. The I-69 Section 5 corridor is centered on existing SR 37 and is intended to upgrade the existing arterial roadway to interstate standards. The impacts, benefits, and costs of alternatives are fully evaluated, with recognition that these features include facets which are currently attributable to the existing highway facility. Section 5 is approximately 23 miles in total length and is within the Louisville District of the Army Corps of Engineers. **Figure 1** and **Figure 2** depict the relationship of the Alternatives on United States Geological Survey (USGS) topographic maps and aerial photographs, respectively.

The Upper White River Watershed, Lower White River Watershed, and Lower East Fork White River Watershed are the three 8-digit watersheds traversed by the project corridor. The project crosses three sub-watersheds of the Upper White River Watershed; Indian Creek-Sand Creek Watershed, Little Indian Creek-Jordan Creek Watershed, and Bryant Creek Watershed. The project crosses four sub-watersheds of the Lower White River Watershed; Beanblossom Creek-Indian Creek Watershed, Beanblossom Creek-Buck Creek/Muddy Fork Watershed, Beanblossom Creek-Stout Creek Watershed, and Griffy Creek Watershed. The project crosses two sub-watersheds of the Lower East Fork White River Watershed; Clear Creek-May Creek Watershed and Clear Creek-Jackson Creek Watershed.

Section 5 of I-69 entails upgrading an existing multi-lane, divided transportation facility to a full freeway design. Most of the right-of-way used for the Section 5 project already is devoted to transportation use. Five Alternatives were carried forward for detailed analysis in the Section 5 Draft Environmental Impact Statement (DEIS). This stream assessment report identifies the streams that are impacted by these five Alternatives. In some cases, the stream impacts in this report differentiate from those which occur within the existing rights-of-way for SR 37 and other transportation facilities from those which occur elsewhere. Many of the streams discussed in this chapter have been previously modified and impacted (i.e., captured in ditches, concrete channels, pipes, culverts, and/or bridges). Alterations to stream segments within existing SR 37 structures that result from the I-69 conversion are considered previously impacted by construction.. In addition, many of the remaining impacts are from extensions to these existing structures (i.e., lengthening of existing culverts, widening of existing bridges, re-routing of concrete channels).

All non-culverted stream segments with an ordinary high water mark that are crossed by the Alternatives were surveyed, as appropriate. A single stream impact may have more than one stream assessment segment due to the fact that if the habitat along the length of the stream changed, a separate assessment

was made. However, if the habitat along the entire impacted length of the stream did not change only one assessment segment was completed. If two or more Alternatives cross a stream in the same location and the habitat was consistent throughout the stream reach, only one assessment was made. The streams were generally assessed from the south end to the north end of the corridor, and the numbering system *generally* follows that course. A total of 359 stream impacted segments were identified and surveyed using the Qualitative Habitat Evaluation Index (QHEI) (Rankin, 1979) or the Headwater Habitat Evaluation Index (HHEI) depending on drainage area and maximum pool depth of each stream segment. Surveys were performed in accordance with the Indiana Department of Environmental Management's Standard Operating Procedure. Water chemistry and biological sampling were not performed in this survey.

The information compiled in this report will serve as a data source for the evaluation of project Alternatives, future environmental reports and ultimately for the preparation of required waterway permits.

1.1 REGULATORY DEFINITIONS

To comply with the requirements of the National Environmental Policy Act, 1969 (NEPA), the potential impacts on sensitive resources must be examined and considered for proposed Federal transportation facilities. These resources include, but are not limited to, floodplains, wetlands, endangered species, historic and archeological sites, parklands, air quality, wildlife habitat, "Waters of the United States." and others.

The term "Waters of the U.S." is defined in the CWA (40 CFR 122.2) and means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
(b) All interstate waters, including interstate "wetlands";
(c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds; the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
    (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
    (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    (3) Which are used or could be used for industrial purposes by industries in interstate commerce;
(d) All impoundments of waters otherwise defined as waters of the United States under this definition;
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;
(f) The territorial sea; and
(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of The Clean Water Act (CWA) are not Waters of the U.S.

"Waters of the State" means accumulations of waters that are within, partially within, or border on the State of Indiana. The term includes both surface and underground waters, natural and artificial waters, and public and private waters. However, the term does not include any private pond, or any pond, reservoir, or facility built for the reduction or control of pollution. Nor does it include ponds, reservoirs, or facilities built for the cooling of water prior to discharge unless the discharge causes or threatens to cause water pollution.

"Waters of the State" are defined in Indiana Code 13-11-2-265 as meaning:

(a) "Waters", for purposes of water pollution control laws and environmental management laws, means:
  (1) The accumulations of water, surface and underground, natural and artificial, public and private; or
  (2) A part of the accumulations of water;

(a) That are wholly or partially within, flow through, or border upon Indiana.

(b) The term "waters" does not include:
  (1) An exempt isolated wetland;
  (2) A private pond; or
  (3) An off-stream pond, reservoir, wetland, or other facility built for reduction or control of pollution or cooling of water before discharge.

(c) The term includes all Waters of the United States, as defined in Section 502(7) of the federal Clean Water Act (33 U.S.C. 1362(7)), that are located in Indiana.

(d) As added by P.L.1-1996, SEC.1. Amended by P.L.183-2002, SEC.1; P.L.282-2003, SEC.31; P.L.52-2004, SEC.4.

The Waters of the U.S. and the Waters of the State may include perennial, intermittent, and ephemeral streams as defined below.

Perennial Streams: Perennial streams are streams that flow throughout the majority of the year (greater than 90% of the time) and flow in a well-defined channel. However, perennial streams can "dry up", particularly during extended periods of drought. All streams that were identified on the USGS maps by a solid blue line were considered perennial streams for this report.

Intermittent Streams: An intermittent stream is a stream that flows only during wet periods of the year (30% to 90% of the time) and flows in a continuous well-defined channel. During dry periods, especially in summer months, intermittent streams may go down to a trickle of water and appear dry when, in fact, there is water flowing through the stream bottom or "substrate". All streams that were identified on the USGS maps by a broken blue line were considered intermittent streams for this report.

Ephemeral Streams: An ephemeral stream is a stream that flows only during and for short periods following precipitation (less than 30% of the time); and flows in low areas that may or may not have a well-defined channel. Some commonly used names for ephemeral streams include: stormwater channel, drain, swale, gully, hollow, or saddle. Since ephemeral streams are often headwater streams, it is

typically recommended that roads, site-prep, and other soil disturbing activities be minimized in ephemeral streams to avoid erosion and sedimentation of stormwater runoff that will flow downstream to larger streams or waterbodies. All streams identified in the field that were not represented on the USGS maps were classified as ephemeral streams for this report.

1.2 POTENTIAL HABITAT QUALITY IMPACTS

The Section 5 Study Area consists of three primary land uses including forest, developed land, and agricultural land. Developed areas consist mainly of residential areas along with some businesses. These developed areas are scattered throughout the Study Area; however, developed land uses are concentrated near the City of Bloomington. Land use and land cover within the Section 5 corridor are dominated by developed land in the southern potion and by undeveloped upland and agriculture to the north. Developed land accounts for about 39% of the land cover while upland habitats account for about 46% of the land cover. Agricultural lands, primarily pasture, account for approximately 13% of the Section 5 land use. Water and wetlands comprise the remaining 2% of the corridor, while sand/gravel operations and limestone quarry companies make up less than 1% of the land cover within the Section 5 corridor. The existing 1970's SR 37 4-lane pavement, structures, and right-of way make up a significant portion of the Section 5 corridor. The predominant forest type within the corridor is oak-hickory.

Expected habitat impacts to the streams in Section 5 relate to highway construction and operation, and include: direct habitat loss, channelization, relocation, removal of instream cover, removal or narrowing of riparian zones, sedimentation, nutrification, and other impacts relating to highway runoff. Section 5 of I-69 entails upgrading an existing multi-lane, divided transportation facility to a full freeway design. Most of the right-of-way used for the Section 5 project already is devoted to transportation use. Many of these impacts are currently roadside ditches within existing transportation right-of-ways.

1.3 METHODOLOGY

1.3.1 Location of Survey Sites

Survey sites were located by finding the intersections of the Alternatives with each ephemeral, intermittent, and perennial stream impacted.

A combination of techniques was used to identify streams, including the use of topographic maps, soil surveys, Digital Elevation Models and on-site field verification. These data sources were used to compile an updated digital coverage of jurisdictional waterways within the Study Area. Identified streams were generally assessed from the south end to the north end of the corridor, and the numbering system *generally* follows that course.

Prior to beginning fieldwork, the type of evaluation (QHEI or HHEI) required for each stream within the preliminary work limits was determined based on watershed size and subsequently confirmed on-site. A minimum of one evaluation was completed for each stream falling within any of the project Alternative impact footprints. The assessment reach was generally centered approximately at the point the Alternative centerline crossed the waterway. Additional evaluations were completed for streams if dramatic changes in function (i.e. channel, flow, substrate, cover) occurred within the section of

waterway impacted. For example, a stream that originates as a channelized agricultural ditch, which then flows into a forest where it becomes a natural channel, received one evaluation for the modified channel and a second evaluation for the natural channel. In addition, HHEI evaluations were performed on either side of a culvert or pipe regardless of a change in habitat. Multiple evaluations were also performed in instances where an individual Alternative crossed a stream in more than one location or where multiple Alternatives crossed the same stream segment in more than one location.

1.3.2 Delineation of Watersheds

The on-line Geographic Information System (GIS) program and the Hydrologic Map Server-Online Watershed Delineator (HYMAPS-OWL), developed by Purdue University were used as the basis for developing the watershed of several of the major streams within the project corridor boundary. A total of 172.06 square miles of watershed areas are associated with the Section 5 Alternatives' stream crossings.

1.3.3 Field Surveys

Each site was located in the field using aerial photographs and a Global Positioning Satellite (GPS) receiver. Sites were examined to determine if a bed and bank were present. Grassy swales were not surveyed because they did not meet the definition of "Waters of the U.S." or "Waters of the State". Sites were identified and a two-hundred foot reach (or maximum length of stream segment if less than 200 feet available) was measured off with the site at the center of the reach. Photographs upstream and downstream of each site were taken using a digital camera. Alterations to drainage channels that deviated from the mapped channels were noted and the altered channels were located by GPS for revision to the GIS. Additional channels that did not appear on the aerial photo field maps were also located by GPS and the site was surveyed using either the QHEI or HHEI standardized forms.

Data collected in the field were entered into database tables. The project maps were updated from digitally corrected GPS files and additional channels were added to the GIS project.

Tabulated data included:

1. Site identification number
2. Universal Transverse Mercator (UTM) coordinates
3. Quarter-section, Section, Township, and Range
4. 7.5-minute Quadrangle name
5. County
6. Date of survey
7. Type of survey, QHEI or HHEI
8. Survey score
9. Watershed area
10. Map gradient
11. Stream flow (perennial, intermittent, or ephemeral)
12. Classification code (Cowardin, 1979)
13. Associated alignment

1.4 ANALYSIS

A total of 360 field survey sites (stream segments) were completed within the Section 5 Alternatives. QHEI surveys were performed on 30 of the sites and HHEI surveys were performed on 330 of the sites. **Figure 1** and **Figure 2** contain maps showing the survey site locations.

The Ohio Environmental Protection Agency (OEPA) developed the QHEI for streams and rivers in Ohio (Rankin 1989, 1995). The QHEI is a physical habitat index designed to provide an empirical, quantified evaluation of the general lotic macrohabitat (OEPA, 1989). Although the OEPA originally developed the QHEI to evaluate fish habitat in streams, IDEM utilizes the QHEI as a measure of general habitat quality. The QHEI is composed of six metrics including substrate composition, in-stream cover, channel morphology, riparian zone and bank erosion, pool/glide and riffle/run quality, and map gradient. Each metric is individually scored and then summed to provide the total QHEI score. The highest possible score is 100.

The QHEI evaluates the characteristics of a stream segment, as opposed to the characteristics of a single sampling site. Thus, the QHEI provides an averaged quality index over the length of a reach instead of a site score that may be influenced by a localized disturbance. QHEI scores from hundreds of stream segments in Ohio have indicated that values greater than 60 are generally conducive to the existence of warm water faunas. Scores greater than 75 typify habitat conditions that have the ability to support exceptional warm water faunas (OEPA, 1999). Rankin (1995) had indicated that stream QHEI's scoring less than 33 were not meeting designated uses for aquatic life in Ohio.

QHEI scores are classified by the OEPA as:

>75 Exceptional Warm Water Habitat
60-75 Suitable for Warm Water Habitat without use impairment
45-60 Warm Water Habitat under some circumstance, but may show level of impairment that requires reclassification as Modified Warm water Habitat
32-45 Modified Warm Water Habitat
<32 Modified Warm Water Habitat if watershed area is greater than 3 mi^2, otherwise Limited Resource Water.

The OEPA developed the HHEI for the extreme headwater habitats of rivers and streams in Ohio (Primary Headwater Habitat, PHWH). Ohio defines these extreme headwaters as primary headwater habitat streams having a defined bed and bank, with either continuous or periodical flowing water, with watershed areas less than or equal to 1.0 square mile, and maximum depth of water pools equal to or less than 40 centimeters. The HHEI is based on three physical measurements that have been found to correlate well with biological measures of stream quality; substrate, maximum pool depth, and bank full width (OEPA, 2002)

OEPA (2002) classified headwater streams as Class I, II, or III habitats. The HHEI classifications were based on habitat scoring. In some instances, the HHEI classification guidelines would require additional biological evaluations to verify the classification.

Class I PHWH - A certain percentage of the primary headwater stream channels were observed to be normally dry, with little or no aquatic life present. This type of primary headwater is normally identified as an ephemeral stream, with water present for short periods of time due to infiltration from snow melt or rainwater runoff, is herein referred to as a Class I-PHWH stream (HHEI score less than 40). If a Class I-PHWH stream is no longer in its natural channel it is considered a Modified Class I-PHWH stream (HHEI score 0 to 30).

Class II – PHWH - Streams found to have a moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis. The native fauna of these streams is characterized by species of vertebrates (fish or salamanders) and/or benthic macroinvertebrates that are pioneering, headwater, temporary, and/or temperature facultative. This type of PHWH stream is herein referred to as a Class II PHWH stream (HHEI scores equal to or greater than 40 and less than 60). If a Class II-PHWH stream is no longer in its natural channel it is considered a Modified Class II-PHWH stream (HHEI score equal to or greater than 30).

Class III – PHWH - Streams found to have native fauna adapted to cool-cold perennial flowing water characterized by a community of vertebrates (either cold water adapted species of headwater fish and/or obligate aquatic species of salamanders from the lungless family Plethodontidae), and/or a diverse community of benthic macroinvertebrates including cool water taxa, with larval life stages resident in the stream continuously on an annual basis. This type of PHWH stream is herein referred to as a Class III-PHWH stream (HHEI scores equal to or greater than 60). Note that streams with HHEI scores between 50 and 59 with more than 20% of the substrate being cobble, boulder, boulder/slab, or bedrock are also classified as Class III-PHWH streams. One of the criteria of a Class III-PHWH stream is that the stream is in its natural channel; therefore, there cannot be any Modified Class III-PHWH streams.

1.4.1 Results

Appendix A contains the stream impacts and stream relocation lengths by alternative in tabular form. **Appendix B** contains Stream Impact Site forms and QHEI or HHEI site forms.

Headwater Streams
Most headwater habitat streams (watersheds <1.0 mi^2) in the study area contained little or no water or only isolated pools. As expected from the underlying bedrock formations, the predominant substrate materials were gradations of limestone and sandstone. Stream gradients ranged from flat to severe. HHEI scores ranged from 6 to 86 with an overall average score of 30.75 (see **Appendix A** – Stream Impacts and Stream Relocation Lengths by Alternative).

Perennial Streams (south to north)
Streams for which QHEI surveys were performed had gravel, hardpan, sand, and silt substrates. QHEI scores ranged from 24 to 66.5 with an overall average score of 45.5 (See **Appendix A** – Stream Impacts and Stream Relocation Lengths by Alternative).

<u>Griffy Creek (S5-s065a_1 and S5-s065a_3)</u>
Segment S065a_1 is upstream of the Bayles Road culverts and S065a_3 is downstream of the road crossing. S065a_2 is the culverted segment. This stream is a perennial stream with good habitat

development and moderate sinuosity. The predominant substrate consists of gravel and sand. The stream has a wide riparian corridor associated with both banks. The adjacent floodplain is dominated by forest land. The QHEI score of 61.5 is reflective of a warm water habitat.

Griffy Creek (S5-s065b, S5-s065c, and S5-s065d)
Segment S065b is upstream of the existing SR 37 bridge and S065d is downstream of the bridge. S065c is the portion of stream being bridged and has no functioning riparian corridor along this segment. These segments have experienced previous disturbance and exhibit no recovery. This stream is a perennial stream with poor habitat development and low to no sinuosity where the Alternatives cross this stream. The predominant substrate consists of silt. The stream has a moderately wide riparian corridor associated with both banks, with the exception of the bridged segment which has no riparian corridor. The adjacent floodplain is dominated by an old field. The QHEI score of 37 is reflective of a modified warm water habitat.

Beanblossom Creek (S5-s081a and S5-s081b)
Segment S081b includes the bridge carrying old SR 37 over Beanblossom Creek while S081a is the segment upstream from the bridge. This stream is a perennial stream with poor habitat development and low sinuosity where the Alternatives cross this stream. Hardpan is the predominant substrate. The stream has a wide riparian corridor associated with its right bank and a narrow to wide riparian buffer along its left bank. There is no riparian corridor associated with the reach under the bridge. The adjacent floodplain is dominated by forest land. It should be noted that Beanblossom Creek is identified on the Draft 2012 303(d) List of Impaired Waters due to PCB contamination. The QHEI score of 51.5 is reflective of a warm water habitat.

Beanblossom Creek (S5-s081c, S5-s081d, and S5-s081e)
Segment S081c is the portion upstream from the existing bridge carrying SR 37 over Beanblossom Creek, S081d is the bridge portion, and S081e is the portion located downstream from the existing bridge. These segments are recovering from previous channelization due to agricultural practices. This stream is a perennial stream with poor habitat development and no sinuosity where the Alternatives cross this stream. The predominant substrate consists of silt and detritus. The stream has a wide riparian corridor associated with its left bank and a moderately wide riparian buffer along its right bank. There is no riparian corridor associated with the segment under the bridge. The adjacent floodplain is dominated by forest land. It should be noted that Beanblossom Creek is identified on the Draft 2012 303(d) List of Impaired Waters due to PCB contamination. The QHEI score of 34.75 is reflective of a modified warm water habitat.

Beanblossom Creek (S5-s081f, S5-s081g, and S5-s081h)
Segment S081f is the portion from the mouth of Griffy Creek to the North Kinser Pike bridge, while segment S081g is the North Kinser Road bridged portion and S081g is located downstream from the existing bridge. This stream is a perennial stream with poor habitat development and moderate sinuosity. Hardpan is the predominant substrate. The stream has a wide riparian corridor associated with its left bank and a moderately wide riparian buffer along its right bank. There is no riparian corridor associated with the segment under the bridge. The adjacent floodplain is dominated by forest land where the Alternatives cross this stream. It should be noted that Beanblossom Creek is identified on the Draft 2012 303(d) List of Impaired Waters due to PCB contamination. The QHEI score of 48 is

reflective of a warm water habitat.

Unnamed Tributary to Bryant Creek (S5-s253e)
Even though the watershed for S5-s253e is less than 1.0 mi^2; the QHEI methodology was utilized to assess this intermittent stream's habitat community due to its greater than 40 cm (15.7 in) depth. This stream exhibited fair to good habitat development and high sinuosity where the Alternatives cross this stream. The predominant substrate consists of gravel and sand. The stream has a wide riparian corridor associated with its left bank and a narrow riparian buffer along its right bank. The adjacent floodplain is dominated by forest land on the left and transportation (SR 37) on the right. The QHEI score of 55.5 is reflective of a warm water habitat.

Bryant Creek (S5-s288a)
This stream is a perennial stream with excellent habitat development and high sinuosity where the Alternatives cross this stream. The predominant substrate is gravel. The stream has a wide riparian corridor associated with its right bank and a narrow riparian buffer along its left bank. The adjacent floodplain is dominated by forest land on the right and transportation (East Bryant Creek Road) on the left. The QHEI score of 66.5 is reflective of a warm water habitat.

Bryant Creek (S5-s288b and S5-s288c)
Segment S288b is the bridged portion carrying existing SR 37 bridge over Bryant creek, while S288c is the segment downstream of the existing bridge. This stream is a perennial stream with fair habitat development and moderate sinuosity where the Alternatives cross this stream. The predominant substrate is gravel. The stream has a narrow riparian corridor associated with both its banks, with the exception of the bridged segment which has no riparian corridor. The adjacent floodplain is dominated by forest land. The QHEI score of 64 is reflective of a warm water habitat.

Little Indian Creek (S5-s345c)
This stream is a perennial stream with fair habitat development and low sinuosity where the Alternatives cross the stream. The predominant substrate is sand. The stream has a wide riparian corridor along both of its banks. The adjacent floodplain is dominated by an old field. The QHEI score of 60 is reflective of a warm water habitat.

Little Indian Creek (S5-s345d and S5-s345e)
Segment S345d is the bridged portion carrying existing SR 37 bridge over Bryant creek, while S345e is the segment downstream of the existing bridge. These stream segments have recovered from previous channelization due to agricultural practices. This stream is a perennial stream with poor habitat development and low sinuosity where the Alternatives cross this stream. The predominant substrate is sand and hardpan. The stream has a very narrow riparian corridor along both of its banks. There is no riparian corridor associated with the segment under the bridge. Farmers along the adjacent floodplain have employed conservation tillage. The QHEI score of 52.5 is reflective of a warm water habitat.

Little Indian Creek (S5-s345f, S5-s345g, and S5-s345h)
Segment S345f begins at the downstream end of the conservation tillage area to the existing bridge over Godsey Road, S345g is the portion of stream being bridged, and S345h is downstream of the existing bridge. These stream segments have recovered from previous channelization due to agricultural

practices. This stream is a perennial stream with poor habitat development and low sinuosity where the Alternatives cross this stream. The predominant substrate is sand and hardpan. The stream has a moderately wide riparian corridor along both of its banks. There is no riparian corridor associated with the segment under the bridge. The adjacent floodplain is dominated by forest land on the left and old field the right. The QHEI score of 46.75 is reflective of a warm water habitat.

Jordan Creek (S5-s350a)
This stream is a perennial stream with extremely poor habitat development and no sinuosity where the Alternatives cross this stream. This stream is recovering from previous channelization due to agricultural practices. The substrate consists of sand. The stream has a no riparian corridor due to row crops planted up to the tops of banks. The QHEI score of 30 is indicative of a limited water resource.

Jordan Creek (S5-s350b, S5-s350c, and S5-s350d)
Segment S350b is upstream of the existing SR 37 bridge, S350c is the portion of stream being bridged, and S350d is downstream of the existing bridge. This stream is recovering from previous channelization due to agricultural practices. This stream is a perennial stream with poor habitat development and no sinuosity where the Alternatives cross this stream. The predominant substrate consists of silt. The stream has a very narrow riparian corridor associated with both banks. There is no riparian corridor associated with the segment under the bridge. The adjacent floodplain consists of row crops. The QHEI score of 24 is indicative of a limited water resource.

Buckner Branch (S5-s351a and S5-s351c)
Segment S351a is upstream of the existing SR 37 bridge and S351c is downstream of the bridge. These stream segments have exhibited no recovery from past channelization due to agricultural practices. This stream is an intermittent stream with poor habitat development and no sinuosity where the Alternatives cross this stream. The predominant substrate consists of gravel and sand. There is no riparian buffer associated with these segments of Buckner Branch. The adjacent floodplain consists of row crops. The QHEI score of 31 is indicative of a limited water resource.

The numbers of stream crossings impacted by the Alternatives were generally similar; 438 stream segments for Alternative 4, 433 stream segments for Alternative 5, 374 stream segments for Alternative 6, 377 stream segments for Alternative 7, and 379 stream segments for Preferred Alternative 8. The linear feet of impact totals associated with the Alternatives are not notably different; 104,960 for Alternative 4, 101,588 for Alternative 5, 83,797 for Alternative 6, 81,954 for Alternative 7, and 85,017 for Preferred Alternative 8. Stream acreage impact totals associated with the Alternatives are also similar; 13.38 for Alternative 4, 13.40 for Alternative 5, 11.30 for Alternative 6, 11.04 for Alternative 7, and 11.51 for Preferred Alternative 8. The area of impacts to streams was calculated by multiplying the width of the OHWM by the length of the impacts for each alternative, then dividing by 43,560 to convert square feet into acres. The number of impacted segments, linear feet of impact and acres of impact for ephemeral, intermittent, and perennial streams are shown in **Table 1**. In addition, **Table 1** differentiates those impacts within the existing rights-of-way for SR 37 and other existing transportation facilities from those which occur elsewhere.

Table 1 – Number of Impact Locations, Linear Feet (lf) of Stream Impact and Acres of Stream Impact by USGS Stream Type and Alternative

USGS Stream Type	Impact	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Preferred Alternative 8
Ephemeral	Number	380	375	317	321	324
	Linear Feet	86,907	83,178	67,979	66,427	69,079
	Acres	7.33	6.99	5.54	5.46	5.68
Intermittent	Number	35	37	34	35	34
	Linear Feet	14,024	13,856	11,955	11,676	12,107
	Acres	2.57	2.50	2.28	2.20	2.28
Perennial	Number	23	21	23	21	21
	Linear Feet	4,029	4,554	3,863	3,851	3,831
	Acres	3.48	3.91	3.48	3.38	3.55
TOTAL	**Number**	**438**	**433**	**374**	**377**	**379**
	Linear Feet	**104,960**	**101,588**	**83,797**	**81,954**	**85,017**
	Acres	**13.38**	**13.40**	**11.30**	**11.04**	**11.51**
Impacts within SR 37 ROW	Number	305	305	308	308	308
	Linear Feet	66,434	66,476	67,434	67,436	67,437
	Acres	8.57	8.59	8.64	8.64	8.64
Percent of New Impacts	Number	30%	30%	18%	18%	19%
	Linear feet	37%	35%	20%	18%	21%
	Acres	36%	36%	24%	22%	25%

1.4.2 QHEI and HHEI Score Trends

QHEI and HHEI scores for the streams crossed by the Section 5 Alternatives were very similar. The average QHEI scores for the Alternatives were; 45.08 for Alternative 4, 43.28 for Alternative 5, 44.29 for Alternative 6, 44.08 for Alternative 7 , and 43.98 for Preferred Alternative 8. Average HHEI scores were; 30.51 for Alternative 4, 30.42 for Alternative 5, 29.44 for Alternative 6, 29.46 for Alternative 7, and 29.52 for the Preferred Alternative 8.

In consideration of the QHEI and HHEI scores of stream segments affected by the Alternatives, a weighted comparison of stream impacts was made by summing the values of stream impact lengths multiplied by habitat evaluation score, and then comparing those sums as percentages against the Preferred Alternative 8. For comparison purposes, Preferred Alternative 8 was assigned the value of 100%. Weighted stream impact values for all other Alternatives fell within the range of 95% to 142% for HHEI evaluated streams and between 100% and 120% for QHEI evaluated streams, demonstrating that the Alternatives affect steams of generally similar quality for the larger perennial streams with a wider range for the project area's smaller headwater streams. Refer to **Table 2** for a summary of stream impacts, weighted by habitat evaluation score.

Table 2 – Summary of Stream Impacts, Weighted by Habitat Evaluation Score

Habitat Eval. / Score Ranges	Alternatives - Linear Feet of Impact				
	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Preferred Alternative 8
HHEI Streams					
0 - 40	58,814	55,418	46,641	45,643	47,427
41 - 60	13,361	12,755	9,289	7,941	9,609
61 - 100	9,200	9,288	5,214	5,914	5,326
Totals	81,375	77,461	61,144	59,498	62,362
QHEI Streams					
0 - 50	3,129	3,607	2,851	2,884	2,786
51 - 64	1,523	1,620	1,444	1,198	1,487
> 64	120	176	116	300	108
Totals	4,772	5,403	4,411	4,382	4,381
Impact Lengths Multiplied by Habitat Evaluation Score, Percent Comparison					
HHEI	2,588,218	2,481,796	1,780,051	1,729,204	1,826,203
	142%	136%	97%	95%	100%
QHEI	202,777	225,657	191,322	188,711	188,522
	108%	120%	101%	100%	100%

1.5 SUMMARY

The impacted stream segment totals associated with the Alternatives are not notably different. Alternative 4 would have the highest number of impacted segments with 438. Alternative 6 would have the fewest number of impacts with 374. This is an approximately a 15% difference. The preferred Alternative 8 would impact 379 resources.

Total stream impact lengths associated with the Alternatives are also similar. Alternative 7 would cause the least potential total linear stream impact at 81,954 linear feet, including previously disturbed segments. The Preferred Alternative 8 would cause 85,017 linear feet of impacts, including previously disturbed segments. The difference between the least amount of impacts (Alternative 7) and the Preferred Alternative 8 is only 3,063 linear feet.

Weighted stream impact values for the Alternatives fell within the range of 95% to 142% for HHEI evaluated streams and between 100% and 120% for QHEI evaluated streams, demonstrating that the Alternatives affect steams of generally similar quality for the larger perennial streams with a wider range for the project area's headwater streams.

A summary of stream impact data associated with the Section 5 Alternatives is presented in **Table 3**. **Table 4** presents the potential structure sizes and locations for the Preferred Alternative 8.

Table 3 – Stream Impact Data Summary

Impact	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Preferred Alternative 8
Stream Crossing Locations	438	433	374	377	379
Stream Impact (LF)	104,960	101,588	83,797	81,954	85,017
Acres of Stream Impact	13.38	13.40	11.30	11.04	11.51
Average HHEI Score	30.51	30.42	29.44	29.46	29.52
Weighted Impact Comparison	142%	136%	97%	95%	100%
Average QHEI Score	45.08	43.28	44.29	44.08	43.98
Weighted Impact Comparison	108%	120%	101%	100%	100%

Table 4 – Stream ID and Bridge Size and Location for the Preferred Alternative 8

Mainline Station at Road	County	Structure Type	Description/Location	Approx. Skew (deg.)	Bridge Length (Ft.)	No. Spans	Stream ID #
MAINLINE Structures							
1997+93	Monroe	Bridge	I-69 NB over Griffy Creek	15	233	3	S5-s065
1998+16	Monroe	Bridge	I-69 SB over Griffy Creek	15	233	3	S5-s065
2010+19	Monroe	Bridge	I-69 NB over Beanblossom Creek	50	292	3	S5-s081
2009+37	Monroe	Bridge	I-69 SB over Beanblossom Creek	50	292	3	S5-s081
2039+50	Monroe	Bridge	I-69 NB over Beanblossom Overflow	0	292	3	S5-s081
2039+50	Monroe	Bridge	I-69 SB over Beanblossom Overflow	0	292	3	S5-s081
2412+90	Monroe	Bridge	I-69 NB over Bryants Creek	45	142.4	3	S5-s288
2412+00	Monroe	Bridge	I-69 SB over Bryants Creek	45	142.5	3	S5-s288
2570+35	Morgan	Bridge	I-69 NB over Little Indian Creek	10	75	1	S5-s345
2570+54	Morgan	Bridge	I-69 SB over Little Indian Creek	10	75	1	S5-s345
2603+50	Morgan	Bridge	I-69 NB over Jordan Creek	0	48	1	S5-s350
2603+50	Morgan	Bridge	I-69 SB over Jordan Creek	0	48	1	S5-s350
ACCESS RD. Structures							
2011+03	Monroe	Bridge	East Access Rd over Beanblossom Creek/Ramp	5	292	3	S5-s081
2015+99	Monroe	Bridge	East Access Rd over Beanblossom Creek (Walnut SPUI)	0	183	3	S5-s081
2039+10	Monroe	Bridge	East Access Rd over Beanblossom Creek Overflow	15	167	3	S5-s081
2571+51	Morgan	Bridge	Lib Church West Access Road over Little Indian Creek	35	92	1	S5-s345
2575+84	Morgan	Bridge	Liberty Church Road over Little Indian Creek	8	116	3	S5-s345
2603+50	Morgan	Bridge	Lib Church West Access Road over Jordan Creek	0	48	1	S5-s350
2603+55	Morgan	Bridge	Lib Church East Access Road over Jordan Creek	15	48	1	S5-s350

REFERENCES

Indiana Department of Environmental Management, Office of Water Quality, Assessment Branch, Biological Studies Section. November 22, 2006. *Qualitative Habitat Evaluation Index (QHEI) Standard Operating Procedure*. Indianapolis, Indiana. S-001-OWQ-A-BS-06-S-R1.

Indiana Department of Environmental Management. Draft 2012 "303(d) List of Impaired Waters", On-line at http://www.in.gov/idem/NPS/2639.htm.

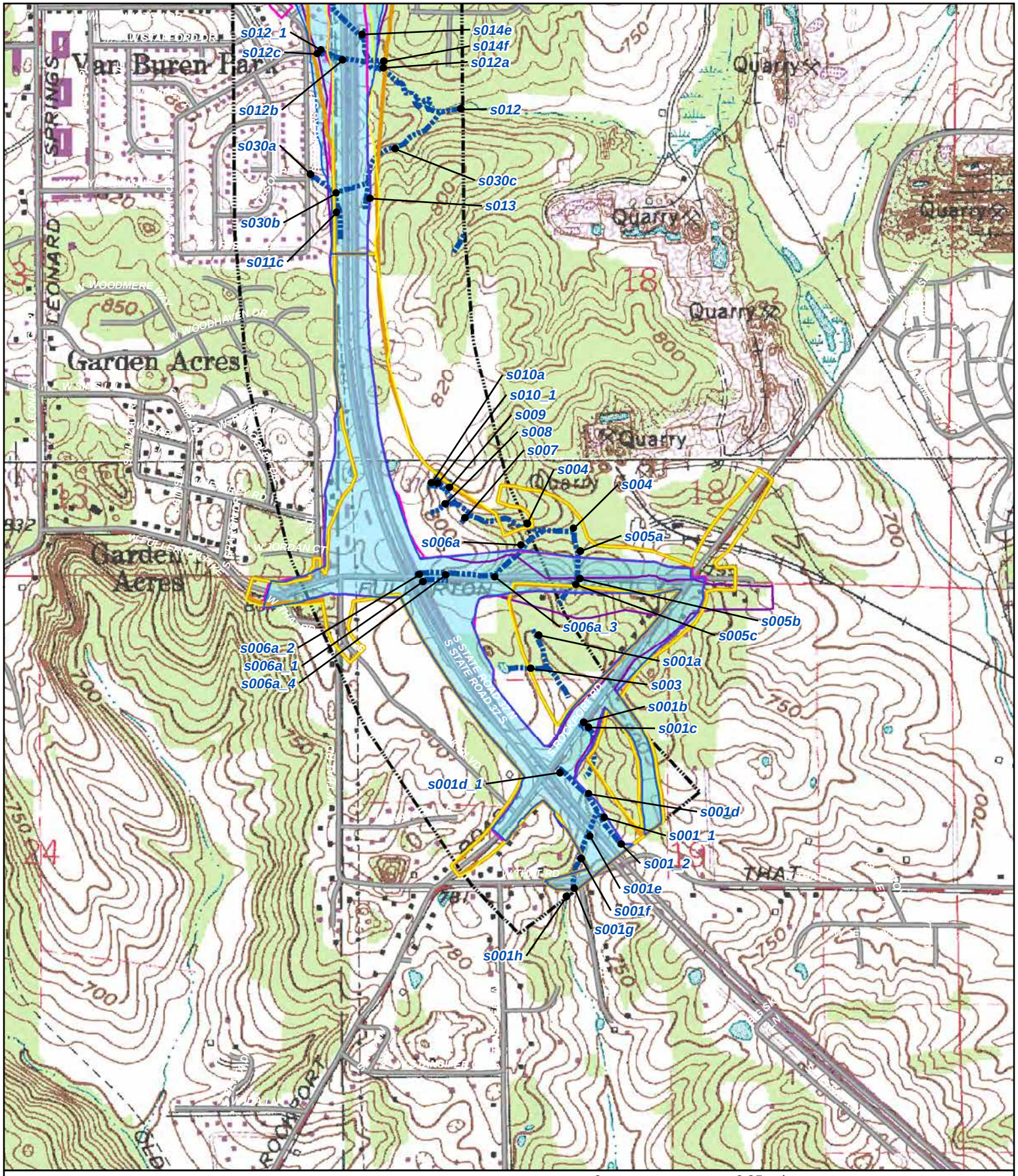
Indiana General Assembly Webpage: http://www.in.gov/legislative/ic/code/

Ohio Environmental Protection Agency. October 2009. *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams*. Columbus, Ohio.

Rankin, Edward T. November 1989. *The Qualitative Habitat Evaluation Index (QHEI): Rationale, Methods and Application*. Ohio Environmental Protection Agency, Division of Water Quality Planning and Assessment. Columbus, Ohio.

I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES
Stream Assessment Report, Section 5

FIGURES



Legend

- Alternative 4
- Alternative 5
- Alternative 6
- Alternative 7
- Preferred Alternative 8
- Section 5 Corridor

FIGURE 1
I-69 Evansville to Indianapolis
Tier 2 Studies - Section 5
Streams in Relation to the Alternatives on USGS Mapping
(Sheet 1 of 14)

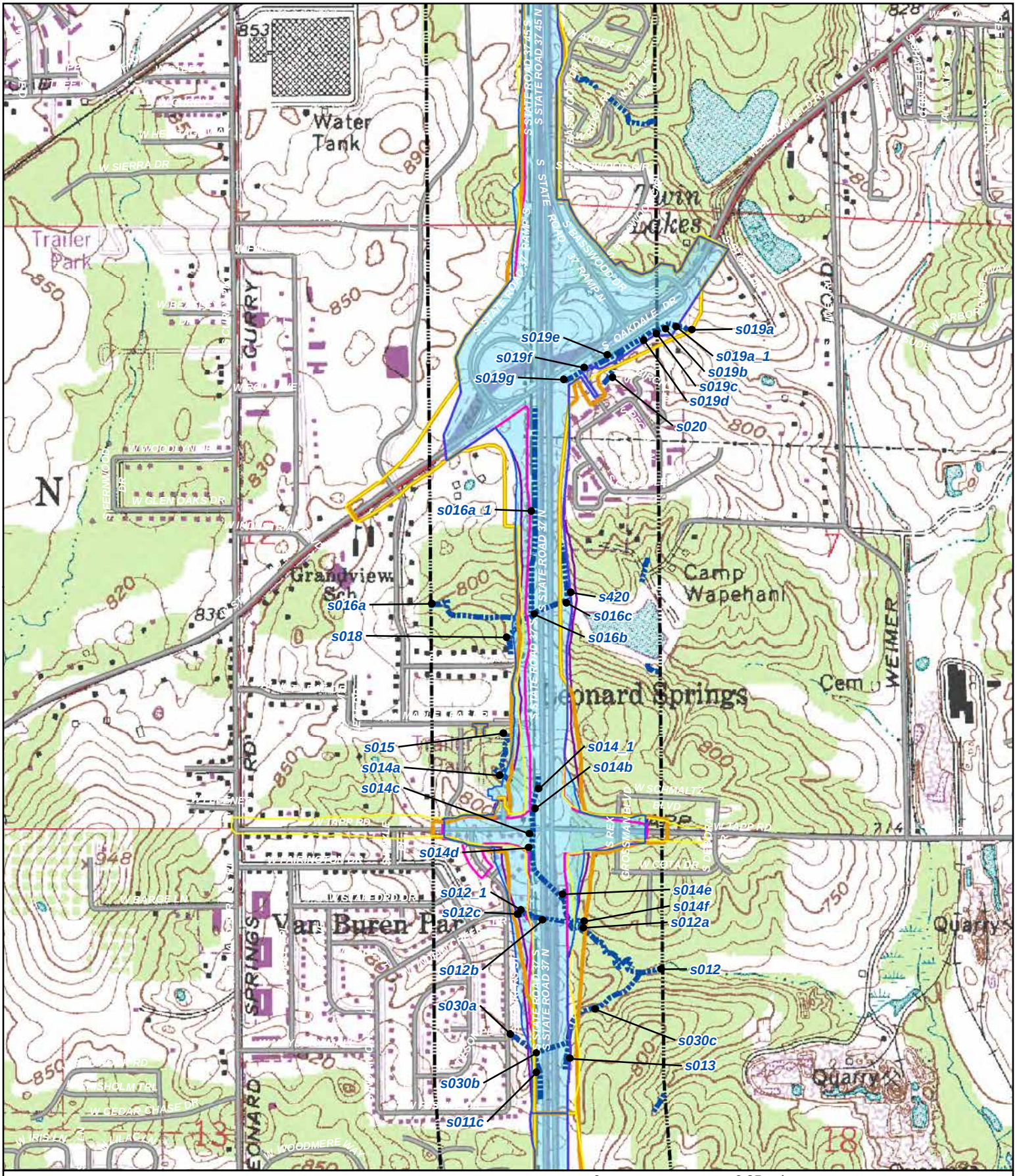


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FIGURE 1
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Tier 2 Studies - Section 5
Streams in Relation to the Alternatives on USGS Mapping
(Sheet 2 of 14)

Legend

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FIGURE 1
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Tier 2 Studies - Section 5
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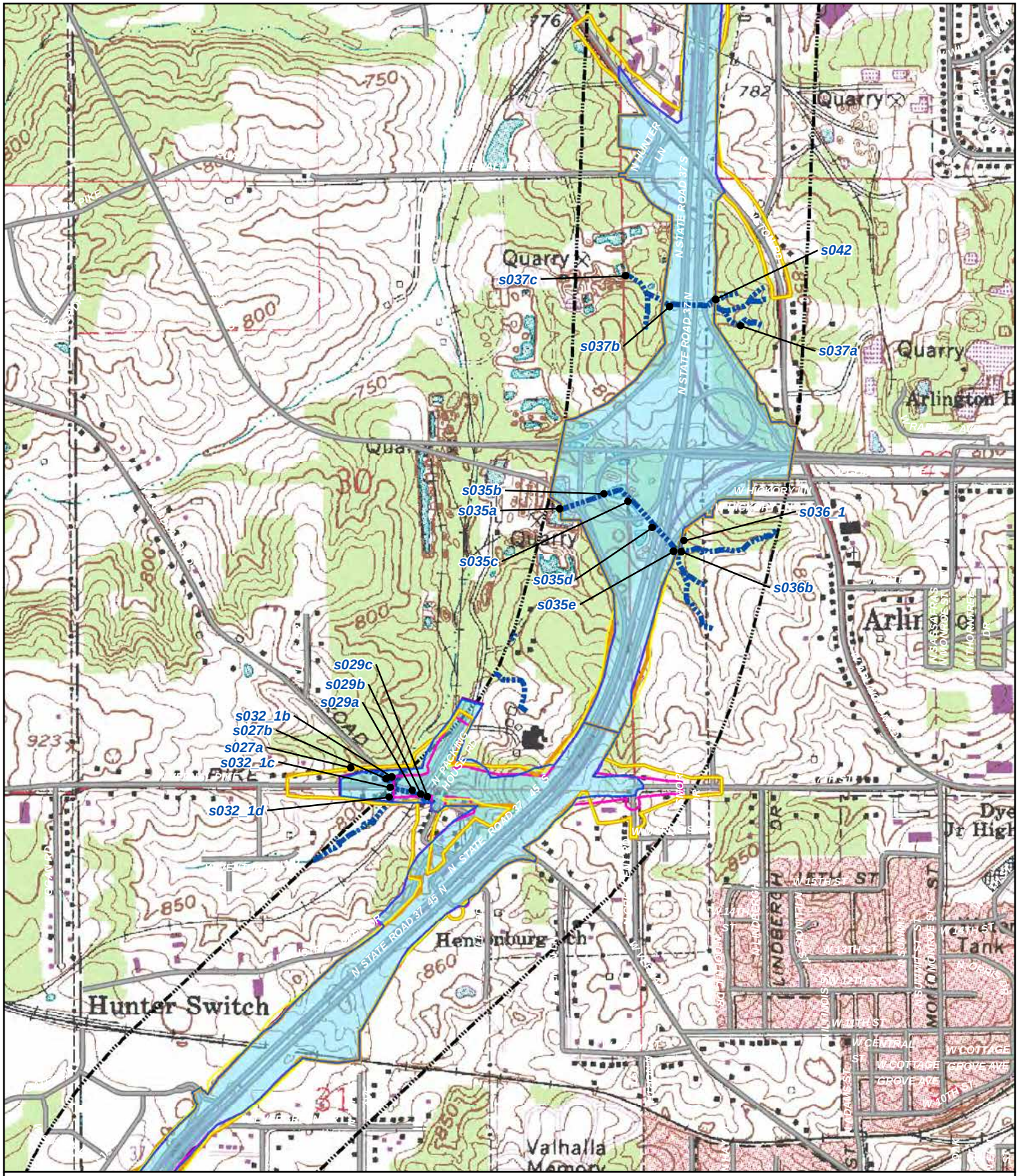

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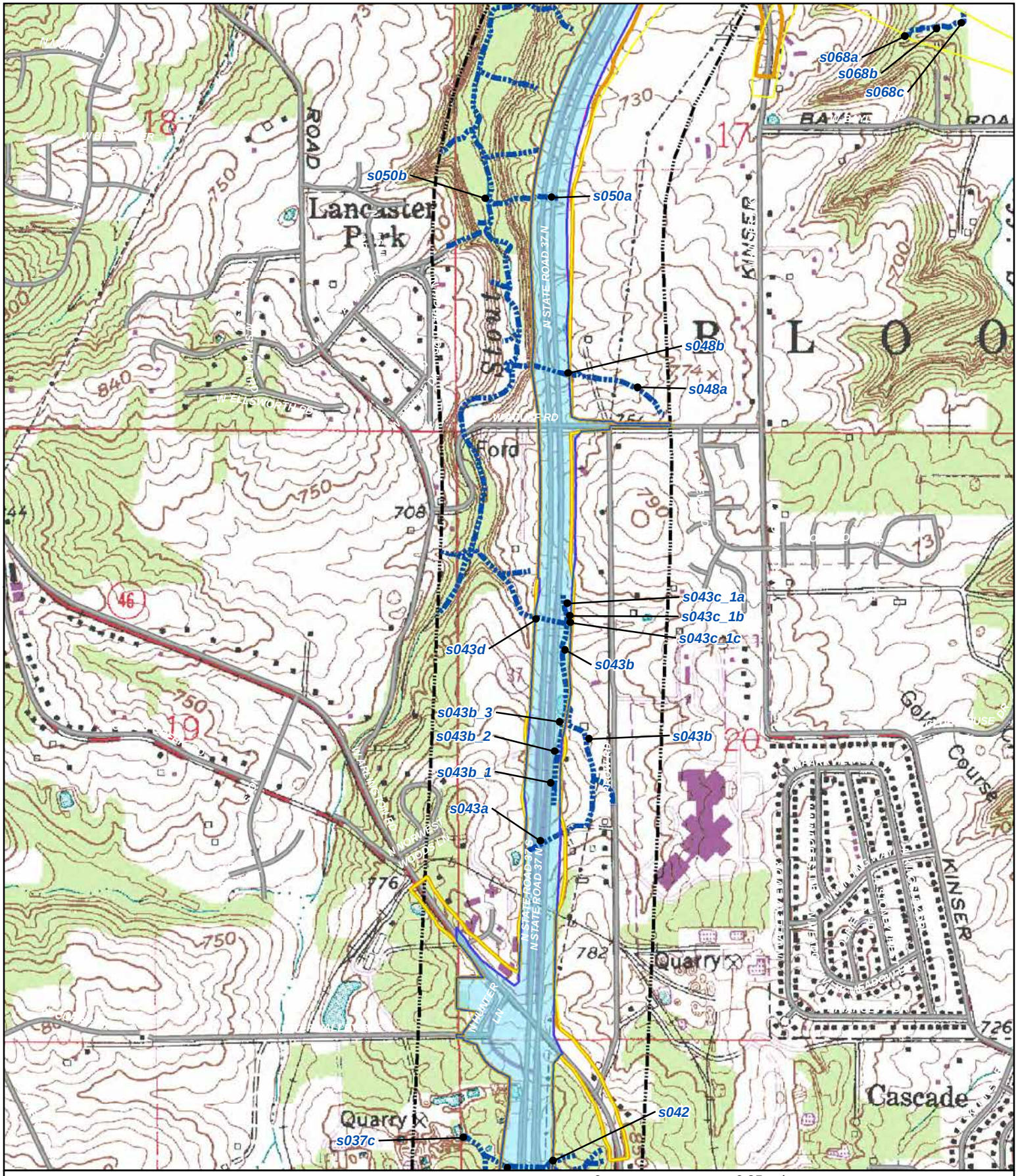

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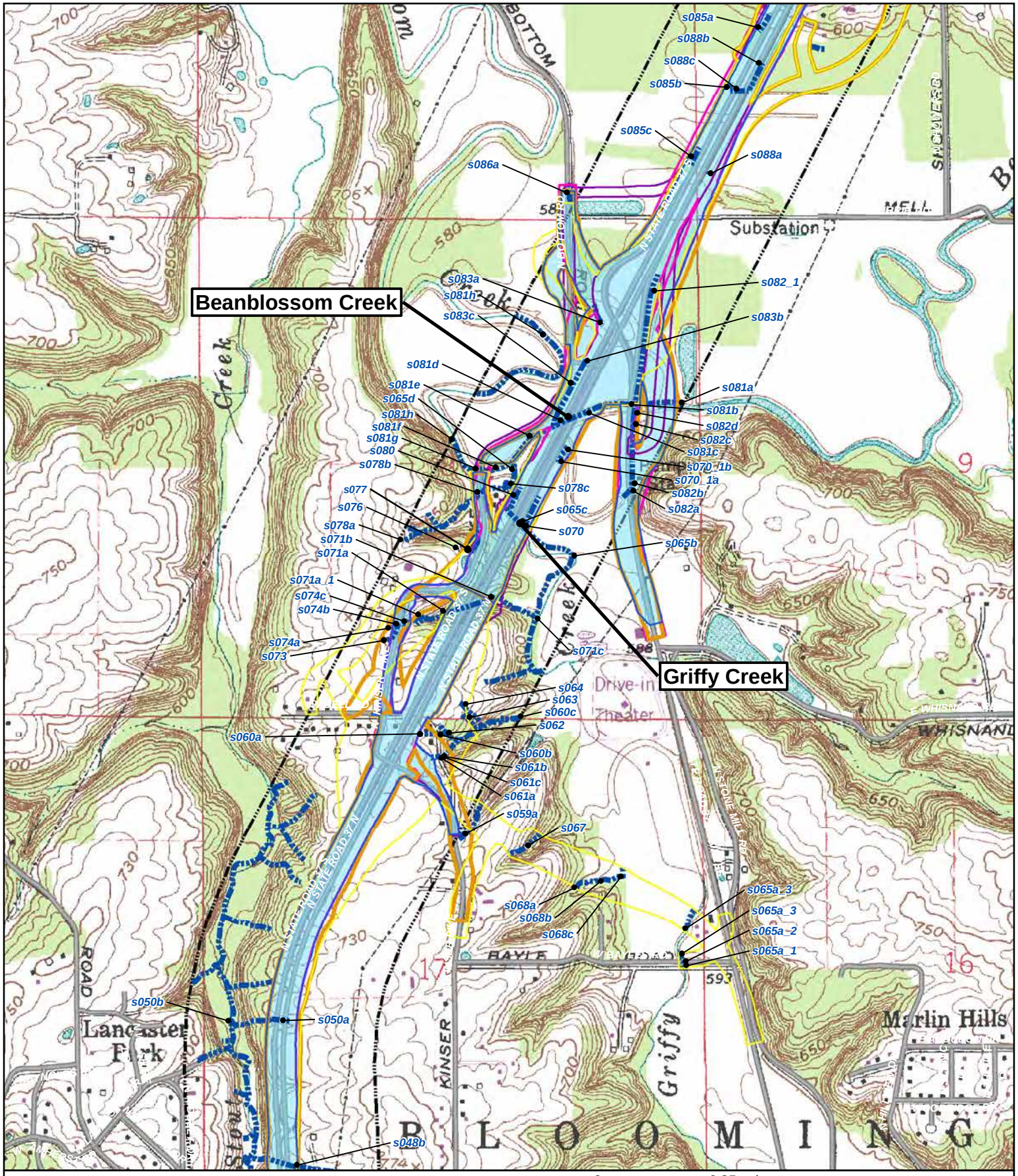

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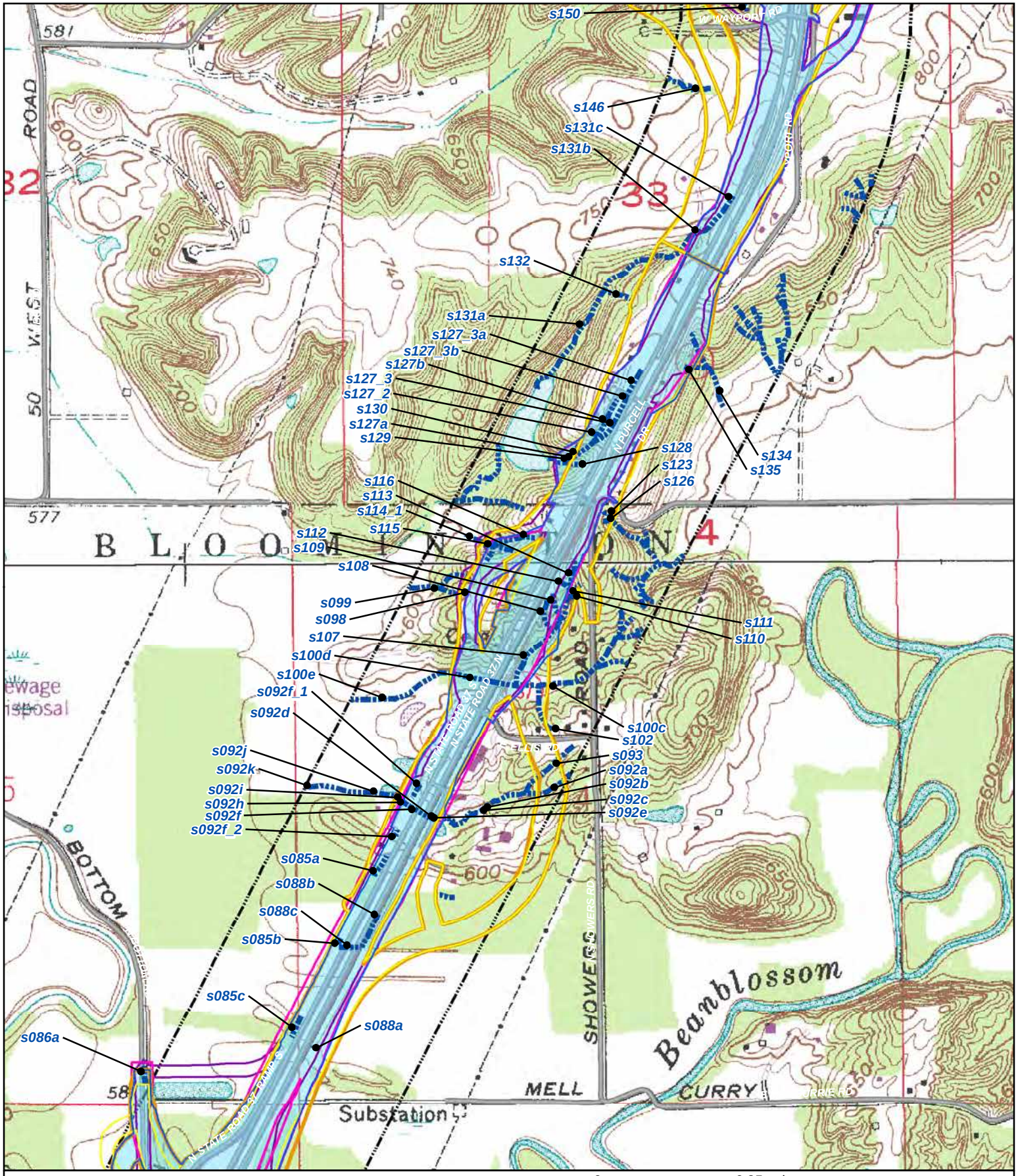

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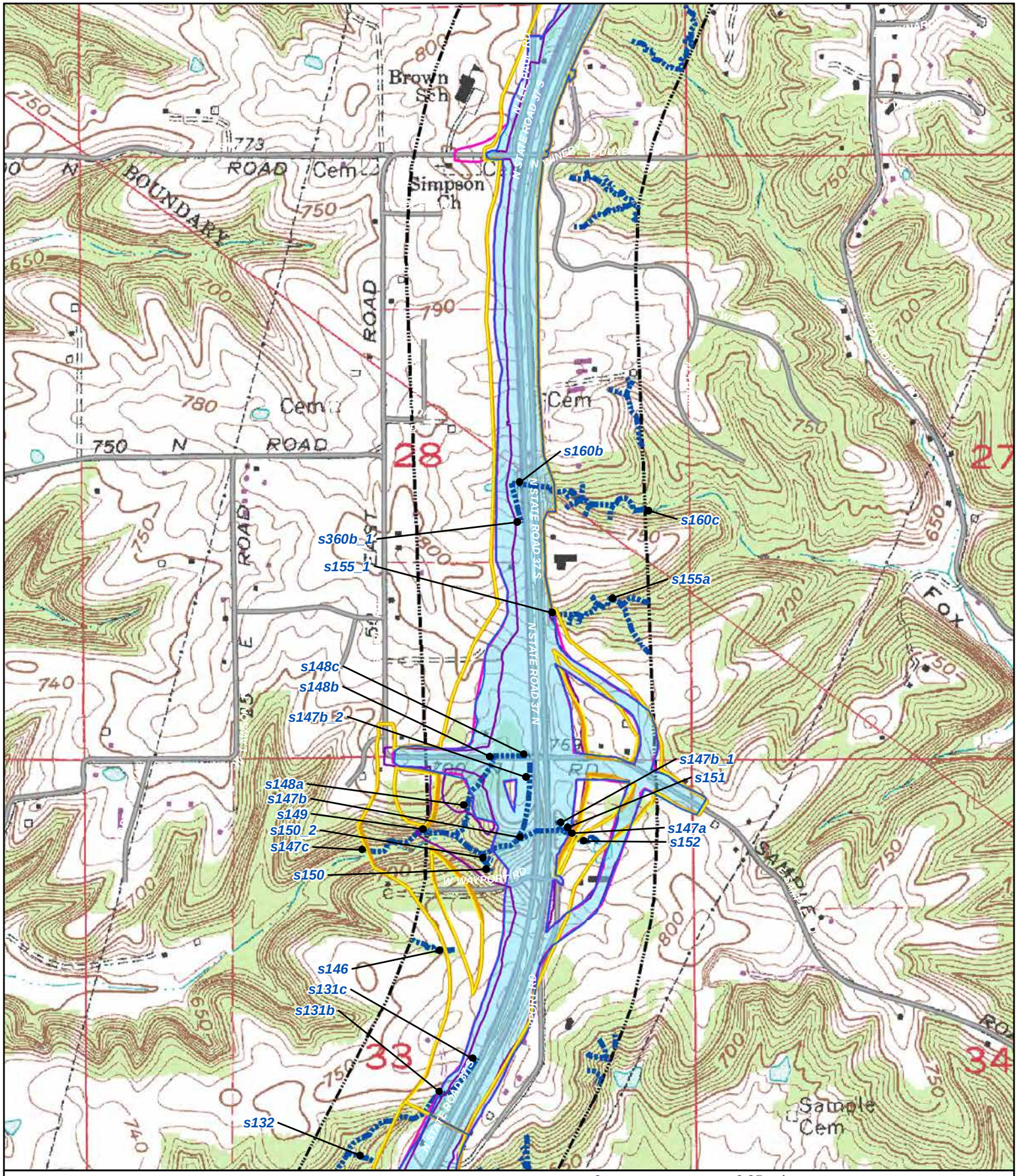

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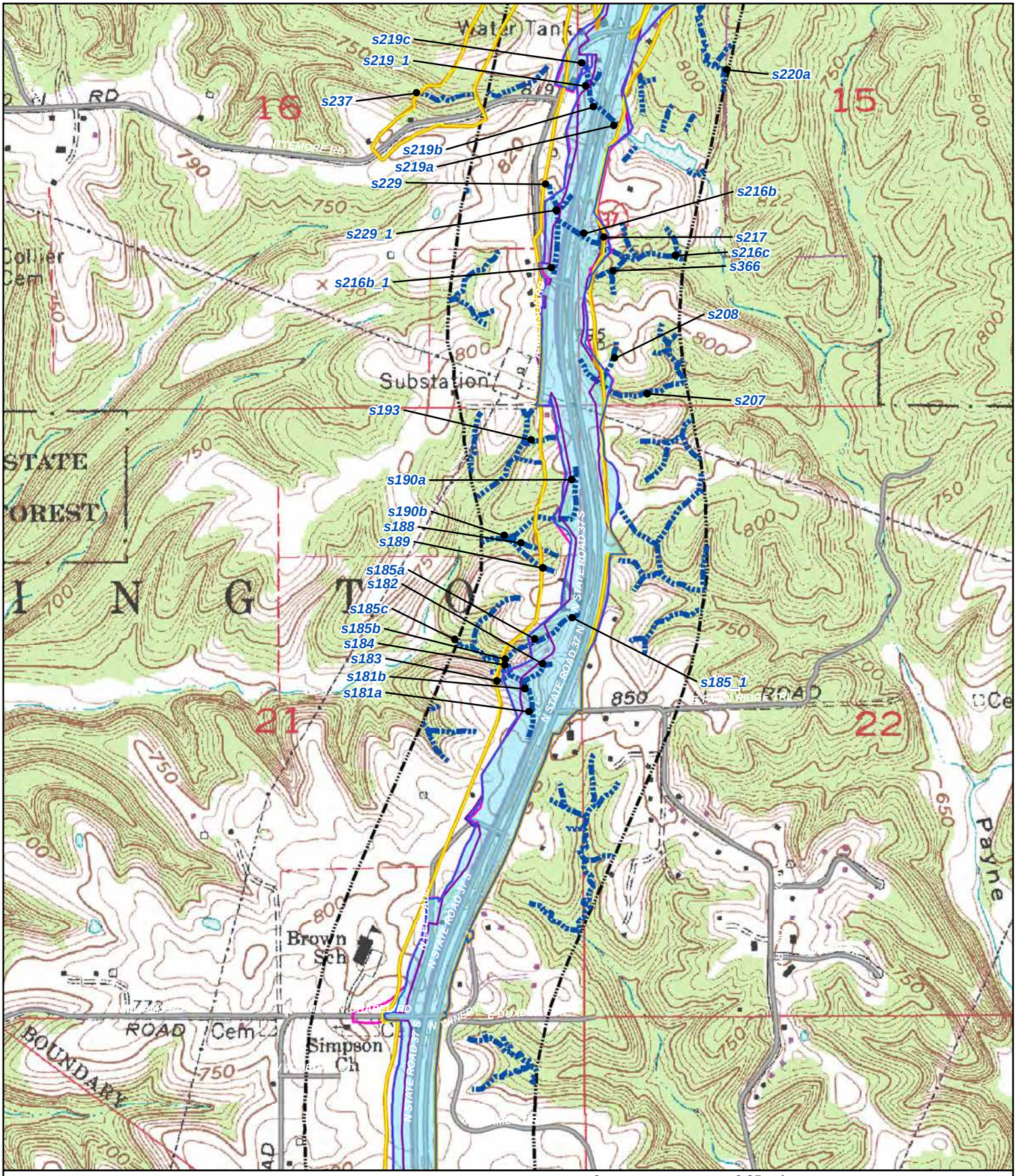

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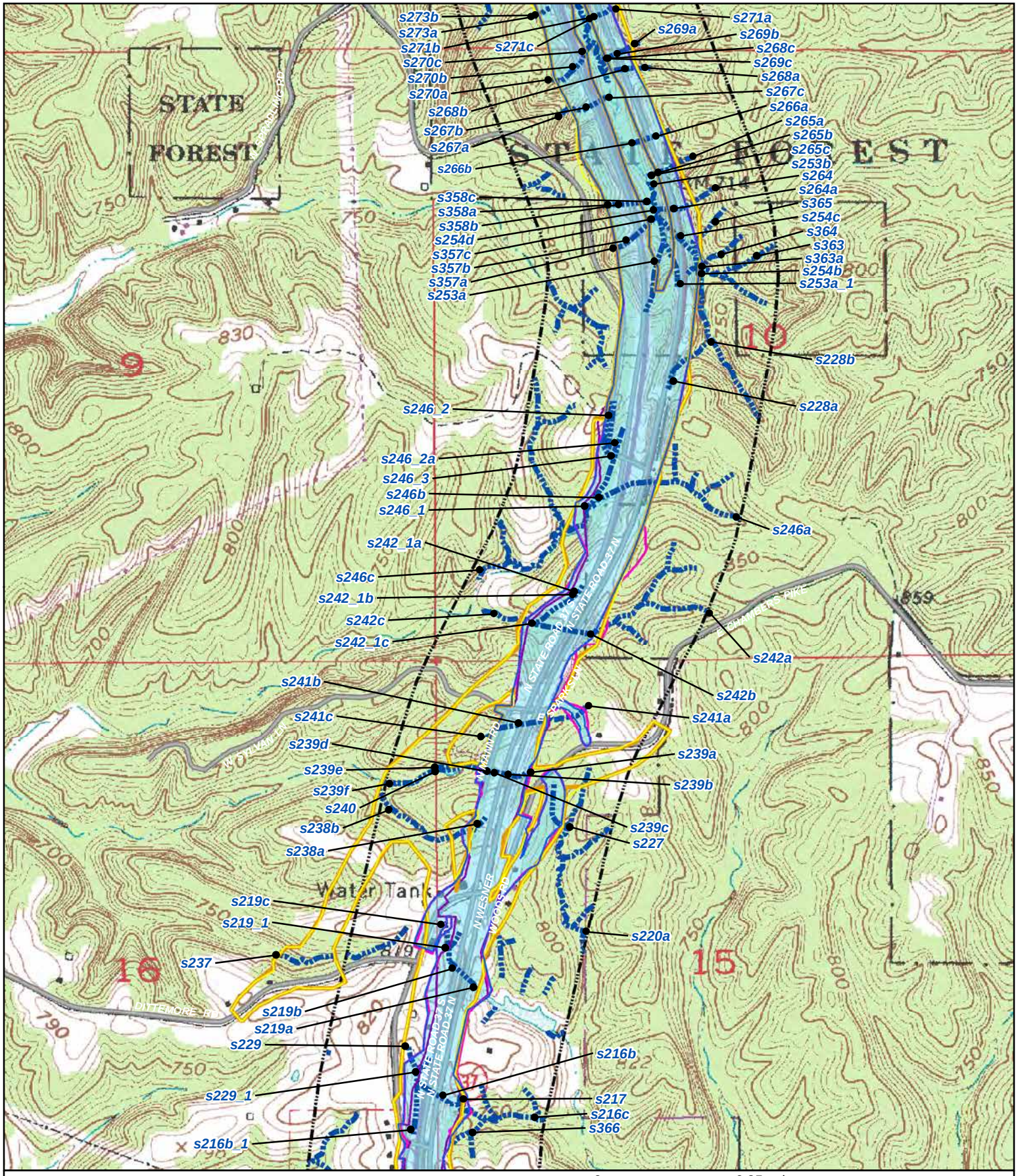
(Sheet 9 of 14)



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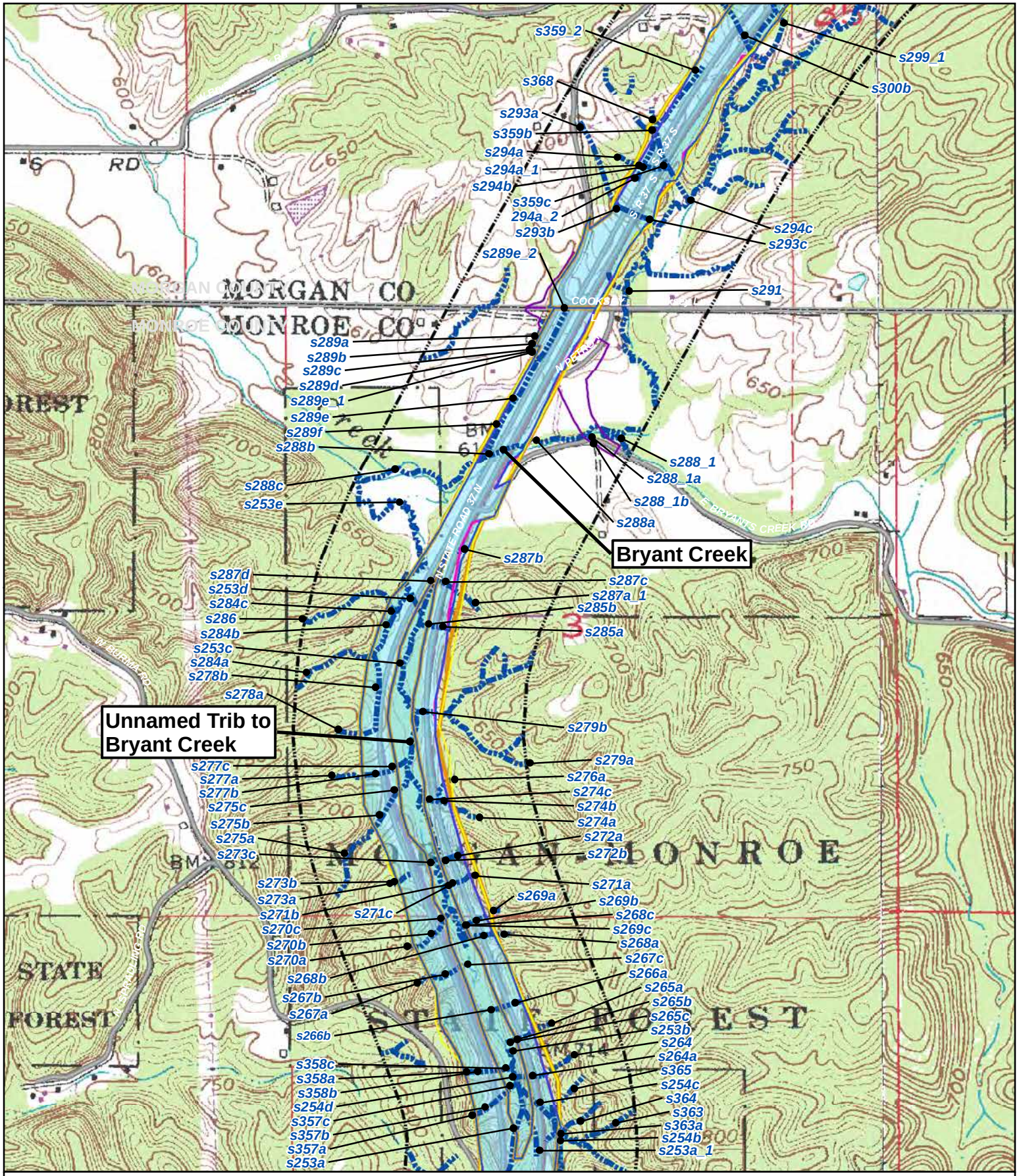

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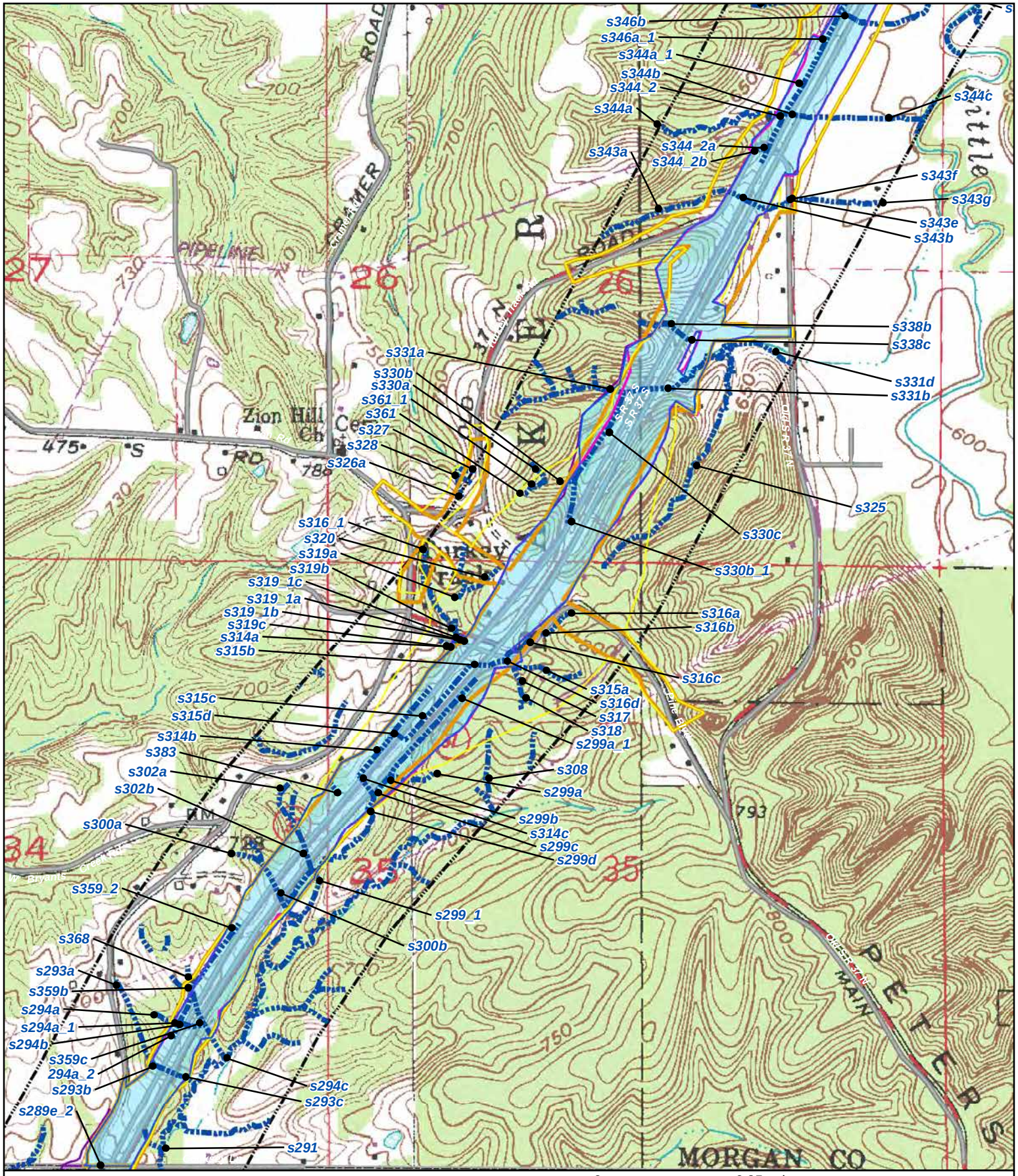

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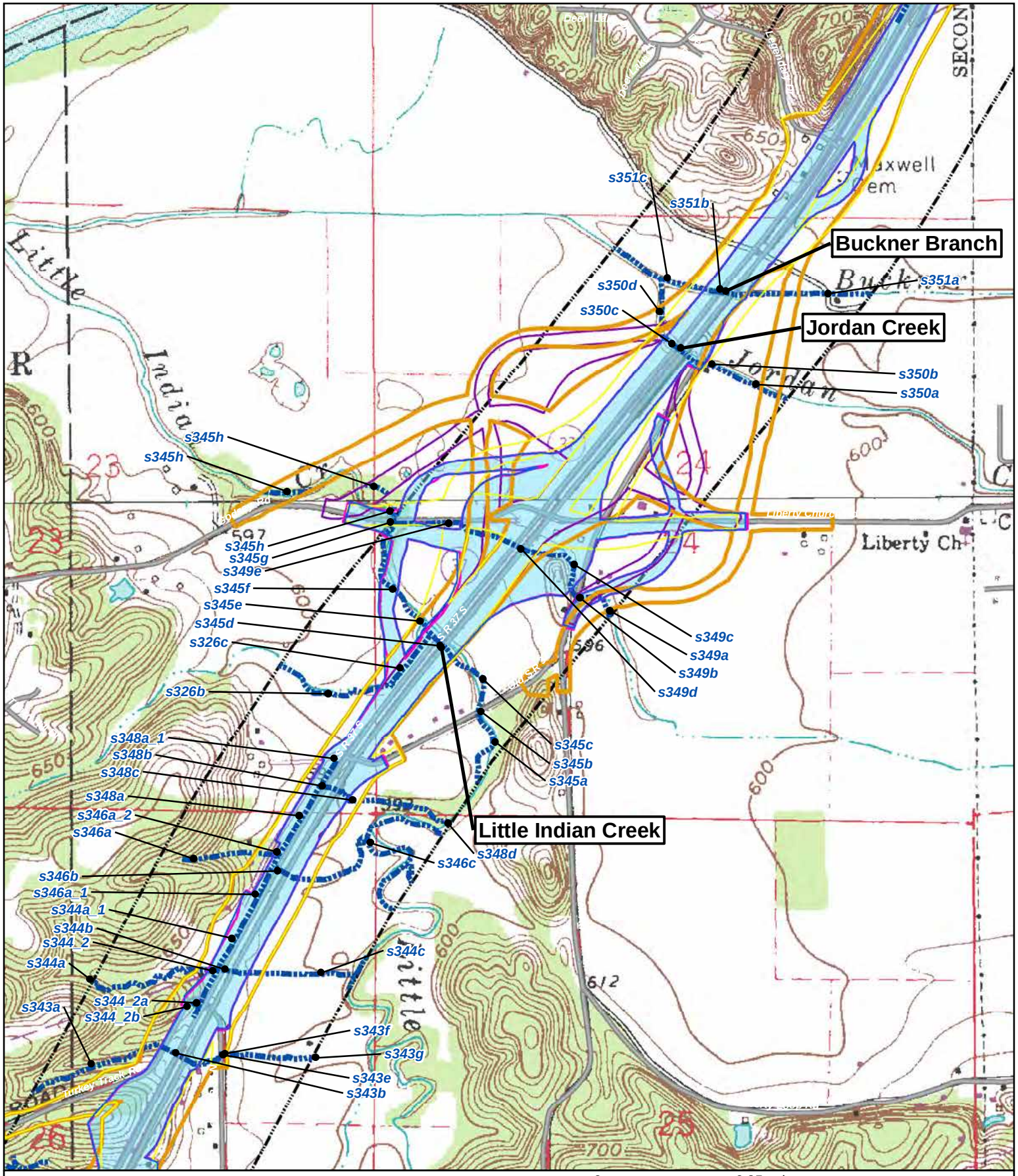

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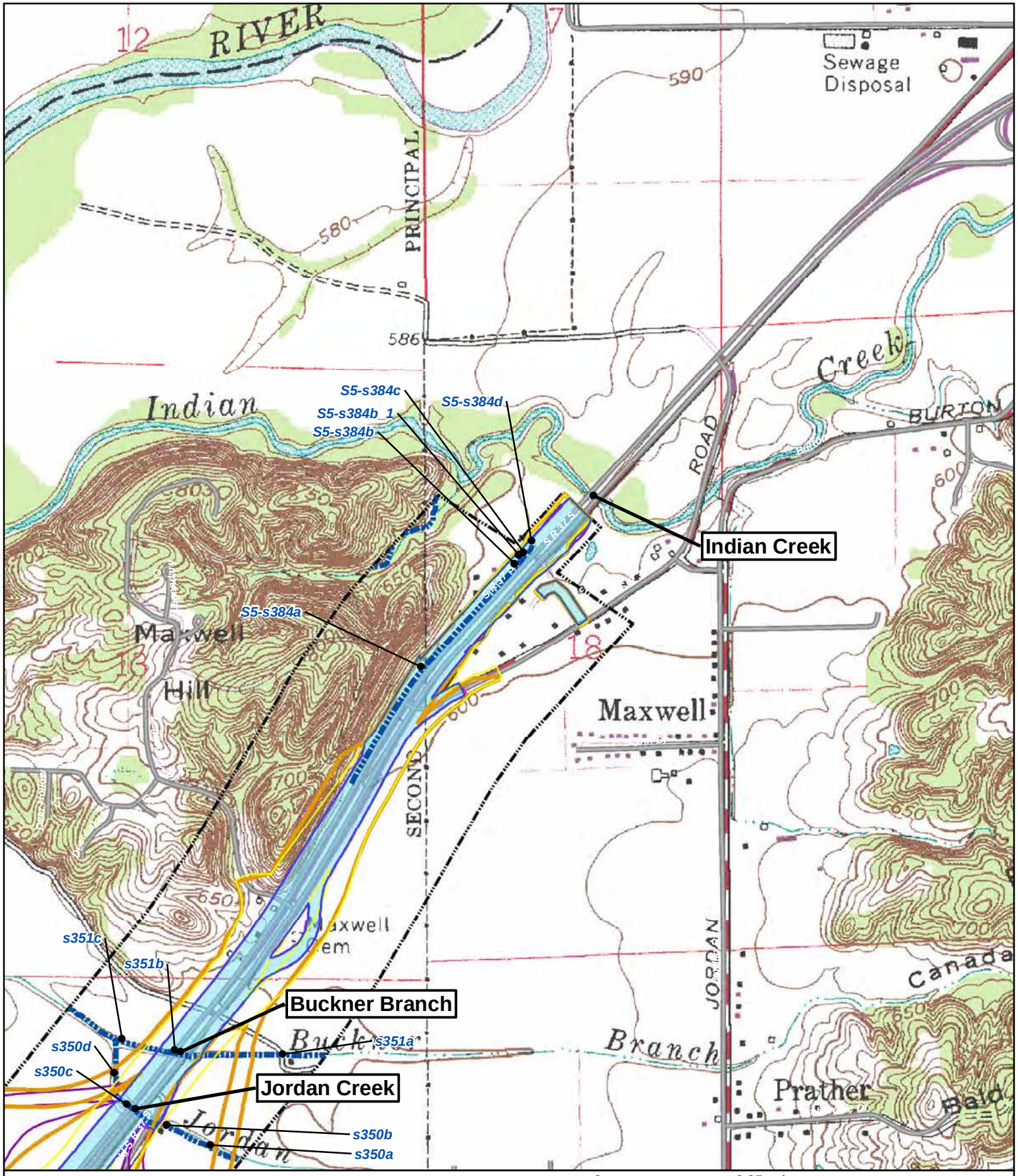

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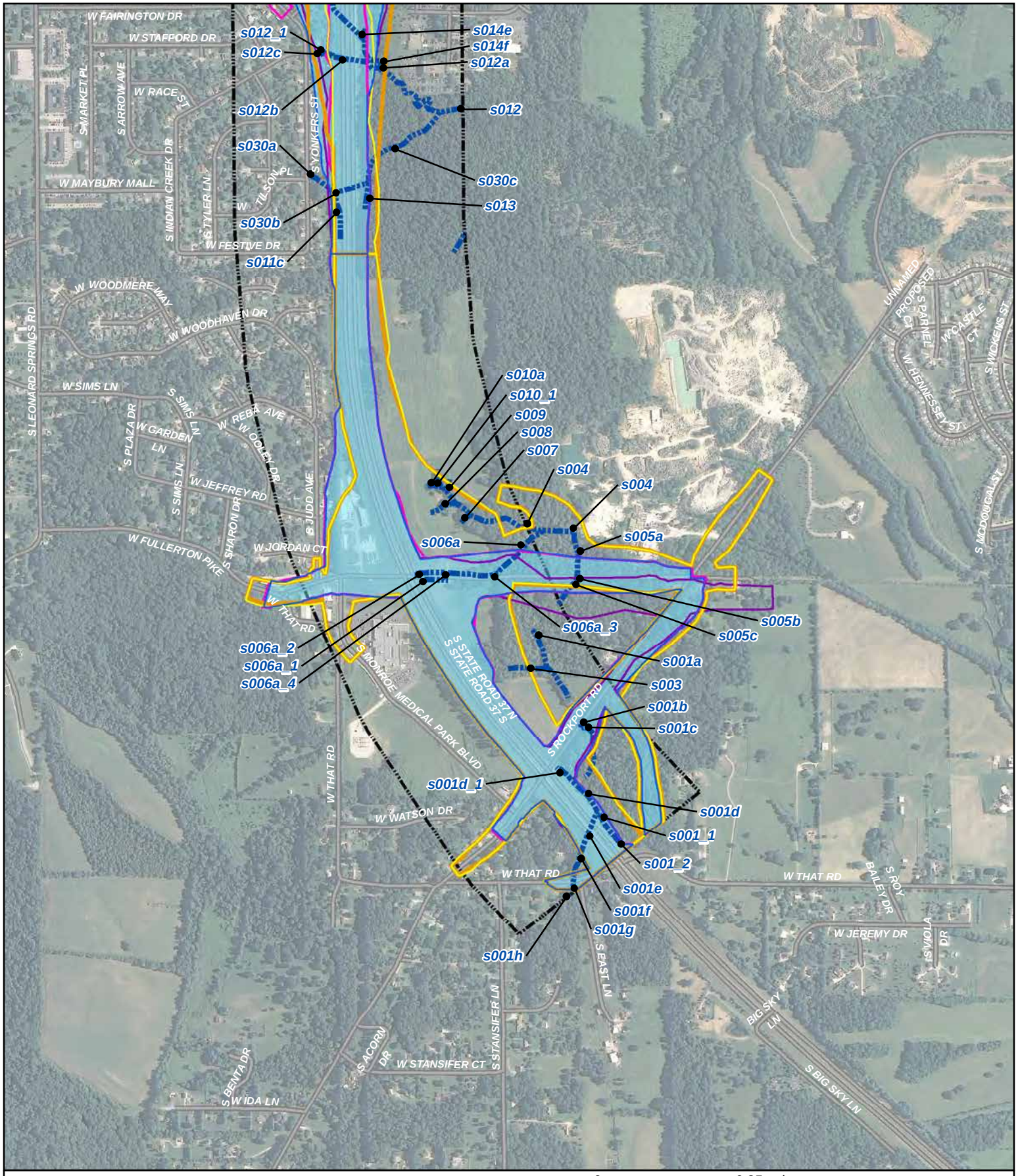

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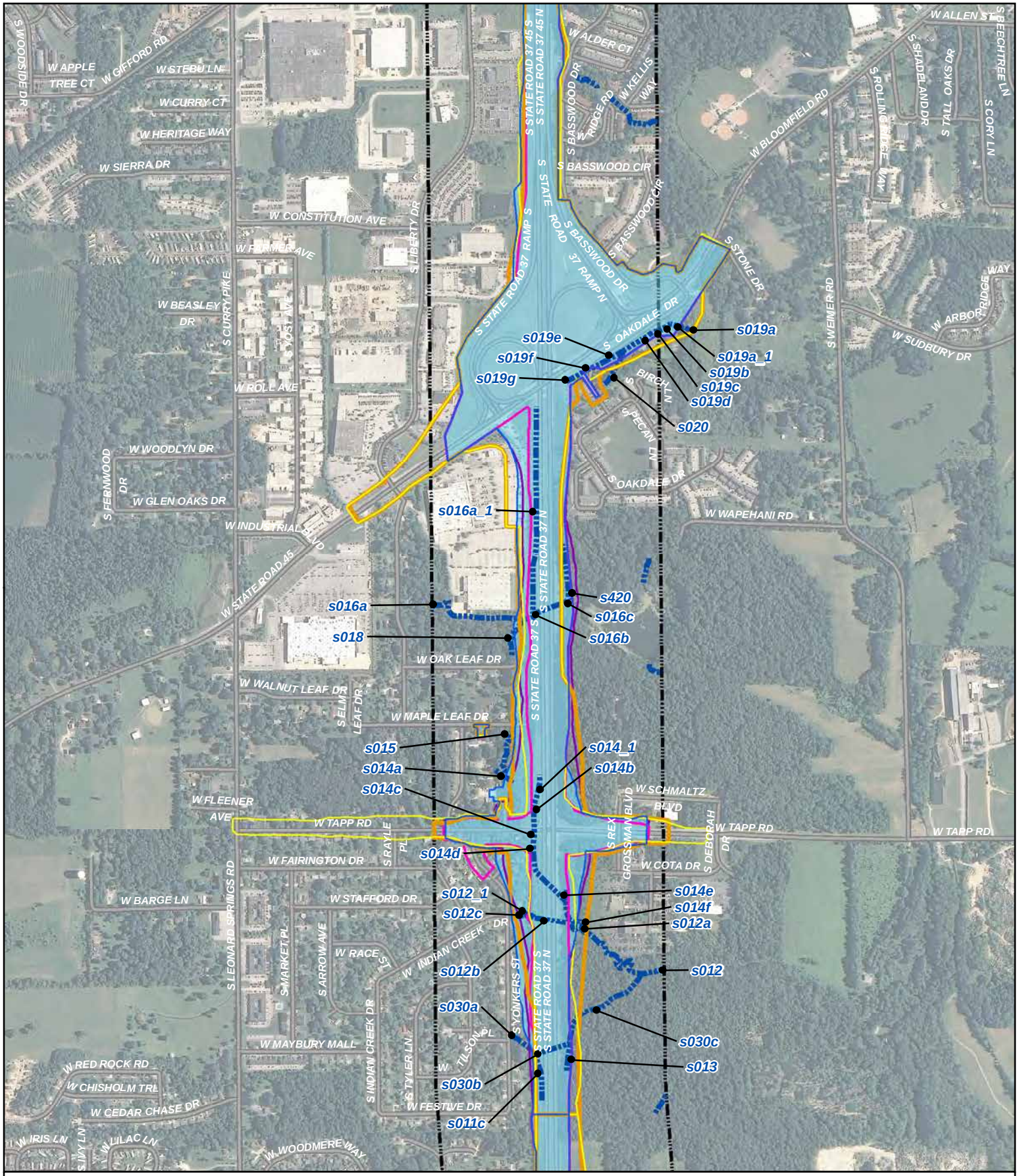

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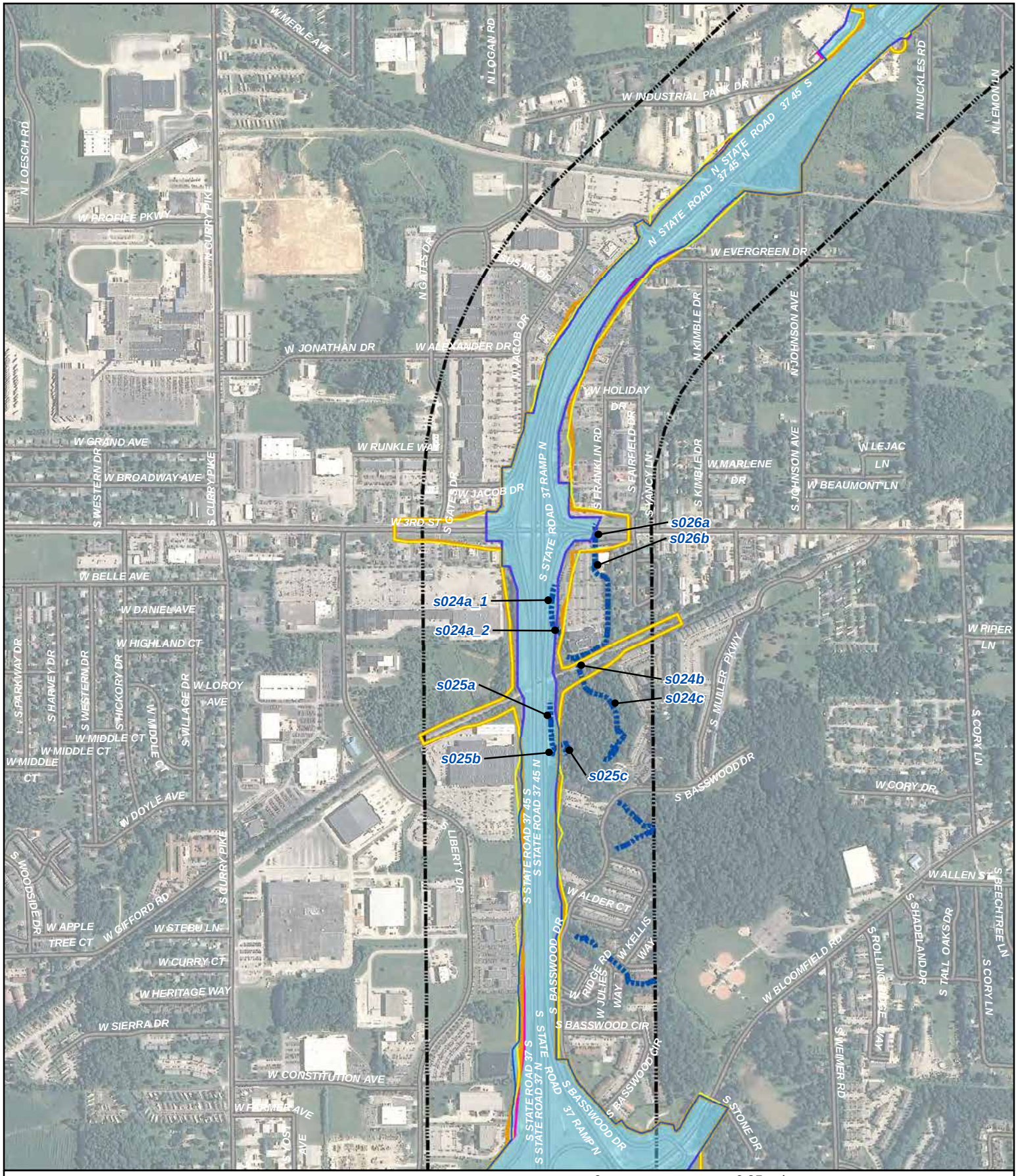

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FIGURE 2
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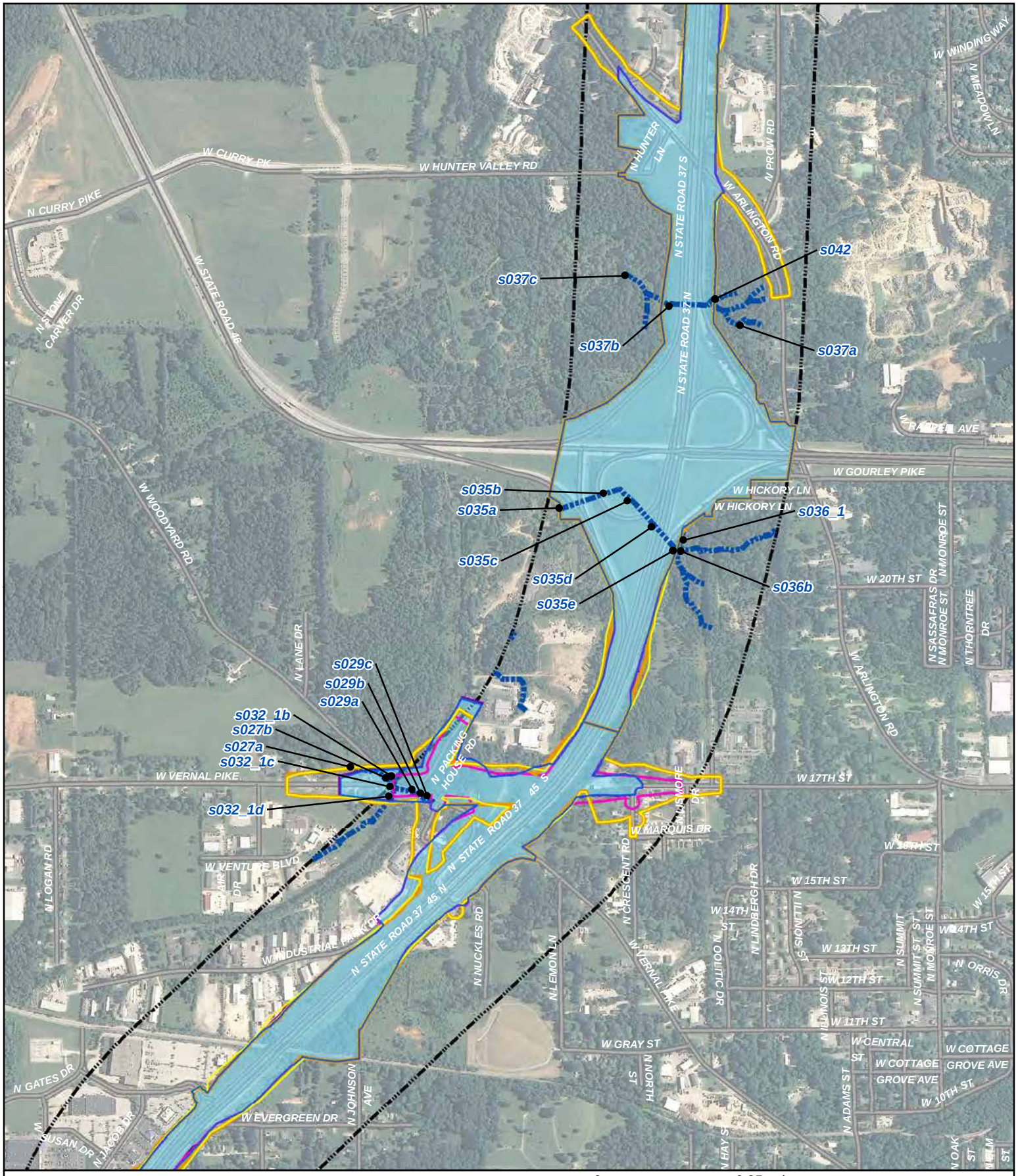
Streams in Relation to the Alternatives on 2010 Aerial Mapping
(Sheet 3 of 14)



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Tier 2 Studies - Section 5
Streams in Relation to the Alternatives on 2010 Aerial Mapping
(Sheet 4 of 14)

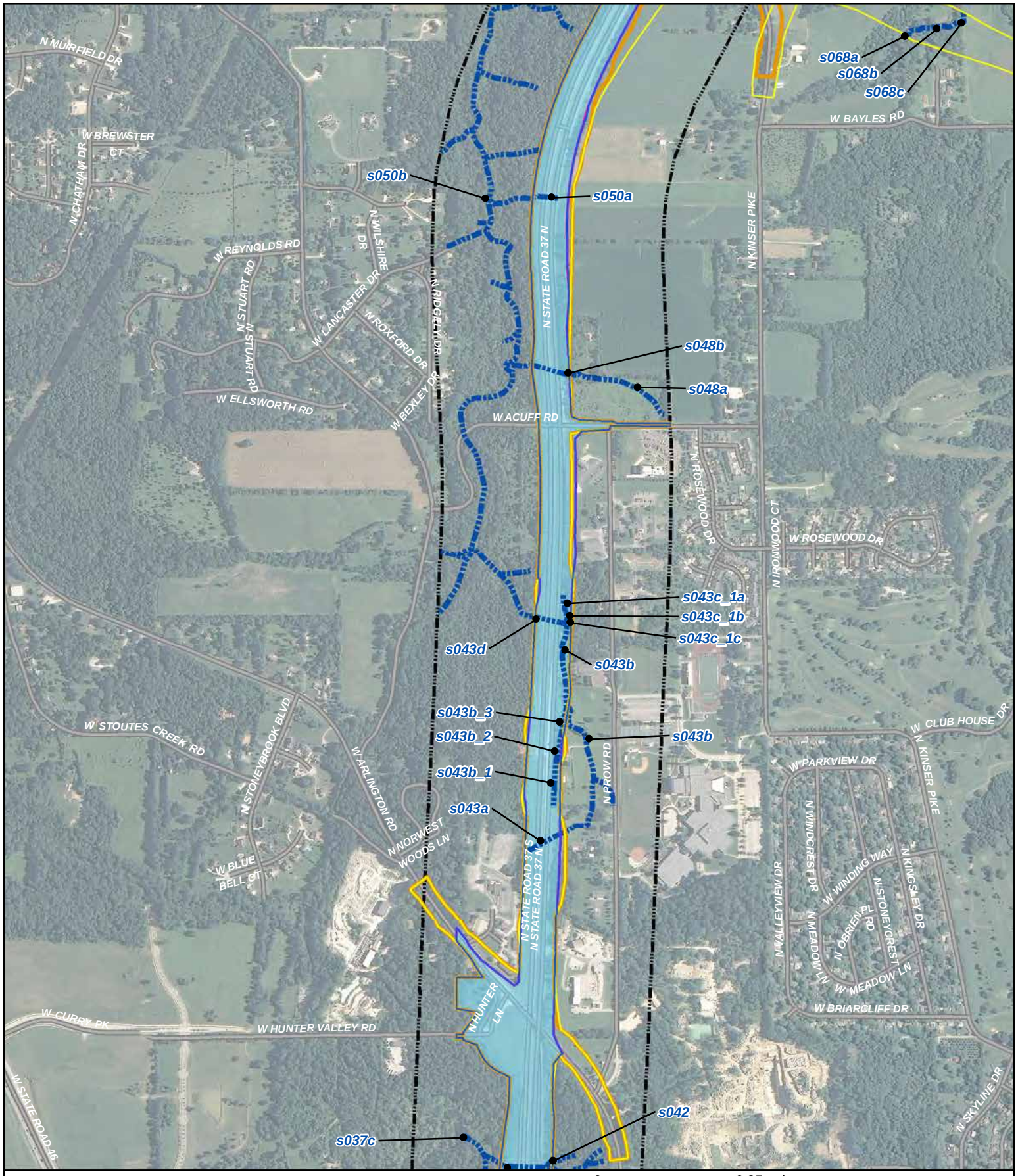

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FIGURE 2
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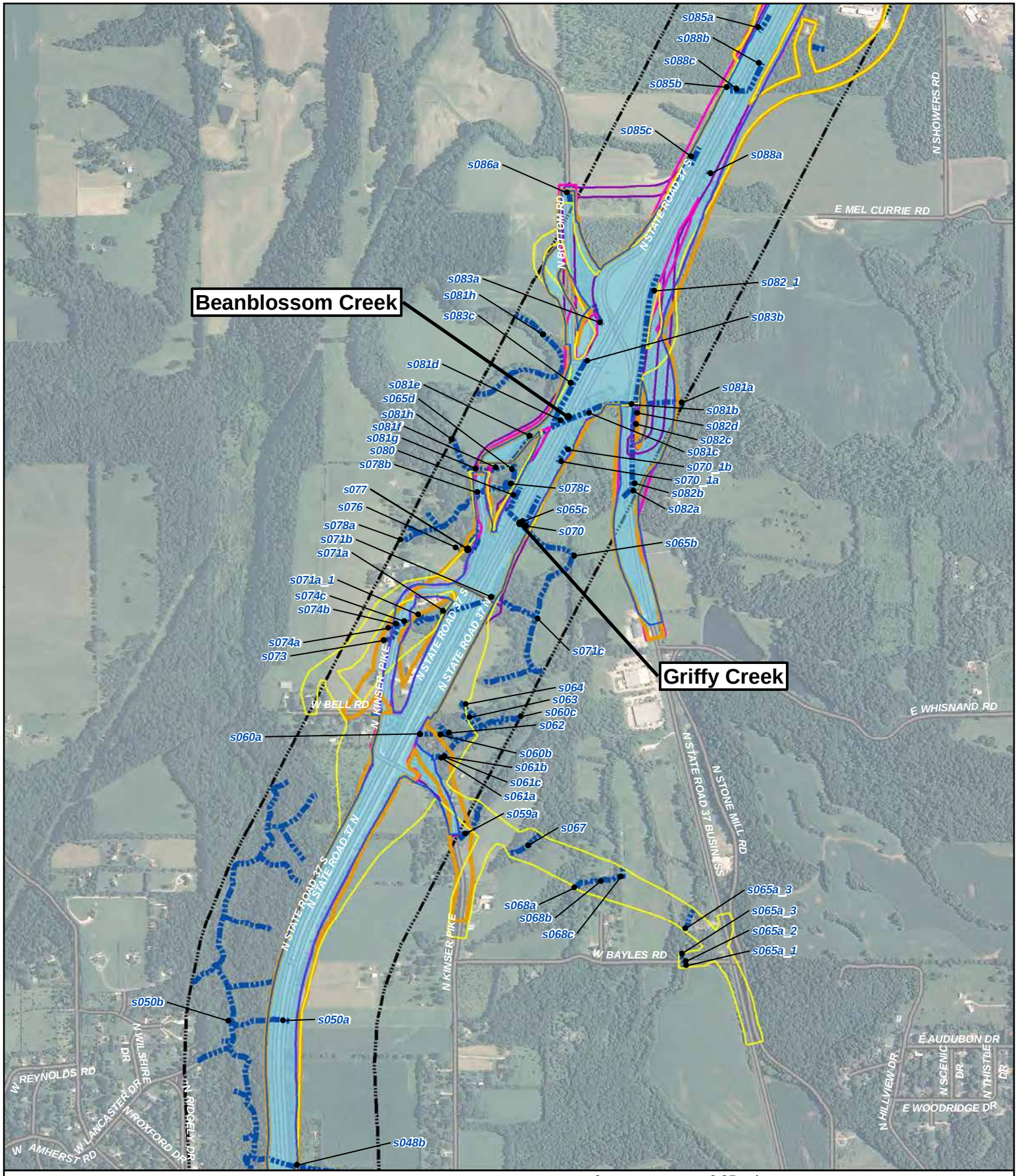
Tier 2 Studies - Section 5
Streams in Relation to the Alternatives on 2010 Aerial Mapping
(Sheet 5 of 14)



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(Sheet 6 of 14)

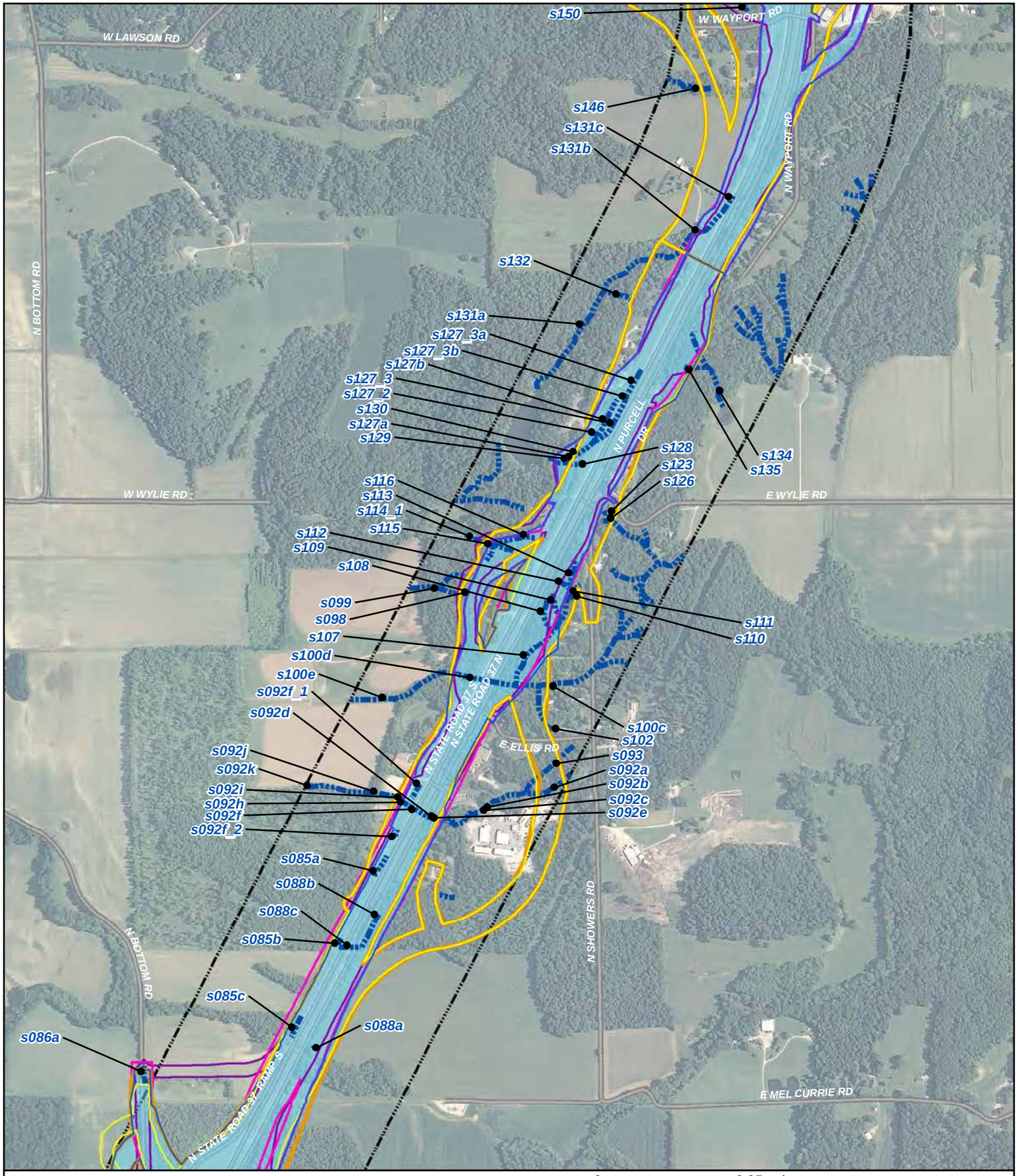

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FIGURE 2
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Streams in Relation to the Alternatives on 2010 Aerial Mapping
(Sheet 7 of 14)

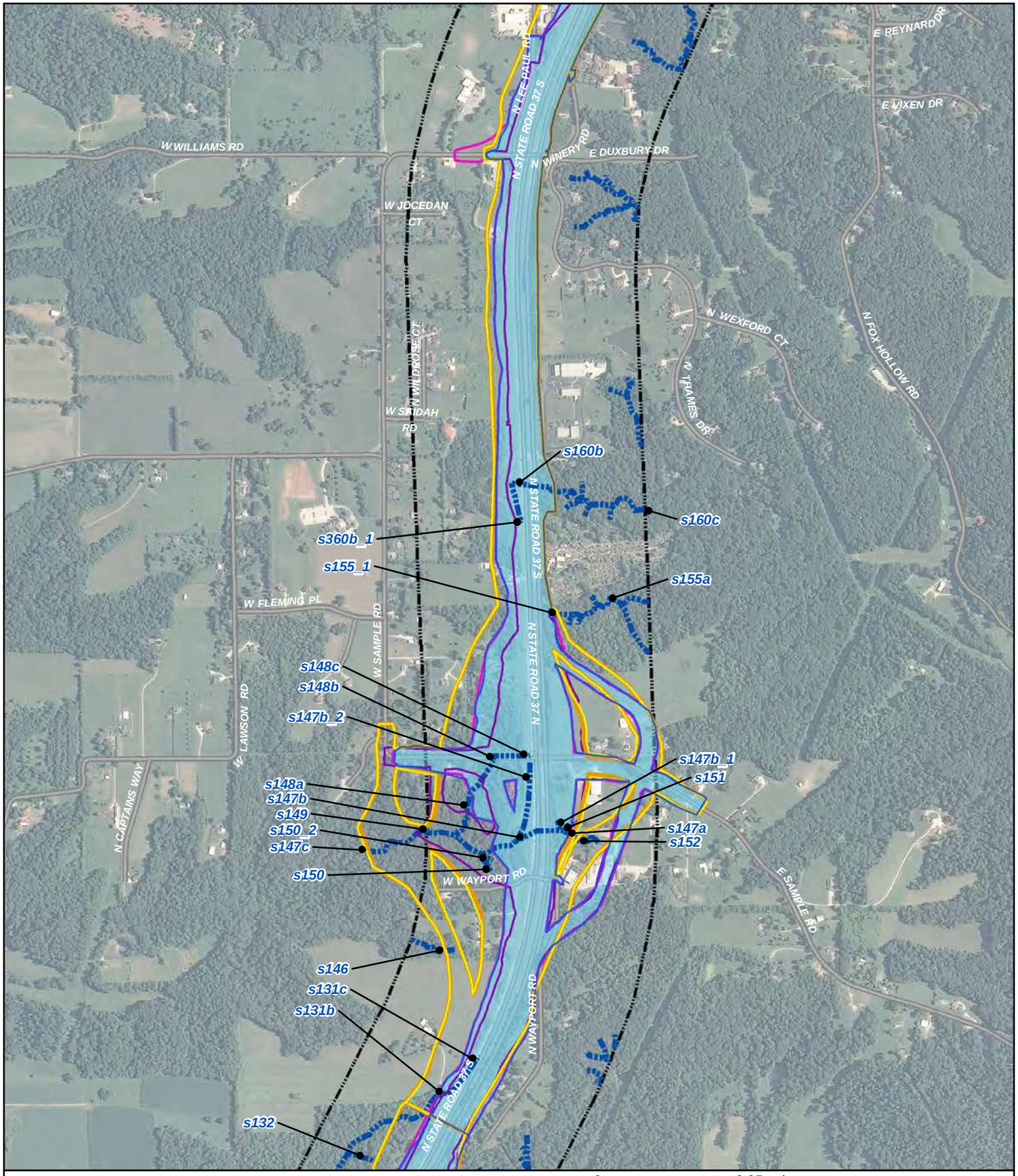

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FIGURE 2
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Tier 2 Studies - Section 5
Streams in Relation to the Alternatives on 2010 Aerial Mapping
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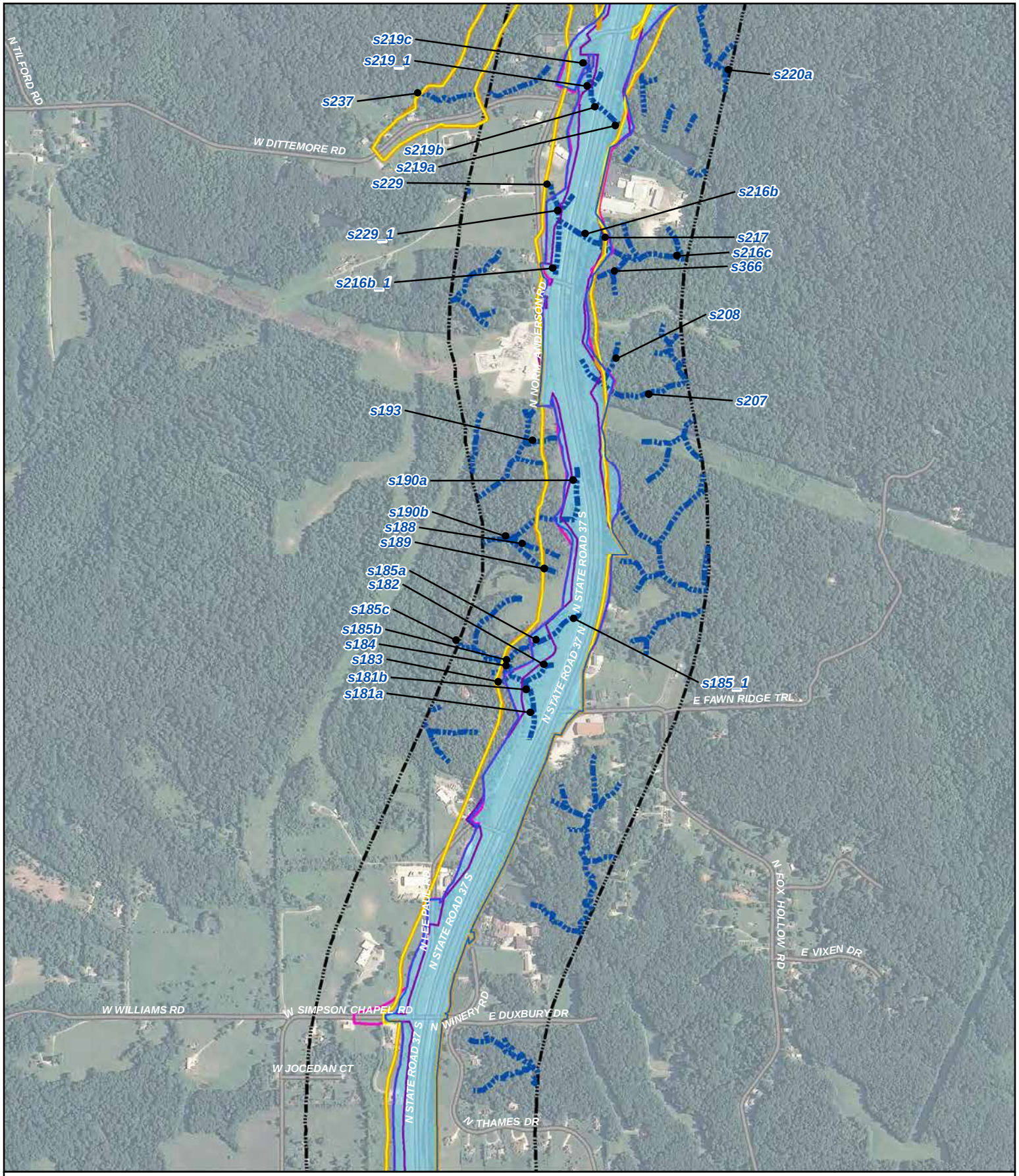

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FIGURE 2
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Tier 2 Studies - Section 5
Streams in Relation to the Alternatives on 2010 Aerial Mapping
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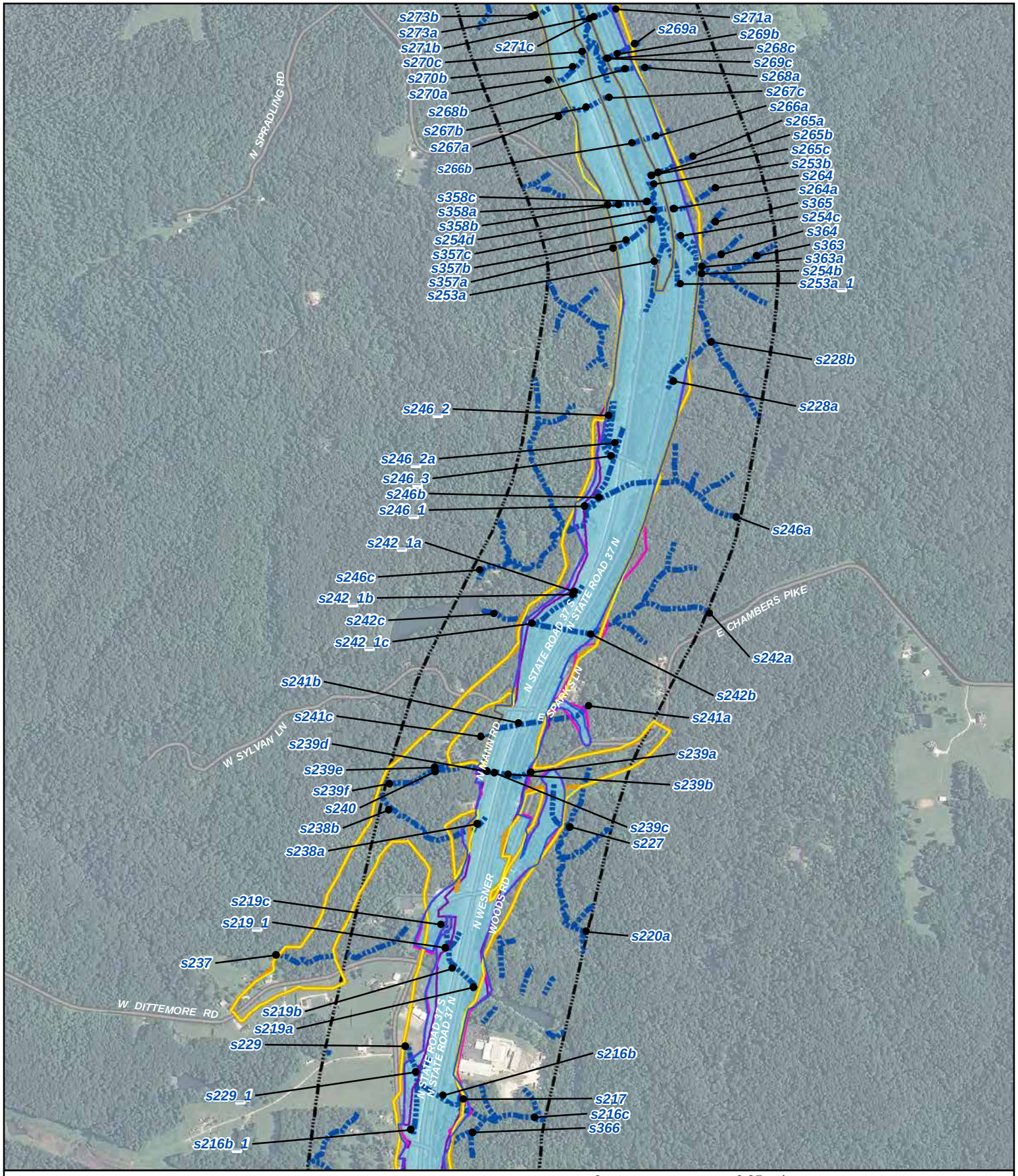

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FIGURE 2
I-69 Evansville to Indianapolis
Tier 2 Studies - Section 5
Streams in Relation to the Alternatives on 2010 Aerial Mapping
(Sheet 10 of 14)

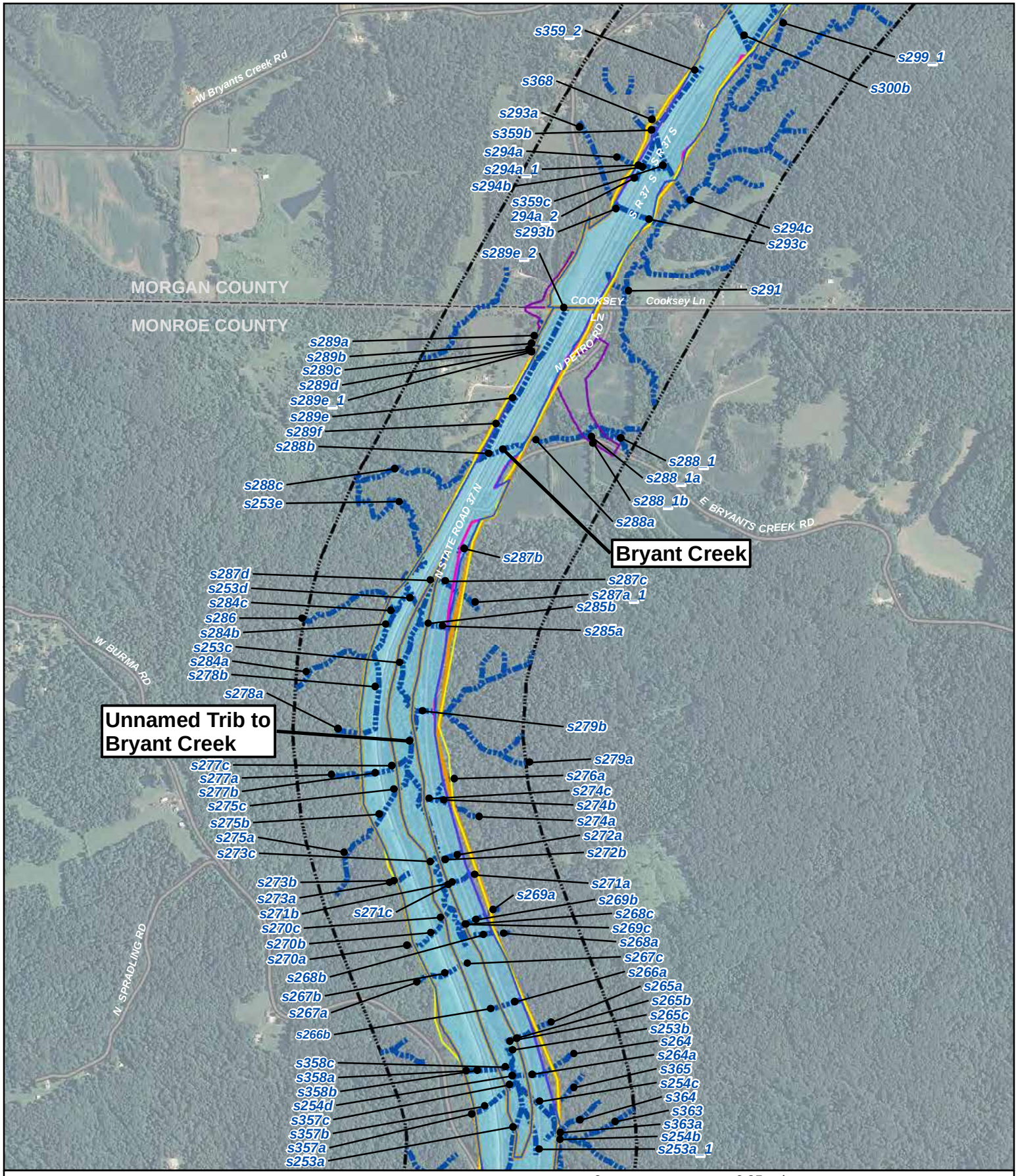

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FIGURE 2
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Tier 2 Studies - Section 5
Streams in Relation to the Alternatives on 2010 Aerial Mapping
(Sheet 11 of 14)

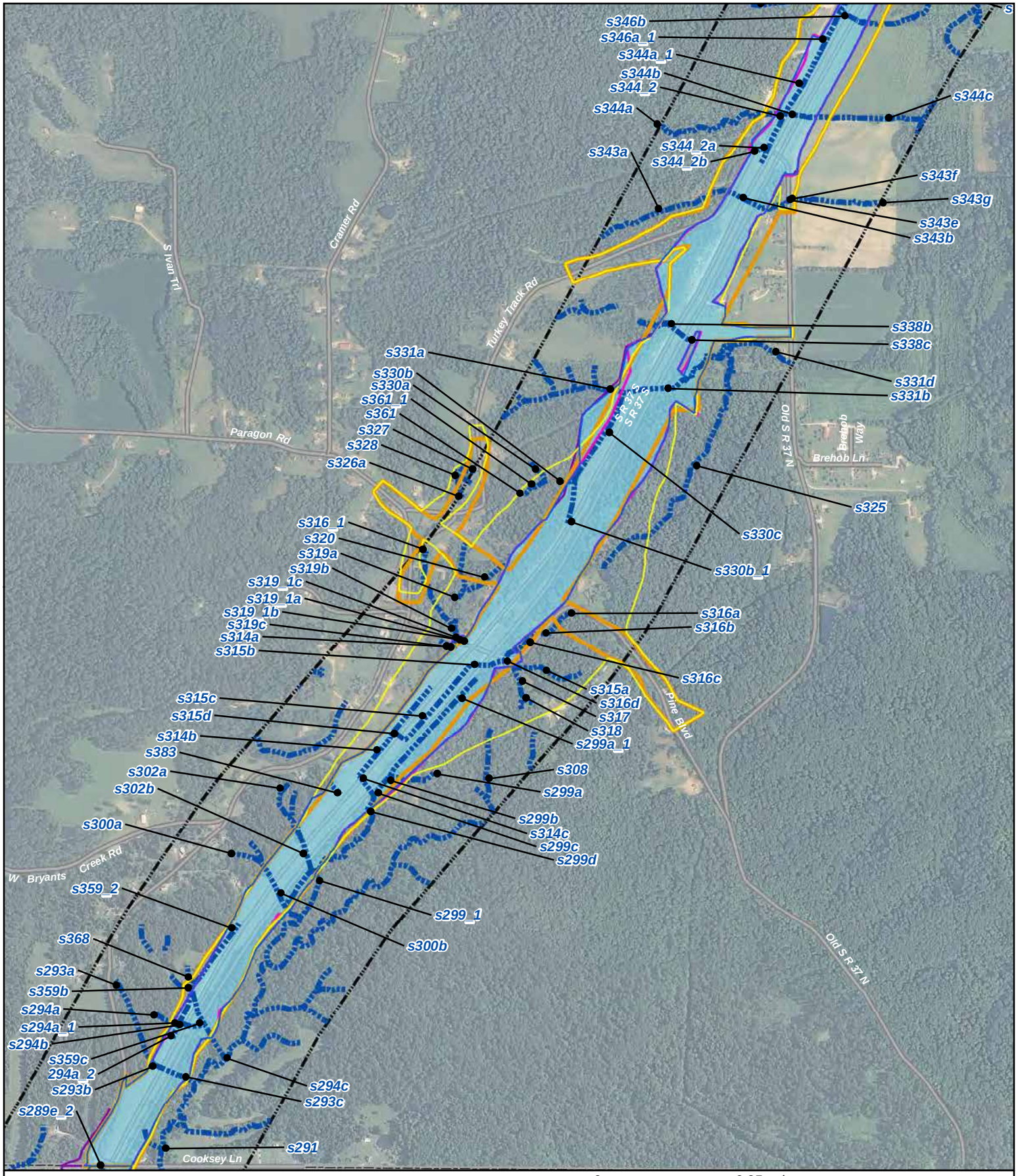

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FIGURE 2
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Tier 2 Studies - Section 5
Streams in Relation to the Alternatives on 2010 Aerial Mapping
(Sheet 12 of 14)

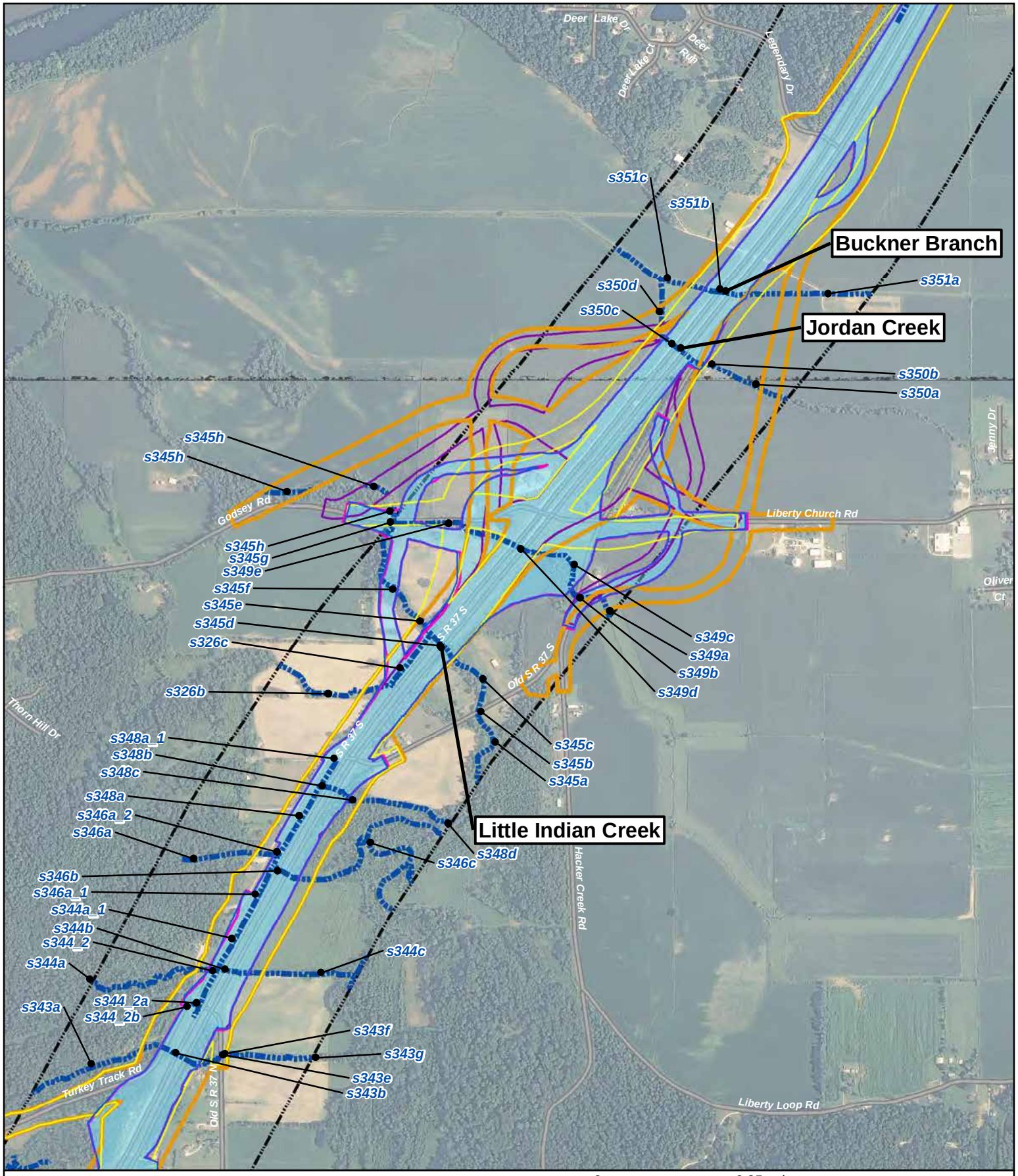

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FIGURE 2
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Streams in Relation to the Alternatives on 2010 Aerial Mapping
(Sheet 13 of 14)

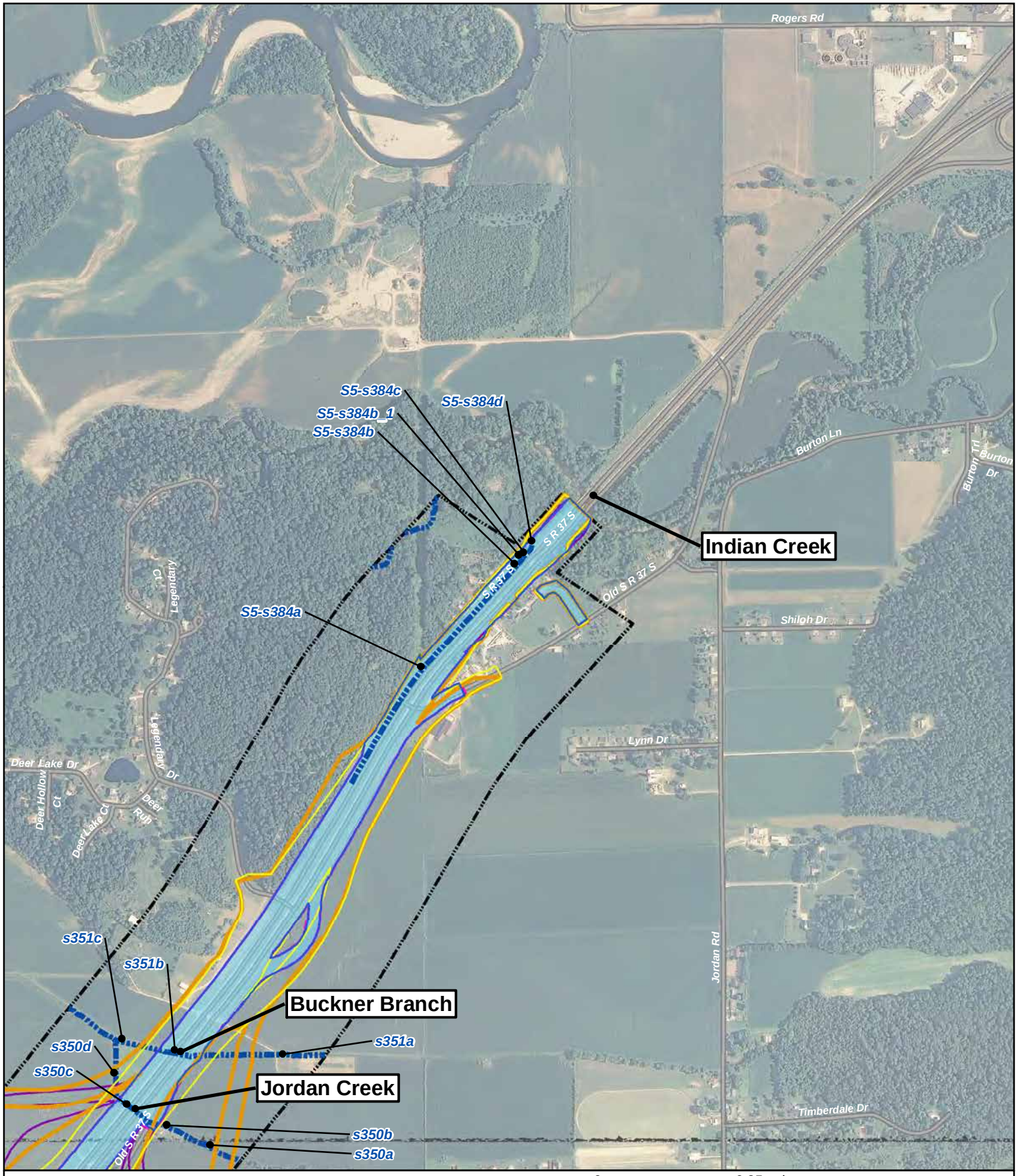

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FIGURE 2
I-69 Evansville to Indianapolis
Tier 2 Studies - Section 5
Streams in Relation to the Alternatives on 2010 Aerial Mapping
(Sheet 14 of 14)

APPENDIX A

Stream Impacts and Stream Relocation Lengths

Appendix A - Table 1: Stream Impacts and Stream Relocation Lengths by Alternative

Stream ID#	Stream Name	USGS Stream Type	HHEI Score	QHEI Score	Drain Area (mi2)	Channel Type	Stream Habitat Classification	Alternative 4			Alternative 5			Alternative 6			Alternative 7			Preferred Alternative 8		
								LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.
S5-s001_1	Unnamed trib of Clear Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	188	0.01	188	188	0.01	188	188	0.01	188	188	0.01	188	188	0.01	188
S5-s001_2	Unnamed trib of Clear Creek	Ephemeral	17	-	0.01	Roadside Ditch	Modified Class I	144	0.01	144	144	0.01	144	144	0.01	144	144	0.01	144	144	0.01	144
S5-s001b	Unnamed trib of Clear Creek	Ephemeral	-	-	0.04	Culvert		58	0.01	0	58	0.01	0	58	0.01	0	58	0.01	0	58	0.01	0
S5-s001c	Unnamed trib of Clear Creek	Ephemeral	33	-	0.04	Natural	Class I	411	0.06	411	408	0.06	408	226	0.03	226	172	0.03	172	223	0.03	223
S5-s001d	Unnamed trib of Clear Creek	Ephemeral	17	-	0.02	Roadside Ditch	Modified Class I	381	0.02	381	381	0.02	381	381	0.02	381	381	0.02	381	381	0.02	381
S5-s001d_1	Unnamed trib of Clear Creek	Ephemeral	22	-	0.01	Dump Rock Gutter	Modified Class I	146	0.02	146	146	0.02	146	146	0.02	146	146	0.02	146	146	0.02	146
S5-s001e	Unnamed trib of Clear Creek	Intermittent	-	-	0.08	Culvert		400	0.02	0	397	0.02	0	402	0.02	0	409	0.02	0	402	0.02	0
S5-s001f	Unnamed trib of Clear Creek	Intermittent	65	-	0.08	Natural	Class III	25	0.01	0	25	0.01	0	25	0.01	0	25	0.01	0	25	0.01	0
S5-s001g	Unnamed trib of Clear Creek	Intermittent	-	-	0.08	Culvert		91	0.01	0	91	0.01	0	91	0.01	0	91	0.01	0	91	0.01	0
S5-s001h	Unnamed trib of Clear Creek	Intermittent	65	-	0.08	Natural	Class III	34	0.01	0	34	0.01	0	34	0.01	0	34	0.01	0	34	0.01	0
S5-s003	Unnamed trib of Clear Creek	Ephemeral	39	-	0.01	Natural	Class I	185	0.01	185	188	0.01	188	0	0.00	0	0	0.00	0	0	0.00	0
S5-s004	Unnamed trib of Clear Creek	Ephemeral	79	-	0.05	Natural	Class III	1,140	0.09	1140	1,149	0.09	1149	0	0.00	0	0	0.00	0	0	0.00	0
S5-s005a	Unnamed trib of Clear Creek	Ephemeral	26	-	0.01	Natural	Class I	379	0.03	379	379	0.03	379	143	0.01	0	0	0.00	0	142	0.01	0
S5-s005b	Unnamed trib of Clear Creek	Ephemeral	-	-	0.01	Culvert		45	0.01	0	45	0.01	0	45	0.01	0	6	0.01	0	45	0.01	0
S5-s005c	Unnamed trib of Clear Creek	Ephemeral	26	-	0.01	Natural	Class I	74	0.01	74	83	0.01	83	151	0.01	0	269	0.02	0	149	0.01	0
S5-s006a	Unnamed trib of Clear Creek	Ephemeral	39	-	0.01	Natural	Class I	551	0.06	551	551	0.06	551	282	0.03	282	212	0.02	212	293	0.03	293
S5-s006a_1	Unnamed trib of Clear Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	215	0.01	215	215	0.01	215	215	0.01	215	215	0.01	215	215	0.01	215
S5-s006a_2	Unnamed trib of Clear Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	261	0.01	261	261	0.01	261	261	0.01	261	261	0.01	261	261	0.01	261
S5-s006a_3	Unnamed trib of Clear Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	434	0.01	434	434	0.01	434	434	0.01	434	434	0.01	434	434	0.01	434
S5-s006a_4	Unnamed trib of Clear Creek	Ephemeral	-	-	0.01	Culvert		21	0.01	0	21	0.01	0	21	0.01	0	21	0.01	0	21	0.01	0
S5-s007	Unnamed trib of Clear Creek	Ephemeral	29	-	0.01	Natural	Class I	121	0.01	121	121	0.01	121	0	0.00	0	0	0.00	0	0	0.00	0
S5-s008	Unnamed trib of Clear Creek	Ephemeral	29	-	0.01	Natural	Class I	238	0.01	238	238	0.01	238	0	0.00	0	0	0.00	0	0	0.00	0
S5-s009	Unnamed trib of Clear Creek	Ephemeral	29	-	0.01	Natural	Class I	78	0.01	78	75	0.01	75	0	0.00	0	0	0.00	0	0	0.00	0
S5-s010_1	Unnamed trib of Clear Creek	Ephemeral	32	-	0.01	Natural	Class I	53	0.01	53	53	0.01	53	0	0.00	0	0	0.00	0	0	0.00	0
S5-s010a	Unnamed trib of Clear Creek	Ephemeral	29	-	0.01	Natural	Class I	131	0.01	131	131	0.01	131	0	0.00	0	0	0.00	0	0	0.00	0
S5-s011c	Unnamed trib of Clear Creek	Ephemeral	22	-	0.01	Dump Rock Gutter	Modified Class I	410	0.04	410	410	0.04	410	410	0.04	410	410	0.04	410	410	0.04	410
S5-s012	Unnamed trib of Clear Creek	Intermittent	70	-	0.24	Natural	Class III	0	0.00	0	58	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s012_1	Unnamed trib of Clear Creek	Ephemeral	22	-	0.24	Dump Rock Gutter	Modified Class I	0	0.00	0	36	0.01	36	0	0.00	0	36	0.01	0	36	0.01	36
S5-s012a	Unnamed trib of Clear Creek	Ephemeral	81	-	0.24	Natural	Class III	99	0.04	0	152	0.06	0	7	0.01	0	103	0.04	0	105	0.04	0
S5-s012b	Unnamed trib of Clear Creek	Ephemeral	-	-	0.24	Culvert		304	0.03	0	304	0.03	0	304	0.03	0	304	0.03	0	304	0.03	0
S5-s012c	Unnamed trib of Clear Creek	Ephemeral	51	-	0.24	Natural	Class II	45	0.01	0	126	0.01	0	56	0.01	0	126	0.01	0	126	0.01	0
S5-s013	Unnamed trib of Clear Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	252	0.01	252	252	0.01	252	252	0.01	252	252	0.01	252	252	0.01	252
S5-s014_1	Unnamed trib of Clear Creek	Ephemeral	12	-	0.01	Dump Rock Gutter	Modified Class I	283	0.02	283	283	0.02	283	283	0.02	283	283	0.02	283	283	0.02	283
S5-s014a	Unnamed trib of Clear Creek	Ephemeral	48	-	0.07	Natural	Class II	0	0.00	0	35	0.01	35	0	0.00	0	46	0.02	46	91	0.04	91
S5-s014b	Unnamed trib of Clear Creek	Ephemeral	12	-	0.06	Concrete Gutter	Modified Class I	138	0.01	138	138	0.01	138	138	0.01	138	138	0.01	138	138	0.01	138
S5-s014c	Unnamed trib of Clear Creek	Ephemeral	-	-	0.06	Culvert		126	0.01	0	126	0.01	0	126	0.01	0	126	0.01	0	126	0.01	0
S5-s014d	Unnamed trib of Clear Creek	Ephemeral	12	-	0.06	Dump Rock Gutter	Modified Class I	320	0.02	320	320	0.02	320	320	0.02	320	320	0.02	320	320	0.02	320
S5-s014e	Unnamed trib of Clear Creek	Ephemeral	-	-	0.06	Culvert		351	0.02	0	351	0.02	0	351	0.02	0	351	0.02	0	351	0.02	0
S5-s014f	Unnamed trib of Clear Creek	Ephemeral	54	-	0.06	Natural	Class II	318	0.02	318	440	0.02	440	243	0.01	243	332	0.02	332	331	0.02	331
S5-s016a	Unnamed trib of Clear Creek	Ephemeral	28	-	0.23	Dump Rock Gutter	Modified Class I	2	0.01	0	36	0.01	0	0	0.00	0	31	0.01	0	73	0.01	0
S5-s016a_1	Unnamed trib of Clear Creek	Ephemeral	12	-	0.02	Concrete Gutter	Modified Class I	1,803	0.13	1803	1,803	0.13	1803	1,803	0.13	1803	1,803	0.13	1803	1,803	0.13	1803
S5-s016b	Unnamed trib of Clear Creek	Ephemeral	12	-	0.23	Concrete Gutter	Modified Class I	106	0.01	0	106	0.01	0	72	0.01	0	106	0.01	0	106	0.01	0
S5-s016c	Unnamed trib of Clear Creek	Ephemeral	-	-	0.23	Culvert		268	0.02	0	268	0.02	0	320	0.03	0	320	0.03	0	320	0.03	0
S5-s018	Unnamed trib of Clear Creek	Ephemeral	26	-	0.01	Natural	Class I	0	0.00	0	60	0.01	60	0	0.00	0	45	0.01	0	140	0.01	140
S5-s019a	Unnamed trib of Clear Creek	Ephemeral	-	-	0.14	Culvert		46	0.01	0	47	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s019a_1	Unnamed trib of Clear Creek	Ephemeral	56	-	0.14	Natural	Class II	159	0.03	159	159	0.03	159	79	0.02	0	79	0.02	0	79	0.02	0
S5-s019b	Unnamed trib of Clear Creek	Ephemeral	-	-	0.14	Culvert		110	0.01	0	110	0.01	0	110	0.01	0	110	0.01	0	110	0.01	0
S5-s019c	Unnamed trib of Clear Creek	Ephemeral	34	-	0.14	Roadside Ditch	Modified Class II	64	0.01	64	64	0.01	64	64	0.01	0	64	0.01	0	64	0.01	0
S5-s019d	Unnamed trib of Clear Creek	Ephemeral	-	-	0.14	Culvert		110	0.01	0	110	0.01	0	110	0.01	0	110	0.01	0	110	0.01	0
S5-s019e	Unnamed trib of Clear Creek	Ephemeral	12	-	0.14	Concrete Gutter	Modified Class I	351	0.01	351	351	0.01	351	351	0.01	0	351	0.01	0	351	0.01	0
S5-s019f	Unnamed trib of Clear Creek	Ephemeral	-	-	0.14	Culvert		208	0.01	0	208	0.01	0	130	0.01	0	130	0.01	0	130	0.01	0
S5-s019g	Unnamed trib of Clear Creek	Ephemeral	34	-	0.14	Roadside Ditch	Modified Class II	199	0.01	199	199	0.01	199	170	0.01	170	170	0.01	170	170	0.01	170

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Stream ID#	Stream Name	USGS Stream Type	HHEI Score	QHEI Score	Drain Area (mi2)	Channel Type	Stream Habitat Classification	Alternative 4			Alternative 5			Alternative 6			Alternative 7			Preferred Alternative 8		
								LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.
S5-s020	Unnamed trib of Clear Creek	Ephemeral	39	-	0.01	Natural	Class I	165	0.01	165	165	0.01	165	86	0.01	0	86	0.01	0	86	0.01	0
S5-s024a_1	Unnamed trib of Clear Creek	Ephemeral	12	-	0.04	Concrete Gutter	Modified Class I	355	0.01	355	355	0.01	355	355	0.01	355	355	0.01	355	355	0.01	355
S5-s024a_2	Unnamed trib of Clear Creek	Ephemeral	27	-	0.04	Dump Rock Gutter	Modified Class I	123	0.02	123	123	0.02	123	35	0.01	35	35	0.01	35	35	0.01	35
S5-s024b	Unnamed trib of Clear Creek	Ephemeral	-	-	0.04	Culvert		74	0.02	0	74	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s024c	Unnamed trib of Clear Creek	Ephemeral	32	-	0.04	Natural	Class I	76	0.02	0	76	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s025a	Unnamed trib of Clear Creek	Ephemeral	23	-	0.01	Roadside Ditch	Modified Class I	395	0.02	395	395	0.02	395	395	0.02	395	395	0.02	395	395	0.02	395
S5-s025b	Unnamed trib of Clear Creek	Ephemeral	12	-	0.01	Roadside Ditch	Modified Class I	74	0.01	74	74	0.01	74	74	0.01	74	74	0.01	74	74	0.01	74
S5-s025c	Unnamed trib of Clear Creek	Ephemeral	27	-	0.01	Natural	Class I	54	0.01	54	56	0.01	56	56	0.01	56	56	0.01	56	56	0.01	56
S5-s026a	Unnamed trib of Clear Creek	Ephemeral	-	-	0.33	Culvert		202	0.03	0	202	0.03	0	54	0.01	0	54	0.01	0	54	0.01	0
S5-s026b	Unnamed trib of Clear Creek	Ephemeral	52	-	0.33	Roadside Ditch	Modified Class II	17	0.01	0	30	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s027a	Unnamed trib of Stout Creek	Ephemeral	30	-	0.05	Natural	Class I	333	0.02	333	333	0.02	333	0	0.00	0	125	0.01	125	116	0.01	116
S5-s027b	Unnamed trib of Stout Creek	Ephemeral	-	-	0.05	Culvert		72	0.01	0	72	0.01	0	10	0.01	0	72	0.01	0	72	0.01	0
S5-s029a	Unnamed trib of Stout Creek	Ephemeral	29	-	0.08	Roadside Ditch	Modified Class I	258	0.02	258	258	0.02	258	242	0.02	242	258	0.02	258	258	0.02	258
S5-s029b	Unnamed trib of Stout Creek	Ephemeral	-	-	0.08	Culvert		16	0.01	0	16	0.01	0	0	0.00	0	16	0.01	0	16	0.01	0
S5-s029c	Unnamed trib of Stout Creek	Ephemeral	29	-	0.08	Roadside Ditch	Modified Class I	107	0.01	107	107	0.01	107	33	0.01	33	107	0.01	107	107	0.01	107
S5-s030a	Unnamed trib of Clear Creek	Ephemeral	16	-	0.03	Natural	Modified Class I	19	0.01	19	16	0.01	16	13	0.01	0	81	0.01	81	64	0.01	64
S5-s030b	Unnamed trib of Clear Creek	Ephemeral	-	-	0.03	Culvert		269	0.02	0	269	0.02	0	269	0.02	0	269	0.02	0	269	0.02	0
S5-s030c	Unnamed trib of Clear Creek	Ephemeral	38	-	0.03	Natural	Class I	265	0.05	229	303	0.06	267	100	0.02	64	100	0.02	64	100	0.02	64
S5-s032_1b	Unnamed trib of Stout Creek	Intermittent	55	-	0.41	Natural	Class II	146	0.01	0	146	0.01	0	49	0.01	49	113	0.01	0	111	0.01	0
S5-s032_1c	Unnamed trib of Stout Creek	Intermittent	-	-	0.41	Culvert		93	0.01	0	93	0.01	0	92	0.01	0	93	0.01	0	93	0.01	0
S5-s032_1d	Unnamed trib of Stout Creek	Intermittent	48	-	0.41	Natural	Class II	143	0.01	0	142	0.01	0	43	0.01	0	115	0.01	0	122	0.01	0
S5-s035a	Unnamed trib of Stout Creek	Ephemeral	-	-	0.12	Culvert		201	0.02	0	199	0.02	0	199	0.02	0	199	0.02	0	199	0.02	0
S5-s035b	Unnamed trib of Stout Creek	Ephemeral	-	-	0.12	Culvert		337	0.04	0	337	0.04	0	337	0.04	0	337	0.04	0	337	0.04	0
S5-s035c	Unnamed trib of Stout Creek	Ephemeral	46	-	0.12	Roadside Ditch	Modified Class II	152	0.02	0	152	0.02	0	152	0.02	0	152	0.02	0	152	0.02	0
S5-s035d	Unnamed trib of Stout Creek	Ephemeral	-	-	0.12	Culvert		574	0.12	0	574	0.12	0	574	0.12	0	574	0.12	0	574	0.12	0
S5-s035e	Unnamed trib of Stout Creek	Ephemeral	27	-	0.06	Dump Rock Gutter	Modified Class I	6	0.01	0	8	0.01	0	8	0.01	0	8	0.01	0	8	0.01	8
S5-s036_1	Unnamed trib of Stout Creek	Ephemeral	13	-	0.01	Dump Rock Gutter	Modified Class I	0	0.00	0	36	0.01	36	0	0.00	0	0	0.00	0	0	0.00	0
S5-s037a	Unnamed trib of Stout Creek	Ephemeral	17	-	0.02	Natural	Class I	59	0.01	0	61	0.01	0	61	0.01	0	61	0.01	0	61	0.01	0
S5-s037b	Unnamed trib of Stout Creek	Ephemeral	-	-	0.02	Culvert		358	0.02	0	358	0.02	0	358	0.02	0	358	0.02	0	358	0.02	0
S5-s037c	Unnamed trib of Stout Creek	Ephemeral	17	-	0.02	Natural	Class I	41	0.01	0	41	0.01	0	41	0.01	0	41	0.01	0	41	0.01	0
S5-s042	Unnamed trib of Stout Creek	Ephemeral	17	-	0.02	Natural	Class I	77	0.01	77	79	0.01	79	79	0.01	79	79	0.01	79	79	0.01	79
S5-s043a	Unnamed trib of Stout Creek	Ephemeral	-	-	0.27	Culvert		296	0.02	0	296	0.02	0	296	0.02	0	296	0.02	0	296	0.02	0
S5-s043b	Unnamed trib of Stout Creek	Ephemeral	51	-	0.27	Natural	Class II	820	0.06	759	824	0.06	761	781	0.05	761	781	0.05	761	781	0.05	761
S5-s043b_1	Unnamed trib of Stout Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	429	0.01	429	429	0.01	429	429	0.01	429	429	0.01	429	429	0.01	429
S5-s043b_2	Unnamed trib of Stout Creek	Ephemeral	12	-	0.01	Dump Rock Gutter	Modified Class I	114	0.01	114	114	0.01	114	114	0.01	114	114	0.01	114	114	0.01	114
S5-s043b_3	Unnamed trib of Stout Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	334	0.01	334	334	0.01	334	334	0.01	334	334	0.01	334	334	0.01	334
S5-s043c_1a	Unnamed trib of Stout Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	151	0.01	151	151	0.01	151	151	0.01	151	151	0.01	151	151	0.01	151
S5-s043c_1b	Unnamed trib of Stout Creek	Ephemeral	12	-	0.01	Dump Rock Gutter	Modified Class I	62	0.01	62	62	0.01	62	62	0.01	62	62	0.01	62	62	0.01	62
S5-s043c_1c	Unnamed trib of Stout Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	49	0.01	49	49	0.01	49	49	0.01	49	49	0.01	49	49	0.01	49
S5-s043d	Unnamed trib of Stout Creek	Ephemeral	-	-	0.27	Culvert		287	0.02	0	285	0.02	0	285	0.02	0	285	0.02	0	285	0.02	0
S5-s048a	Unnamed trib of Stout Creek	Ephemeral	18	-	0.04	Natural	Class I	14	0.01	0	16	0.01	0	16	0.01	0	16	0.01	0	16	0.01	0
S5-s048b	Unnamed trib of Stout Creek	Ephemeral	-	-	0.04	Culvert		322	0.02	0	322	0.02	0	322	0.02	0	322	0.02	0	322	0.02	0
S5-s050a	Unnamed trib of Stout Creek	Ephemeral	-	-	0.02	Culvert		191	0.04	0	191	0.04	0	191	0.04	0	191	0.04	0	191	0.04	0
S5-s050b	Unnamed trib of Stout Creek	Ephemeral	48	-	0.02	Natural	Class II	42	0.01	0	42	0.01	0	42	0.01	0	42	0.01	0	42	0.01	0
S5-s059a	Unnamed trib of Griffy Creek	Ephemeral	42	-	0.04	Natural	Class II	330	0.05	0	174	0.02	174	0	0.00	0	0	0.00	0	0	0.00	0
S5-s060a	Unnamed trib of Griffy Creek	Ephemeral	34	-	0.04	Natural	Class I	165	0.01	165	147	0.01	147	0	0.00	0	0	0.00	0	0	0.00	0
S5-s060b	Unnamed trib of Griffy Creek	Ephemeral	-	-	0.04	Culvert		32	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s060c	Unnamed trib of Griffy Creek	Ephemeral	34	-	0.04	Natural	Class I	404	0.02	404	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s061a	Unnamed trib of Griffy Creek	Ephemeral	51	-	0.02	Natural	Class II	87	0.02	87	87	0.02	87	0	0.00	0	13	0.01	13	12	0.01	12
S5-s061b	Unnamed trib of Griffy Creek	Ephemeral	-	-	0.02	Culvert		30	0.01	0	30	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s061c	Unnamed trib of Griffy Creek	Ephemeral	30	-	0.02	Natural	Class I	273	0.02	273	102	0.01	102	0	0.00	0	0	0.00	0	0	0.00	0
S5-s062	Unnamed trib of Griffy Creek	Ephemeral	43	-	0.01	Natural	Class II	140	0.01	140	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0

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Stream ID#	Stream Name	USGS Stream Type	HHEI Score	QHEI Score	Drain Area (mi2)	Channel Type	Stream Habitat Classification	Alternative 4			Alternative 5			Alternative 6			Alternative 7			Preferred Alternative 8		
								LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.
S5-s063	Unnamed trib of Griffy Creek	Ephemeral	43	-	0.01	Natural	Class II	82	0.01	82	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s064	Unnamed trib of Griffy Creek	Ephemeral	38	-	0.01	Natural	Class I	102	0.01	102	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s065a_1	Griffy Creek	Perennial	-	61.5	12.49	Natural	Warm Water Habitat	32	0.03	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s065a_2	Griffy Creek	Perennial	-	-	12.49	Culvert		58	0.06	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s065a_3	Griffy Creek	Perennial	-	61.5	12.49	Natural	Warm Water Habitat	321	0.32	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s065b	Griffy Creek	Perennial	-	37	14.10	Natural	Modified Warm Water Habitat	113	0.13	0	115	0.14	0	102	0.12	0	137	0.16	0	102	0.12	0
S5-s065c	Griffy Creek	Perennial	-	37	14.10	Bridge	Modified Warm Water Habitat	135	0.16	0	135	0.16	0	135	0.16	0	135	0.16	0	135	0.16	0
S5-s065d	Griffy Creek	Perennial	-	37	14.10	Natural	Modified Warm Water Habitat	220	0.26	0	175	0.21	0	125	0.15	0	251	0.30	0	131	0.16	0
S5-s067	Unnamed trib of Griffy Creek	Ephemeral	52	-	0.02	Natural	Class II	415	0.05	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s068a	Unnamed trib of Griffy Creek	Ephemeral	44	-	0.09	Natural	Class II	309	0.02	309	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s068b	Unnamed trib of Griffy Creek	Ephemeral	-	-	0.09	Culvert		36	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s068c	Unnamed trib of Griffy Creek	Ephemeral	45	-	0.09	Natural	Class II	286	0.04	286	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s070	Unnamed trib of Griffy Creek	Ephemeral	36	-	0.01	Roadside Ditch	Modified Class II	351	0.02	351	351	0.02	351	351	0.02	351	351	0.02	351	351	0.02	351
S5-s070_1a	Unnamed trib of Griffy Creek	Ephemeral	17	-	0.01	Concrete Gutter	Modified Class I	155	0.01	155	155	0.01	155	155	0.01	155	155	0.01	155	155	0.01	155
S5-s070_1b	Unnamed trib of Griffy Creek	Ephemeral	14	-	0.01	Natural	Modified Class I	52	0.01	52	52	0.01	52	52	0.01	52	52	0.01	52	52	0.01	52
S5-s071a	Unnamed trib of Griffy Creek	Ephemeral	50	-	0.06	Natural	Class II	82	0.02	0	32	0.01	0	31	0.01	0	31	0.01	0	31	0.01	0
S5-s071a_1	Unnamed trib of Griffy Creek	Ephemeral	24	-	0.06	Natural	Modified Class I	0	0.00	0	18	0.01	18	0	0.00	0	0	0.00	0	0	0.00	0
S5-s071b	Unnamed trib of Griffy Creek	Ephemeral	-	-	0.06	Culvert		535	0.10	0	535	0.10	0	535	0.10	0	535	0.10	0	535	0.10	0
S5-s071c	Unnamed trib of Griffy Creek	Ephemeral	17	-	0.05	Natural	Modified Class I	18	0.01	0	4	0.01	0	4	0.01	0	60	0.01	0	4	0.01	0
S5-s073	Unnamed trib of Griffy Creek	Ephemeral	28	-	0.01	Natural	Class I	0	0.00	0	212	0.01	212	163	0.01	163	166	0.01	166	163	0.01	163
S5-s074a	Unnamed trib of Griffy Creek	Ephemeral	28	-	0.01	Natural	Class I	0	0.00	0	71	0.01	0	61	0.01	0	61	0.01	0	61	0.01	0
S5-s074b	Unnamed trib of Griffy Creek	Ephemeral	-	-	0.01	Culvert		0	0.00	0	29	0.01	0	29	0.01	0	29	0.01	0	29	0.01	0
S5-s074c	Unnamed trib of Griffy Creek	Ephemeral	28	-	0.01	Natural	Class I	0	0.00	0	125	0.01	0	114	0.01	0	114	0.01	0	114	0.01	0
S5-s076	Unnamed trib of Griffy Creek	Ephemeral	27	-	0.01	Natural	Class I	44	0.01	44	275	0.02	275	0	0.00	0	27	0.01	27	23	0.01	23
S5-s077	Unnamed trib of Griffy Creek	Ephemeral	40	-	0.01	Natural	Class II	221	0.01	221	221	0.01	221	168	0.01	168	192	0.01	192	212	0.01	212
S5-s078a	Unnamed trib of Griffy Creek	Ephemeral	33	-	0.04	Natural	Class I	65	0.01	0	64	0.01	0	44	0.01	0	65	0.01	0	55	0.01	0
S5-s078b	Unnamed trib of Griffy Creek	Ephemeral	-	-	0.05	Culvert		61	0.01	0	61	0.01	0	61	0.01	0	61	0.01	0	61	0.01	0
S5-s078c	Unnamed trib of Griffy Creek	Ephemeral	33	-	0.04	Natural	Class I	72	0.01	0	60	0.01	0	74	0.01	0	22	0.01	0	23	0.01	0
S5-s080	Unnamed trib of Griffy Creek	Ephemeral	43	-	0.01	Roadside Ditch	Modified Class II	274	0.01	274	274	0.01	274	274	0.01	274	274	0.01	274	274	0.01	274
S5-s081a	Beanblossom Creek	Perennial	-	51.5	42.73	Natural	Warm Water Habitat	0	0.00	0	443	0.65	0	370	0.54	0	123	0.18	0	386	0.57	0
S5-s081b	Beanblossom Creek	Perennial	-	51.5	42.73	Bridge	Warm Water Habitat	13	0.01	0	32	0.04	0	32	0.04	0	15	0.02	0	32	0.04	0
S5-s081c	Beanblossom Creek	Perennial	-	34.75	42.73	Natural	Modified Warm Water Habitat	575	0.69	0	575	0.69	0	575	0.69	0	575	0.69	0	575	0.69	0
S5-s081d	Beanblossom Creek	Perennial	-	34.75	42.73	Bridge	Modified Warm Water Habitat	207	0.25	0	207	0.25	0	207	0.25	0	207	0.25	0	207	0.25	0
S5-s081e	Beanblossom Creek	Perennial	-	34.75	42.73	Natural	Modified Warm Water Habitat	539	0.64	0	559	0.67	0	444	0.53	44	437	0.52	0	569	0.68	0
S5-s081f	Beanblossom Creek	Perennial	-	48	42.73	Natural	Warm Water Habitat	59	0.06	0	67	0.07	0	162	0.17	0	128	0.13	0	67	0.07	0
S5-s081g	Beanblossom Creek	Perennial	-	48	42.73	Bridge	Warm Water Habitat	0	0.00	0	0	0.00	0	33	0.03	0	33	0.03	0	0	0.00	0
S5-s081h	Beanblossom Creek	Perennial	-	48	42.73	Natural	Warm Water Habitat	0	0.00	0	0	0.00	0	13	0.01	0	45	0.05	0	0	0.00	0
S5-s082_1	Unnamed trib of Beanblossom Creek	Ephemeral	46	-	0.02	Roadside Ditch	Modified Class II	1,400	0.13	1400	1,404	0.13	1404	1,404	0.13	1404	1,399	0.13	1399	1,404	0.13	1404
S5-s082a	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.04	Culvert		0	0.00	0	139	0.01	0	139	0.01	0	0	0.00	0	139	0.01	0
S5-s082b	Unnamed trib of Beanblossom Creek	Ephemeral	43	-	0.04	Roadside Ditch	Modified Class II	0	0.00	0	671	0.03	671	493	0.02	493	232	0.01	0	482	0.02	482
S5-s082c	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.04	Culvert		0	0.00	0	71	0.01	0	36	0.01	0	0	0.00	0	0	0.00	0
S5-s082d	Unnamed trib of Beanblossom Creek	Ephemeral	43	-	0.04	Roadside Ditch	Modified Class II	0	0.00	0	156	0.01	156	156	0.01	156	0	0.00	0	136	0.01	136
S5-s083a	Unnamed trib of Beanblossom Creek	Ephemeral	30	-	0.02	Roadside Ditch	Modified Class II	262	0.04	262	262	0.04	262	262	0.04	262	136	0.02	136	262	0.04	262
S5-s083b	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.01	Culvert		79	0.02	0	79	0.02	0	79	0.02	0	79	0.02	0	79	0.02	0
S5-s083c	Unnamed trib of Beanblossom Creek	Ephemeral	39	-	0.01	Roadside Ditch	Modified Class II	712	0.05	712	712	0.05	712	712	0.05	712	712	0.05	712	712	0.05	712
S5-s085a	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	202	0.01	202	202	0.01	202	202	0.01	202	202	0.01	202	202	0.01	202

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Stream ID#	Stream Name	USGS Stream Type	HHEI Score	QHEI Score	Drain Area (mi2)	Channel Type	Stream Habitat Classification	Alternative 4			Alternative 5			Alternative 6			Alternative 7			Preferred Alternative 8		
								LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.
S5-s085b	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.01	Culvert		62	0.01	0	62	0.01	0	62	0.01	0	62	0.01	0	62	0.01	0
S5-s085c	Unnamed trib of Beanblossom Creek	Ephemeral	26	-	0.01	Roadside Ditch	Modified Class I	203	0.02	203	203	0.02	203	203	0.02	203	203	0.02	203	203	0.02	203
S5-s086a	Unnamed trib of Beanblossom Creek	Ephemeral	34	-	0.02	Roadside Ditch	Modified Class II	0	0.00	0	142	0.01	142	210	0.01	210	228	0.01	228	142	0.01	142
S5-s088a	Unnamed trib of Beanblossom Creek	Ephemeral	19	-	0.01	Roadside Ditch	Modified Class I	20	0.01	20	20	0.01	20	20	0.01	20	20	0.01	20	20	0.01	20
S5-s088b	Unnamed trib of Beanblossom Creek	Ephemeral	31	-	0.01	Roadside Ditch	Modified Class II	345	0.04	345	345	0.04	345	345	0.04	345	345	0.04	345	345	0.04	345
S5-s088c	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.01	Culvert		187	0.02	0	187	0.02	0	187	0.02	0	187	0.02	0	187	0.02	0
S5-s092a	Unnamed trib of Beanblossom Creek	Ephemeral	28	-	0.04	Natural	Class I	273	0.02	0	263	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s092c	Unnamed trib of Beanblossom Creek	Ephemeral	43	-	0.04	Natural	Class II	16	0.01	0	17	0.01	0	56	0.01	0	17	0.01	0	69	0.01	0
S5-s092d	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.04	Culvert		46	0.01	0	46	0.01	0	46	0.01	0	46	0.01	0	46	0.01	0
S5-s092e	Unnamed trib of Beanblossom Creek	Ephemeral	53	-	0.04	Natural	Class II	15	0.01	0	15	0.01	0	15	0.01	0	15	0.01	0	15	0.01	0
S5-s092f	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.04	Culvert		213	0.02	0	213	0.02	0	213	0.02	0	213	0.02	0	213	0.02	0
S5-s092f_1	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	137	0.01	137	137	0.01	137	137	0.01	137	137	0.01	137	137	0.01	137
S5-s092f_2	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	57	0.01	57	57	0.01	57	57	0.01	57	57	0.01	57	57	0.01	57
S5-s092h	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.04	Culvert		54	0.01	0	54	0.01	0	54	0.01	0	54	0.01	0	54	0.01	0
S5-s092i	Unnamed trib of Beanblossom Creek	Ephemeral	26	-	0.04	Natural	Class I	40	0.01	0	40	0.01	0	35	0.01	0	2	0.01	0	2	0.01	0
S5-s092j	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.71	Culvert		33	0.01	0	42	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s093	Unnamed trib of Beanblossom Creek	Ephemeral	42	-	0.01	Natural	Class II	265	0.01	0	228	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s098	Unnamed trib of Beanblossom Creek	Ephemeral	35	-	0.01	Natural	Class I	76	0.01	76	74	0.01	74	0	0.00	0	100	0.01	100	1	0.01	1
S5-s099	Unnamed trib of Beanblossom Creek	Ephemeral	19	-	0.01	Natural	Class I	8	0.01	8	8	0.01	8	0	0.00	0	56	0.01	56	0	0.00	0
S5-s100c	Unnamed trib of Beanblossom Creek	Ephemeral	27	-	0.09	Natural	Class I	321	0.03	0	323	0.03	0	107	0.01	0	89	0.01	0	124	0.01	0
S5-s100d	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.09	Culvert		392	0.03	0	392	0.03	0	392	0.03	0	392	0.03	0	392	0.03	0
S5-s100e	Unnamed trib of Beanblossom Creek	Ephemeral	64	-	0.09	Natural	Class III	146	0.02	0	144	0.02	0	123	0.02	0	126	0.02	0	131	0.02	0
S5-s102	Unnamed trib of Beanblossom Creek	Ephemeral	41	-	0.01	Natural	Class II	361	0.01	361	334	0.01	334	0	0.00	0	0	0.00	0	0	0.00	0
S5-s107	Unnamed trib of Beanblossom Creek	Ephemeral	33	-	0.02	Natural	Class I	1,282	0.16	1282	1,282	0.16	1282	765	0.10	765	520	0.07	520	942	0.12	942
S5-s108	Unnamed trib of Beanblossom Creek	Ephemeral	30	-	0.01	Natural	Class I	302	0.01	302	302	0.01	302	288	0.01	288	245	0.01	245	302	0.01	302
S5-s109	Unnamed trib of Beanblossom Creek	Ephemeral	30	-	0.01	Natural	Class I	247	0.01	247	247	0.01	247	184	0.01	184	43	0.01	43	229	0.01	229
S5-s110	Unnamed trib of Beanblossom Creek	Ephemeral	29	-	0.01	Natural	Class I	86	0.01	86	96	0.01	96	0	0.00	0	0	0.00	0	0	0.00	0
S5-s111	Unnamed trib of Beanblossom Creek	Ephemeral	29	-	0.01	Natural	Class I	103	0.01	103	103	0.01	103	0	0.00	0	0	0.00	0	0	0.00	0
S5-s112	Unnamed trib of Beanblossom Creek	Ephemeral	29	-	0.01	Natural	Class I	94	0.01	94	94	0.01	94	88	0.01	88	0	0.00	0	81	0.01	81
S5-s113	Unnamed trib of Beanblossom Creek	Ephemeral	29	-	0.01	Natural	Class I	51	0.01	51	51	0.01	51	51	0.01	51	0	0.00	0	51	0.01	51
S5-s114_1	Unnamed trib of Beanblossom Creek	Ephemeral	39	-	0.01	Natural	Class I	267	0.01	267	277	0.01	277	222	0.01	222	330	0.01	330	211	0.01	211
S5-s115	Unnamed trib of Beanblossom Creek	Ephemeral	39	-	0.01	Natural	Class I	177	0.01	177	177	0.01	177	177	0.01	177	177	0.01	177	177	0.01	177
S5-s116	Unnamed trib of Beanblossom Creek	Ephemeral	39	-	0.01	Natural	Class I	387	0.02	387	387	0.02	387	387	0.02	387	387	0.02	387	387	0.02	387
S5-s123	Unnamed trib of Beanblossom Creek	Ephemeral	28	-	0.01	Natural	Class I	131	0.01	131	121	0.01	121	0	0.00	0	0	0.00	0	0	0.00	0
S5-s126	Unnamed trib of Beanblossom Creek	Ephemeral	28	-	0.01	Natural	Class I	86	0.01	86	77	0.01	77	0	0.00	0	0	0.00	0	0	0.00	0
S5-s127_2	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	87	0.01	87	87	0.01	87	87	0.01	87	87	0.01	87	87	0.01	87
S5-s127_3	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.02	Concrete Gutter	Modified Class I	486	0.02	486	486	0.02	486	486	0.02	486	486	0.02	486	486	0.02	486
S5-s127_3a	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.02	Concrete Gutter	Modified Class I	226	0.01	226	226	0.01	226	226	0.01	226	226	0.01	226	226	0.01	226
S5-s127_3b	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.02	Culvert		57	0.01	0	57	0.01	0	57	0.01	0	57	0.01	0	57	0.01	0
S5-s127a	Unnamed trib of Beanblossom Creek	Ephemeral	51	-	0.02	Natural	Class II	0	0.00	0	0	0.00	0	173	0.01	173	186	0.01	186	173	0.01	173
S5-s127b	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.02	Concrete Gutter	Modified Class I	641	0.01	641	641	0.01	641	655	0.02	655	655	0.02	655	655	0.02	655
S5-s128	Unnamed trib of Beanblossom Creek	Ephemeral	40	-	0.01	Natural	Class II	92	0.01	92	92	0.01	92	141	0.01	141	141	0.01	141	141	0.01	141
S5-s129	Unnamed trib of Beanblossom Creek	Ephemeral	39	-	0.01	Natural	Class I	0	0.00	0	0	0.00	0	124	0.01	124	124	0.01	124	124	0.01	124
S5-s130	Unnamed trib of Beanblossom Creek	Ephemeral	40	-	0.01	Natural	Class II	59	0.01	59	58	0.01	58	108	0.01	108	108	0.01	108	108	0.01	108
S5-s131a	Unnamed trib of Beanblossom Creek	Ephemeral	41	-	0.03	Natural	Class II	478	0.05	478	467	0.05	467	3	0.01	3	0	0.00	0	0	0.00	0
S5-s131b	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.03	Culvert		76	0.01	0	76	0.01	0	76	0.01	0	0	0.00	0	65	0.01	0
S5-s131c	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.03	Concrete Gutter	Modified Class I	414	0.01	414	414	0.01	414	414	0.01	414	414	0.01	414	414	0.01	414
S5-s132	Unnamed trib of Beanblossom Creek	Ephemeral	52	-	0.01	Natural	Class II	30	0.01	30	24	0.01	24	0	0.00	0	0	0.00	0	0	0.00	0
S5-s134	Unnamed trib of Beanblossom Creek	Ephemeral	38	-	0.01	Natural	Class I	223	0.02	223	222	0.02	222	190	0.01	190	217	0.01	217	217	0.01	217
S5-s135	Unnamed trib of Beanblossom Creek	Ephemeral	35	-	0.01	Natural	Class I	83	0.01	83	82	0.01	82	39	0.01	39	88	0.01	88	81	0.01	81
S5-s146	Unnamed trib of Beanblossom Creek	Ephemeral	28	-	0.01	Natural	Class I	87	0.01	87	90	0.01	90	0	0.00	0	0	0.00	0	0	0.00	0
S5-s147a	Unnamed trib of Beanblossom Creek	Intermittent	51	-	0.17	Natural	Class II	159	0.01	159	137	0.01	137	76	0.01	0	121	0.01	121	75	0.01	0

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								LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.
S5-s147b	Unnamed trib of Beanblossom Creek	Intermittent	-	-	0.17	Culvert		424	0.04	0	424	0.04	0	424	0.04	0	424	0.04	0	424	0.04	0
S5-s147b_1	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	95	0.01	95	95	0.01	95	95	0.01	95	95	0.01	95	95	0.01	95
S5-s147b_2	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	708	0.02	708	708	0.02	708	708	0.02	708	708	0.02	708	708	0.02	708
S5-s147c	Unnamed trib of Beanblossom Creek	Intermittent	66	-	0.17	Natural	Class III	1,482	0.34	1482	1,454	0.33	1454	218	0.05	0	951	0.22	951	217	0.05	0
S5-s148a	Unnamed trib of Beanblossom Creek	Ephemeral	63	-	0.04	Natural	Class III	797	0.04	797	797	0.04	797	340	0.02	340	453	0.02	453	340	0.02	340
S5-s148b	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.04	Culvert		39	0.01	0	39	0.01	0	39	0.01	0	39	0.01	0	39	0.01	0
S5-s148c	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.04	Concrete Gutter	Modified Class I	320	0.01	320	320	0.01	320	320	0.01	320	320	0.01	320	320	0.01	320
S5-s149	Unnamed trib of Beanblossom Creek	Ephemeral	36	-	0.01	Natural	Class I	102	0.01	102	57	0.01	57	0	0.00	0	109	0.01	109	0	0.00	0
S5-s150	Unnamed trib of Beanblossom Creek	Ephemeral	36	-	0.01	Natural	Class I	182	0.01	182	182	0.01	182	0	0.00	0	182	0.01	182	0	0.00	0
S5-s150_2	Unnamed trib of Beanblossom Creek	Ephemeral	21	-	0.01	Natural	Class I	100	0.01	100	100	0.01	100	0	0.00	0	100	0.01	100	0	0.00	0
S5-s151	Unnamed trib of Beanblossom Creek	Ephemeral	33	-	0.01	Natural	Class I	175	0.01	175	166	0.01	166	103	0.01	103	167	0.01	167	102	0.01	102
S5-s152	Unnamed trib of Beanblossom Creek	Ephemeral	41	-	0.17	Natural	Class II	213	0.01	213	213	0.01	213	0	0.00	0	0	0.00	0	0	0.00	0
S5-s155_1	Unnamed trib of Fox Hollow	Ephemeral	28	-	0.01	Natural	Class I	82	0.01	82	82	0.01	82	39	0.01	39	14	0.01	14	27	0.01	27
S5-s155a	Unnamed trib of Fox Hollow	Ephemeral	86	-	0.01	Natural	Class III	95	0.03	95	96	0.03	96	22	0.01	22	11	0.01	11	19	0.01	19
S5-s160b	Unnamed trib of Fox Hollow	Intermittent	-	-	0.06	Culvert		334	0.02	0	334	0.02	0	334	0.02	0	334	0.02	0	334	0.02	0
S5-s160c	Unnamed trib of Fox Hollow	Intermittent	38	-	0.06	Natural	Class I	56	0.01	0	59	0.01	0	59	0.01	0	59	0.01	0	59	0.01	0
S5-s181a	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	432	0.01	432	432	0.01	432	432	0.01	432	432	0.01	432	432	0.01	432
S5-s181b	Unnamed trib of Beanblossom Creek	Ephemeral	57	-	0.01	Natural	Class II	309	0.02	309	309	0.02	309	260	0.02	260	122	0.01	122	264	0.02	264
S5-s182	Unnamed trib of Beanblossom Creek	Ephemeral	52	-	0.01	Natural	Class II	322	0.01	322	322	0.01	322	322	0.01	322	322	0.01	322	322	0.01	322
S5-s183	Unnamed trib of Beanblossom Creek	Ephemeral	52	-	0.01	Natural	Class II	116	0.01	116	116	0.01	116	80	0.01	80	0	0.00	0	83	0.01	83
S5-s184	Unnamed trib of Beanblossom Creek	Ephemeral	46	-	0.01	Natural	Class II	111	0.01	111	92	0.01	92	0	0.00	0	0	0.00	0	0	0.00	0
S5-s185_1	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.04	Concrete Gutter	Modified Class I	114	0.01	114	114	0.01	114	114	0.01	114	114	0.01	114	114	0.01	114
S5-s185a	Unnamed trib of Beanblossom Creek	Ephemeral	57	-	0.04	Natural	Class II	666	0.03	666	666	0.03	666	434	0.02	434	243	0.01	243	439	0.02	439
S5-s185b	Unnamed trib of Beanblossom Creek	Ephemeral	-	-	0.04	Culvert		21	0.01	0	21	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s185c	Unnamed trib of Beanblossom Creek	Ephemeral	57	-	0.04	Natural	Class II	110	0.01	110	94	0.01	94	0	0.00	0	0	0.00	0	0	0.00	0
S5-s188	Unnamed trib of Beanblossom Creek	Ephemeral	37	-	0.09	Natural	Class I	177	0.01	177	174	0.01	174	0	0.00	0	0	0.00	0	0	0.00	0
S5-s189	Unnamed trib of Beanblossom Creek	Ephemeral	29	-	0.01	Natural	Class I	142	0.01	142	140	0.01	140	0	0.00	0	0	0.00	0	0	0.00	0
S5-s190a	Unnamed trib of Beanblossom Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	459	0.01	459	459	0.01	459	459	0.01	459	459	0.01	459	459	0.01	459
S5-s190b	Unnamed trib of Beanblossom Creek	Ephemeral	77	-	0.01	Natural	Class III	327	0.05	327	331	0.05	331	175	0.02	175	102	0.01	102	176	0.02	176
S5-s193	Unnamed trib of Beanblossom Creek	Ephemeral	48	-	0.01	Natural	Class II	145	0.01	145	140	0.01	140	0	0.00	0	0	0.00	0	0	0.00	0
S5-s207	Unnamed trib of Payne Hollow	Ephemeral	33	-	0.01	Natural	Class I	326	0.04	326	315	0.04	315	400	0.05	400	251	0.03	251	399	0.05	399
S5-s208	Unnamed trib of Payne Hollow	Ephemeral	21	-	0.01	Natural	Class I	41	0.01	41	25	0.01	25	109	0.01	109	0	0.00	0	106	0.01	106
S5-s216b	Unnamed trib of Payne Hollow	Ephemeral	-	-	0.03	Culvert		351	0.01	0	351	0.01	0	351	0.01	0	346	0.01	0	351	0.01	0
S5-s216b_1	Unnamed trib of Payne Hollow	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	472	0.01	472	472	0.01	472	472	0.01	472	465	0.01	465	472	0.01	472
S5-s216c	Unnamed trib of Payne Hollow	Ephemeral	76	-	0.03	Natural	Class III	138	0.02	0	130	0.02	0	206	0.03	0	125	0.02	0	193	0.03	0
S5-s217	Unnamed trib of Payne Hollow	Ephemeral	70	-	0.01	Natural	Class III	159	0.01	159	164	0.01	164	179	0.01	179	126	0.01	126	179	0.01	179
S5-s219_1	Unnamed trib of Payne Hollow	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	186	0.01	186	186	0.01	186	186	0.01	186	186	0.01	186	186	0.01	186
S5-s219a	Unnamed trib of Payne Hollow	Ephemeral	57	-	0.01	Natural	Class II	39	0.01	0	39	0.01	0	39	0.01	0	39	0.01	0	39	0.01	0
S5-s219b	Unnamed trib of Payne Hollow	Ephemeral	-	-	0.01	Culvert		307	0.02	0	307	0.02	0	307	0.02	0	307	0.02	0	307	0.02	0
S5-s219c	Unnamed trib of Payne Hollow	Ephemeral	29	-	0.01	Natural	Class I	350	0.03	350	350	0.03	350	294	0.02	294	120	0.01	0	294	0.02	294
S5-s220a	Unnamed trib of Payne Hollow	Ephemeral	29	-	0.01	Natural	Class I	163	0.01	163	162	0.01	162	0	0.00	0	0	0.00	0	0	0.00	0
S5-s227	Unnamed trib of Payne Hollow	Ephemeral	17	-	0.01	Natural	Class I	413	0.03	413	416	0.03	416	401	0.03	401	0	0.00	0	399	0.03	399
S5-s228a	Unnamed trib of Bryant Creek	Ephemeral	17	-	0.01	Concrete Gutter	Modified Class I	162	0.01	162	162	0.01	162	162	0.01	162	162	0.01	162	162	0.01	162
S5-s228b	Unnamed trib of Bryant Creek	Ephemeral	40	-	0.01	Natural	Class II	187	0.01	187	190	0.01	190	190	0.01	190	190	0.01	190	190	0.01	190
S5-s229	Unnamed trib of Payne Hollow	Ephemeral	33	-	0.02	Natural	Class I	329	0.01	329	329	0.01	329	214	0.01	214	0	0.00	0	213	0.01	213
S5-s229_1	Unnamed trib of Payne Hollow	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	199	0.01	199	199	0.01	199	199	0.01	199	158	0.01	158	199	0.01	199
S5-s237	Unnamed trib of Indian Creek	Ephemeral	24	-	0.03	Natural	Class I	528	0.04	528	550	0.04	550	0	0.00	0	0	0.00	0	0	0.00	0
S5-s238a	Unnamed trib of Indian Creek	Ephemeral	12	-	0.02	Concrete Gutter	Modified Class I	142	0.01	142	142	0.01	142	142	0.01	142	142	0.01	142	142	0.01	142
S5-s238b	Unnamed trib of Indian Creek	Ephemeral	45	-	0.02	Natural	Class II	879	0.11	879	913	0.12	913	121	0.02	121	57	0.01	57	122	0.02	122
S5-s239a	Unnamed trib of Indian Creek	Ephemeral	17	-	0.01	Natural	Class I	121	0.01	0	121	0.01	0	121	0.01	0	100	0.01	0	104	0.01	0
S5-s239b	Unnamed trib of Indian Creek	Ephemeral	-	-	0.02	Culvert		228	0.01	0	228	0.01	0	228	0.01	0	228	0.01	0	228	0.01	0
S5-s239c	Unnamed trib of Indian Creek	Ephemeral	22	-	0.02	Concrete Gutter	Modified Class I	17	0.01	0	17	0.01	0	17	0.01	0	17	0.01	0	17	0.01	0

Appendix A - Table 1: Stream Impacts and Stream Relocation Lengths by Alternative

Stream ID#	Stream Name	USGS Stream Type	HHEI Score	QHEI Score	Drain Area (mi2)	Channel Type	Stream Habitat Classification	Alternative 4			Alternative 5			Alternative 6			Alternative 7			Preferred Alternative 8		
								LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.
S5-s239d	Unnamed trib of Indian Creek	Ephemeral	-	-	0.02	Culvert		32	0.01	0	32	0.01	0	32	0.01	0	32	0.01	0	32	0.01	0
S5-s239e	Unnamed trib of Indian Creek	Ephemeral	60	-	0.02	Natural	Class III	368	0.04	368	371	0.04	371	87	0.01	0	53	0.01	0	100	0.01	0
S5-s239f	Unnamed trib of Indian Creek	Intermittent	60	-	0.02	Natural	Class III	497	0.05	497	494	0.05	494	0	0.00	0	0	0.00	0	0	0.00	0
S5-s240	Unnamed trib of Indian Creek	Intermittent	43	-	0.01	Natural	Class II	211	0.01	211	211	0.01	211	0	0.00	0	0	0.00	0	0	0.00	0
S5-s241a	Unnamed trib of Indian Creek	Ephemeral	50	-	0.01	Natural	Class II	40	0.01	0	41	0.01	0	197	0.01	0	71	0.01	0	146	0.01	0
S5-s241b	Unnamed trib of Indian Creek	Ephemeral	-	-	0.01	Culvert		395	0.02	0	395	0.02	0	395	0.02	0	395	0.02	0	395	0.02	0
S5-s241c	Unnamed trib of Indian Creek	Ephemeral	45	-	0.01	Natural	Class II	41	0.01	0	39	0.01	0	39	0.01	0	39	0.01	0	39	0.01	0
S5-s242_1a	Unnamed trib of Indian Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	76	0.01	76	76	0.01	76	76	0.01	76	76	0.01	76	76	0.01	76
S5-s242_1b	Unnamed trib of Indian Creek	Ephemeral	-	-	0.01	Culvert		51	0.01	0	51	0.01	0	51	0.01	0	51	0.01	0	51	0.01	0
S5-s242_1c	Unnamed trib of Indian Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	416	0.01	416	416	0.01	416	416	0.01	416	416	0.01	416	416	0.01	416
S5-s242a	Unnamed trib of Indian Creek	Ephemeral	39	-	0.08	Natural	Class I	118	0.01	0	115	0.01	0	174	0.02	0	36	0.01	0	36	0.01	0
S5-s242b	Unnamed trib of Indian Creek	Ephemeral	-	-	0.08	Culvert		502	0.06	0	502	0.06	0	502	0.06	0	502	0.06	0	502	0.06	0
S5-s242c	Unnamed trib of Indian Creek	Ephemeral	52	-	0.08	Natural	Class II	116	0.02	0	136	0.02	0	92	0.01	0	49	0.01	0	94	0.01	0
S5-s246_1	Unnamed trib of Indian Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	1,020	0.05	1020	1,020	0.05	1020	1,020	0.05	1020	1,020	0.05	1020	1,020	0.05	1020
S5-s246_2	Unnamed trib of Indian Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	462	0.01	462	462	0.01	462	462	0.01	462	462	0.01	462	462	0.01	462
S5-s246_2a	Unnamed trib of Indian Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	211	0.01	211	211	0.01	211	211	0.01	211	211	0.01	211	211	0.01	211
S5-s246_3	Unnamed trib of Indian Creek	Ephemeral	-	-	0.01	Culvert		104	0.01	0	104	0.01	0	104	0.01	0	104	0.01	0	104	0.01	0
S5-s246a	Unnamed trib of Indian Creek	Ephemeral	40	-	0.08	Natural	Class II	39	0.01	0	41	0.01	0	21	0.01	0	21	0.01	0	21	0.01	0
S5-s246b	Unnamed trib of Indian Creek	Ephemeral	-	-	0.08	Culvert		554	0.11	0	554	0.11	0	554	0.11	0	554	0.11	0	554	0.11	0
S5-s246c	Unnamed trib of Indian Creek	Intermittent	38	-	0.08	Natural	Class I	456	0.04	456	455	0.04	455	340	0.03	340	235	0.02	235	345	0.03	345
S5-s253a†	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	932	0.04	932	932	0.04	932	932	0.04	932	932	0.04	932	932	0.04	932
S5-s253a_1†	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	437	0.02	437	437	0.02	437	437	0.02	437	437	0.02	437	437	0.02	437
S5-s253b†	Unnamed trib of Bryant Creek	Intermittent	63.5	-	0.14	Natural	Class III	263	0.08	263	263	0.08	263	263	0.08	263	263	0.08	263	263	0.08	263
S5-s253c†	Unnamed trib of Bryant Creek	Intermittent	80	-	0.48	Natural	Class III	3,432	1.02	3410	3,432	1.02	3410	3,432	1.02	3410	3,432	1.02	3410	3,432	1.02	3410
S5-s253d†	Unnamed trib of Bryant Creek	Intermittent	-	-	0.70	Culvert		195	0.06	0	195	0.06	0	195	0.06	0	195	0.06	0	195	0.06	0
S5-s253e	Unnamed trib of Bryant Creek	Intermittent	-	55.5	0.71	Natural	Warm Water Habitat	368	0.13	278	363	0.13	275	363	0.13	275	363	0.13	275	363	0.13	303
S5-s254b	Unnamed trib of Bryant Creek	Intermittent	41	-	0.09	Natural	Class II	155	0.02	155	165	0.02	165	165	0.02	165	165	0.02	165	165	0.02	165
S5-s254c†	Unnamed trib of Bryant Creek	Intermittent	-	-	0.09	Culvert		451	0.05	0	451	0.05	0	451	0.05	0	451	0.05	0	451	0.05	0
S5-s254d†	Unnamed trib of Bryant Creek	Intermittent	20	-	0.01	Natural	Modified Class I	22	0.01	0	22	0.01	0	22	0.01	0	22	0.01	0	22	0.01	0
S5-s264	Unnamed trib of Bryant Creek	Ephemeral	21	-	0.01	Natural	Class I	113	0.01	0	115	0.01	0	36	0.01	0	36	0.01	0	36	0.01	0
S5-s264a†	Unnamed trib of Bryant Creek	Intermittent	-	-	0.01	Culvert		213	0.02	0	213	0.02	0	213	0.02	0	213	0.02	0	213	0.02	0
S5-s265a	Unnamed trib of Bryant Creek	Ephemeral	22	-	0.01	Natural	Class I	91	0.01	0	93	0.01	0	57	0.01	0	57	0.01	0	57	0.01	0
S5-s265b†	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		159	0.02	0	159	0.02	0	159	0.02	0	159	0.02	0	159	0.02	0
S5-s265c†	Unnamed trib of Bryant Creek	Ephemeral	30	-	0.01	Natural	Modified Class II	36	0.01	0	36	0.01	0	36	0.01	0	36	0.01	0	36	0.01	0
S5-s266a	Unnamed trib of Bryant Creek	Ephemeral	21	-	0.01	Natural	Class I	108	0.01	0	110	0.01	0	92	0.01	0	92	0.01	0	92	0.01	0
S5-s266b†	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		183	0.02	0	183	0.02	0	183	0.02	0	183	0.02	0	183	0.02	0
S5-s267a	Unnamed trib of Bryant Creek	Ephemeral	35	-	0.01	Natural	Class I	127	0.01	0	125	0.01	0	125	0.01	0	125	0.01	0	125	0.01	0
S5-s267b†	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		204	0.02	0	204	0.02	0	204	0.02	0	204	0.02	0	204	0.02	0
S5-s267c†	Unnamed trib of Bryant Creek	Ephemeral	20	-	0.01	Natural	Modified Class I	13	0.01	0	13	0.01	0	13	0.01	0	13	0.01	0	13	0.01	0
S5-s268a	Unnamed trib of Bryant Creek	Ephemeral	28	-	0.02	Natural	Class I	62	0.01	0	65	0.01	0	45	0.01	0	45	0.01	0	45	0.01	0
S5-s268b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.02	Culvert		149	0.01	0	149	0.01	0	149	0.01	0	149	0.01	0	149	0.01	0
S5-s268c†	Unnamed trib of Bryant Creek	Ephemeral	38	-	0.02	Natural	Class I	154	0.03	154	154	0.03	154	154	0.03	154	154	0.03	154	154	0.03	154
S5-s269a	Unnamed trib of Bryant Creek	Ephemeral	28	-	0.01	Natural	Class I	92	0.01	0	94	0.01	0	39	0.01	0	39	0.01	0	39	0.01	0
S5-s269b†	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		168	0.02	0	168	0.02	0	168	0.02	0	168	0.02	0	168	0.02	0
S5-s269c†	Unnamed trib of Bryant Creek	Ephemeral	38	-	0.01	Natural	Class I	12	0.01	0	12	0.01	0	12	0.01	0	12	0.01	0	12	0.01	0
S5-s270a	Unnamed trib of Bryant Creek	Ephemeral	19	-	0.01	Natural	Class I	153	0.01	0	150	0.01	0	150	0.01	0	150	0.01	0	150	0.01	0
S5-s270b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		139	0.01	0	139	0.01	0	139	0.01	0	139	0.01	0	139	0.01	0
S5-s270c†	Unnamed trib of Bryant Creek	Ephemeral	33	-	0.01	Natural	Class I	202	0.02	0	202	0.02	0	202	0.02	0	202	0.02	0	202	0.02	0
S5-s271a	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Natural	Class I	92	0.01	0	92	0.01	0	73	0.01	0	73	0.01	0	73	0.01	0
S5-s271b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		106	0.01	0	106	0.01	0	106	0.01	0	106	0.01	0	106	0.01	0
S5-s271c†	Unnamed trib of Bryant Creek	Ephemeral	14	-	0.01	Natural	Modified Class I	75	0.02	0	75	0.02	0	75	0.02	0	75	0.02	0	75	0.02	0
S5-s272a	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Natural	Class I	88	0.01	0	88	0.01	0	82	0.01	0	82	0.01	0	82	0.01	0

Appendix A - Table 1: Stream Impacts and Stream Relocation Lengths by Alternative

Stream ID#	Stream Name	USGS Stream Type	HHEI Score	QHEI Score	Drain Area (mi2)	Channel Type	Stream Habitat Classification	Alternative 4			Alternative 5			Alternative 6			Alternative 7			Preferred Alternative 8		
								LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.
S5-s272b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		129	0.01	0	129	0.01	0	129	0.01	0	129	0.01	0	129	0.01	0
S5-s273a	Unnamed trib of Bryant Creek	Ephemeral	50	-	0.01	Natural	Class II	11	0.01	11	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s273b	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	130	0.01	130	130	0.01	130	130	0.01	130	130	0.01	130	130	0.01	130
S5-s273c†	Unnamed trib of Bryant Creek	Ephemeral	19	-	0.01	Natural	Modified Class I	52	0.01	52	52	0.01	52	52	0.01	52	52	0.01	52	52	0.01	52
S5-s274a	Unnamed trib of Bryant Creek	Ephemeral	28	-	0.02	Natural	Class I	114	0.01	0	116	0.01	0	74	0.01	0	74	0.01	0	74	0.01	0
S5-s274b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.02	Culvert		139	0.01	0	139	0.01	0	139	0.01	0	139	0.01	0	139	0.01	0
S5-s274c†	Unnamed trib of Bryant Creek	Ephemeral	23	-	0.02	Natural	Class I	52	0.02	0	52	0.02	0	52	0.02	0	52	0.02	0	52	0.02	0
S5-s275a	Unnamed trib of Bryant Creek	Ephemeral	40	-	0.07	Natural	Class II	52	0.01	0	50	0.01	0	50	0.01	0	50	0.01	0	50	0.01	0
S5-s275b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.07	Culvert		344	0.02	0	344	0.02	0	344	0.02	0	344	0.02	0	344	0.02	0
S5-s275c†	Unnamed trib of Bryant Creek	Ephemeral	43	-	0.07	Natural	Class II	179	0.03	0	179	0.03	0	179	0.03	0	179	0.03	0	179	0.03	0
S5-s276a	Unnamed trib of Bryant Creek	Ephemeral	21	-	0.01	Natural	Class I	247	0.01	247	212	0.01	212	172	0.01	172	172	0.01	172	172	0.01	172
S5-s277a	Unnamed trib of Bryant Creek	Ephemeral	51	-	0.04	Natural	Class II	75	0.01	0	73	0.01	0	73	0.01	0	73	0.01	0	73	0.01	0
S5-s277b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.04	Culvert		196	0.02	0	196	0.02	0	196	0.02	0	196	0.02	0	196	0.02	0
S5-s277c†	Unnamed trib of Bryant Creek	Ephemeral	33	-	0.04	Natural	Class I	188	0.02	0	188	0.02	0	188	0.02	0	188	0.02	0	188	0.02	0
S5-s278a	Unnamed trib of Bryant Creek	Ephemeral	40	-	0.01	Natural	Class II	103	0.01	103	101	0.01	101	101	0.01	101	101	0.01	101	101	0.01	101
S5-s278b	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	706	0.03	706	706	0.03	706	706	0.03	706	706	0.03	706	706	0.03	706
S5-s279a	Unnamed trib of Bryant Creek	Ephemeral	72	-	0.10	Natural	Class III	81	0.01	0	83	0.01	0	23	0.01	0	28	0.01	0	30	0.01	0
S5-s279b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.10	Culvert		136	0.01	0	136	0.01	0	136	0.01	0	136	0.01	0	136	0.01	0
S5-s284a	Unnamed trib of Bryant Creek	Ephemeral	21	-	0.04	Natural	Modified Class I	321	0.01	321	319	0.01	319	319	0.01	319	319	0.01	319	319	0.01	319
S5-s284b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.04	Culvert		74	0.01	0	74	0.01	0	74	0.01	0	74	0.01	0	74	0.01	0
S5-s284c	Unnamed trib of Bryant Creek	Ephemeral	30	-	0.04	Natural	Class I	80	0.01	80	80	0.01	80	80	0.01	80	80	0.01	80	80	0.01	80
S5-s285a	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Natural	Modified Class I	178	0.01	0	135	0.01	0	88	0.01	0	90	0.01	0	90	0.01	0
S5-s285b†	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		166	0.02	0	166	0.02	0	166	0.02	0	166	0.02	0	166	0.02	0
S5-s286	Unnamed trib of Bryant Creek	Ephemeral	58	-	0.12	Natural	Class II	347	0.02	347	344	0.02	344	344	0.02	344	344	0.02	344	344	0.02	344
S5-s287a_1	Unnamed trib of Bryant Creek	Ephemeral	37	-	0.01	Natural	Class I	164	0.01	0	141	0.01	0	57	0.01	0	88	0.01	0	88	0.01	0
S5-s287b	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	101	0.01	101	101	0.01	101	35	0.01	35	101	0.01	101	101	0.01	101
S5-s287c	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		68	0.01	0	68	0.01	0	68	0.01	0	68	0.01	0	68	0.01	0
S5-s287d†	Unnamed trib of Bryant Creek	Ephemeral	25	-	0.01	Natural	Class I	371	0.02	371	371	0.02	371	371	0.02	342	371	0.02	342	371	0.02	342
S5-s288_1	Unnamed trib of Bryant Creek	Ephemeral	37	-	0.01	Natural	Class I	0	0.00	0	0	0.00	0	0	0.00	0	50	0.01	50	0	0.00	0
S5-s288_1a	Unnamed trib of Bryant Creek	Ephemeral	26	-	0.09	Natural	Class I	0	0.00	0	0	0.00	0	0	0.00	0	52	0.01	52	0	0.00	0
S5-s288_1b	Unnamed trib of Bryant Creek	Ephemeral	-	-	5.34	Culvert		0	0.00	0	0	0.00	0	0	0.00	0	28	0.01	0	0	0.00	0
S5-s288a	Bryant Creek	Perennial	-	66.5	5.72	Natural	Warm Water Habitat	120	0.10	0	176	0.14	0	116	0.09	0	300	0.24	0	108	0.09	0
S5-s288b	Bryant Creek	Perennial	-	64	5.72	Bridge	Warm Water Habitat	199	0.09	0	199	0.09	0	199	0.09	0	199	0.09	0	199	0.09	0
S5-s288c	Bryant Creek	Perennial	-	64	5.72	Natural	Warm Water Habitat	161	0.07	0	159	0.07	0	140	0.06	0	140	0.06	0	140	0.06	0
S5-s289a	Unnamed trib of Bryant Creek	Ephemeral	25	-	0.05	Natural	Class I	17	0.01	17	8	0.01	8	8	0.01	8	107	0.01	107	8	0.01	8
S5-s289b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.05	Culvert		28	0.01	0	28	0.01	0	28	0.01	0	28	0.01	0	28	0.01	0
S5-s289c	Unnamed trib of Bryant Creek	Ephemeral	35	-	0.05	Natural	Class I	20	0.01	20	19	0.01	19	19	0.01	19	19	0.01	0	19	0.01	19
S5-s289e	Unnamed trib of Bryant Creek	Ephemeral	27	-	0.05	Dump Rock Gutter	Modified Class I	400	0.02	400	400	0.02	400	400	0.02	400	400	0.02	400	400	0.02	400
S5-s289e_1	Unnamed trib of Bryant Creek	Ephemeral	27	-	0.05	Concrete Gutter	Modified Class I	86	0.01	86	85	0.01	85	85	0.01	85	85	0.01	85	85	0.01	85
S5-s289e_2	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	554	0.02	554	554	0.02	554	554	0.02	554	554	0.02	554	554	0.02	554
S5-s289f	Unnamed trib of Bryant Creek	Ephemeral	48	-	0.05	Roadside Ditch	Modified Class II	565	0.06	565	565	0.06	565	565	0.06	565	565	0.06	565	565	0.06	565
S5-s291	Unnamed trib of Bryant Creek	Ephemeral	18	-	0.01	Natural	Class I	103	0.01	103	106	0.01	106	81	0.01	81	83	0.01	83	82	0.01	82
S5-s293a	Unnamed trib of Bryant Creek	Ephemeral	31	-	0.01	Natural	Class I	70	0.01	0	65	0.01	0	38	0.01	0	38	0.01	0	38	0.01	0
S5-s293b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		237	0.02	0	237	0.02	0	237	0.02	0	237	0.02	0	237	0.02	0
S5-s293c	Unnamed trib of Bryant Creek	Ephemeral	60	-	0.01	Natural	Class III	89	0.01	0	81	0.01	0	80	0.01	0	82	0.01	0	82	0.01	0
S5-s294a	Unnamed trib of Bryant Creek	Ephemeral	14	-	0.01	Natural	Modified Class I	66	0.01	0	63	0.01	0	41	0.01	0	42	0.01	0	43	0.01	0
S5-s294a_1	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	304	0.01	304	304	0.01	304	282	0.01	282	282	0.01	282	282	0.01	282
S5-s294a_2	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	146	0.01	146	146	0.01	146	146	0.01	146	146	0.01	146	146	0.01	146
S5-s294b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		233	0.01	0	233	0.01	0	233	0.01	0	233	0.01	0	233	0.01	0
S5-s294c	Unnamed trib of Bryant Creek	Ephemeral	29	-	0.01	Natural	Class I	109	0.01	0	111	0.01	0	116	0.01	0	126	0.01	0	126	0.01	0
S5-s299a	Unnamed trib of Bryant Creek	Ephemeral	30	-	0.11	Natural	Class I	177	0.01	177	94	0.01	94	150	0.01	150	136	0.01	136	136	0.01	136
S5-s299a_1	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.14	Concrete Gutter	Modified Class I	1,164	0.03	1164	1,164	0.03	1164	1,164	0.03	1164	1,164	0.03	1164	1,164	0.03	1164

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S5-s299b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.11	Culvert		39	0.01	0	39	0.01	0	39	0.01	0	39	0.01	0	39	0.01	0
S5-s299c	Unnamed trib of Bryant Creek	Ephemeral	34	-	0.11	Roadside Ditch	Modified Class II	159	0.01	159	159	0.01	159	159	0.01	159	159	0.01	159	159	0.01	159
S5-s299d	Unnamed trib of Bryant Creek	Ephemeral	51	-	0.13	Natural	Class II	845	0.22	845	815	0.22	815	785	0.21	785	751	0.20	751	761	0.20	761
S5-s300a	Unnamed trib of Bryant Creek	Ephemeral	40	-	0.01	Natural	Class II	99	0.01	0	98	0.01	0	98	0.01	0	98	0.01	0	98	0.01	0
S5-s300b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		291	0.01	0	291	0.01	0	291	0.01	0	291	0.01	0	291	0.01	0
S5-s302a	Unnamed trib of Bryant Creek	Ephemeral	21	-	0.01	Natural	Class I	125	0.01	0	123	0.01	0	123	0.01	0	124	0.01	0	124	0.01	0
S5-s302b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		281	0.02	0	281	0.02	0	281	0.02	0	281	0.02	0	281	0.02	0
S5-s308	Unnamed trib of Bryant Creek	Ephemeral	22	-	0.01	Natural	Class I	113	0.01	113	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s314a	Unnamed trib of Bryant Creek	Ephemeral	18	-	0.01	Roadside Ditch	Modified Class I	156	0.01	156	8	0.01	8	8	0.01	8	8	0.01	8	8	0.01	8
S5-s314b	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.10	Concrete Gutter	Modified Class I	998	0.07	998	998	0.07	998	998	0.07	998	998	0.07	998	998	0.07	998
S5-s314c	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.10	Culvert		199	0.01	0	199	0.01	0	199	0.01	0	199	0.01	0	199	0.01	0
S5-s315a	Unnamed trib of Bryant Creek	Ephemeral	25	-	0.04	Natural	Class I	875	0.04	875	202	0.01	202	228	0.01	228	228	0.01	228	228	0.01	228
S5-s315b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.04	Culvert		168	0.01	0	168	0.01	0	168	0.01	0	168	0.01	0	168	0.01	0
S5-s315c	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.04	Concrete Gutter	Modified Class I	878	0.04	878	878	0.04	878	878	0.04	878	878	0.04	878	878	0.04	878
S5-s315d	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.04	Culvert		115	0.01	0	115	0.01	0	115	0.01	0	115	0.01	0	115	0.01	0
S5-s316_1	Unnamed trib of Bryant Creek	Ephemeral	33	-	0.01	Natural	Class I	379	0.04	379	323	0.04	323	0	0.00	0	0	0.00	0	0	0.00	0
S5-s316a	Unnamed trib of Bryant Creek	Ephemeral	30	-	0.02	Natural	Class I	285	0.02	285	168	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s316b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.02	Culvert		94	0.01	0	8	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s316c	Unnamed trib of Bryant Creek	Ephemeral	16	-	0.02	Natural	Modified Class I	337	0.02	337	337	0.02	337	73	0.01	73	73	0.01	73	73	0.01	73
S5-s316d	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.02	Culvert		56	0.01	0	56	0.01	0	56	0.01	0	56	0.01	0	56	0.01	0
S5-s317	Unnamed trib of Bryant Creek	Ephemeral	15	-	0.01	Natural	Class I	408	0.02	408	0	0.00	0	7	0.01	7	7	0.01	7	7	0.01	7
S5-s318	Unnamed trib of Bryant Creek	Ephemeral	24	-	0.01	Natural	Class I	112	0.01	112	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s319_1a	Unnamed trib of Bryant Creek	Ephemeral	16	-	0.01	Concrete Gutter	Modified Class I	24	0.01	24	24	0.01	24	24	0.01	24	24	0.01	24	24	0.01	24
S5-s319_1b	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		55	0.01	0	23	0.01	0	55	0.01	0	55	0.01	0	55	0.01	0
S5-s319_1c	Unnamed trib of Bryant Creek	Ephemeral	32	-	0.01	Natural	Modified Class II	51	0.01	51	0	0.00	0	27	0.01	27	27	0.01	27	27	0.01	27
S5-s319a	Unnamed trib of Bryant Creek	Ephemeral	30	-	0.02	Natural	Class I	518	0.06	518	315	0.04	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s319b	Unnamed trib of Bryant Creek	Ephemeral	46	-	0.02	Natural	Class II	172	0.01	172	0	0.00	0	11	0.01	11	11	0.01	11	11	0.01	11
S5-s319c	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.10	Culvert		103	0.01	0	16	0.01	0	94	0.01	0	94	0.01	0	94	0.01	0
S5-s320	Unnamed trib of Bryant Creek	Ephemeral	29	-	0.01	Natural	Class I	437	0.07	437	215	0.03	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s325	Unnamed trib of Little Indian Creek	Ephemeral	25	-	0.01	Natural	Class I	525	0.05	525	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s326a	Unnamed trib of Little Indian Creek	Ephemeral	6	-	0.01	Natural	Modified Class I	251	0.01	251	116	0.01	116	0	0.00	0	0	0.00	0	0	0.00	0
S5-s326b	Unnamed trib of Little Indian Creek	Intermittent	38	-	0.43	Natural	Class I	251	0.05	251	250	0.05	250	84	0.02	84	75	0.01	75	99	0.02	99
S5-s326c	Unnamed trib of Little Indian Creek	Intermittent	19	-	0.43	Roadside Ditch	Modified Class I	592	0.04	592	592	0.04	592	592	0.04	592	592	0.04	592	592	0.04	592
S5-s327	Unnamed trib of Little Indian Creek	Ephemeral	22	-	0.01	Natural	Class I	169	0.01	169	95	0.01	95	0	0.00	0	0	0.00	0	0	0.00	0
S5-s328	Unnamed trib of Little Indian Creek	Ephemeral	17	-	0.01	Natural	Class I	144	0.01	144	96	0.01	96	0	0.00	0	0	0.00	0	0	0.00	0
S5-s330a	Unnamed trib of Little Indian Creek	Ephemeral	18	-	0.04	Natural	Class I	99	0.01	99	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s330b	Unnamed trib of Little Indian Creek	Intermittent	34	-	0.04	Natural	Class I	143	0.02	143	120	0.01	120	103	0.01	103	106	0.01	106	101	0.01	101
S5-s330b_1	Unnamed trib of Little Indian Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	426	0.01	426	426	0.01	426	426	0.01	426	426	0.01	426	426	0.01	426
S5-s330c	Unnamed trib of Little Indian Creek	Intermittent	17	-	0.04	Concrete Gutter	Modified Class I	832	0.02	832	832	0.02	832	832	0.02	832	832	0.02	832	832	0.02	832
S5-s331a	Unnamed trib of Little Indian Creek	Ephemeral	37	-	0.10	Natural	Class I	80	0.01	0	81	0.01	0	27	0.01	27	158	0.02	158	107	0.01	107
S5-s331b	Unnamed trib of Little Indian Creek	Intermittent	-	-	0.10	Culvert		408	0.04	0	408	0.04	0	408	0.04	0	408	0.04	0	408	0.04	0
S5-s331d	Unnamed trib of Little Indian Creek	Intermittent	57	-	0.10	Natural	Class II	492	0.09	492	494	0.09	494	494	0.09	494	494	0.09	494	494	0.09	494
S5-s338b	Unnamed trib of Little Indian Creek	Ephemeral	39	-	0.03	Natural	Class I	98	0.02	0	164	0.03	0	96	0.02	0	99	0.02	0	102	0.02	0
S5-s338c	Unnamed trib of Little Indian Creek	Ephemeral	-	-	0.03	Culvert		240	0.04	0	240	0.04	0	240	0.04	0	240	0.04	0	240	0.04	0
S5-s343a	Unnamed trib of Little Indian Creek	Ephemeral	34	-	0.06	Natural	Class I	164	0.02	0	146	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s343b	Unnamed trib of Little Indian Creek	Ephemeral	-	-	0.06	Culvert		324	0.03	0	324	0.03	0	290	0.03	0	290	0.03	0	290	0.03	0
S5-s343e	Unnamed trib of Little Indian Creek	Ephemeral	23	-	0.06	Natural	Class I	196	0.01	0	308	0.02	0	84	0.01	0	81	0.01	0	85	0.01	0
S5-s343f	Unnamed trib of Little Indian Creek	Ephemeral	-	-	0.06	Culvert		34	0.01	0	34	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s343g	Unnamed trib of Little Indian Creek	Ephemeral	64	-	0.06	Natural	Class III	28	0.01	0	30	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s344_2	Unnamed trib of Little Indian Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	309	0.01	309	309	0.01	309	309	0.01	309	309	0.01	309	309	0.01	309
S5-s344_2a	Unnamed trib of Little Indian Creek	Ephemeral	-	-	0.01	Culvert		61	0.01	0	61	0.01	0	61	0.01	0	61	0.01	0	61	0.01	0
S5-s344_2b	Unnamed trib of Little Indian Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	193	0.01	193	193	0.01	193	193	0.01	193	193	0.01	193	193	0.01	193

Appendix A - Table 1: Stream Impacts and Stream Relocation Lengths by Alternative

Stream ID#	Stream Name	USGS Stream Type	HHEI Score	QHEI Score	Drain Area (mi2)	Channel Type	Stream Habitat Classification	Alternative 4			Alternative 5			Alternative 6			Alternative 7			Preferred Alternative 8		
								LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.
S5-s344a	Unnamed trib of Little Indian Creek	Ephemeral	29	-	0.10	Natural	Modified Class I	197	0.01	0	195	0.01	0	90	0.01	0	90	0.01	0	79	0.01	0
S5-s344a_1	Unnamed trib of Little Indian Creek	Ephemeral	15	-	0.02	Roadside Ditch	Modified Class I	485	0.03	485	485	0.03	485	485	0.03	485	485	0.03	485	485	0.03	485
S5-s344b	Unnamed trib of Little Indian Creek	Ephemeral	-	-	0.10	Culvert		180	0.01	0	180	0.01	0	180	0.01	0	180	0.01	0	180	0.01	0
S5-s344c	Unnamed trib of Little Indian Creek	Ephemeral	23	-	0.10	Natural	Modified Class I	213	0.01	0	214	0.01	0	87	0.01	0	87	0.01	0	87	0.01	0
S5-s345c	Little Indian Creek	Perennial	-	60	10.75	Natural	Warm Water Habitat	113	0.09	0	108	0.09	0	99	0.08	0	106	0.09	0	99	0.08	0
S5-s345d	Little Indian Creek	Perennial	-	52.5	10.75	Bridge	Warm Water Habitat	130	0.10	0	130	0.10	0	130	0.10	0	130	0.10	0	130	0.10	0
S5-s345e	Little Indian Creek	Perennial	-	52.5	10.75	Natural	Warm Water Habitat	186	0.25	0	186	0.25	0	111	0.15	0	122	0.16	0	138	0.18	0
S5-s345f	Little Indian Creek	Perennial	-	46.75	11.88	Natural	Warm Water Habitat	107	0.04	0	41	0.02	0	335	0.14	0	0	0.00	0	327	0.14	0
S5-s345g	Little Indian Creek	Perennial	-	46.75	11.88	Bridge	Warm Water Habitat	25	0.01	0	0	0.00	0	25	0.01	0	0	0.00	0	25	0.01	0
S5-s345h	Little Indian Creek	Perennial	-	46.75	11.88	Natural	Warm Water Habitat	121	0.05	0	435	0.18	0	74	0.03	0	219	0.09	0	38	0.02	0
S5-s346a	Unnamed trib of Little Indian Creek	Ephemeral	37	-	0.04	Natural	Class I	274	0.03	0	282	0.03	0	120	0.01	120	120	0.01	120	120	0.01	120
S5-s346a_1	Unnamed trib of Little Indian Creek	Ephemeral	15	-	0.01	Roadside Ditch	Modified Class I	531	0.02	531	531	0.02	531	531	0.02	531	531	0.02	531	531	0.02	531
S5-s346a_2	Unnamed trib of Little Indian Creek	Ephemeral	32	-	0.01	Roadside Ditch	Modified Class II	112	0.01	112	112	0.01	112	112	0.01	112	112	0.01	112	112	0.01	112
S5-s346b	Unnamed trib of Little Indian Creek	Ephemeral	-	-	0.04	Culvert		164	0.02	0	164	0.02	0	164	0.02	0	164	0.02	0	164	0.02	0
S5-s346c	Unnamed trib of Little Indian Creek	Ephemeral	49	-	0.04	Natural	Modified Class II	221	0.01	0	222	0.01	0	92	0.01	0	91	0.01	0	92	0.01	0
S5-s348a	Unnamed trib of Little Indian Creek	Ephemeral	15	-	0.04	Roadside Ditch	Modified Class I	618	0.03	618	618	0.03	618	618	0.03	618	618	0.03	618	618	0.03	618
S5-s348a_1	Unnamed trib of Little Indian Creek	Ephemeral	6	-	0.01	Roadside Ditch	Modified Class I	279	0.01	279	279	0.01	279	279	0.01	279	279	0.01	279	279	0.01	279
S5-s348b	Unnamed trib of Little Indian Creek	Ephemeral	-	-	0.04	Culvert		183	0.01	0	183	0.01	0	183	0.01	0	183	0.01	0	183	0.01	0
S5-s348c	Unnamed trib of Little Indian Creek	Ephemeral	40	-	0.04	Natural	Modified Class II	187	0.01	0	187	0.01	0	104	0.01	0	105	0.01	0	104	0.01	0
S5-s348d	Unnamed trib of Little Indian Creek	Ephemeral	22	-	0.03	Natural	Class I	9	0.01	0	10	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s349a	Unnamed trib of Little Indian Creek	Intermittent	56	-	0.92	Natural	Class II	0	0.00	0	219	0.03	0	206	0.03	206	173	0.02	0	206	0.03	206
S5-s349b	Unnamed trib of Little Indian Creek	Intermittent	-	-	0.92	Culvert		0	0.00	0	0	0.00	0	0	0.00	0	13	0.01	0	0	0.00	0
S5-s349c	Unnamed trib of Little Indian Creek	Intermittent	53	-	0.97	Natural	Class II	84	0.02	0	163	0.04	0	665	0.15	665	79	0.02	0	665	0.15	665
S5-s349d	Unnamed trib of Little Indian Creek	Intermittent	-	-	0.97	Culvert		183	0.04	0	183	0.04	0	183	0.04	0	183	0.04	0	183	0.04	0
S5-s349e	Unnamed trib of Little Indian Creek	Intermittent	32	-	0.97	Natural	Class I	764	0.17	698	259	0.06	0	720	0.16	720	253	0.06	0	712	0.16	712
S5-s350a	Jordan Creek	Perennial	-	30	2.72	Natural	Limited Resource Water	0	0.00	0	169	0.02	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s350b	Jordan Creek	Perennial	-	24	2.72	Natural	Limited Resource Water	218	0.03	0	157	0.02	0	209	0.02	0	195	0.02	0	196	0.02	0
S5-s350c	Jordan Creek	Perennial	-	24	2.72	Bridge	Limited Resource Water	129	0.01	0	129	0.01	0	129	0.01	0	129	0.01	0	129	0.01	0
S5-s350d	Jordan Creek	Perennial	-	24	2.72	Natural	Limited Resource Water	248	0.03	0	357	0.04	0	98	0.01	0	225	0.03	0	98	0.01	0
S5-s351a	Buckner Branch	Intermittent	-	31	1.25	Natural	Limited Resource Water	230	0.03	0	240	0.03	0	101	0.01	0	87	0.01	0	106	0.01	0
S5-s351b	Buckner Branch	Intermittent	-	-	1.25	Culvert		192	0.03	0	192	0.03	0	192	0.03	0	192	0.03	0	192	0.03	0
S5-s351c	Buckner Branch	Intermittent	-	31	1.25	Natural	Limited Resource Water	203	0.03	0	246	0.03	0	84	0.01	0	81	0.01	0	81	0.01	0
S5-s357a	Unnamed trib of Bryant Creek	Ephemeral	22	-	0.01	Natural	Class I	95	0.01	0	93	0.01	0	93	0.01	0	93	0.01	0	93	0.01	0
S5-s357b†	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		318	0.02	0	318	0.02	0	318	0.02	0	318	0.02	0	318	0.02	0
S5-s357c†	Unnamed trib of Bryant Creek	Ephemeral	40	-	0.01	Natural	Class II	55	0.01	0	55	0.01	0	55	0.01	0	55	0.01	0	55	0.01	0
S5-s358a	Unnamed trib of Bryant Creek	Ephemeral	10	-	0.01	Natural	Class I	104	0.01	0	102	0.01	0	102	0.01	0	102	0.01	0	102	0.01	0
S5-s358b†	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.01	Culvert		290	0.02	0	290	0.02	0	290	0.02	0	290	0.02	0	290	0.02	0
S5-s358c†	Unnamed trib of Bryant Creek	Ephemeral	22	-	0.01	Natural	Modified Class I	27	0.01	0	27	0.01	0	27	0.01	0	27	0.01	0	27	0.01	0
S5-s359_2	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.03	Concrete Gutter	Modified Class I	693	0.02	693	693	0.02	693	585	0.02	585	585	0.02	585	585	0.02	585
S5-s359b	Unnamed trib of Bryant Creek	Ephemeral	48	-	0.05	Natural	Class II	71	0.01	71	69	0.01	69	0	0.00	0	0	0.00	0	0	0.00	0
S5-s359c	Unnamed trib of Bryant Creek	Ephemeral	-	-	0.05	Culvert		347	0.03	0	347	0.03	0	328	0.02	0	328	0.02	0	328	0.02	0
S5-s360b_1	Unnamed trib of Fox Hollow	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	355	0.01	355	355	0.01	355	355	0.01	355	355	0.01	355	355	0.01	355
S5-s361	Unnamed trib of Little Indian Creek	Ephemeral	50	-	0.01	Natural	Class II	255	0.08	255	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s361_1	Unnamed trib of Little Indian Creek	Ephemeral	32	-	0.01	Natural	Class I	68	0.01	68	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s363a	Unnamed trib of Bryant Creek	Ephemeral	38	-	0.01	Natural	Class I	132	0.01	132	132	0.01	132	132	0.01	132	132	0.01	132	132	0.01	132
S5-s365	Unnamed trib of Bryant Creek	Ephemeral	27	-	0.01	Natural	Class I	184	0.01	184	187	0.01	187	144	0.01	144	144	0.01	144	144	0.01	144
S5-s366	Unnamed trib of Payne Hollow	Ephemeral	21	-	0.01	Natural	Class I	10	0.01	10	19	0.01	19	0	0.00	0	0	0.00	0	0	0.00	0
S5-s368	Unnamed trib of Bryant Creek	Ephemeral	40	-	0.01	Natural	Class II	86	0.01	0	85	0.01	0	0	0.00	0	0	0.00	0	0	0.00	0
S5-s383	Unnamed trib of Bryant Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	160	0.01	160	141	0.01	141	141	0.01	141	141	0.01	141	141	0.01	141
S5-s384a	Unnamed trib of Indian Creek	Ephemeral	22	-	0.02	Roadside Ditch	Modified Class I	2,379	0.10	2379	2,379	0.10	2379	2,379	0.10	2379	2,379	0.10	2379	2,379	0.10	2379
S5-s384b	Unnamed trib of Indian Creek	Ephemeral	12	-	0.04	Concrete Gutter	Modified Class I	101	0.01	101	101	0.01	101	101	0.01	101	101	0.01	101	101	0.01	101
S5-s384b_1	Unnamed trib of Indian Creek	Ephemeral	12	-	0.01	Concrete Gutter	Modified Class I	42	0.01	42	42	0.01	42	42	0.01	42	42	0.01	42	42	0.01	42

Appendix A - Table 1: Stream Impacts and Stream Relocation Lengths by Alternative

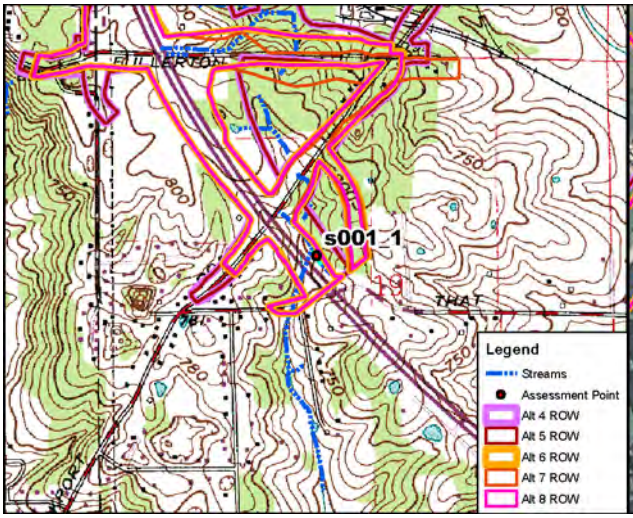
Stream ID#	Stream Name	USGS Stream Type	HHEI Score	QHEI Score	Drain Area (mi2)	Channel Type	Stream Habitat Classification	Alternative 4			Alternative 5			Alternative 6			Alternative 7			Preferred Alternative 8		
								LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.	LF in ROW	AC in ROW	LF Relo.
S5-s384c	Unnamed trib of Indian Creek	Ephemeral	-	-	0.04	Culvert		48	0.01	0	48	0.01	0	48	0.01	0	48	0.01	0	48	0.01	0
S5-s384d	Unnamed trib of Indian Creek	Ephemeral	12	-	0.04	Concrete Gutter	Modified Class I	99	0.01	99	99	0.01	99	99	0.01	99	99	0.01	99	99	0.01	99
S5-s420	Unnamed trib of Clear Creek	Ephemeral	12	-	0.02	Concrete Gutter	Modified Class I	0	0.00	0	0	0.00	0	499	0.01	499	499	0.01	499	499	0.01	499
							Grand Total	104,960	13.38	72,633	101,588	13.40	67,850	83,797	11.30	54,733	81,954	11.04	52,455	85,017	11.51	55,684

Abbreviations:
LF = Linear feet, USGS = United States Geological Survey, HHEI = Headwater Habitat Evaluation Index, QHEI = Qualitative Headwater Evaluation Index, Relo. = Relocation, Ripar. = Riparian, ROW = Right-of-way, trib = Tributary
† At least a portion of this stream lies within the bifurcation area. The total stream length is 5,619 LF within the bifurcation area under all alternatives. The total stream relocation is 4,259 LF within the bifurcation area under each alternative.
Note: Width of the ordinary high water mark (OHWM) x linear feet of impact = acres of impact. HHEI and QHEI were not completed on culverted segments of the stream.

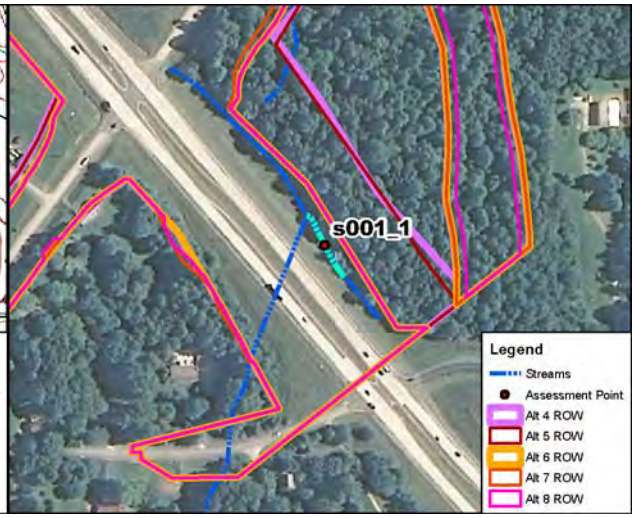
APPENDIX B

Stream Site Reports and Data Sheets

Stream Impacts S001_1



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	19
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	2.0 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1763704 ft	**UTMN:** 14205286 ft		

Stream S001_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	188	0.01	0.12
5	188	0.01	0.12
6	188	0.01	0.00
7	188	0.01	0.00
8	188	0.01	0.00

Description of Potential Impact:
Impacts to S001_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of INDOT ROW on the left bank and new field on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S001_1 are on the second page of this form.

Stream Impacts S001_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s001_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 188 LAT.: 39.11637 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 04/23/12 SCORER: KSS COMMENTS: (Long: -86.56532) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 2'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.61

HHEI Metric Points

Substrate	Max = 40	7
A + B		
Pool Depth	Max = 30	0
Bankfull Width	Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream 2.20

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

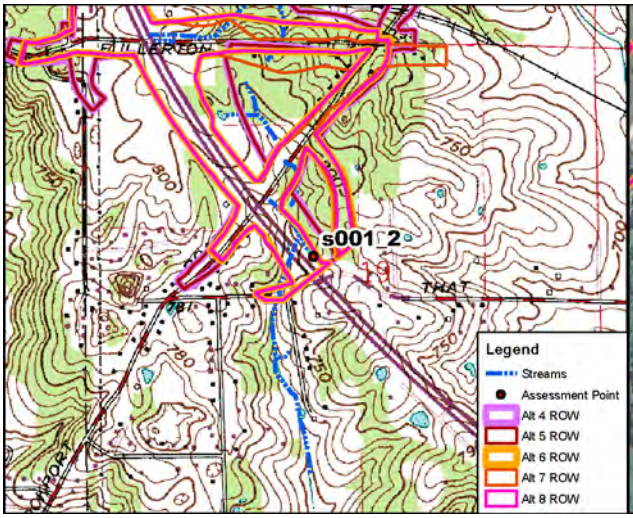
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

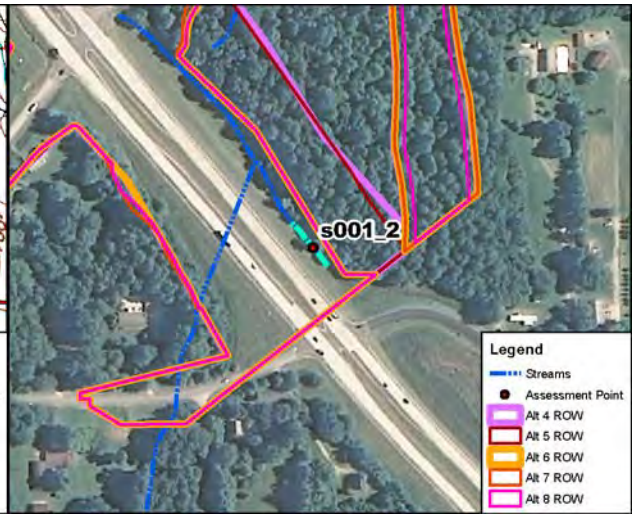
FLOW ➔

Save as pdf Reset Form

Stream Impacts S001_2



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	19
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.3 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.9 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	17	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 1763808 ft	**UTMN:** 14205142 ft		

Stream S001_2 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	144	0.01	0.25
5	144	0.01	0.25
6	144	0.01	0.00
7	144	0.01	0.00
8	144	0.01	0.00

Description of Potential Impact:
Impacts to S001_2 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The roadside ditch is located within existing INDOT ROW. This ditch flows to S001_1. There is no riparian buffer associated with this artificial channel. The floodplain consists of INDOT ROW on the left bank and new field on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S001_1 are on the second page of this form.

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Stream Impacts S001_2

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s001_2 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 144 LAT.: 39.11597 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 04/23/12 SCORER: KSS COMMENTS: (Long: -86.56495) (Roadside Ditch-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	20%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	75%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40: 12

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 1.3'/0.9' **AVERAGE BANKFULL WIDTH (meters):** 0.40

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream 2.24

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

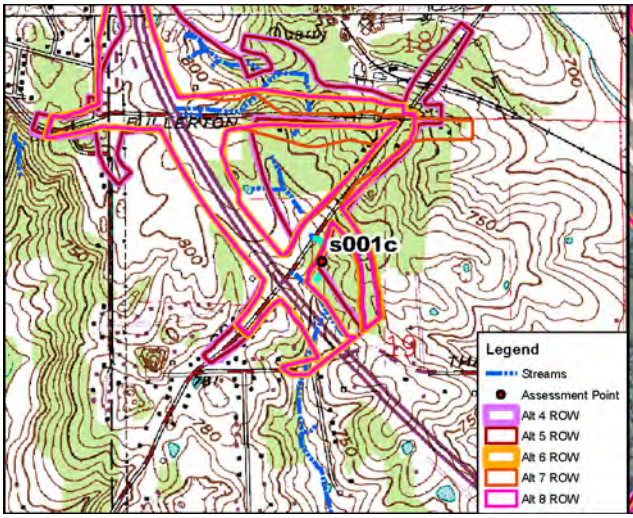
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S001c



Site Location on Clear Creek USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	19
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	6.6 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	No
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	33	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/leaf pack
UTME: 1763622 ft	**UTMN:** 14205856 ft		

Stream S001c – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	411	0.06	1.56
5	408	0.06	1.55
6	226	0.03	0.82
7	172	0.03	0.64
8	223	0.03	0.81

Description of Potential Impact:
Impacts to S001c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. This is an isolated resource. The substrate is predominately sand and leaf pack. There is a wide riparian buffer associated with this stream. The floodplain consists of mature forests on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S001c are on the second page of this form.

Stream Impacts S001c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 33

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s001c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.11793 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS | COMMENTS: (Long: -86.56560) Isolated (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	5%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	70%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9

TOTAL NUMBER OF SUBSTRATE TYPES: 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 6.6'/0.3' | AVERAGE BANKFULL WIDTH (meters): 2.01

HHEI Metric Points

Substrate Max = 40	13
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☑ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream 2.32

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 15%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

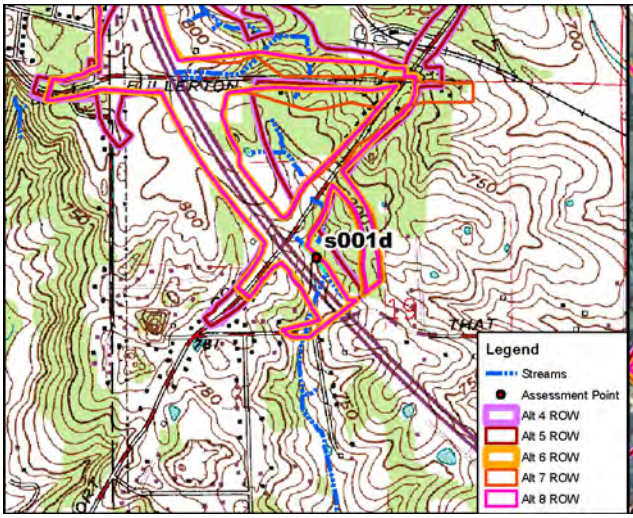
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S001d



Site Location on Clear Creek USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	19
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	2.0 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	17	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/sand
UTME: 1763562 ft	**UTMN:** 14205512 ft		

Stream S001d – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	381	0.02	0.57
5	381	0.02	0.57
6	381	0.02	0.06
7	381	0.02	0.04
8	381	0.02	0.04

Description of Potential Impact:
Impacts to S001d for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. There is a no riparian corridor on either bank where the Alternatives cross this ditch. The floodplain consists of existing INDOT ROW and new field. This ditch flows into a culvert under SR 37 (S001e). Photographs taken upstream and downstream in the area where these Alternatives cross S001d are on the second page of this form.

Stream Impacts S001d

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s001d | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.11699 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS | COMMENTS: (Long: -86.56582) (Roadside Ditch-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	1%	☑	SILT [3 pt]	60%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	39%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 1.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40: 12 (A + B)

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 2.0'/0.5' **AVERAGE BANKFULL WIDTH (meters):** 0.61

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☑	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream 2.20

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

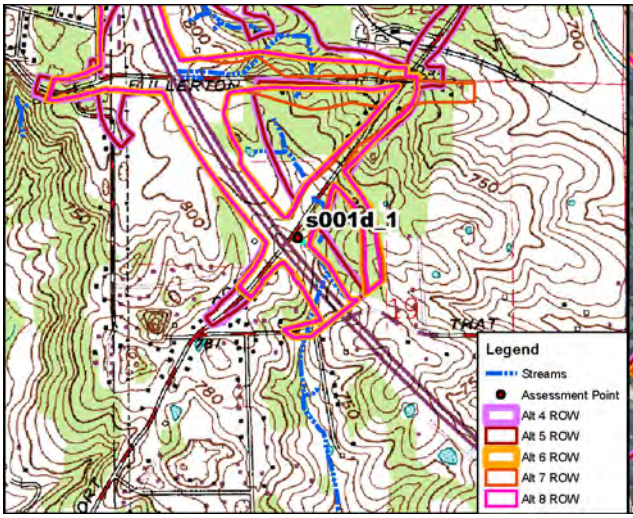
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S001d_1



Site Location on Clear Creek USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	19
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	5.0 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	22	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1763351 ft	**UTMN:** 14205718 ft		

Stream S001d_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	146	0.02	0.20
5	146	0.02	0.20
6	146	0.02	0.19
7	146	0.02	0.18
8	146	0.02	0.19

Description of Potential Impact:
Impacts to S001d_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a dump rock gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of INDOT ROW on the left bank and new field on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S001d_1 are on the second page of this form.

Stream Impacts S001d_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 22

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s001d-1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 145 LAT.: 39.11756 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 04/23/12 SCORER: KSS COMMENTS: (Long: -86.56656) (Dump Rock Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 4.9'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 1.49

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	7
Pool Depth	30	0
Bankfull Width	30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☑	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek (>2 miles)** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Clear Creek** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

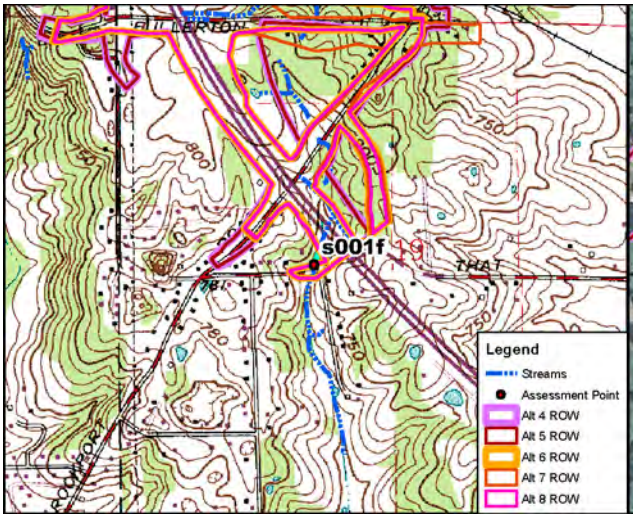
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

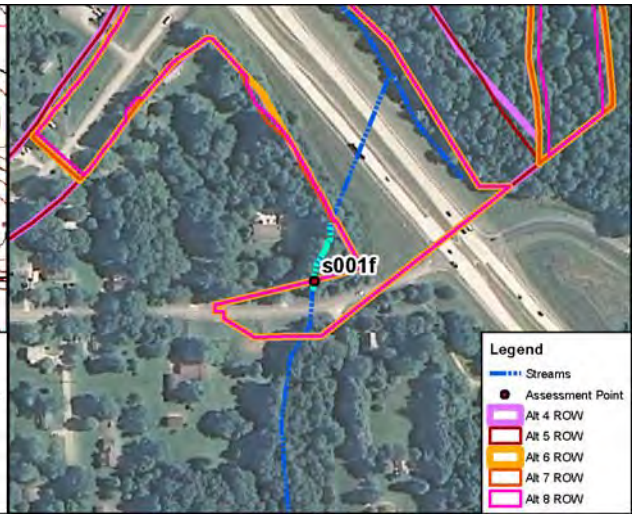
FLOW ➔

Save as pdf Reset Form

Stream Impacts S001f



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	19
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	4.9 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Intermittent	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	65	**Watershed Area:**	0.08 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1763461 ft	**UTMN:** 14204827 ft		

Stream S001f – Class III PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	25	0.01	0.15
5	25	0.01	0.14
6	25	0.01	0.14
7	25	0.01	0.14
8	25	0.01	0.14

Description of Potential Impact:
Impacts to S001f for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of sand and gravel. There is a narrow riparian corridor along the left bank while the right bank has a wide riparian buffer. The floodplain consists primarily of immature forest on the right bank and maintained INDOT ROW adjacent to the left bank. Photographs taken upstream and downstream in the area where these Alternatives cross S001f are on the second page of this form.

Stream Impacts S001f

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 65

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s001f | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.08

LENGTH OF STREAM REACH (ft): 184 | LAT.: 39.11511 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.56618) (Natural-Class III)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	2%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	3%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	60%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☑ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 28

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 4.9'/1.0' | **AVERAGE BANKFULL WIDTH (meters):** 1.49

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	20
Pool Depth	30	30
Bankfull Width	30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☑	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

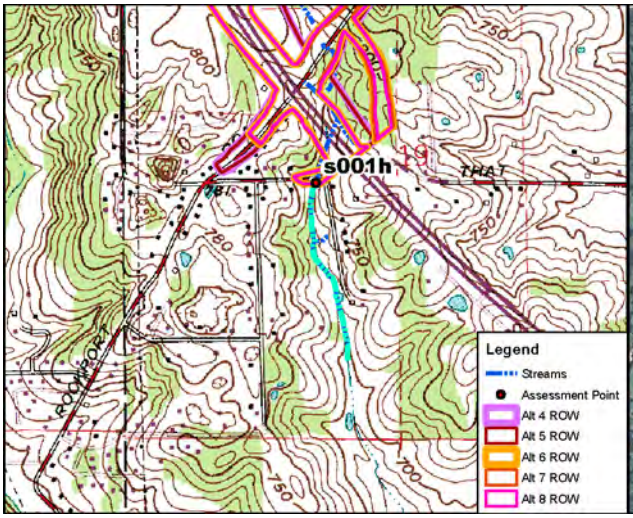
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

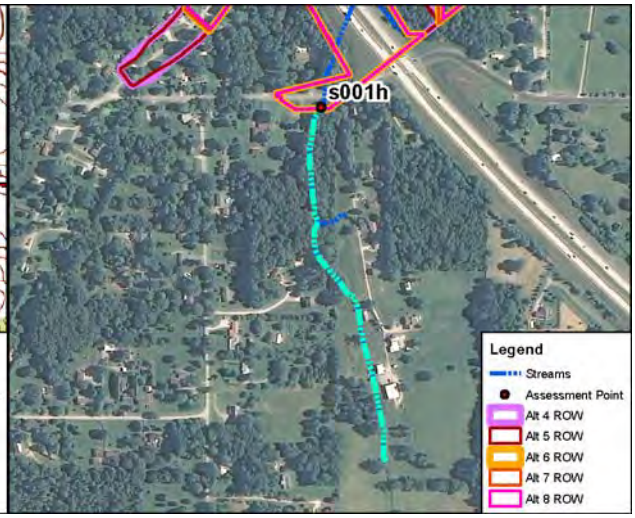
FLOW ➔

Save as pdf Reset Form

Stream Impacts S001h



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

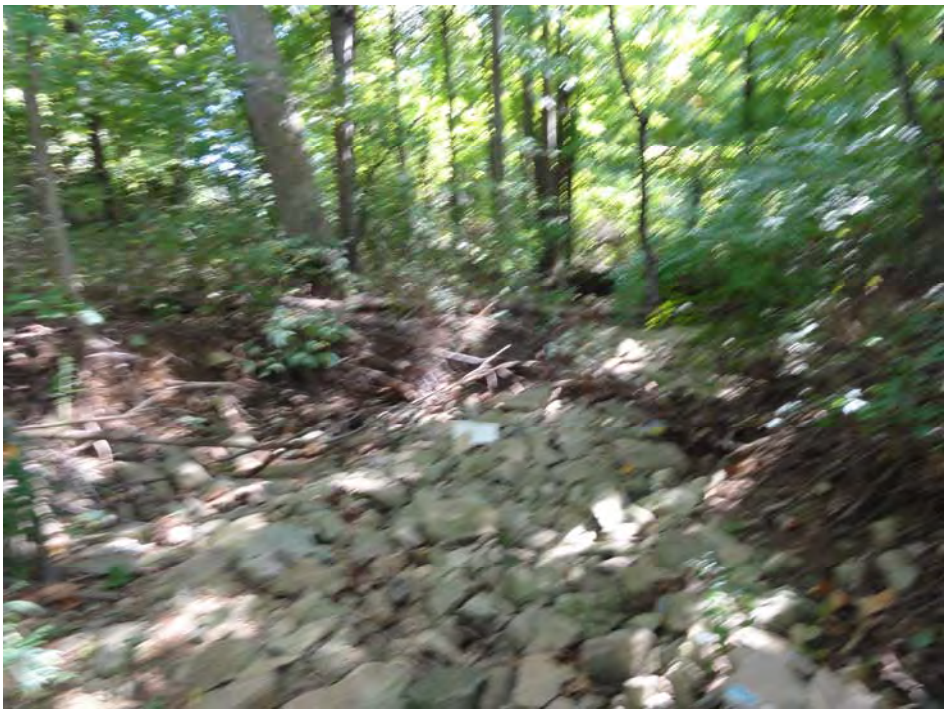
Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	19
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	4.9 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Intermittent	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	65	**Watershed Area:**	0.08 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1763438 ft	**UTMN:** 14204690 ft		

Stream S001h – Class III PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	34	0.01	0.03
5	34	0.01	0.03
6	34	0.01	0.03
7	34	0.01	0.03
8	34	0.01	0.03

Description of Potential Impact:
Impacts to S001h for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of sand and gravel. There is a narrow riparian corridor along the right bank while the left bank has a moderately wide riparian buffer. The floodplain consists primarily of immature forest on the left bank and residential yard adjacent to the left bank. Photographs taken upstream and downstream in the area where these Alternatives cross S001h are on the second page of this form.

Stream Impacts S001h

Photograph Taken Upstream



Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 65

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s001h | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.08

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.11473 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.56627) (Natural-Class III)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	2%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	3%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	60%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☑ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 28

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 4.9'/1.0' | **AVERAGE BANKFULL WIDTH (meters):** 1.49

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	20
Pool Depth	30	30
Bankfull Width	30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

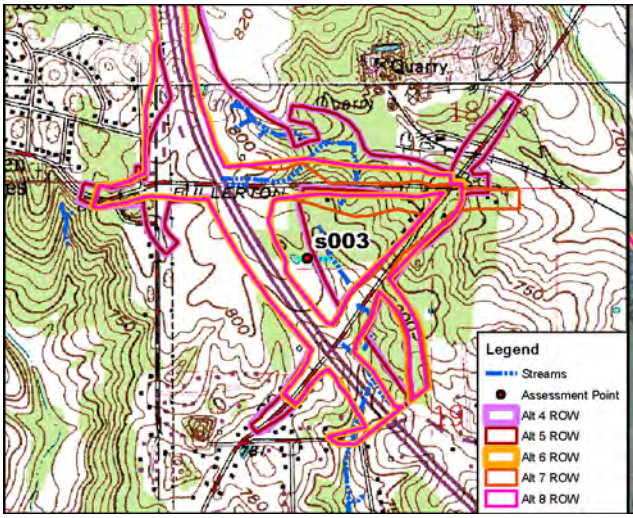
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S003



Site Location on Clear Creek USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	19
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	2.6 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	No
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	39	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1762978 ft	**UTMN:** 14206615 ft		

Stream S003 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	185	0.01	0.92
5	188	0.01	0.93
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S003 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. Along with S001a, S003 is an isolated resource. The substrate is predominately sand and gravel. There is a moderately wide riparian buffer associated with this stream. The floodplain consists of mature forests on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S003 are on the second page of this form.

Stream Impacts S003

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 39

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s003 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.12003 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.56786) Isolated (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	60%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40: 19 (A + B)

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 10

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.6' / 0.6' **AVERAGE BANKFULL WIDTH (meters):** 0.79

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☑ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S3

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Clear Creek** NRCS Soil Map Page: **37** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **165 Upstream / 166 Downstream / 167 Right Bank / 168 Left Bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **50%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

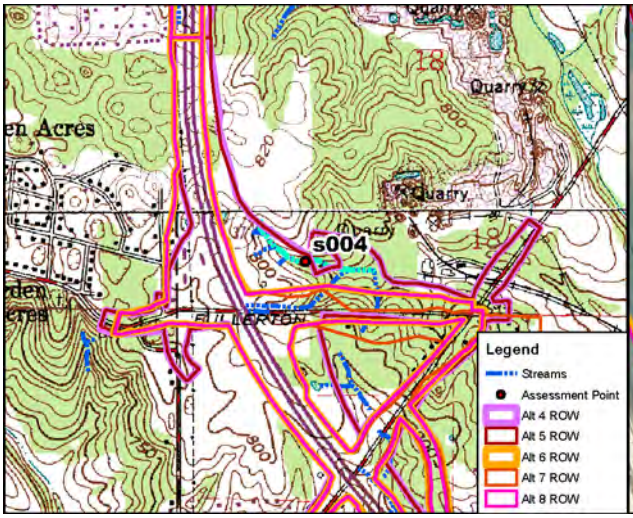
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

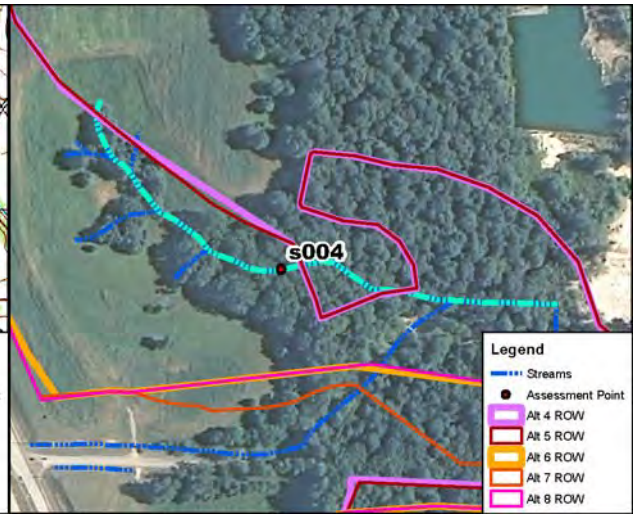
FLOW ➔

Save as pdf Reset Form

Stream Impacts S004



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	3.3 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	79	**Watershed Area:**	0.05 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Bedrock
UTME: 1762978 ft	**UTMN:** 14206615 ft		

Stream S004 – Class III PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	1140	0.09	4.14
5	1149	0.09	4.13
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S004 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate of is bedrock and boulder slabs. There is a narrow riparian corridor on both banks where Alternatives 4 and 5 cross this headwater stream. The floodplain consists primarily of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S004 are on the second page of this form.

Stream Impacts S004

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 79

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s004 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.05

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.12356 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.56866) (Natural-Class III)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE			PERCENT	TYPE			PERCENT
☐	☑	BLDR SLABS [16 pts]	20%	☐	☐	SILT [3 pt]	5%
☐	☐	BOULDER (>256 mm) [16 pts]	0%	☐	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☑	☐	BEDROCK [16 pt]	55%	☐	☐	FINE DETRITUS [3 pts]	0%
☐	☐	COBBLE (65-256 mm) [12 pts]	5%	☐	☐	CLAY or HARDPAN [0 pt]	0%
☐	☐	GRAVEL (2-64 mm) [9 pts]	5%	☐	☐	MUCK [0 pts]	0%
☐	☐	SAND (<2 mm) [6 pts]	5%	☐	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 80.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 32 **TOTAL NUMBER OF SUBSTRATE TYPES:** 7

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 11

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 3.3' / 0.6' **AVERAGE BANKFULL WIDTH (meters):** 1.01

HHEI Metric Points

	Max	Score
Substrate	40	39
Pool Depth	30	25
Bankfull Width	30	15

A + B

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☑ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S4

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: 37 NRCS Soil Map Stream Order 1

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: 173 Upstream / 174 Downstream / 175 Right Bank / 176 Left Bank

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

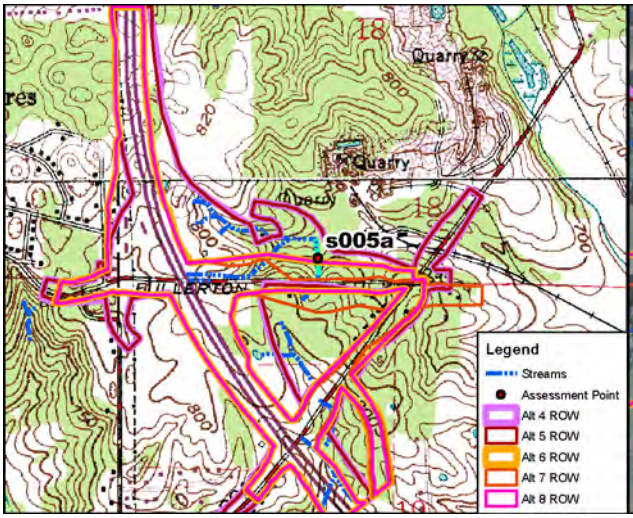
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

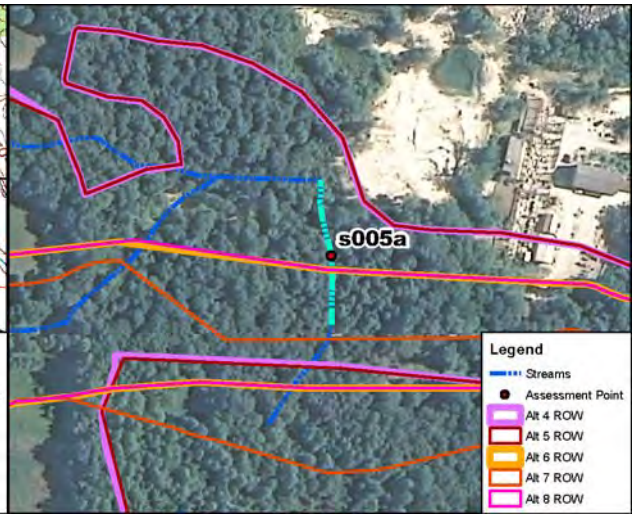
FLOW ➔

Save as pdf Reset Form

Stream Impacts S005a



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	4.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	26	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/leaf pack
UTME: 1763486 ft	**UTMN:** 14207613 ft		

Stream S005a – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	379	0.03	1.30
5	379	0.03	1.30
6	143	0.01	0.66
7	0	0.00	0.00
8	142	0.01	0.66

Description of Potential Impact:
Impacts to S005a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate of S005a is predominantly sand and leaf pack. There is a wide riparian corridor on both banks of the stream. The floodplain consists primarily of immature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S005a are on the second page of this form.

Stream Impacts S005a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 26

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s005a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.12276 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/10/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.56605) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	90%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 2

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 4' / 1' **AVERAGE BANKFULL WIDTH (meters):** 1.22

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	11
Pool Depth	30	0
Bankfull Width	30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts:

Flows only during storm events.

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

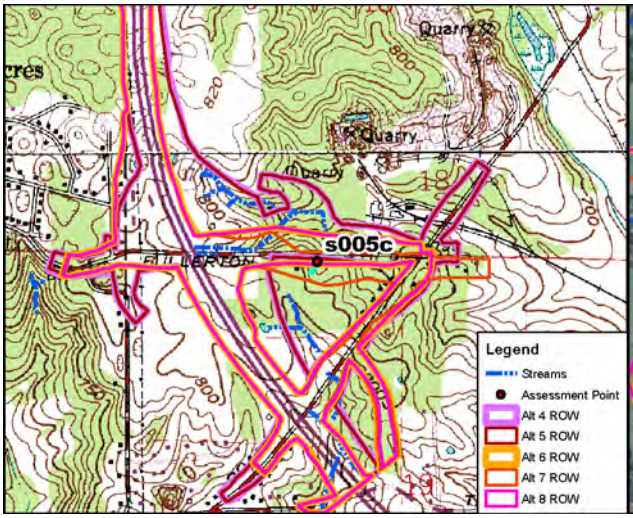
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

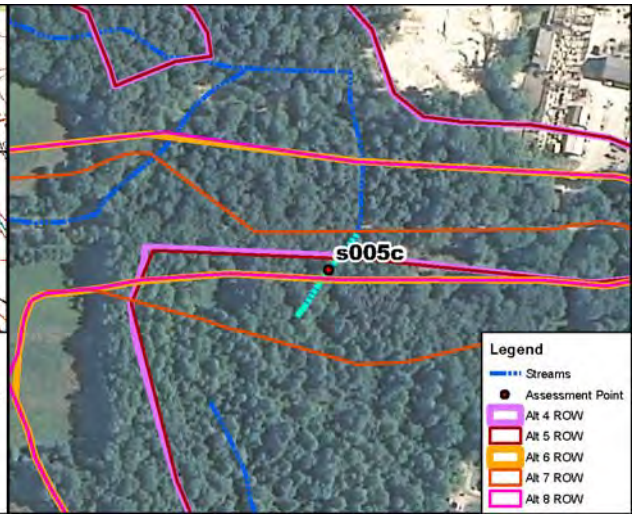
FLOW ➔

Save as pdf Reset Form

Stream Impacts S005c



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	19
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	4.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	26	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/leaf pack
UTME: 1763402 ft	**UTMN:** 14207296 ft		

Stream S005c – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	74	0.01	0.28
5	83	0.01	0.32
6	151	0.01	0.62
7	269	0.02	1.48
8	149	0.01	0.61

Description of Potential Impact:
Impacts to S005c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate of S005c is predominantly sand and leaf pack. There is a wide riparian corridor on both banks of the stream. The floodplain consists primarily of immature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S005c are on the second page of this form.

Stream Impacts S005c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 26

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s005c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.12189 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/10/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.56635) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	90%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 2

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 4' / 1' **AVERAGE BANKFULL WIDTH (meters):** 1.20

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	11
Pool Depth	30	0
Bankfull Width	30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts:

Flows only during storm events.

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

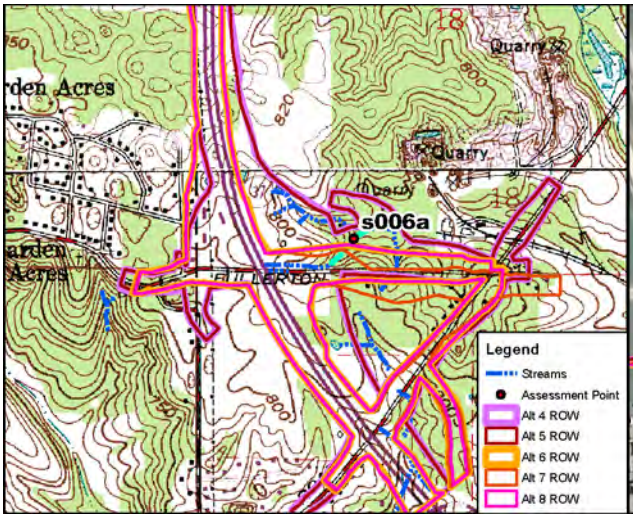
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

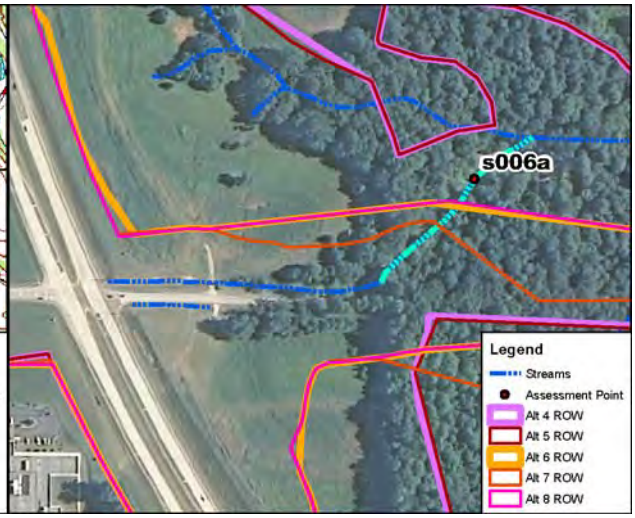
FLOW ➔

Save as pdf Reset Form

Stream Impacts S006a



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	5.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	39	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1763044 ft	**UTMN:** 14207710 ft		

Stream S006a – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	551	0.06	1.77
5	551	0.06	1.77
6	282	0.03	1.21
7	212	0.02	0.78
8	293	0.03	1.24

Description of Potential Impact:
Impacts to S006a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate of S006a is predominately sand and gravel. There is a wide riparian corridor on both banks of the stream. The floodplain consists primarily of immature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S006a are on the second page of this form.

Stream Impacts S006a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 39

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s006a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.12303 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/10/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.56761) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	35%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	50%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 5' / 1' | **AVERAGE BANKFULL WIDTH (meters):** 1.52

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	19
Pool Depth	30	0
Bankfull Width	30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Clear Creek** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **50%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts:

Flows only during storm events.

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

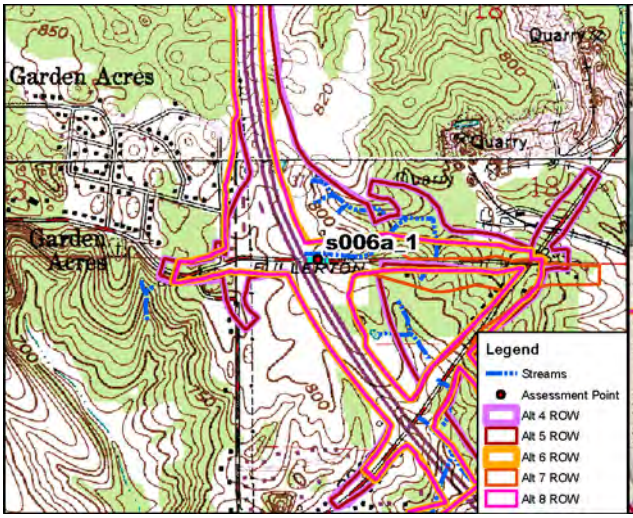
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S006a_1



Site Location on Clear Creek USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	19
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.2 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	No
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1762257 ft	**UTMN:** 14207384 ft		

Stream S006a_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	215	0.01	0.09
5	215	0.01	0.09
6	215	0.01	0.09
7	215	0.01	0.09
8	215	0.01	0.09

Description of Potential Impact:
Impacts to S006a_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located along West Fullerton Pike. No outlet was identified in the field and thus, this channel shall be considered isolated. There is no riparian buffer associated with this artificial channel. The floodplain consists of the roadway on the left bank and new field on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S006a_1 are on the second page of this form.

Stream Impacts S006a_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s006a_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.12215 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/23/12 SCORER: KSS/DEW COMMENTS: (Long:-86.57039) Isolated (Concrete Gutter-Mod Class)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 1.2'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.36

HHEI Metric Points

Substrate Max = 40	A + B	7
Pool Depth Max = 30		0
Bankfull Width Max=30		5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S6a_1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

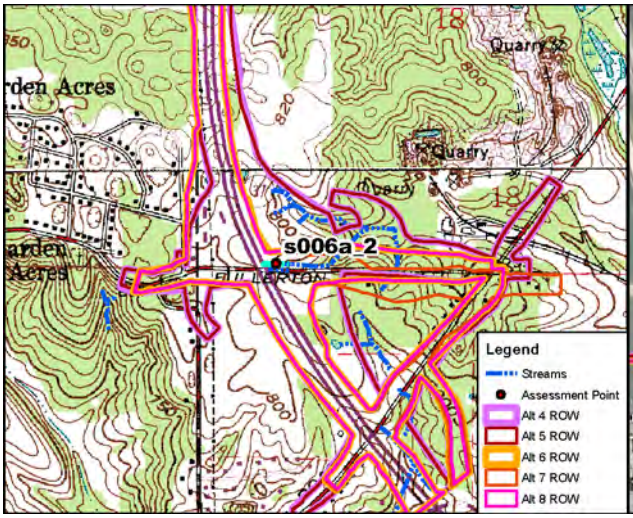
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

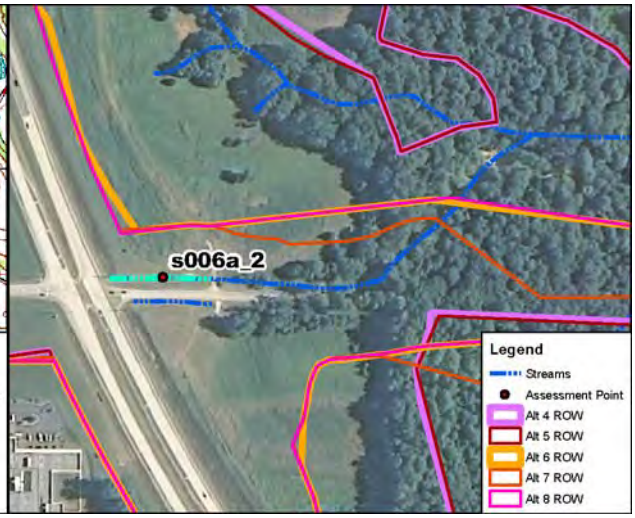
FLOW ➔

Save as pdf Reset Form

Stream Impacts S006a_2



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.2 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1762227 ft	**UTMN:** 14207446 ft		

Stream S006a_2 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	261	0.01	0.00
5	261	0.01	0.00
6	261	0.01	0.00
7	261	0.01	0.00
8	261	0.01	0.00

Description of Potential Impact:

Impacts to S006a_2 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located along West Fullerton Pike. This channel flows to S006a_3 via a 21-foot long pipe. There is no riparian buffer associated with this artificial channel. The floodplain consists of the new field on the left bank and roadway on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S006a_1 are on the second page of this form.

Stream Impacts S006a_2

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s006a_2 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.12232 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/23/12 SCORER: KSS/DEW COMMENTS: (Long: -86.57049) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 1.2'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.36

HHEI Metric Points

Substrate Max = 40	7	A + B
Pool Depth Max = 30	0	
Bankfull Width Max=30	5	

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S6a_2

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

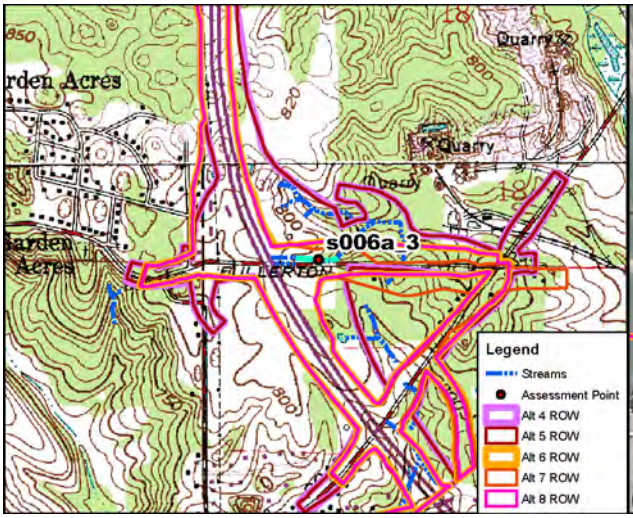
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S006a_3



Site Location on Clear Creek USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.2 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1762604 ft	**UTMN:** 14207423 ft		

Stream S006a_3 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	434	0.01	0.74
5	434	0.01	0.74
6	434	0.01	0.74
7	434	0.01	0.74
8	434	0.01	0.74

Description of Potential Impact:
Impacts to S006a_3 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located along West Fullerton Pike. This channel flows to S006a. There is narrow riparian buffer associated with the left bank of this artificial channel. The floodplain consists of the immature forest on the left bank and roadway on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S006a_3 are on the second page of this form.

Stream Impacts S006a_3

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s006a_3 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.12225 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/23/12 SCORER: KSS/DEW COMMENTS: (Long: -86.56916) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 1.2'/0.2' AVERAGE BANKFULL WIDTH (meters): 0.37

HHEI Metric Points

	Max	Points
Substrate	40	7
Pool Depth	30	0
Bankfull Width	30	5
A + B		

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☑	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S6a_3

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.00

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

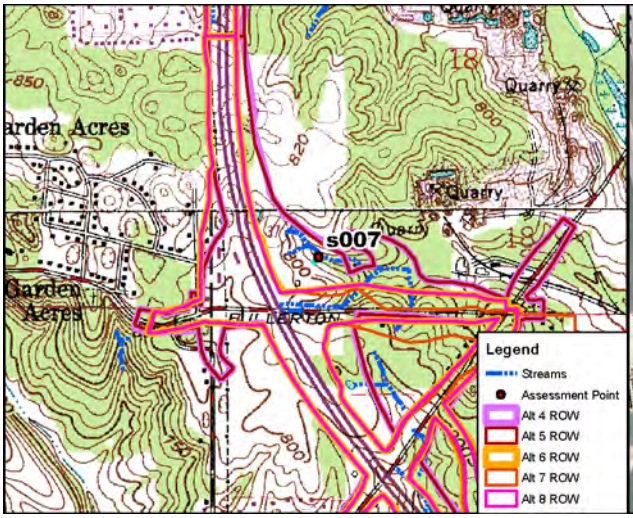
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

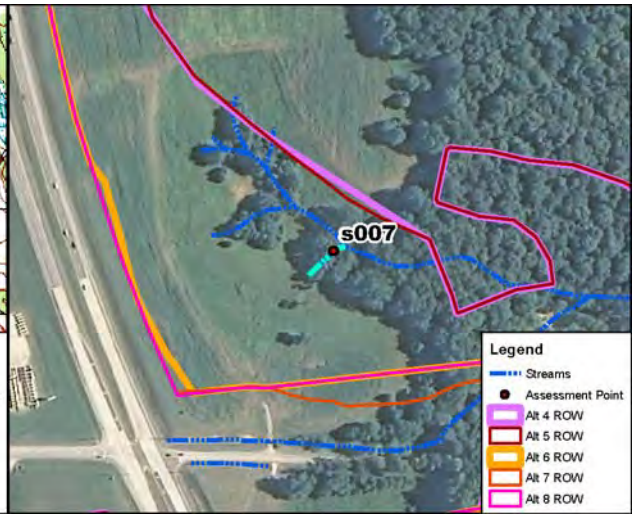
FLOW ➔

Save as pdf Reset Form

Stream Impacts S007



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	29	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1762524 ft	**UTMN:** 14207937 ft		

Stream S007 –Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	121	0.01	0.01
5	121	0.01	0.01
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:

Impacts to S007 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of sand and gravel. This channel flows to S004. There is moderately wide riparian buffer associated with this stream. The floodplain consists of the immature forest on the left bank and roadway on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S007 are on the second page of this form.

Stream Impacts S007

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 29

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s007 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 120 LAT.: 39.12366 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.56943) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	60%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40: 19

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 5

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.5' / 0.4' **AVERAGE BANKFULL WIDTH (meters):** 0.50

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S7

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: 37 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 45%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

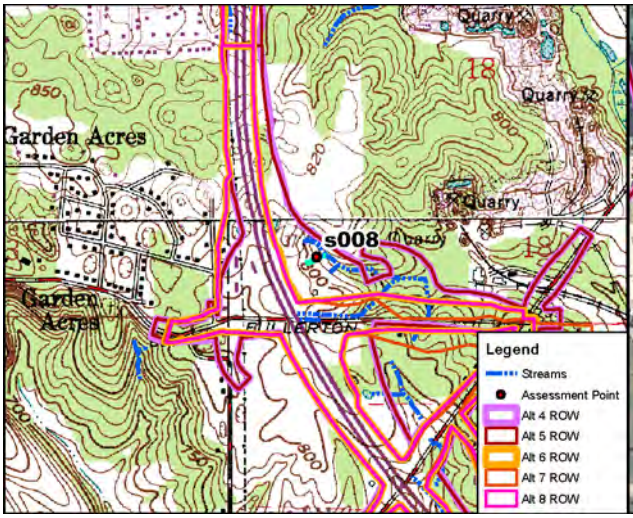
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S008



Site Location on Clear Creek USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.6 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	29	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1762323 ft	**UTMN:** 14208032 ft		

Stream S008 –Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	238	0.01	0.12
5	238	0.01	0.12
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:

Impacts to S008 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of sand and gravel. This channel flows to S004. There is a narrow riparian buffer associated with this stream. The floodplain consists of the immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S008 are on the second page of this form.

Stream Impacts S008

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 29

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s008 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.12393 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.57014) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE			PERCENT	TYPE			PERCENT
☐	☐	BLDR SLABS [16 pts]	0%	☐	☐	SILT [3 pt]	5%
☐	☐	BOULDER (>256 mm) [16 pts]	0%	☐	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	☐	BEDROCK [16 pt]	0%	☐	☐	FINE DETRITUS [3 pts]	0%
☐	☐	COBBLE (65-256 mm) [12 pts]	0%	☐	☐	CLAY or HARDPAN [0 pt]	0%
☐	☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	☐	MUCK [0 pts]	0%
☑	☐	SAND (<2 mm) [6 pts]	60%	☐	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40: 19

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 4

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.6' / 0.4' **AVERAGE BANKFULL WIDTH (meters):** 0.49

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S8

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: 37 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 75%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

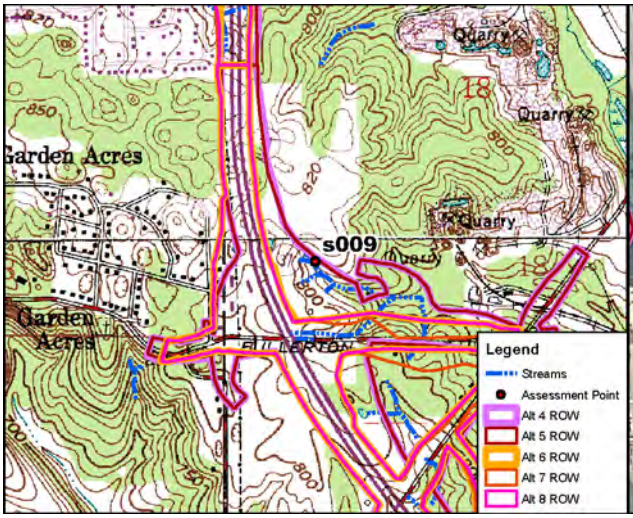
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

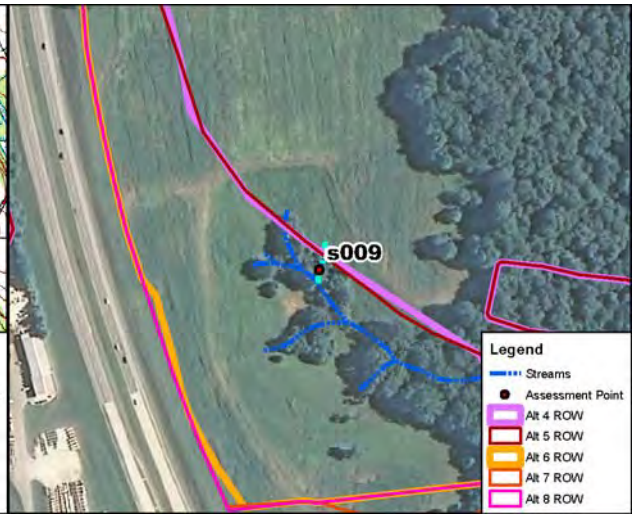
FLOW ➔

Save as pdf Reset Form

Stream Impacts S009



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.1 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	29	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1762353 ft	**UTMN:** 14208185 ft		

Stream S009 –Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	78	0.01	0.00
5	75	0.01	0.00
6	0.00	0.00	0.00
7	0.00	0.00	0.00
8	0.00	0.00	0.00

Description of Potential Impact:

Impacts to S009 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of sand and gravel. This channel flows to S004. There is a moderately wide riparian buffer associated with this stream. The floodplain consists of the immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S009 are on the second page of this form.

Stream Impacts S009

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 29

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s009 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 109 LAT.: 39.12435 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.57003) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE			PERCENT	TYPE			PERCENT
☐	☐	BLDR SLABS [16 pts]	0%	☐	☐	SILT [3 pt]	5%
☐	☐	BOULDER (>256 mm) [16 pts]	0%	☐	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	☐	BEDROCK [16 pt]	0%	☐	☐	FINE DETRITUS [3 pts]	0%
☐	☐	COBBLE (65-256 mm) [12 pts]	0%	☐	☐	CLAY or HARDPAN [0 pt]	0%
☐	☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	☐	MUCK [0 pts]	0%
☑	☐	SAND (<2 mm) [6 pts]	60%	☐	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: 19 (A + B)

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 3

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: OHW - 1.1' / 0.3' AVERAGE BANKFULL WIDTH (meters): 0.50

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (Intermittent)
☑	Subsurface flow with isolated pools (Interstitial)	☐	Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S9

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: 37 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

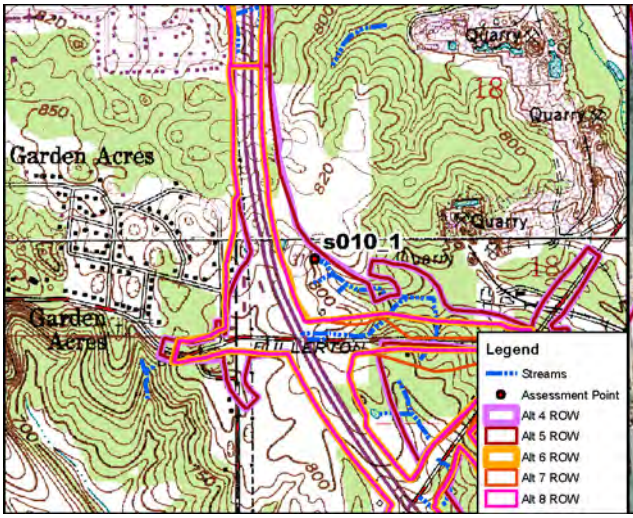
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

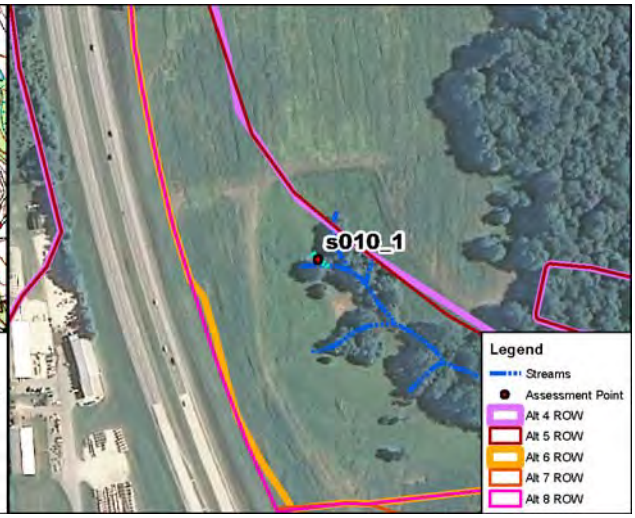
FLOW ➔

Save as pdf Reset Form

Stream Impacts S010_1



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	6.8 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	32	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1762224 ft	**UTMN:** 14208217 ft		

Stream S010_1 –Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	53	0.01	0.00
5	53	0.01	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S010_1 for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of sand and gravel. There is a moderately wide riparian corridor on this headwater stream. The floodplain consists primarily of immature forest along both banks. This stream flows to S010a. Photographs taken upstream and downstream in the area where these Alternatives cross S010_1 are on the second page of this form.

Stream Impacts S010_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 32

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s010_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 52 LAT.: 39.12444 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/23/12 SCORER: KSS COMMENTS: (Long: -86.57049) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	20%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	70%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40: 12 (A + B)

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 6.8'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 2.07

Bankfull Width Max=30: 20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☑	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 65%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

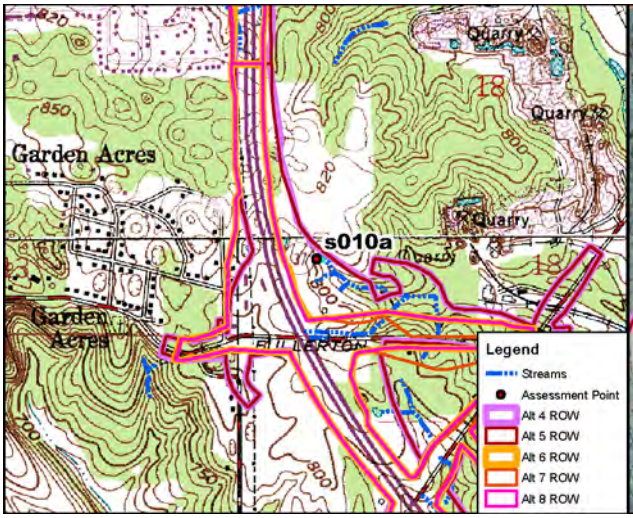
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

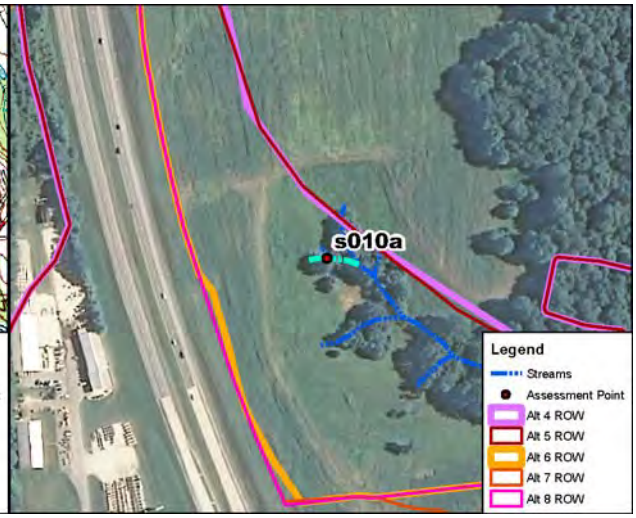
FLOW ➔

Save as pdf Reset Form

Stream Impacts S010a



Site Location on Clear Creek USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Clear Creek
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.1 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	29	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1762225 ft	**UTMN:** 14208202 ft		

Stream S010a –Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	131	0.01	0.00
5	131	0.01	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S010a for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of sand and gravel. There is a moderately wide riparian corridor on this headwater stream. The floodplain consists primarily of immature forest along both banks. This stream flows to S004. Photographs taken upstream and downstream in the area where these Alternatives cross S010a are on the second page of this form.

Stream Impacts S010a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 29

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s010a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 130 | LAT.: 39.12439 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.57048) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	60%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 3

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.1' / 0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.50

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	19
Pool Depth	30	5
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☑	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☑ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S10a

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Clear Creek NRCS Soil Map Page: 37 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

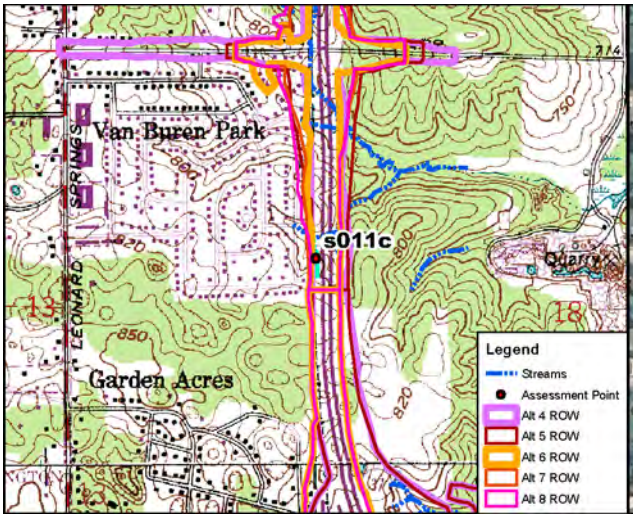
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S011c



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	4.0 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	22	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1761414 ft	**UTMN:** 14210557 ft		

Stream S011c – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	410	0.04	0.44
5	410	0.04	0.43
6	410	0.04	0.46
7	410	0.04	0.48
8	410	0.04	0.48

Description of Potential Impact:
Impacts to S011c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a dump rock gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of INDOT ROW on the right bank and an old field on the left. Photographs taken upstream and downstream in the area where these Alternatives cross S011c are on the second page of this form.

Stream Impacts S011c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 22

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s011c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.13087 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS/DEW | COMMENTS: (Long: -86.57330) (Dump Rock Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

TOTAL NUMBER OF SUBSTRATE TYPES: 1

HHEI Metric Points

Substrate Max = 40: 7

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 4'/0.2' | **AVERAGE BANKFULL WIDTH (meters):** 1.22

Bankfull Width Max=30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S11c

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Van Buren**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

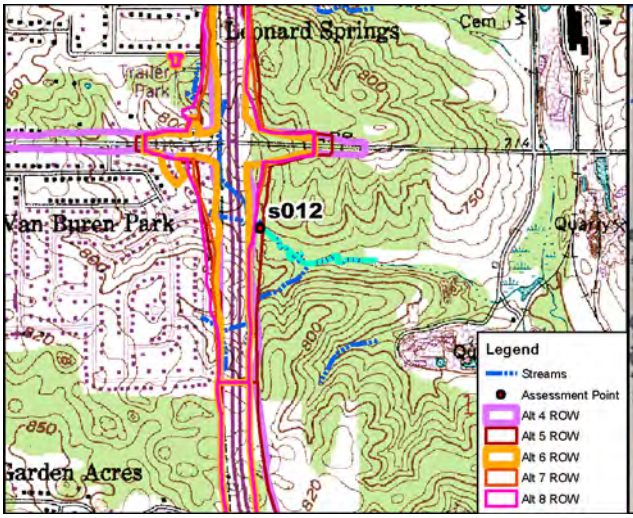
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

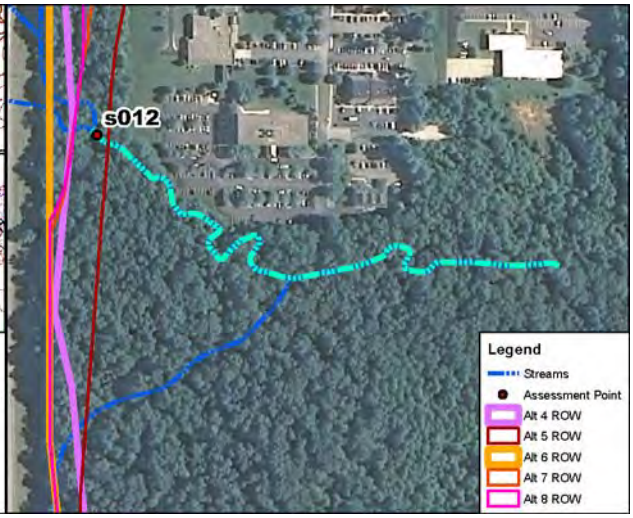
FLOW ➔

Save as pdf Reset Form

Stream Impacts S012



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	4.9 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.9 feet
Stream Type:	Intermittent	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	70	**Watershed Area:**	0.24 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Bedrock/gravel
UTME: 1761778 ft	**UTMN:** 14211833 ft		

Stream S012– Class III PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.14
5	58	0.01	0.62
6	0	0.00	0.00
7	0	0.00	0.16
8	0	0.00	0.17

Description of Potential Impact:
Impacts to S012 for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The substrate consists of a fairly even mix of bedrock, cobble, gravel, and sand. There is a wide riparian corridor where Alternative 5 crosses this creek. The floodplain consists primarily of mature forest on both banks of the stream. Photographs taken upstream and downstream in the area where these Alternatives cross S012 are on the second page of this form.

Stream Impacts S012

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 70

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S012 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.24

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.13437 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/12/06 SCORER: J Meeker COMMENTS: (Long: -86.57200) (Natural-Class III)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☑	BEDROCK [16 pt]	30%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	20%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	25%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	20%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 25 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 18

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 4.9' / 0.9' **AVERAGE BANKFULL WIDTH (meters):** 1.49

HHEI Metric Points

Substrate	Max = 40	30
A + B		
Pool Depth	Max = 30	25
Bankfull Width	Max=30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S12

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **37** NRCS Soil Map Stream Order **2**

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **185 Upstream / 186 Downstream / 187 Right bank / 188 Left bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **60%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

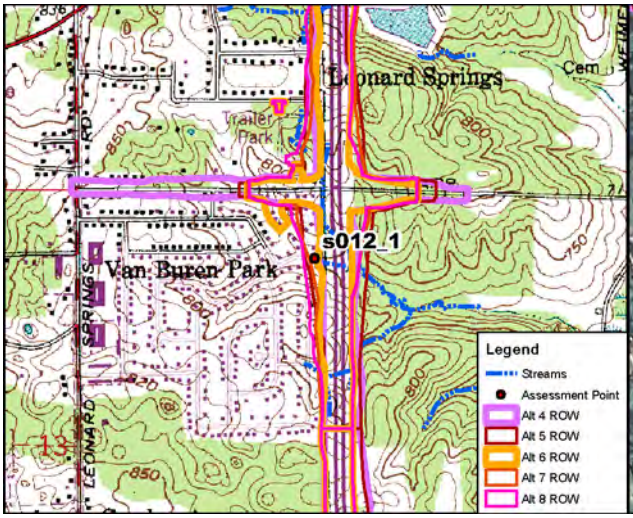
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S012_1



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	13
Quarter:	NE	**Township:**	T8N
Range:	R2W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	4.0 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	0.8 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	22	**Watershed Area:**	0.24 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1761271 ft	**UTMN:** 14211995 ft		

Stream S012_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.00
5	36	0.01	0.00
6	0	0.00	0.00
7	36	0.01	0.00
8	36	0.01	0.00

Description of Potential Impact:
Impacts to S012_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a dump rock gutter. There is narrow (left bank) to no (right bank) riparian buffer associated with this disturbed channel. The floodplain consists of an old field along both banks of this stream. Photographs taken upstream and downstream in the area where these Alternatives cross S012_1 are on the second page of this form.

Stream Impacts S012_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 22

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s012_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.24

LENGTH OF STREAM REACH (ft): 36 LAT.: 39.13482 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 04/23/12 SCORER: KSS COMMENTS: (Long: -86.57379) (Dump Rock Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 4'/0.8' **AVERAGE BANKFULL WIDTH (meters):** 1.22

HHEI Metric Points

Substrate	Max = 40	7
A + B		
Pool Depth	Max = 30	0
Bankfull Width	Max=30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Van Buren**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

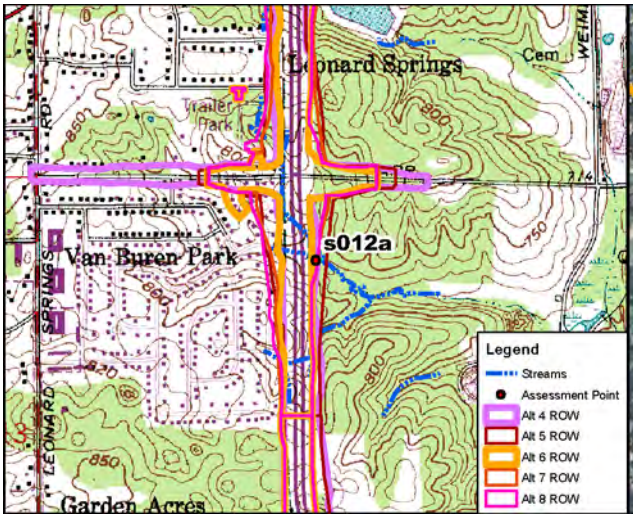
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S012a



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	18.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	81	**Watershed Area:**	0.24 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/boulders
UTME: 1761702 ft	**UTMN:** 14211845 ft		

Stream S012a – Class III PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	99	0.04	0.09
5	152	0.06	0.10
6	7	0.01	0.02
7	103	0.04	0.09
8	105	0.04	0.09

Description of Potential Impact:
Impacts to S012a for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The substrate consists of sand, boulders, and gravel. There is a wide riparian corridor where the Alternatives cross this creek. The floodplain consists primarily of immature forest on both banks of the stream. Photographs taken upstream and downstream in the area where these Alternatives cross S012a are on the second page of this form.

Stream Impacts S012a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 81

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s012a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.24

LENGTH OF STREAM REACH (ft): 152 | LAT.: 39.13441 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS | COMMENTS: (Long: -86.57227) (Natural-Class III)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☑	BOULDER (>256 mm) [16 pts]	21%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	19%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	50%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 31.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 22

TOTAL NUMBER OF SUBSTRATE TYPES: 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 11

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☑ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 18'/0.6' | AVERAGE BANKFULL WIDTH (meters): 5.49

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	26
Pool Depth	30	25
Bankfull Width	30	30

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☑ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 5%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

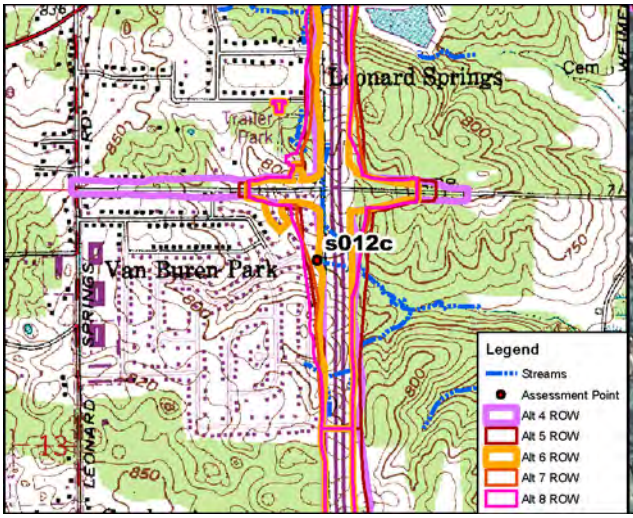
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S012c



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	13
Quarter:	NE	**Township:**	T8N
Range:	R2W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	4.6 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	51	**Watershed Area:**	0.24 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand
UTME: 1761299 ft	**UTMN:** 14211978 ft		

Stream S012c – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	45	0.01	0.09
5	126	0.01	0.09
6	56	0.01	0.09
7	126	0.01	0.09
8	126	0.01	0.09

Description of Potential Impact:
Impacts to S012c for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The substrate consists primarily of sand. There is a narrow riparian corridor along the right bank and no riparian zone along the left. The floodplain consists of fragmented immature forest and disturbed shrubby habitat. Photographs taken upstream and downstream in the area where these Alternatives cross S012c are on the second page of this form.

Stream Impacts S012c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 51

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s012c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.24

LENGTH OF STREAM REACH (ft): 126 | LAT.: 39.13478 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS | COMMENTS: (Long: -86.57369) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	95%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9

TOTAL NUMBER OF SUBSTRATE TYPES: 2

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 16

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 4.6'/1.3' | AVERAGE BANKFULL WIDTH (meters): 1.40

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	11
Pool Depth	30	25
Bankfull Width	30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Van Buren**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **95%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

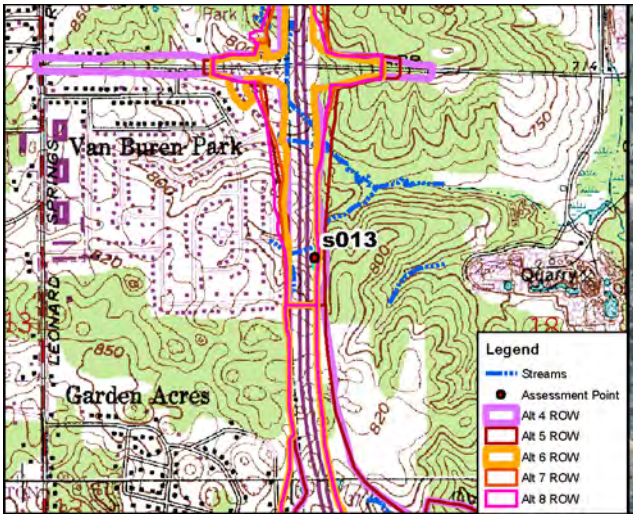
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S013



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.2 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1761645 ft	**UTMN:** 14210727 ft		

Stream S013 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	252	0.01	0.53
5	252	0.01	0.50
6	252	0.01	0.14
7	252	0.01	0.14
8	252	0.01	0.14

Description of Potential Impact:
Impacts to S013 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located within existing INDOT ROW. There is no riparian buffer associated with the left bank of this artificial channel. The floodplain consists of INDOT ROW on the left bank and mature forest on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S013 are on the second page of this form.

Stream Impacts S013

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s013 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.13134 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/23/12 SCORER: KSS/DEW COMMENTS: (Long: -86.57249) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS OHW 1.2'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.37

HHEI Metric Points

Substrate Max = 40	7
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☑	Wide >10m	☐	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (Intermittent)
☐	Subsurface flow with isolated pools (Interstitial)	☑	Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S13

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.00

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 75%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

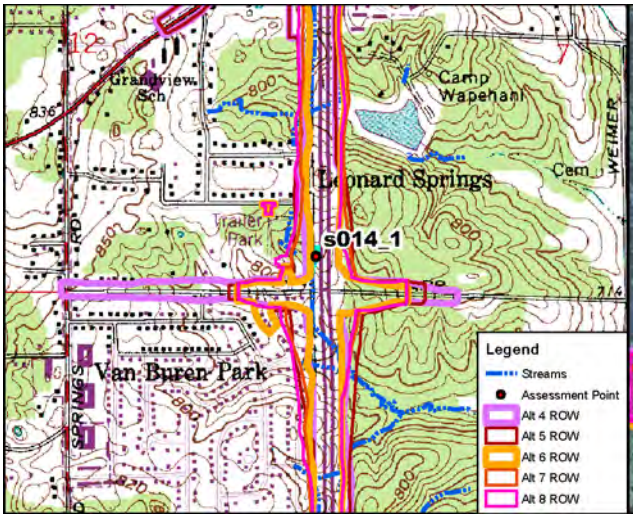
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

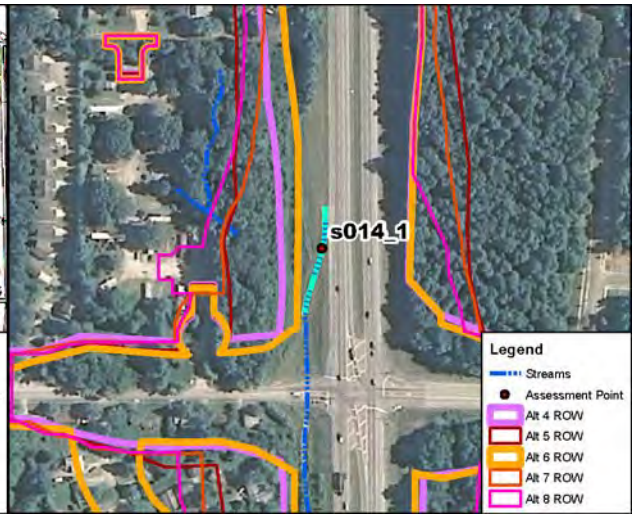
FLOW ➔

Save as pdf Reset Form

Stream Impacts S014_1



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	7
Quarter:	SW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	3.1 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1761392 ft	**UTMN:** 14213081 ft		

Stream S014_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	283	0.02	0.06
5	283	0.02	0.14
6	283	0.02	0.00
7	283	0.02	0.14
8	283	0.02	0.14

Description of Potential Impact:
Impacts to S014_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a dump rock gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of INDOT ROW on the left bank and new field on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S014_1 are on the second page of this form.

Stream Impacts S014_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s014_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.13781 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/23/12 SCORER: KSS/DEW COMMENTS: (Long: -86.57334) (Dump Rock Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 3.1'/0.6' **AVERAGE BANKFULL WIDTH (meters):** 0.95

HHEI Metric Points

Substrate Max = 40	7
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S14_1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Van Buren**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

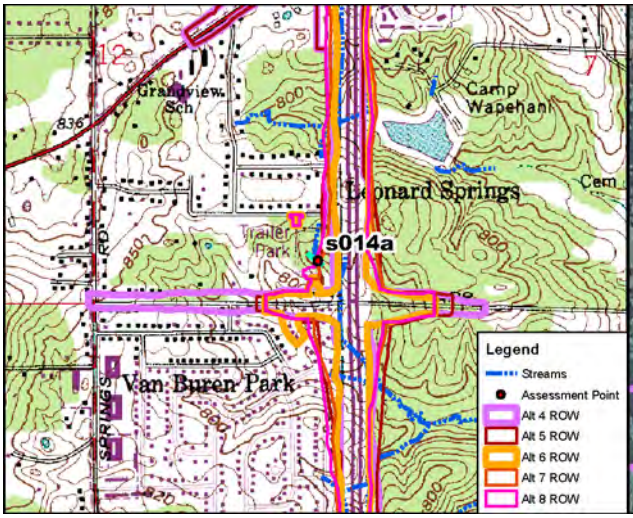
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S014a



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	12
Quarter:	SE	**Township:**	T8N
Range:	R2W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	18.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	48	**Watershed Area:**	0.07 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1761123 ft	**UTMN:** 14213157 ft		

Stream S014a – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.00
5	35	0.01	0.55
6	0	0.00	0.00
7	46	0.02	0.57
8	91	0.04	0.80

Description of Potential Impact:
Impacts to S014a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of sand and gravel. There is a wide riparian corridor on the left bank and a moderately wide riparian zone on the left bank where Alternatives 5, 7, and Preferred Alternative 8 cross this headwater stream. The floodplain consists primarily of immature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S014a are on the second page of this form.

Stream Impacts S014a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 48

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s014a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.07

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.13802 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS | COMMENTS: (Long: -86.57429) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	20%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	65%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☑ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 18'/0.3' **AVERAGE BANKFULL WIDTH (meters):** 5.48

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	18
Pool Depth	30	0
Bankfull Width	30	30

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek (>2 miles)** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Van Buren**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

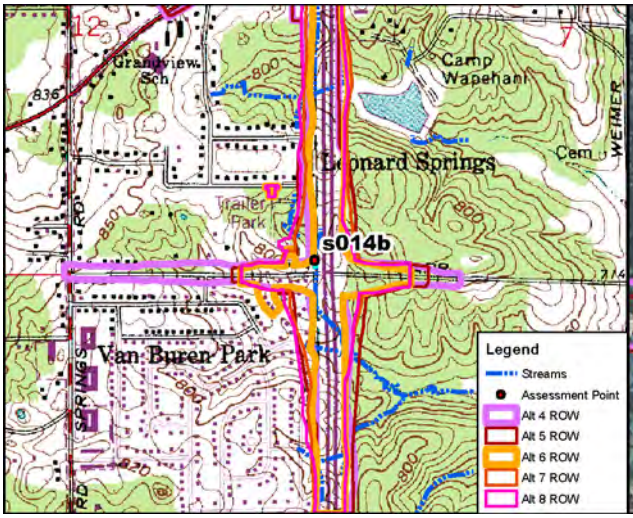
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S014b



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	12
Quarter:	SE	**Township:**	T8N
Range:	R2W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.1 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.06 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1761348 ft	**UTMN:** 14212859 ft		

Stream S014b – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	138	0.01	0.06
5	138	0.01	0.11
6	138	0.01	0.01
7	138	0.01	0.11
8	138	0.01	0.11

Description of Potential Impact:
Impacts to S014b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S014b are on the second page of this form.

Stream Impacts S014b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s014b | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.06

LENGTH OF STREAM REACH (ft): 137 | LAT.: 39.13720 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS/DEW | COMMENTS: (Long: -86.57350) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 | **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 1.1'/0.2' | **AVERAGE BANKFULL WIDTH (meters):** 0.34

HHEI Metric Points

Substrate Max = 40	7
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S14b

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Van Buren

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

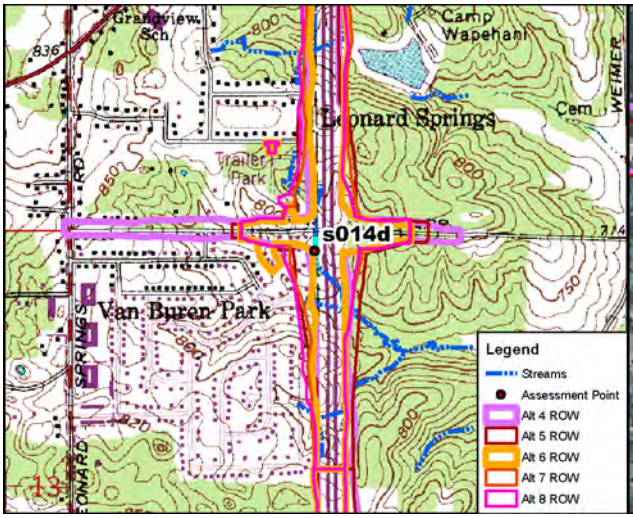
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

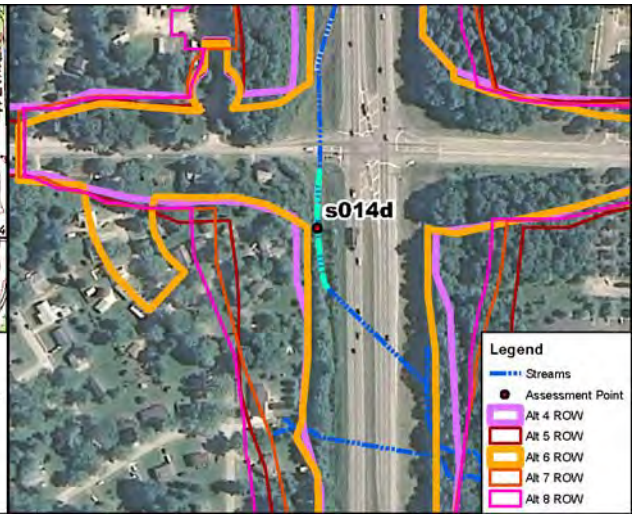
FLOW ➔

Save as pdf Reset Form

Stream Impacts S014d



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	13
Quarter:	NE	**Township:**	T8N
Range:	R2W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	3.1 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.06 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1761346 ft	**UTMN:** 14212499 ft		

Stream S014d – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	320	0.02	0.15
5	320	0.02	0.15
6	320	0.02	0.15
7	320	0.02	0.15
8	320	0.02	0.15

Description of Potential Impact:
Impacts to S014d for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a dump rock gutter. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S014d are on the second page of this form.

Stream Impacts S014d

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s014d | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.06

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.13621 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS/DEW | COMMENTS: (Long: -86.57351) (Dump Rock Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

TOTAL NUMBER OF SUBSTRATE TYPES: 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 3.1'/0.6' | **AVERAGE BANKFULL WIDTH (meters):** 0.95

HHEI Metric Points

Substrate	Max = 40	7
A + B		
Pool Depth	Max = 30	0
Bankfull Width	Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S14d

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Van Buren**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **80%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

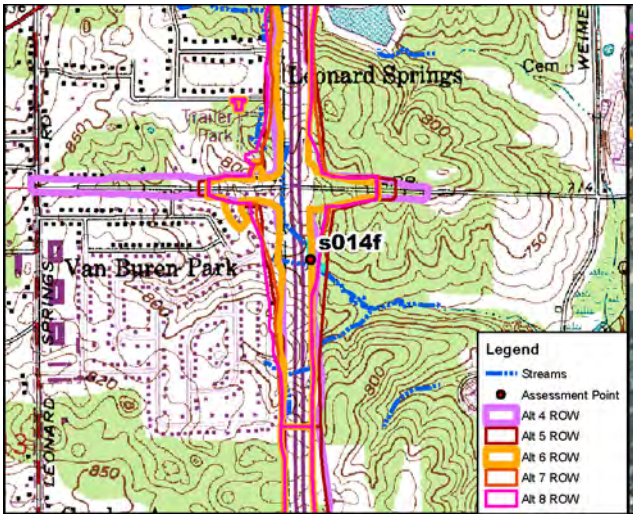
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

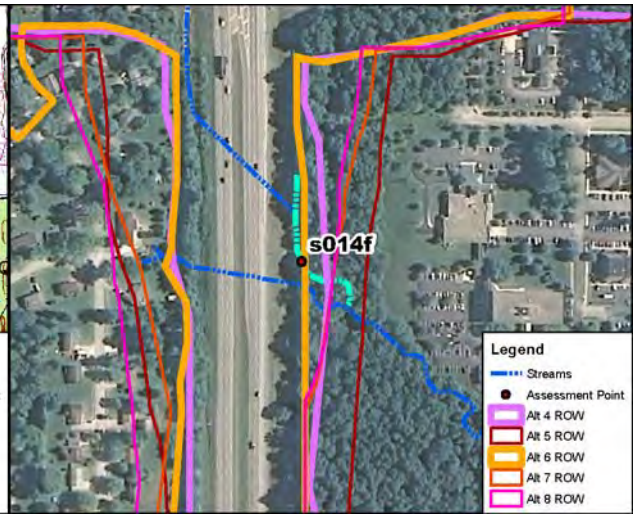
FLOW ➔

Save as pdf Reset Form

Stream Impacts S014f



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	13
Quarter:	NE	**Township:**	T8N
Range:	R2W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	2.3 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	54	**Watershed Area:**	0.06 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1761646 ft	**UTMN:** 14211966 ft		

Stream S014f – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	318	0.02	0.71
5	440	0.02	1.07
6	243	0.01	0.26
7	332	0.02	0.94
8	331	0.02	0.94

Description of Potential Impact:
Impacts to S014f for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of sand and gravel. There is a wide riparian corridor on the left bank and a narrow riparian zone on the right bank where the Alternatives cross this stream. The adjacent floodplain consists of immature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S014f are on the second page of this form.

Stream Impacts S014f

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 54

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s014f | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.06

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.13474 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS | COMMENTS: (Long: -86.57246) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	20%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	45%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15

TOTAL NUMBER OF SUBSTRATE TYPES: 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☑ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 26

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 2.3'/0.5' | AVERAGE BANKFULL WIDTH (meters): 0.70

HHEI Metric Points

	Max	Points
Substrate	40	19
Pool Depth	30	30
Bankfull Width	30	5

A + B

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek (>2 miles)** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

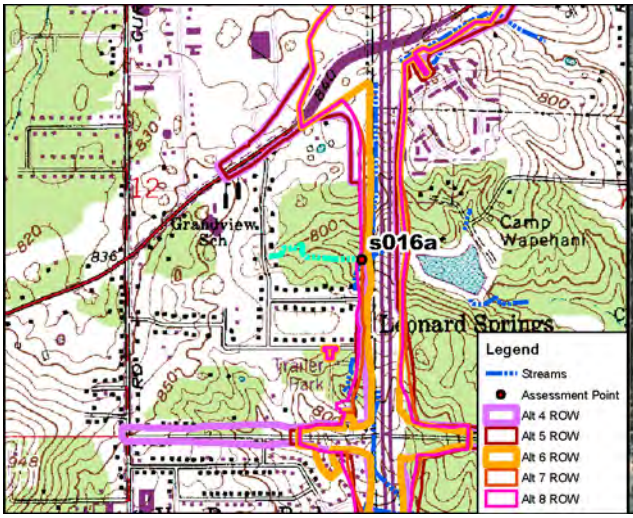
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

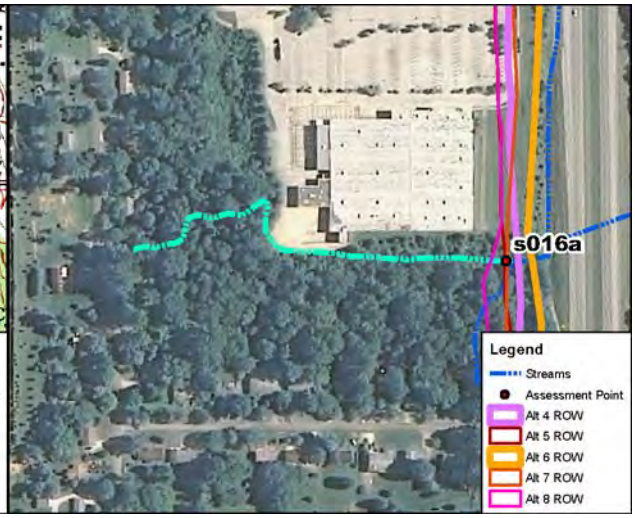
FLOW ➔

Save as pdf Reset Form

Stream Impacts S016a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	12
Quarter:	SE	**Township:**	T8N
Range:	R2W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	6.0 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	28	**Watershed Area:**	0.23 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1761231 ft	**UTMN:** 14214555 ft		

Stream S016a – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	2	0.01	0.00
5	36	0.01	0.00
6	0	0.00	0.00
7	31	0.01	0.00
8	73	0.01	0.10

Description of Potential Impact:
Impacts to S016a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The artificial channel consists of dump rock gutter located at the foot of a steep man-made embankment. This channel eventually flows to Weimer Lake (a Section 303(d) listed water). The riparian buffer is wide where the Alternatives cross this channel. The floodplain consists of immature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S016a are on the second page of this form.

Stream Impacts S016a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 28

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S016a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.23

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.14186 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/10/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.57389) (Dump Rock Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☐	ARTIFICIAL [3 pts]	90%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 2

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 6' / 1' | **AVERAGE BANKFULL WIDTH (meters):** 1.83

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	8
Pool Depth	30	0
Bankfull Width	30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Van Buren**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **25%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

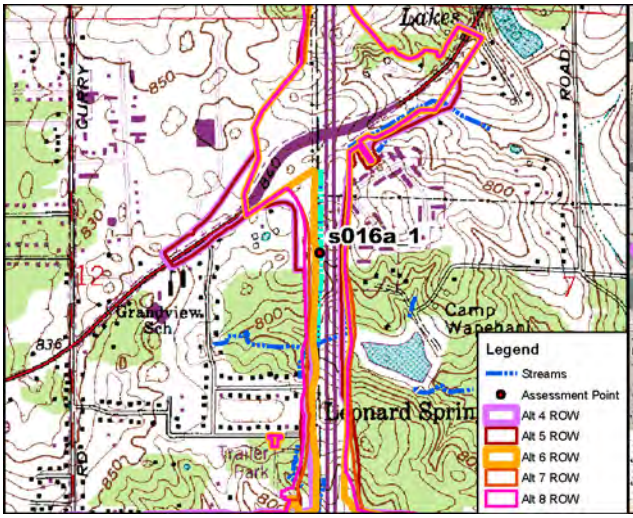
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

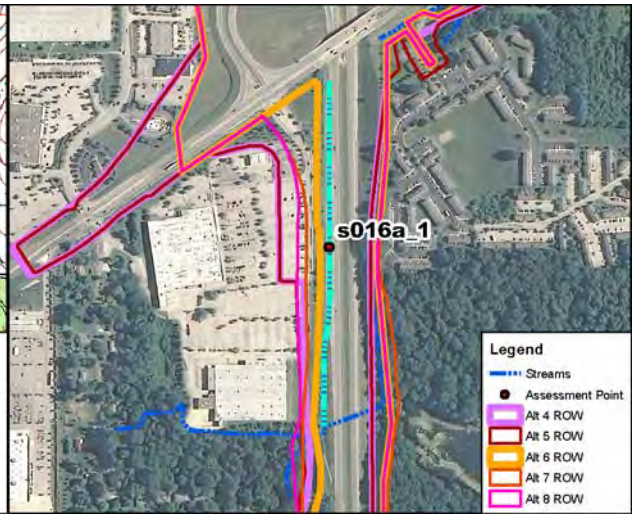
FLOW ➔

Save as pdf Reset Form

Stream Impacts S016a_1



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	7
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	3.5 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1761370 ft	**UTMN:** 14215533 ft		

Stream S016a_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	1803	0.13	0.00
5	1803	0.13	0.00
6	1803	0.13	0.00
7	1803	0.13	0.00
8	1803	0.13	0.00

Description of Potential Impact:

Impacts to S016a_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S016a_1 are on the second page of this form.

Stream Impacts S016a_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s016a_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.14454 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/23/12 SCORER: KSS/DEW COMMENTS: (Long: -86.57338) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 3.2'/1.0' AVERAGE BANKFULL WIDTH (meters): 0.98

HHEI Metric Points

Substrate Max = 40	7
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L R	RIPARIAN WIDTH (Per Bank)	L R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L R	
☐ ☐	Wide >10m	☐ ☐	Mature Forest, Wetland	☐ ☐	Conservation Tillage
☐ ☐	Moderate 5-10m	☐ ☐	Immature Forest, Shrub or Old Field	☑ ☑	Urban or Industrial
☐ ☐	Narrow <5m	☐ ☐	Residential, Park, New Field	☐ ☐	Open Pasture, Row Crop
☑ ☑	None	☐ ☐	Fenced Pasture	☐ ☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S16a_1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Van Buren

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

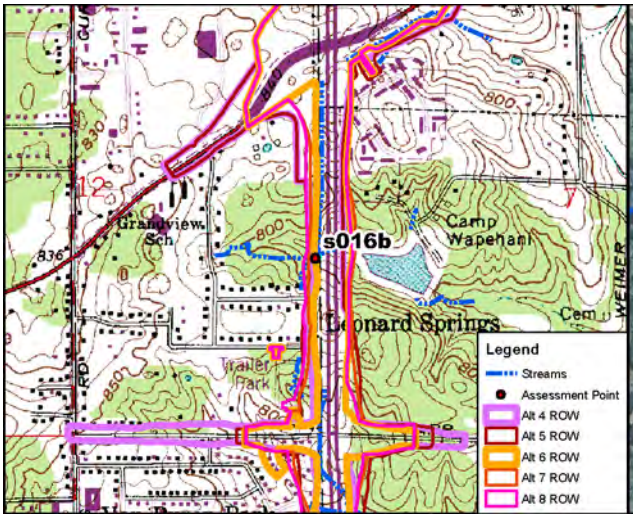
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

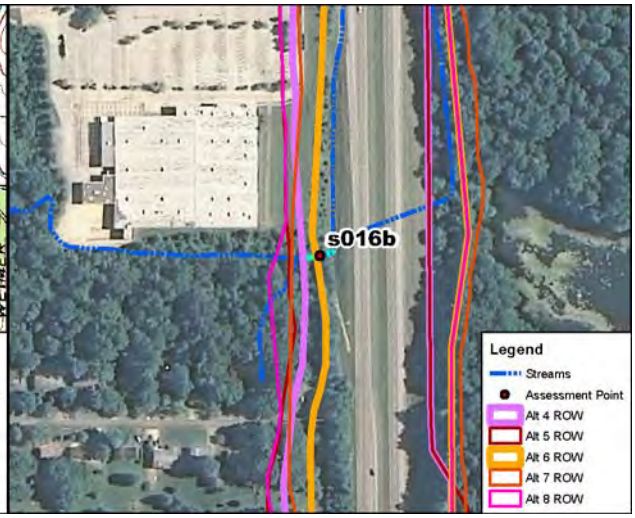
FLOW ➔

Save as pdf Reset Form

Stream Impacts S016b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	12
Quarter:	SE	**Township:**	T8N
Range:	R2W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	3.5 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.23 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1761308 ft	**UTMN:** 14214559 ft		

Stream S016b – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	106	0.01	0.09
5	106	0.01	0.09
6	72	0.01	0.08
7	106	0.01	0.09
8	106	0.01	0.09

Description of Potential Impact:

Impacts to S016b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter that carries flow during storm events from S016a. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained utility line ROW. A photograph taken downstream in the area where these Alternatives cross S016b are on the second page of this form.

Stream Impacts S016b

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s016b | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.23

LENGTH OF STREAM REACH (ft): 100 | LAT.: 39.14187 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS/DEW | COMMENTS: (Long: -86.57361) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 3.2'/0.1' | **AVERAGE BANKFULL WIDTH (meters):** 0.98

HHEI Metric Points

	Max	Points
Substrate	40	7
Pool Depth	30	0
Bankfull Width	30	5
A + B		

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S16b

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Van Buren

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.02

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 65%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

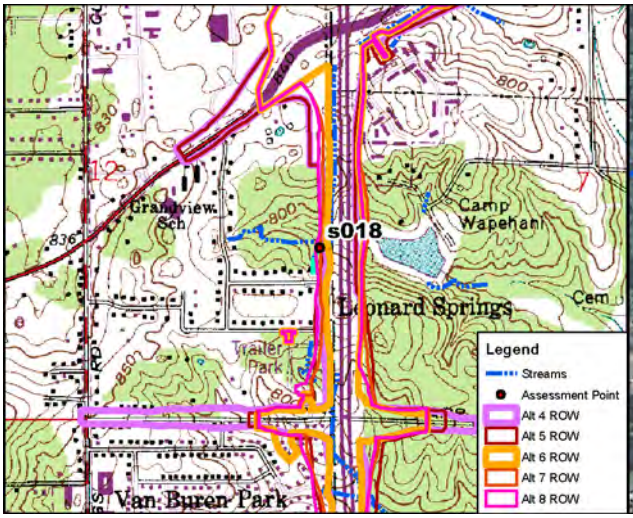
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

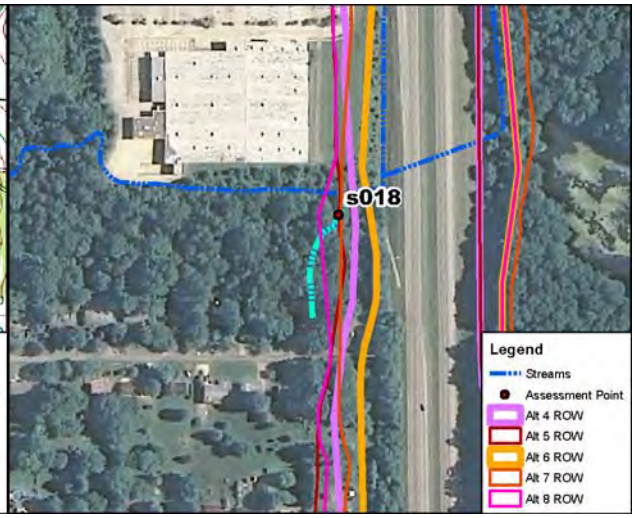
FLOW ➔

Save as pdf Reset Form

Stream Impacts S018



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	12
Quarter:	SE	**Township:**	T8N
Range:	R2W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	3.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	26	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand
UTME: 1761226 ft	**UTMN:** 14214497 ft		

Stream S018 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.01
5	60	0.01	0.01
6	0	0.00	0.01
7	45	0.01	0.01
8	140	0.01	0.19

Description of Potential Impact:
Impacts to S018 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate of S006a is primarily of sand. There is a wide riparian corridor on both banks of the stream. The floodplain consists primarily of immature forest and an old field where it enters the utility line ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S018 are on the second page of this form.

Stream Impacts S018

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 26

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S018 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.14170 LONG.: RIVER CODE: RIVER MILE:

DATE: 10/10/11 SCORER: DEW/KSS COMMENTS: (Long: -86.57390) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	15%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	75%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 18

TOTAL NUMBER OF SUBSTRATE TYPES: 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 3' / 0.5' AVERAGE BANKFULL WIDTH (meters): 1.00

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	21
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Van Buren**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **5%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

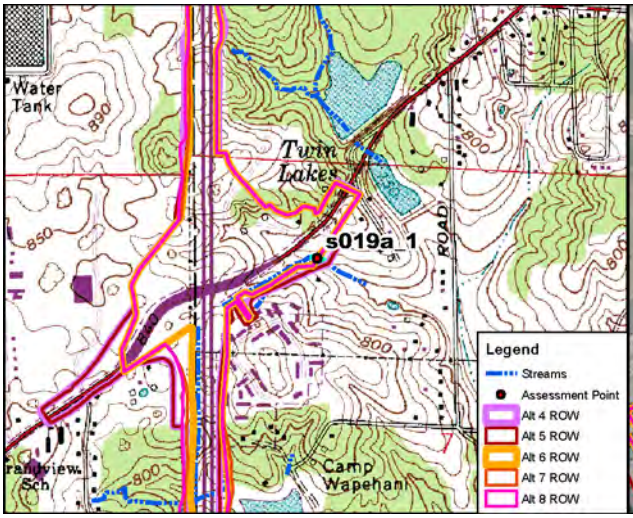
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

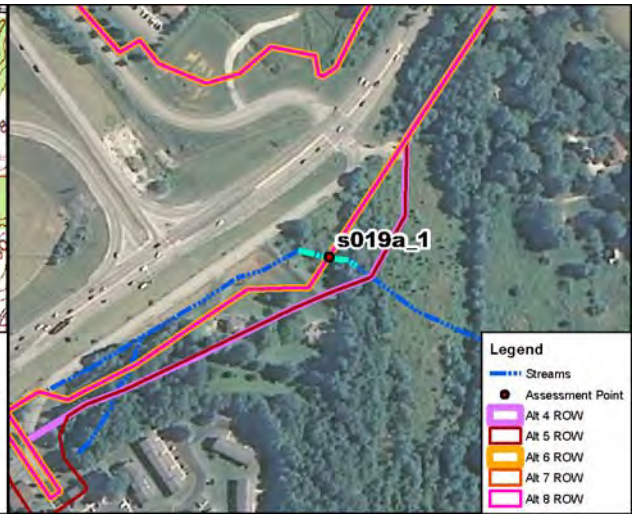
FLOW ➔

Save as pdf Reset Form

Stream Impacts S019a_1



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	7
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	9.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.8 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	56	**Watershed Area:**	0.14 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/artificial
UTME: 1762619 ft	**UTMN:** 14217104 ft		

Stream S019a_1 – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	159	0.03	0.07
5	159	0.03	0.07
6	79	0.02	0.00
7	79	0.02	0.00
8	79	0.02	0.00

Description of Potential Impact:
Impacts to S019a_1 for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The stream channel consists of natural sand bottom and riprap lines banks. There is a narrow riparian buffer associated with both banks where the Alternatives cross this ditch. A residential yard comprises the right floodplain area, while shrubby habitat exists on the left. This stream flows into a culvert outside the study limits. Photographs taken upstream and downstream in the area where these Alternatives cross S019a_1 are on the second page of this form.

Stream Impacts S019a_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 56

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s019a_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.14

LENGTH OF STREAM REACH (ft): 158 LAT.: 39.14884 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 04/23/12 SCORER: KSS COMMENTS: (Long: -86.56895) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	60%	☑	ARTIFICIAL [3 pts]	40%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 2

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 9.5'/0.8' **AVERAGE BANKFULL WIDTH (meters):** 3.00

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	11
Pool Depth	30	25
Bankfull Width	30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek (>2 miles)** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **80%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

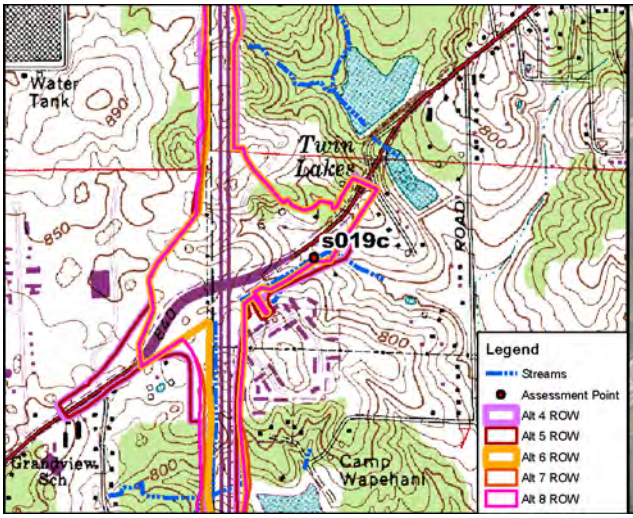
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

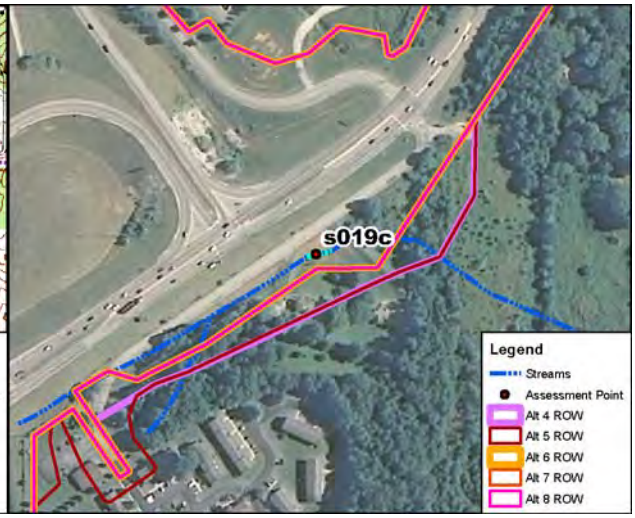
FLOW ➔

Save as pdf Reset Form

Stream Impacts S019c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	7
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.5 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	34	**Watershed Area:**	0.14 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay
UTME: 1762405 ft	**UTMN:** 14217059 ft		

Stream S019c – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	64	0.01	0.00
5	64	0.01	0.00
6	64	0.01	0.00
7	64	0.01	0.00
8	64	0.01	0.00

Description of Potential Impact:
Impacts to S019c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. This segment of stream is captured by a roadside ditch that eventually flows along Oakdale Drive to an unnamed tributary to Clear Creek (i.e., s019a). Flow is interrupted by a number of culverts under driveways, as well as under Oakdale Drive. There is no riparian buffer associated with this clay bottom ditch. The floodplain consists of the urban roadway on the left bank and residential on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S019c are on the second page of this form.

Stream Impacts S019c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 34

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S019c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.14

LENGTH OF STREAM REACH (ft): 65 | LAT.: 39.14872 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.56970) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	70%
☑	GRAVEL (2-64 mm) [9 pts]	15%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	5%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

HHEI Metric Points

Substrate Max = 40: 14

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 6

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.5' / 0.4' **AVERAGE BANKFULL WIDTH (meters):** 0.45

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S019c

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **32** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **153 Upstream / 154 Downstream / 155 Right Bank / 156 Left Bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **80%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

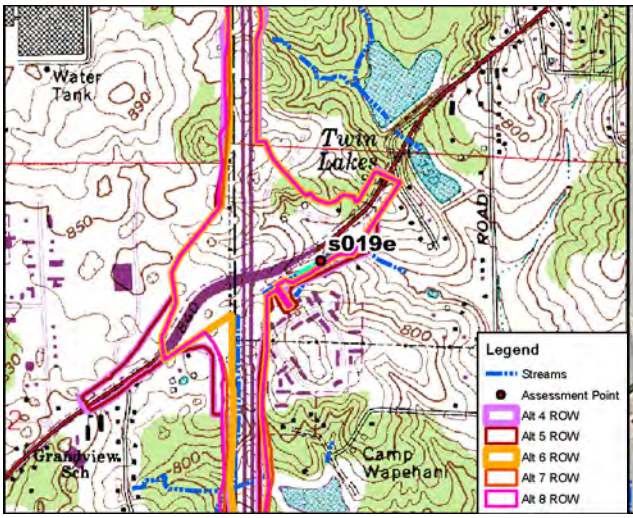
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

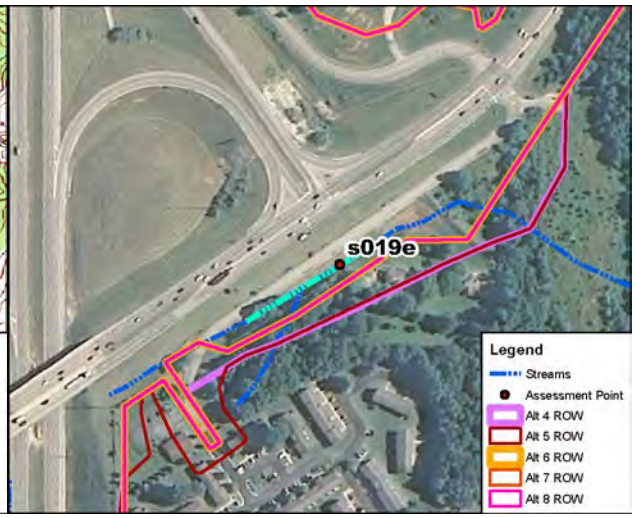
FLOW ➔

Save as pdf Reset Form

Stream Impacts S019e



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	7
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.5 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.14 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1762231 ft	**UTMN:** 14216958 ft		

Stream S019e – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	351	0.01	0.46
5	351	0.01	0.46
6	351	0.01	0.19
7	351	0.01	0.19
8	351	0.01	0.19

Description of Potential Impact:
Impacts to S019e for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. This segment of stream is captured by a concrete gutter that eventually flows along Oakdale Drive to an unnamed tributary to Clear Creek (i.e., s019a). Flow is interrupted by a number of culverts under driveways, as well as under Oakdale Drive. The predominant substrate is artificial. There is no riparian buffer along the left bank and a moderately wide riparian zone on the right bank of this ditch. The floodplain consists of the urban roadway on the left bank and residential on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S019e are on the second page of this form.

Stream Impacts S019e

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S019e | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.14

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.14844 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.57032) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 6

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 1.5' / 0.4' **AVERAGE BANKFULL WIDTH (meters):** 0.45

HHEI Metric Points

Substrate	Max = 40	7
A + B		
Pool Depth	Max = 30	0
Bankfull Width	Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☑	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **32** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **153 Upstream / 154 Downstream / 155 Right Bank / 156 Left Bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **80%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

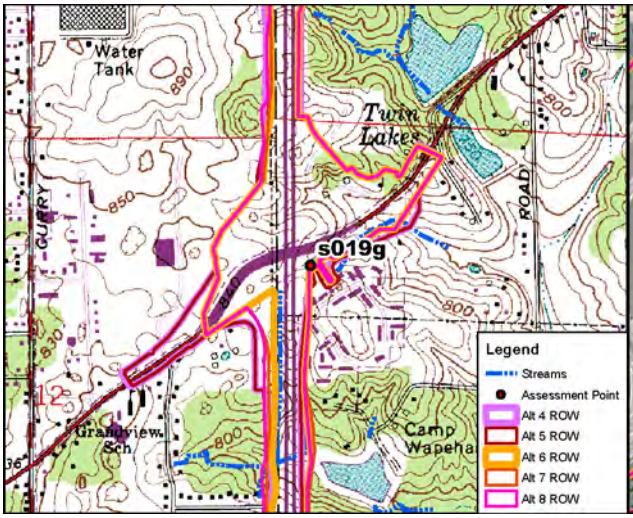
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

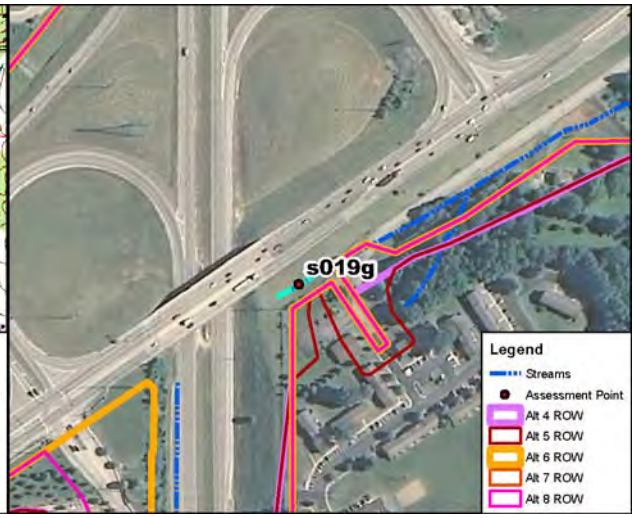
FLOW ➔

Save as pdf Reset Form

Stream Impacts S019g



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	7
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.5 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	34	**Watershed Area:**	0.14 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay
UTME: 1761686 ft	**UTMN:** 14216650 ft		

Stream S019g – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	199	0.01	0.00
5	199	0.01	0.00
6	170	0.01	0.00
7	170	0.01	0.00
8	170	0.01	0.00

Description of Potential Impact:
Impacts to S019g for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. This segment of stream is captured by a roadside ditch that eventually flows along Oakdale Drive to an unnamed tributary to Clear Creek (i.e., s019a). Flow is interrupted by a number of culverts under driveways, as well as under Oakdale Drive. There is no riparian buffer associated with this clay bottom ditch. The floodplain consists of the urban roadway on the left bank and commercial on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S019g are on the second page of this form.

Stream Impacts S019g

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 34

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S019g RIVER BASIN: White River DRAINAGE AREA (mi²): 0.14

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.14760 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.57224) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	70%
☑	GRAVEL (2-64 mm) [9 pts]	15%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	5%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 6

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 1.5' / 0.4' **AVERAGE BANKFULL WIDTH (meters):** 0.45

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	14
Pool Depth	30	15
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S019g

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **32** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **153 Upstream / 154 Downstream / 155 Right Bank / 156 Left Bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **80%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

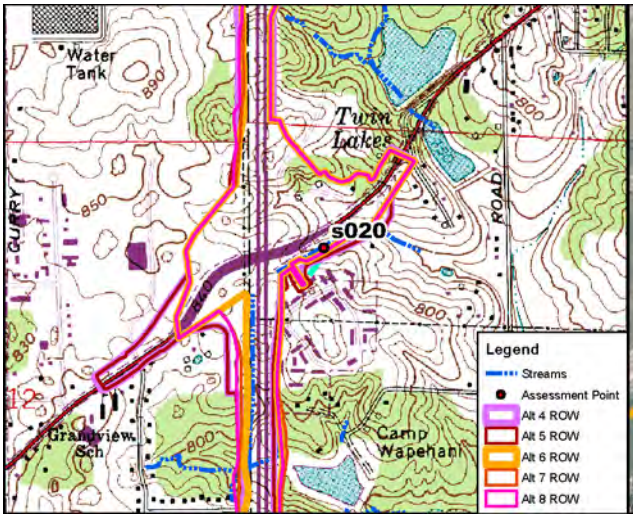
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

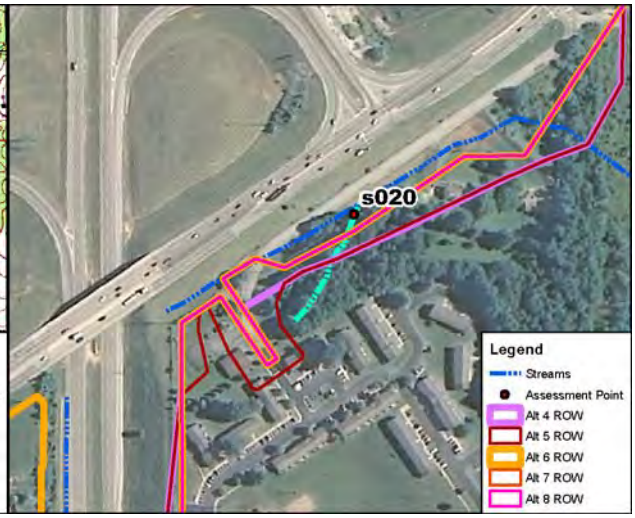
FLOW ➔

Save as pdf Reset Form

Stream Impacts S020



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	7
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.3 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	39	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1762119 ft	**UTMN:** 14216869 ft		

Stream S020 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	165	0.01	0.01
5	165	0.01	0.05
6	86	0.01	0.00
7	86	0.01	0.00
8	86	0.01	0.00

Description of Potential Impact:
Impacts to S020 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of sand and gravel. There is a wide riparian corridor along both banks of this stream. The floodplain consists primarily of immature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S020 are on the second page of this form.

Stream Impacts S020

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 39

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S020 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.14820 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.57071) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	55%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 6

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.3' / 0.4' **AVERAGE BANKFULL WIDTH (meters):** 0.40

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	19
Pool Depth	30	15
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S20

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 32 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

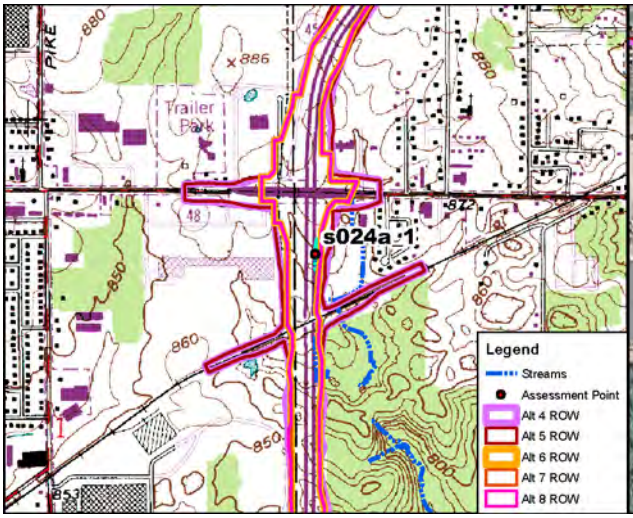
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

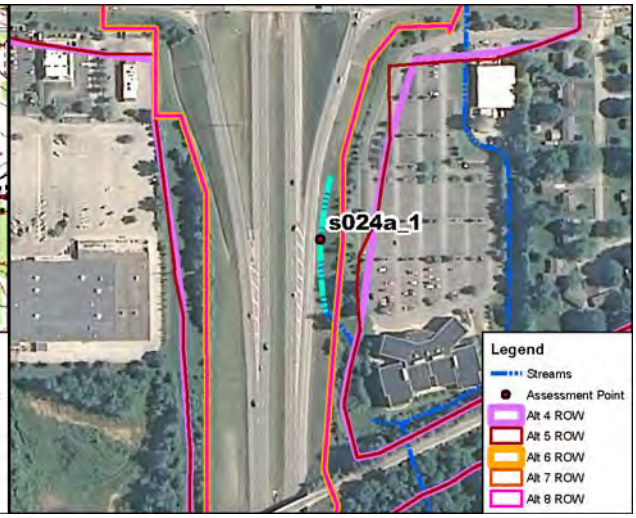
FLOW ➔

Save as pdf Reset Form

Stream Impacts S024a_1



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	6
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.2 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1762119 ft	**UTMN:** 14216869 ft		

Stream S024a_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	355	0.01	0.00
5	355	0.01	0.00
6	355	0.01	0.00
7	355	0.01	0.00
8	355	0.01	0.00

Description of Potential Impact:
Impacts to S024a_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S024a_1 are on the second page of this form.

Stream Impacts S024a_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s024a_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.16278 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/23/12 SCORER: KSS/DEW COMMENTS: (Long: -86.57274) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 1.2'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.37

HHEI Metric Points

Substrate Max = 40	A + B	7
Pool Depth Max = 30		0
Bankfull Width Max=30		5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S24a_1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

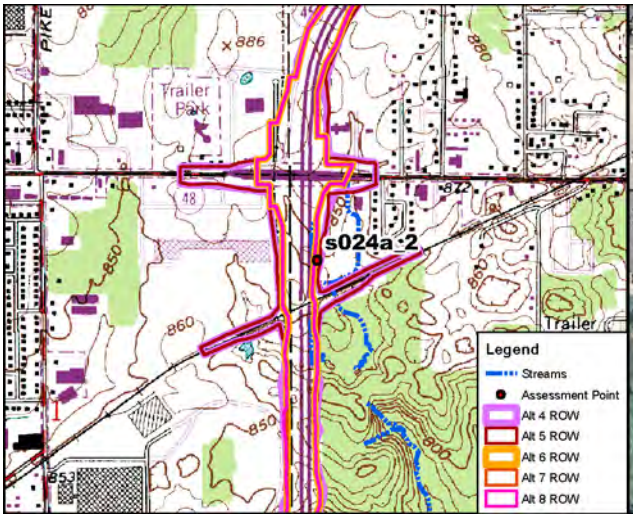
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

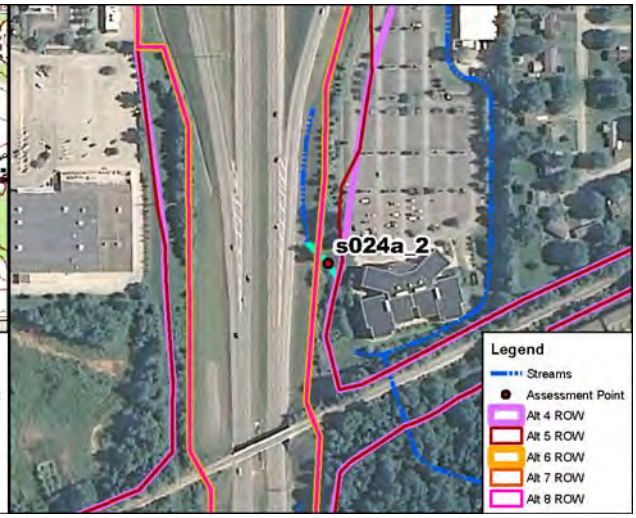
FLOW ➔

Save as pdf Reset Form

Stream Impacts S024a_2



Site Location on Bloomington USGS Quadrangle



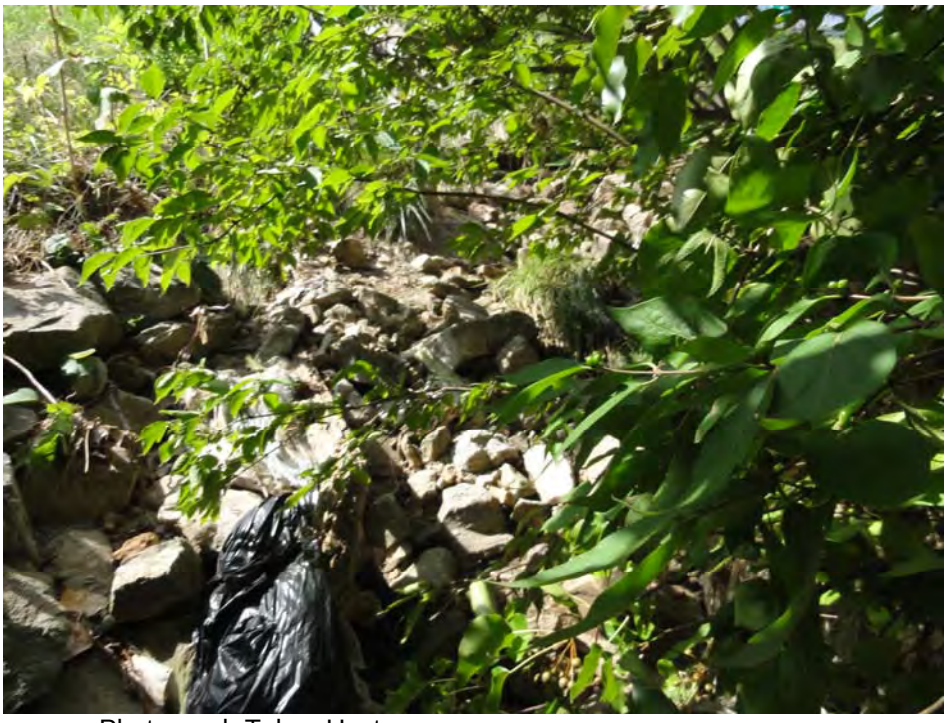
Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	6
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	8.0 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	27	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1761583 ft	**UTMN:** 14211938 ft		

Stream S024a_2 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	123	0.02	0.00
5	123	0.02	0.00
6	35	0.01	0.00
7	35	0.01	0.00
8	35	0.01	0.00

Description of Potential Impact:
Impacts to S024a_2 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel is a dump rock gutter that outlets to a wetland (W24). There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW on the left bank and new field on the right bank. Photographs taken upstream and downstream in the area where these Alternatives cross S024a_2 are on the second page of this form.

Stream Impacts S024a_2



Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 27

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s024a_2 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 122 LAT.: 39.16213 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/23/12 SCORER: KSS/DEW COMMENTS: (Long: -86.57252) (Dump Rock Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 8'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 2.44

HHEI Metric Points

Substrate Max = 40	7	A + B
Pool Depth Max = 30	0	
Bankfull Width Max=30	20	

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S24a_2

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.20

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

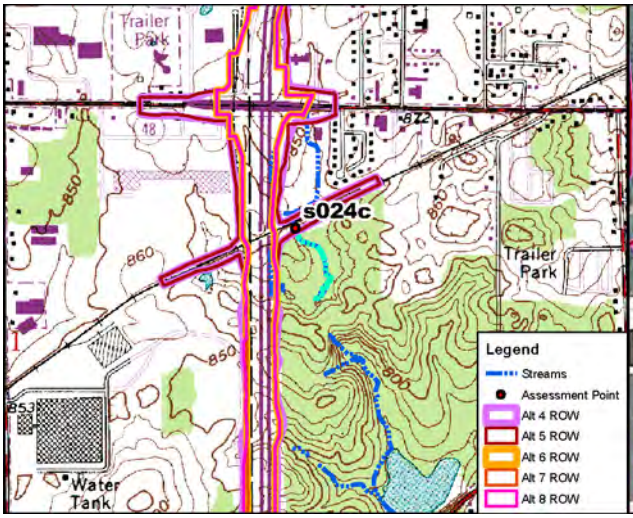
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S024c



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	6
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	9.0 feet
Channelized/Type:	Yes/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	32	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay
UTME: 1761778 ft	**UTMN:** 14211548 ft		

Stream S024c – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	76	0.02	0.37
5	76	0.02	0.37
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S024c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate of S024c is predominately clay. There is a wide riparian corridor on both banks of the stream. The floodplain consists primarily of immature forest where alternatives 4 and 5 cross the stream. Photographs taken upstream and downstream in the area where these Alternatives cross S024c are on the second page of this form.

Stream Impacts S024c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 32

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S024c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.16105 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/11/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.57184) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	9%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☑	CLAY or HARDPAN [0 pt]	80%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	11%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 9'/1' | **AVERAGE BANKFULL WIDTH (meters):** 2.74

HHEI Metric Points

Substrate	Max = 40	12
A + B		
Pool Depth	Max = 30	0
Bankfull Width	Max=30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **50%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: **incised channel, steep unstable banks**

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

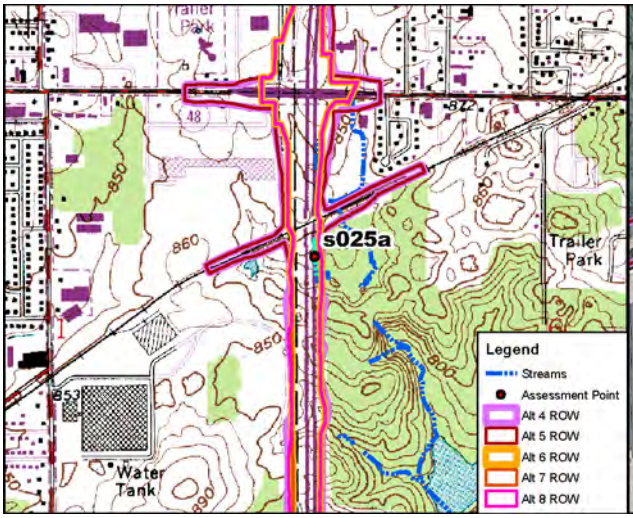
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

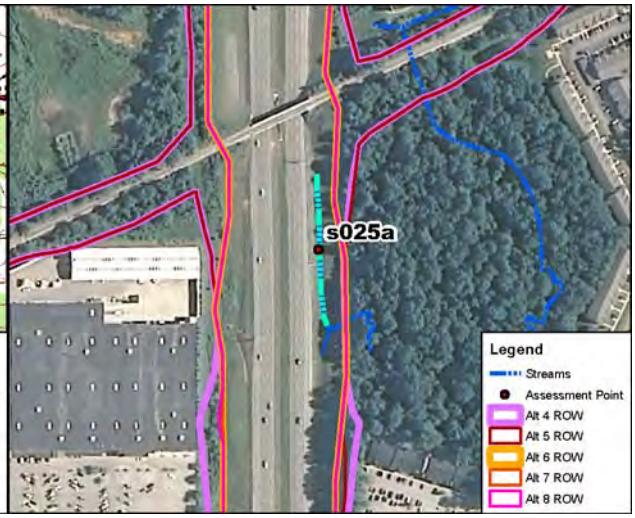
FLOW ➔

Save as pdf Reset Form

Stream Impacts S025a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	6
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	2.7 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	No
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	23	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1761512 ft	**UTMN:** 14221120 ft		

Stream S025a – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	395	0.02	0.09
5	395	0.02	0.11
6	395	0.02	0.00
7	395	0.02	0.00
8	395	0.02	0.00

Description of Potential Impact:
Impacts to S025a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. No connection to a TNW was found; thus this resource shall be considered isolated. The gravel bottom roadside ditch is located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S025a are on the second page of this form.

Stream Impacts S025a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 23

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s025a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.15988 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS | COMMENTS: (Long:-86.57278) Isolated (Roadside Ditch-Mod Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	80%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	15%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15

TOTAL NUMBER OF SUBSTRATE TYPES: 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 2.7'/0.4' | AVERAGE BANKFULL WIDTH (meters): 0.82

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	18
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☑	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek (>2 miles)** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

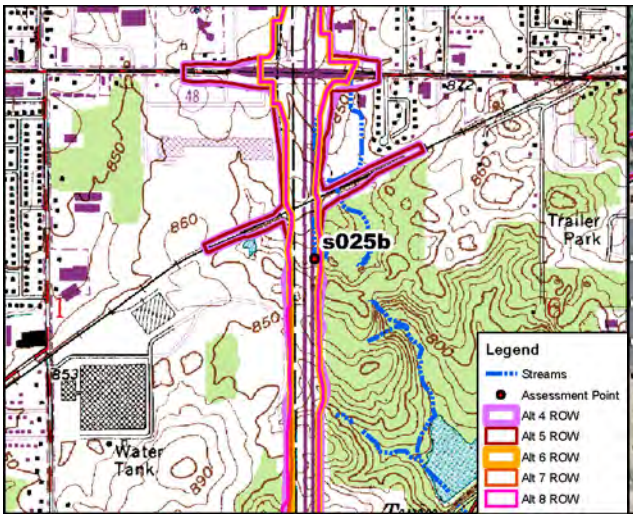
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

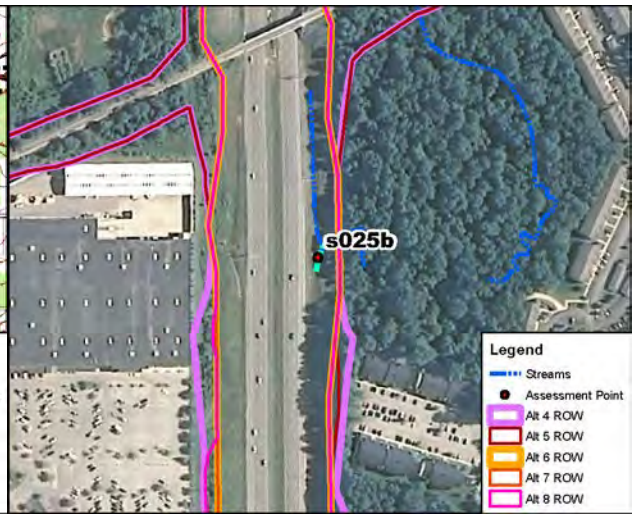
FLOW ➔

Save as pdf Reset Form

Stream Impacts S025b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Concrete Gutter	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	6
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	1.2 feet
Channelized/Type:	Yes/Roadside ditch	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	No
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt
UTME: 1761526 ft	**UTMN:** 14220879 ft		

Stream S025b – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	74	0.01	0.00
5	74	0.01	0.00
6	74	0.01	0.00
7	74	0.01	0.00
8	74	0.01	0.00

Description of Potential Impact:
Impacts to S025b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. No connection to a TNW was found; thus this resource shall be considered isolated. The ditch is located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S025b are on the second page of this form.

Stream Impacts S025b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s025b | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 73 | LAT.: 39.15922 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS/DEW | COMMENTS: (Long:-86.57274) Isolated (Roadside Ditch-Mod Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

HHEI Metric Points

Substrate Max = 40: 7 (A + B)

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 1.2'/0.1' | **AVERAGE BANKFULL WIDTH (meters):** 0.36

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S25b

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/19/12 Quantity: 0.00

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

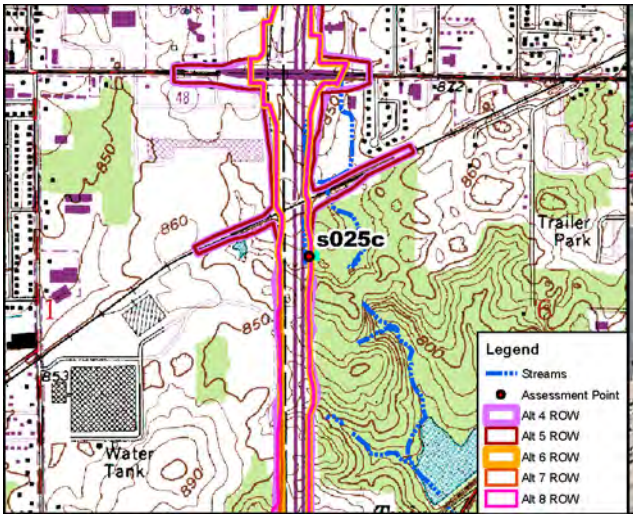
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

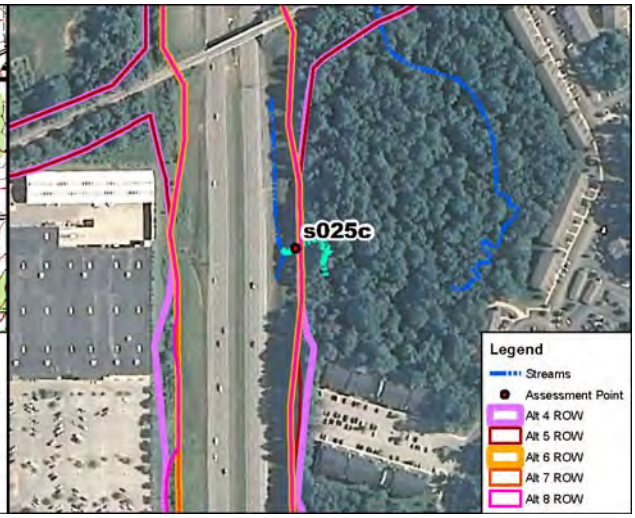
FLOW ➔

Save as pdf Reset Form

Stream Impacts S025c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	6
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	10.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	2.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	No
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	27	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/hardpan
UTME: 1761569 ft	**UTMN:** 14220925 ft		

Stream S025c – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	54	0.01	0.00
5	56	0.01	0.00
6	56	0.01	0.00
7	56	0.01	0.00
8	56	0.01	0.00

Description of Potential Impact:
Impacts to S025c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate is silt on hardpan. There is a wide riparian corridor on both banks where the Alternatives cross this isolated (sinking) stream. The floodplain consists primarily of immature forest. Photographs taken upstream and downstream near where these Alternatives cross S025c are on the second page of this form.

Stream Impacts S025c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 27

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S025c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.15935 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/08/06 | SCORER: A Rogers | COMMENTS: (Long: -86.57259) Isolated (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	70%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☑	CLAY or HARDPAN [0 pt]	20%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	5%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 | TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: 7

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 9.8' / 2' | AVERAGE BANKFULL WIDTH (meters): 2.99

Bankfull Width Max=30: 20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS: Surface Conveyance only - Stream drops into sinkhole

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S25

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Clear Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 32 NRCS Soil Map Stream Order 1

County: Monroe Township / City: Perry

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/04/06 Quantity: 0.01

Photograph Information: 0001 Upstream / 0002 Downstream / 0003 Right Bank / 0004 Left Bank

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

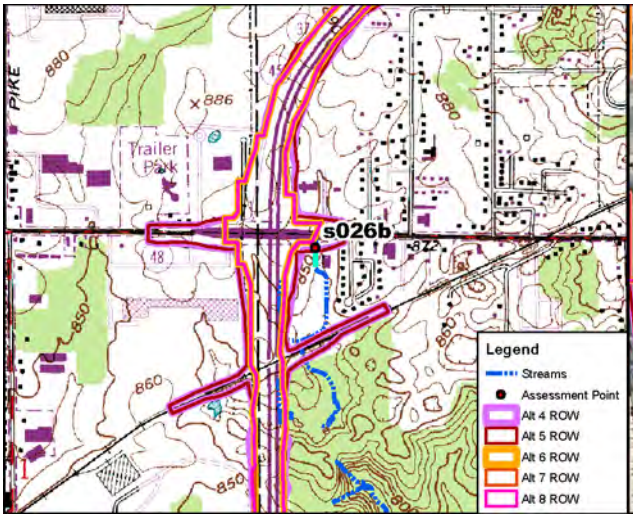
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

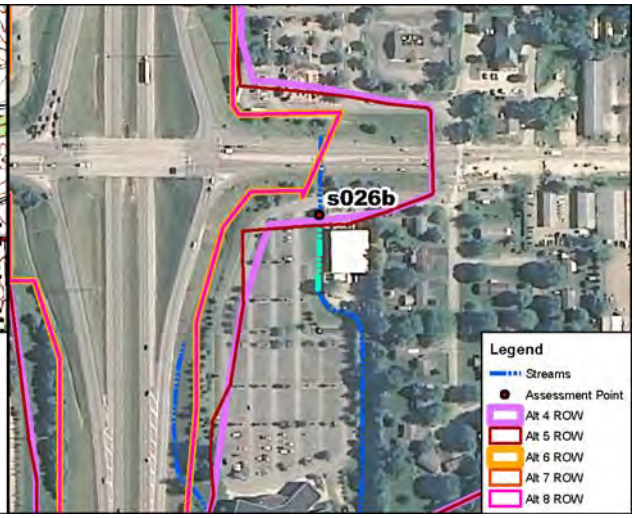
FLOW ➔

Save as pdf Reset Form

Stream Impacts S026b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	6
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	6.0 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	1.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	52	**Watershed Area:**	0.33 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1761896 ft	**UTMN:** 14222669 ft		

Stream S026b – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	17	0.01	0.00
5	30	0.01	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S026b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel's substrate consists of sand and gravel. This captured stream channel is located along a driveway of a commercial facility. There is no riparian buffer associated with this ditch. The floodplain consists of the urban uses along both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S026b are on the second page of this form.

Stream Impacts S026b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 52

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S026b | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.33

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.16413 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/11/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.57140) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE			PERCENT	TYPE			PERCENT
☐	☐	BLDR SLABS [16 pts]	0%	☐	☐	SILT [3 pt]	0%
☐	☐	BOULDER (>256 mm) [16 pts]	0%	☐	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	☐	BEDROCK [16 pt]	0%	☐	☐	FINE DETRITUS [3 pts]	0%
☐	☐	COBBLE (65-256 mm) [12 pts]	0%	☐	☐	CLAY or HARDPAN [0 pt]	0%
☑	☐	GRAVEL (2-64 mm) [9 pts]	49%	☐	☐	MUCK [0 pts]	0%
☐	☑	SAND (<2 mm) [6 pts]	51%	☐	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 2

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 8

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 6'/1.5' **AVERAGE BANKFULL WIDTH (meters):** 1.83

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	17
Pool Depth	30	15
Bankfull Width	30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Roadway runoff

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

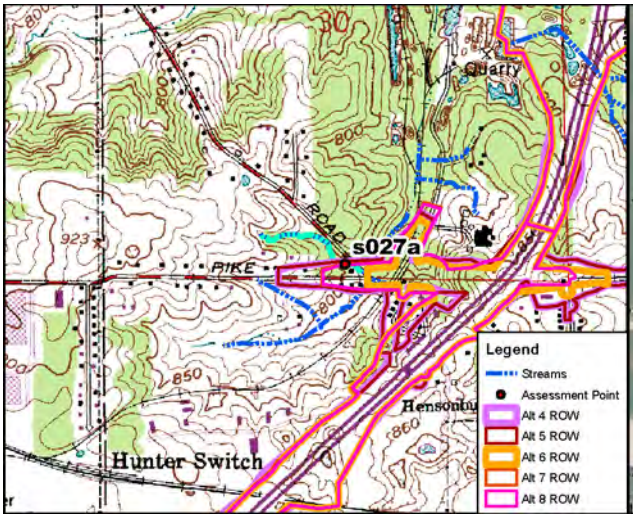
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

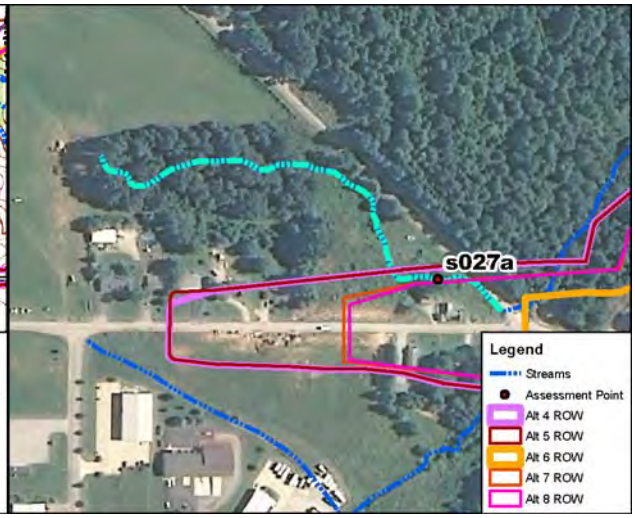
FLOW ➔

Save as pdf Reset Form

Stream Impacts S027a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	6
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.6 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	30	**Watershed Area:**	0.05 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1761896 ft	**UTMN:** 14222669 ft		

Stream S027a – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	333	0.02	0.26
5	333	0.02	0.26
6	0	0.00	0.00
7	125	0.01	0.11
8	116	0.01	0.08

Description of Potential Impact:
Impacts to S027a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel, sand and silt. There is a moderately wide riparian corridor on both banks of the stream where it meanders through a residential property. The floodplain consists of an old field and residential use. Photographs taken upstream and downstream in the area where these Alternatives cross S027a are on the second page of this form.

Stream Impacts S027a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 30

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S027a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.05

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.17951 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.56470) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	20%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	40%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	25%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 4

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.6' / 1.0' **AVERAGE BANKFULL WIDTH (meters):** 1.00

HHEI Metric Points

Substrate Max = 40	A + B	20
Pool Depth Max = 30		5
Bankfull Width Max=30		5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S27

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **27** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

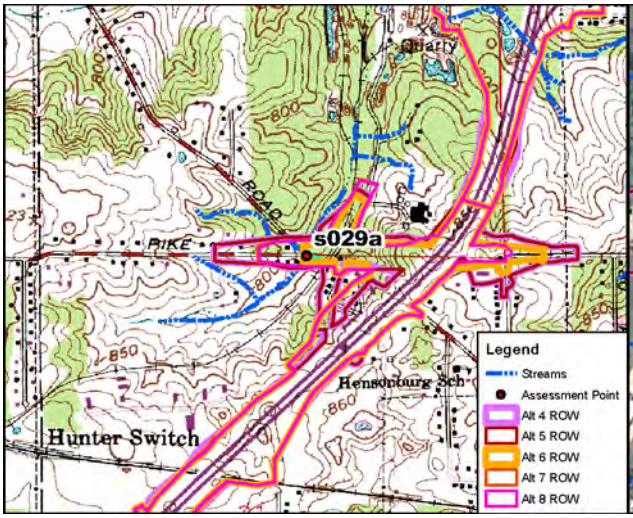
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

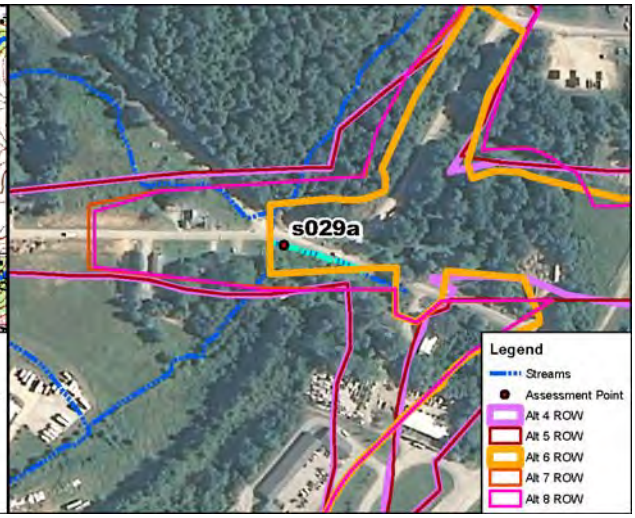
FLOW ➔

Save as pdf Reset Form

Stream Impacts S029a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	30
Quarter:	SE	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.8 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	29	**Watershed Area:**	0.08 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1764034 ft	**UTMN:** 14228124 ft		

Stream S029a – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	258	0.02	0.03
5	258	0.02	0.03
6	242	0.02	0.03
7	258	0.02	0.03
8	258	0.02	0.03

Description of Potential Impact:
Impacts to S029a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. This segment of stream is captured by a ditch that flows along West Vernal Pike. The substrate consists primarily of gravel, sand, and boulder slabs. There is no riparian buffer associated with this captured channel. The floodplain consists of the roadway on the right bank and an old field on the left. Photographs taken upstream and downstream in the area where these Alternatives cross S029a are on the second page of this form.

Stream Impacts S029a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 29

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S029a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.08

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.17909 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.56377) (Roadside Ditch-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	25%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	35%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 3

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.8' / 1.0' **AVERAGE BANKFULL WIDTH (meters):** 0.90

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	19
Pool Depth	30	5
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☑ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S29a

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **27** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **90%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

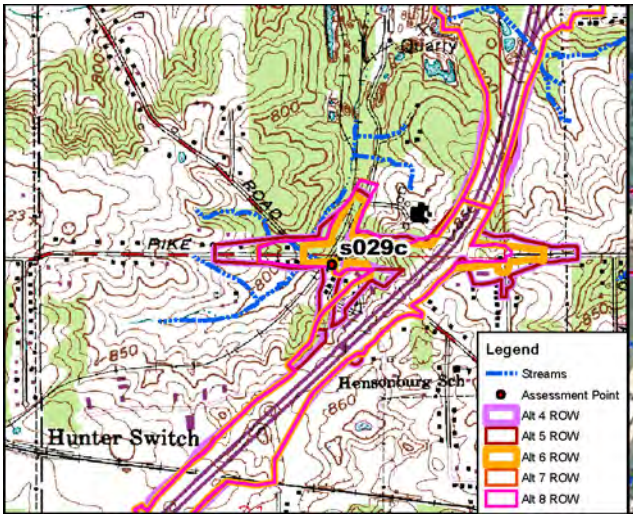
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

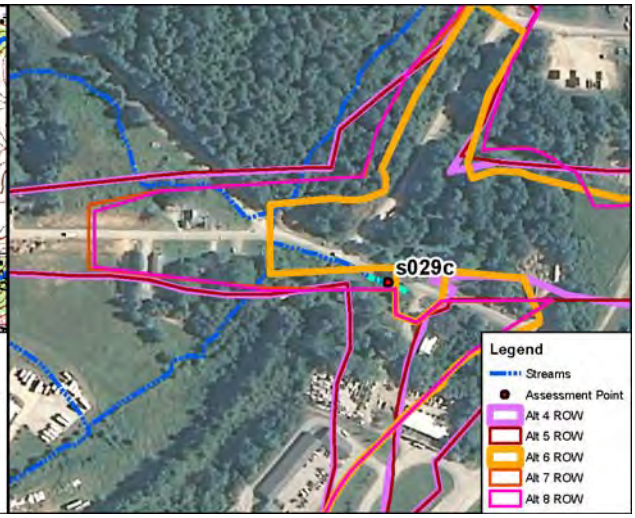
FLOW ➔

Save as pdf Reset Form

Stream Impacts S029c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	31
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.8 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	29	**Watershed Area:**	0.08 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1764304 ft	**UTMN:** 14228027 ft		

Stream S029c – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	107	0.01	0.00
5	107	0.01	0.00
6	33	0.01	0.00
7	107	0.01	0.00
8	107	0.01	0.00

Description of Potential Impact:
Impacts to S029c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. This segment of stream is captured by a ditch that flows along West Vernal Pike. The substrate consists primarily of gravel, sand, and silt. There is no riparian buffer associated with this channel. The floodplain consists of the roadway on the right bank and an old field on the left. Photographs taken upstream and downstream in the area where these Alternatives cross S029c are on the second page of this form.

Stream Impacts S029c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 29

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S029c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.08

LENGTH OF STREAM REACH (ft): 105 | LAT.: 39.17882 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.56282) (Roadside Ditch-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	25%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	35%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 3

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.8' / 1.0' **AVERAGE BANKFULL WIDTH (meters):** 0.90

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	19
Pool Depth	30	5
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☑ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **27** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **90%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

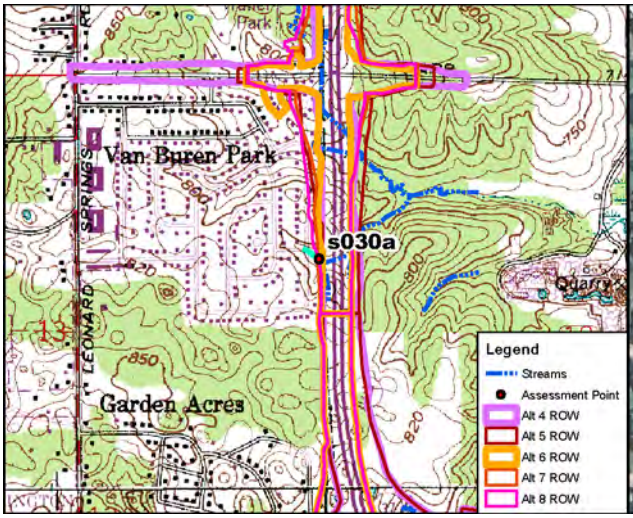
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S030a



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	13
Quarter:	NE	**Township:**	T8N
Range:	R2W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	3.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	16	**Watershed Area:**	0.03 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand
UTME: 1761335 ft	**UTMN:** 14210797 ft		

Stream S030a – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	19	0.01	0.10
5	16	0.01	0.09
6	13	0.01	0.08
7	81	0.01	0.13
8	64	0.01	0.13

Description of Potential Impact:
Impacts to S030a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of sand. There is no riparian buffer associated with this stream. The floodplain consists of a maintained utility line ROW. A photographs taken downstream in the area where these Alternatives cross S030a are on the second page of this form.

Stream Impacts S030a

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 16

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S030a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.03

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.13153 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/11/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.57358) (Natural-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	95%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 2

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 3'/0.5' **AVERAGE BANKFULL WIDTH (meters):** 0.90

HHEI Metric Points

Substrate	Max = 40	11
A + B		
Pool Depth	Max = 30	0
Bankfull Width	Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☑ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Van Buren**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: **Roadway runoff**

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

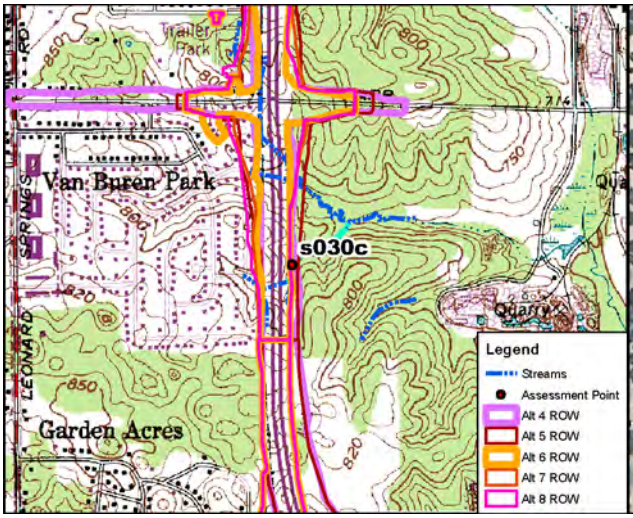
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

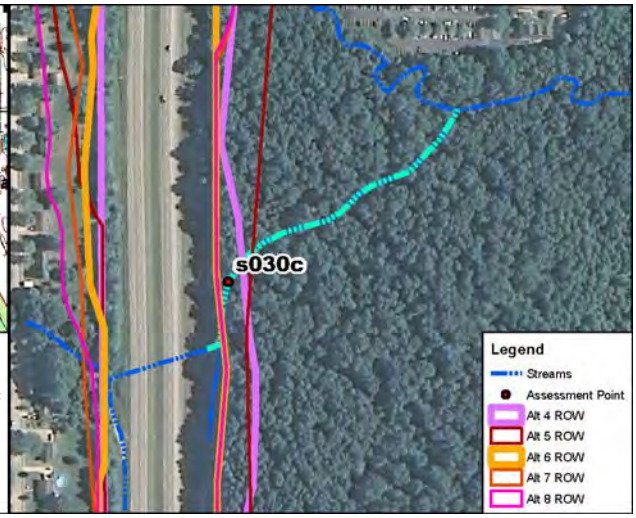
FLOW ➔

Save as pdf Reset Form

Stream Impacts S030c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Clear Creek	**Section:**	18
Quarter:	NW	**Township:**	T8N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120208090	**OHWM Width:**	8.2 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.9 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	38	**Watershed Area:**	0.03 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1761687 ft	**UTMN:** 14211013 ft		

Stream S030c –Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	265	0.05	0.75
5	303	0.06	0.88
6	100	0.02	0.14
7	100	0.02	0.14
8	100	0.02	0.14

Description of Potential Impact:
Impacts to S030c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of sand and gravel. There is a narrow riparian corridor consisting of INDOT ROW on the left bank and a wide riparian buffer consisting of immature forest on the right bank. Photographs taken upstream and downstream in the area where these Alternatives cross S030c are on the second page of this form.

Stream Impacts S030c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 38

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s030c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.03

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.13212 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS | COMMENTS: (Long: -86.57233) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	45%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	50%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 8.2'/0.9' **AVERAGE BANKFULL WIDTH (meters):** 2.50

HHEI Metric Points

Substrate	Max = 40	18
A + B		
Pool Depth	Max = 30	0
Bankfull Width	Max=30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☑	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Clear Creek (>2 miles)** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Perry**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

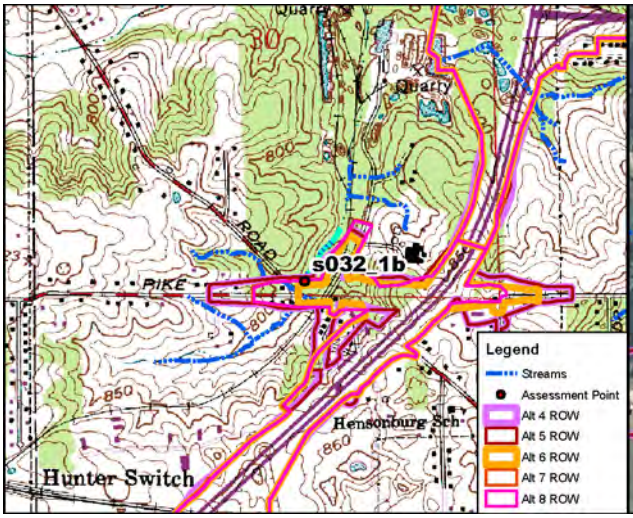
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

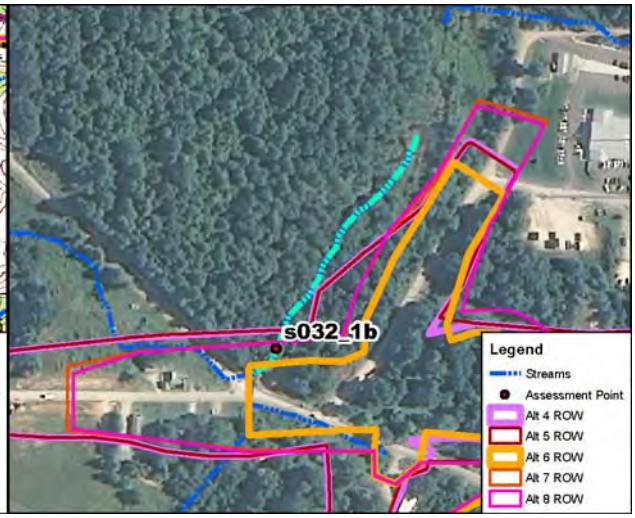
FLOW ➔

Save as pdf Reset Form

Stream Impacts S032_1b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	30
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.8 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.2 feet
Stream Type:	Intermittent	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	55	**Watershed Area:**	0.41 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Boulder slabs
UTME: 1764067 ft	**UTMN:** 14228275 ft		

Stream S032_1b –Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	146	0.01	0.91
5	146	0.01	0.91
6	49	0.01	0.14
7	113	0.01	0.47
8	111	0.01	0.50

Description of Potential Impact:

Impacts to S032_1b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of cobble overlaying boulder slabs. There is wide immature forested buffer associated with both stream banks where the Alternatives cross this stream. Photographs taken upstream and downstream in the area where these Alternatives cross S032_1b are on the second page of this form.

Stream Impacts S032_1b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 55

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S032_1b | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.41

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.17950 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/12/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.56365) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☑	BLDR SLABS [16 pts]	80%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	20%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 100.00% (A) | Substrate Percentage Check 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 28 **TOTAL NUMBER OF SUBSTRATE TYPES:** 2

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☑ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 40

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 2.8'/1.2' **AVERAGE BANKFULL WIDTH (meters):** 0.90

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	30
Pool Depth	30	20
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☑ Yes ☐ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Roadway runoff

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

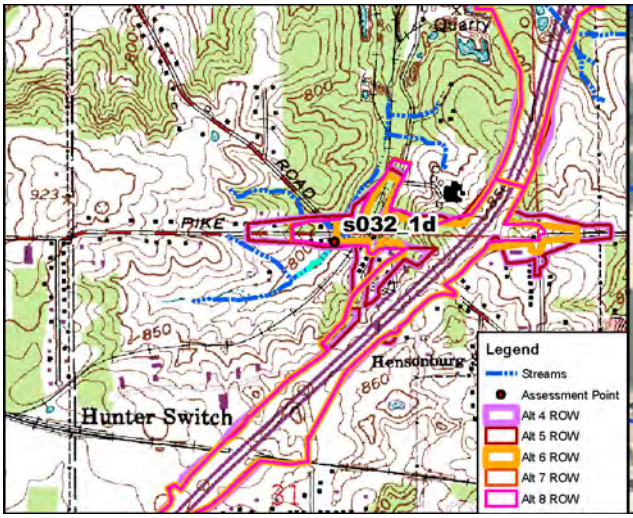
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

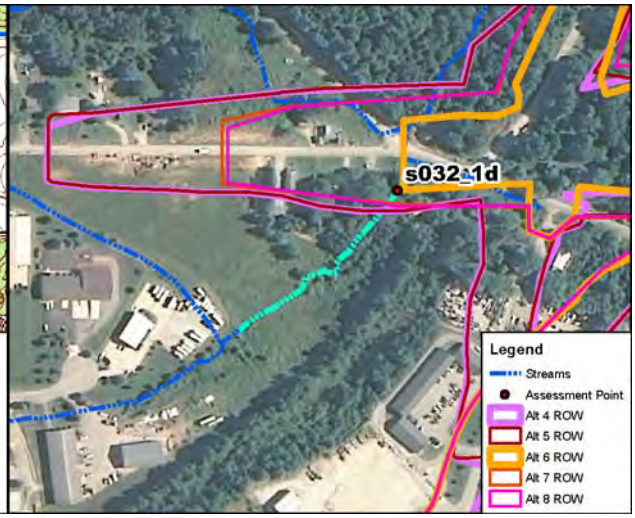
FLOW ➔

Save as pdf Reset Form

Stream Impacts S032_1d



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	31
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.8 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.2 feet
Stream Type:	Intermittent	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	48	**Watershed Area:**	0.41 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Bedrock/silt
UTME: 1763982 ft	**UTMN:** 14228048 ft		

Stream S032_1d –Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	143	0.01	0.00
5	142	0.01	0.00
6	43	0.01	0.00
7	115	0.01	0.00
8	122	0.01	0.00

Description of Potential Impact:

Impacts to S032_1d for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of silt overlaying bedrock. There is no riparian buffer associated with the left bank and a narrow buffer on the right bank consisting of an old field. The floodplain along the left bank is a residential yard. Photographs taken upstream and downstream in the area where these Alternatives cross S032_1d are on the second page of this form.

Stream Impacts S032_1d

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 48

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S032_1d | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.41

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.17888 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.56395) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☑	BEDROCK [16 pt]	50%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	5%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	5%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☑ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 40

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 2.8' / 1.2' **AVERAGE BANKFULL WIDTH (meters):** 0.85

HHEI Metric Points

Substrate	Max = 40	23
A + B		
Pool Depth	Max = 30	20
Bankfull Width	Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S32_1d

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **27** NRCS Soil Map Stream Order **2**

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **149 Upstream / 150 Downstream / 151 Right bank / 152 Left bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

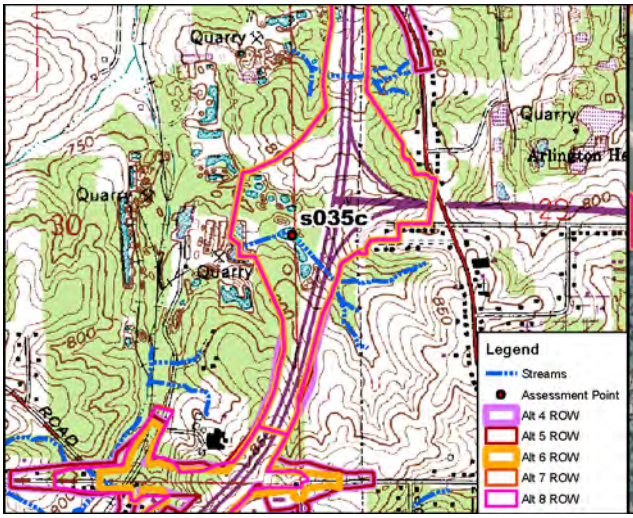
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

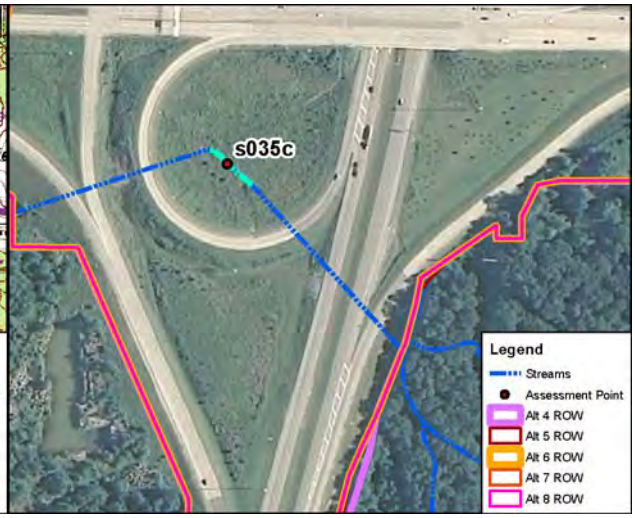
FLOW ➔

Save as pdf Reset Form

Stream Impacts S035c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	30
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	5.0 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	1.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	46	**Watershed Area:**	0.12 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 1766011 ft	**UTMN:** 14230690 ft		

Stream S035c – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	152	0.02	0.00
5	152	0.02	0.00
6	152	0.02	0.00
7	152	0.02	0.00
8	152	0.02	0.00

Description of Potential Impact:
Impacts to S035c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a mostly sandy-bottomed drainage ditch located within existing INDOT ROW. There is no riparian buffer associated with this man-made channel. The floodplain consists of INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S035c are on the second page of this form.

Stream Impacts S035c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 46

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s035c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 152 | LAT.: 39.18611 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/11/12 | SCORER: DEW/KSS | COMMENTS: (Long: -86.55675) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	49%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	51%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:**

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 10

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 5'/1.2' | **AVERAGE BANKFULL WIDTH (meters):** 1.52

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	11
Pool Depth	30	15
Bankfull Width	30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **09/29/11** Quantity: **0.02**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

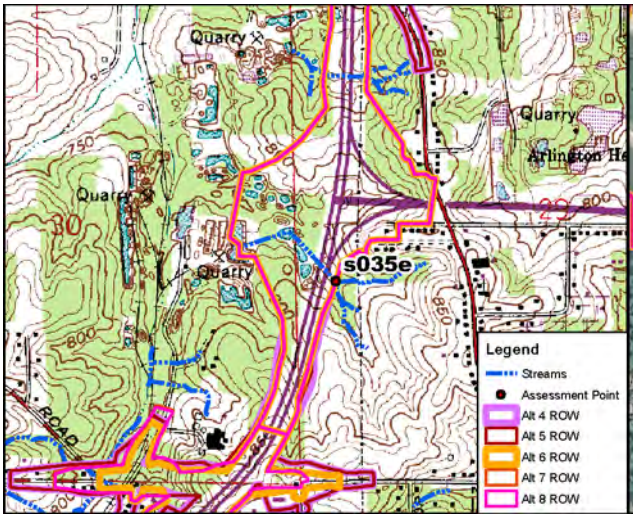
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

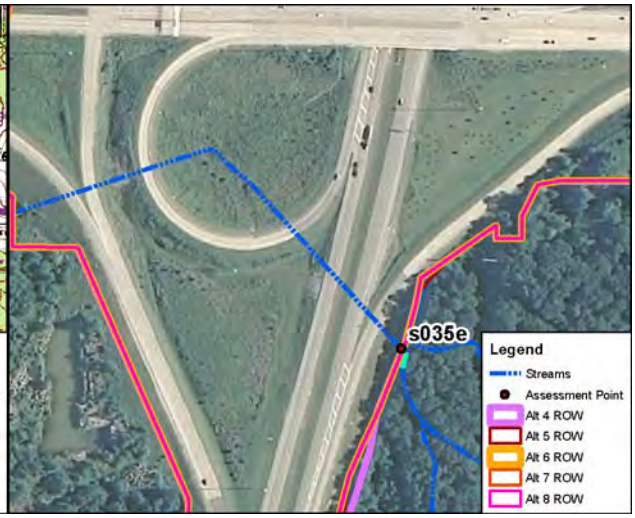
FLOW ➔

Save as pdf Reset Form

Stream Impacts S035e



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	29
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	8.0 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	27	**Watershed Area:**	0.06 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1766464 ft	**UTMN:** 14230209 ft		

Stream S035e – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	6	0.01	0.00
5	8	0.01	0.00
6	8	0.01	0.00
7	8	0.01	0.00
8	8	0.01	0.00

Description of Potential Impact:
Impacts to S035e for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a dump rock gutter located within existing INDOT ROW. There is a wide riparian buffer along the right bank and no riparian buffer associated with this artificial channel's left bank. The floodplain consists of INDOT ROW on the left bank and immature forest on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S035e are on the second page of this form.

Stream Impacts S035e

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 27

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s035e | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.06

LENGTH OF STREAM REACH (ft): 55 | LAT.: 39.18478 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/11/12 | SCORER: DEW/KSS | COMMENTS: (Long: -86.55516) (Dump Rock Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 8'/0.2' | **AVERAGE BANKFULL WIDTH (meters):** 2.44

HHEI Metric Points

Substrate Max = 40	A + B	7
Pool Depth Max = 30		0
Bankfull Width Max=30		20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **09/29/11** Quantity: **0.02**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **80%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

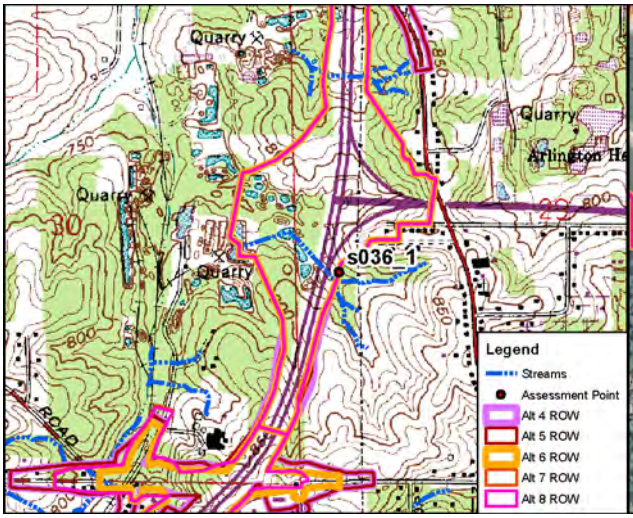
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

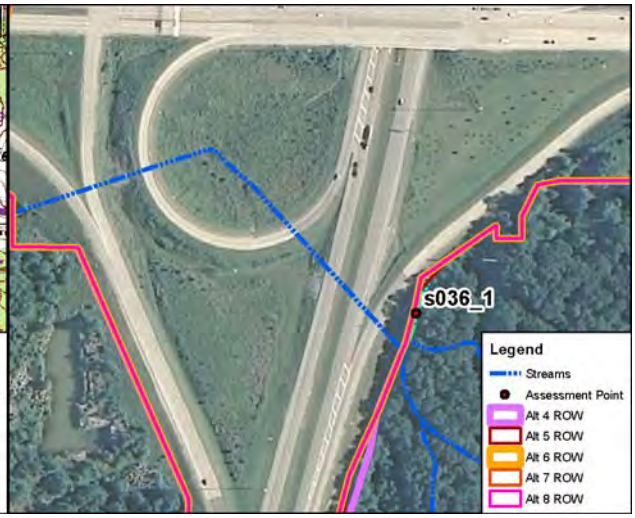
FLOW ➔

Save as pdf Reset Form

Stream Impacts S036_1



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	29
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.0 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	13	**Watershed Area:**	0.24 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1766503 ft	**UTMN:** 14230300 ft		

Stream S036_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.00
5	36	0.01	0.01
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S036_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a dump rock gutter located within existing INDOT ROW. There is a wide riparian buffer along the left bank and no riparian buffer associated with this artificial channel's right bank. The floodplain consists of INDOT ROW on the right bank and immature forest on the left. Photographs taken upstream and downstream in the area where these Alternatives cross S036_1 are on the second page of this form.

Stream Impacts S036_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 13

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S036_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT. ____ LONG. ____ RIVER CODE ____ RIVER MILE ____

DATE: 10/11/11 SCORER: DEW/KSS COMMENTS: Dump Rock Gutter (Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☐	ARTIFICIAL [3 pts]	95%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points

Substrate Max = 40: 8

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ MAXIMUM POOL DEPTH (centimeters): 10

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 3'/.5' AVERAGE BANKFULL WIDTH (meters): 0.91

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **50%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

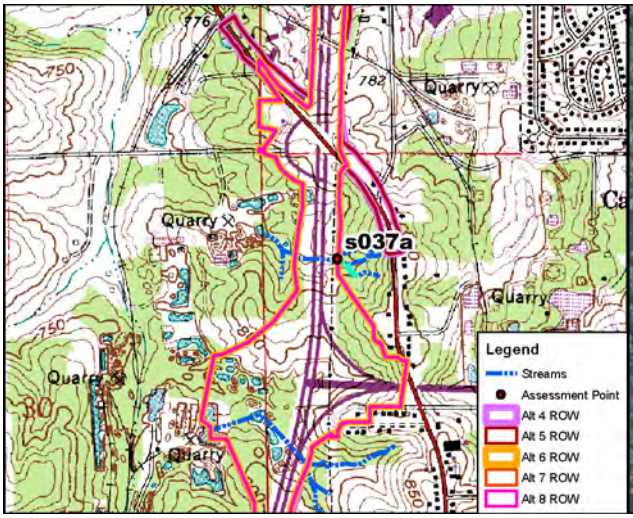
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S037a



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	29
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.6 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	17	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/leaf pack
UTME: 1766503 ft	**UTMN:** 14230300 ft		

Stream S037a– Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	59	0.01	0.00
5	61	0.01	0.00
6	61	0.01	0.00
7	61	0.01	0.00
8	61	0.01	0.00

Description of Potential Impact:
Impacts to S037a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately silt and leaf pack. There is a wide riparian buffer associated with this stream. The floodplain consists of mature forests on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S037a are on the second page of this form.

Stream Impacts S037a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s037a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.19064 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.55402) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	50%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	5%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

TOTAL NUMBER OF SUBSTRATE TYPES: 6

HHEI Metric Points

Substrate Max = 40: 12

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 2.6'/0.5' | **AVERAGE BANKFULL WIDTH (meters):** 0.79

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **25%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

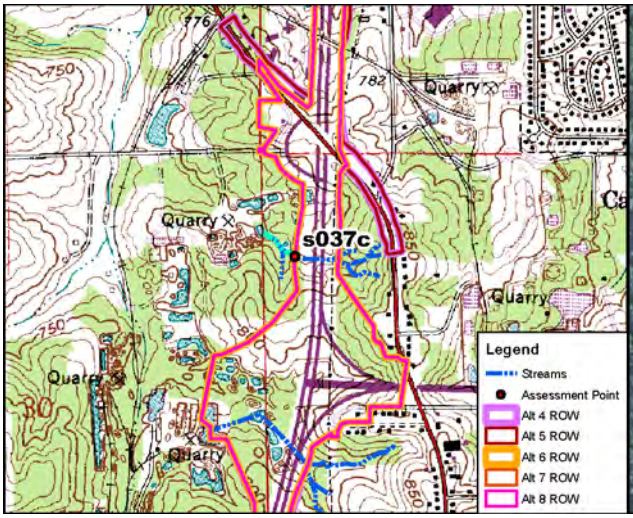
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

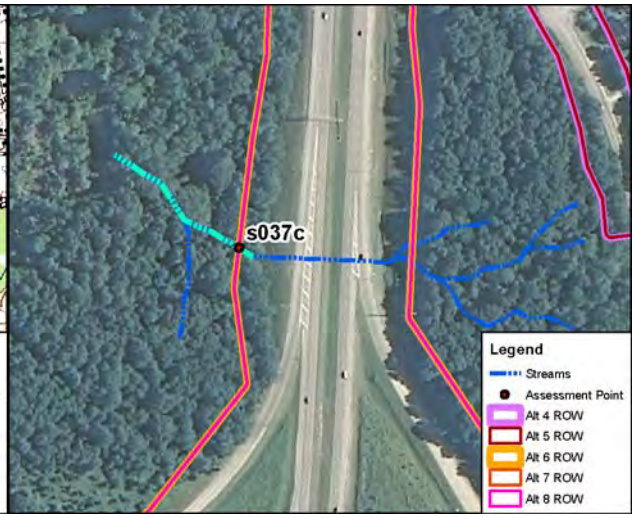
FLOW ➔

Save as pdf Reset Form

Stream Impacts S037c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	29
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.6 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	17	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/leaf pack
UTME: 1766340 ft	**UTMN:** 14232372 ft		

Stream S037c – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	41	0.01	0.18
5	41	0.01	0.18
6	41	0.01	0.18
7	41	0.01	0.18
8	41	0.01	0.18

Description of Potential Impact:
Impacts to S037c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately silt and leaf pack. There is a wide riparian buffer associated with this stream. The floodplain consists of mature forests on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S037c are on the second page of this form.

Stream Impacts S037c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s037c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.19072 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.55556) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☑	LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	5%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	10%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

TOTAL NUMBER OF SUBSTRATE TYPES: 6

HHEI Metric Points

Substrate Max = 40: 12

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 2.6'/0.5' | **AVERAGE BANKFULL WIDTH (meters):** 0.79

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **25%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

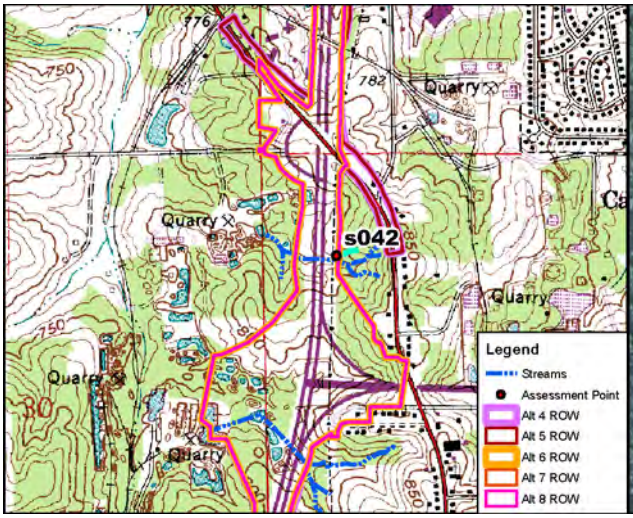
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

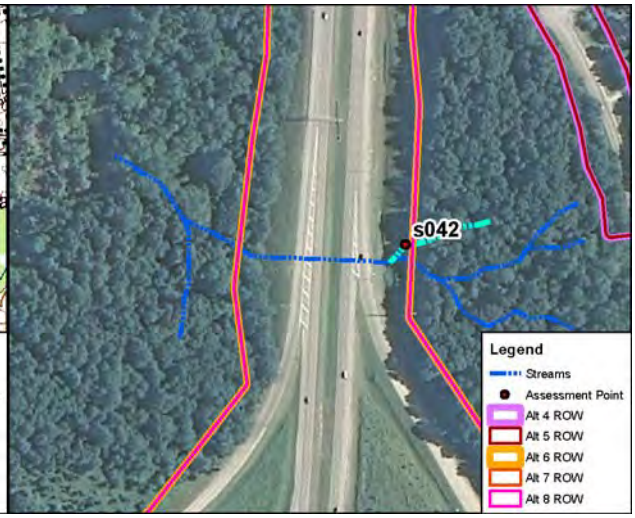
FLOW ➔

Save as pdf Reset Form

Stream Impacts S042



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	29
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	17	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 1766774 ft	**UTMN:** 14232380 ft		

Stream S042 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	77	0.01	0.00
5	79	0.01	0.00
6	79	0.01	0.00
7	79	0.01	0.00
8	79	0.01	0.00

Description of Potential Impact:
Impacts to S042 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately silt and leaf pack. There is a wide riparian buffer associated with this stream. The floodplain consists of immature forests on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S042 are on the second page of this form.

Stream Impacts S042

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s042 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.19074 LONG.: RIVER CODE: RIVER MILE:

DATE: 10/12/11 SCORER: DEW/KSS COMMENTS: (Long: -86.55402) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	16%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	14%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	70%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 3.0'/1.25' **AVERAGE BANKFULL WIDTH (meters):** 0.91

HHEI Metric Points

Substrate Max = 40	A + B	12
Pool Depth Max = 30		0
Bankfull Width Max=30		5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/12/11** Quantity: **0.02**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **20%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

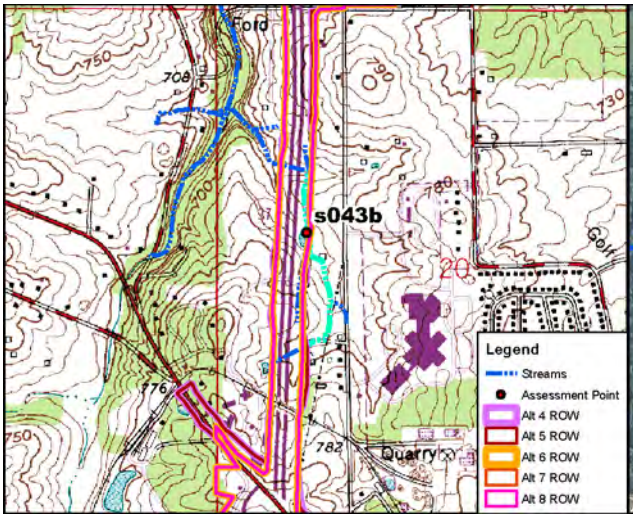
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

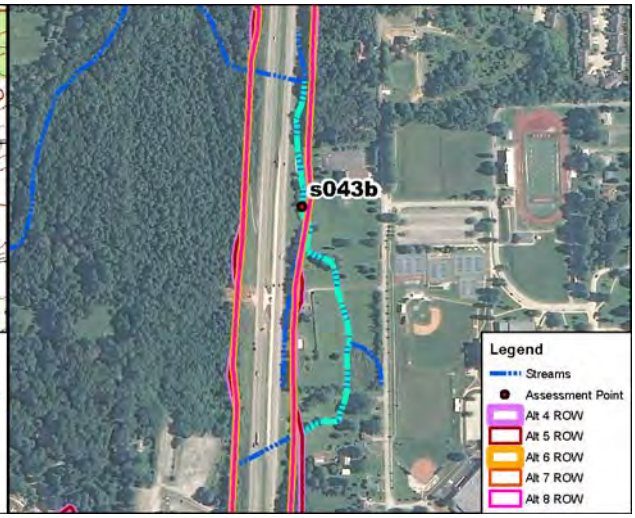
FLOW ➔

Save as pdf Reset Form

Stream Impacts S043b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	20
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	51	**Watershed Area:**	0.27 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/boulder
UTME: 1766909 ft	**UTMN:** 14236431 ft		

Stream S043b – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	820	0.06	028
5	824	0.06	0.30
6	781	0.05	0.19
7	781	0.05	0.19
8	781	0.05	0.19

Description of Potential Impact:
Impacts to S043b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately sand and boulders. There is a narrow riparian corridor in most places on both banks of the stream. The floodplain consists of a mixture of INDOT ROW and a maintained institution yard where the Alternatives cross this stream. Photographs taken upstream and downstream in the area where these Alternatives cross S043b are on the second page of this form.

Stream Impacts S043b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 51

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S043b | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.27

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.20186 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/12/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.55348) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☑	BOULDER (>256 mm) [16 pts]	34%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	20%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	36%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 54.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 22 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☑ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 39

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 3.0'/1.0' **AVERAGE BANKFULL WIDTH (meters):** 0.91

HHEI Metric Points

Substrate Max = 40	26
A + B	
Pool Depth Max = 30	20
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Adjacent to row, vegetated channel

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Stout Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

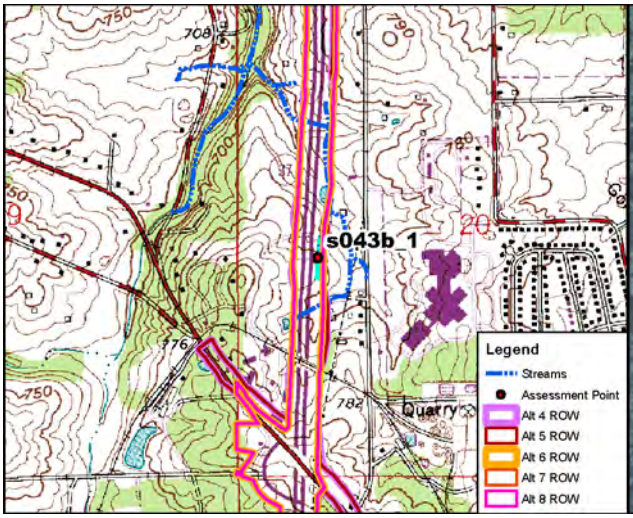
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S043b_1



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	20
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.0 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1766813 ft	**UTMN:** 14235713 ft		

Stream S043b_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	429	0.01	0.02
5	429	0.01	0.02
6	429	0.01	0.02
7	429	0.01	0.02
8	429	0.01	0.02

Description of Potential Impact:
Impacts to S043b_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S043b_1 are on the second page of this form.

Stream Impacts S043b_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s043b_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.19989 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 10/12/11 SCORER: DEW/KSS COMMENTS: (Long: -86.55383) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 1'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.30

HHEI Metric Points

Substrate Max = 40	7
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S43b_1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/12/11** Quantity: **0.02**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

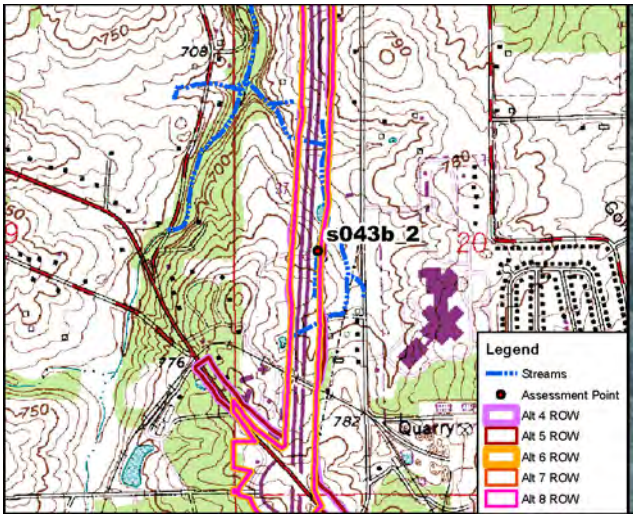
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S043b_2



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	20
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.0 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1766846 ft	**UTMN:** 14235971 ft		

Stream S043b_2 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	114	0.01	0.00
5	114	0.01	0.00
6	114	0.01	0.00
7	114	0.01	0.00
8	114	0.01	0.00

Description of Potential Impact:
Impacts to S043b_2 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a dump rock gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel's left bank and a narrow shrub buffer along the right bank. Photographs taken upstream and downstream in the area where these Alternatives cross S043b_2 are on the second page of this form.

Stream Impacts S043b_2

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s043b_2 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 115 LAT.: 39.20060 LONG.: RIVER CODE: RIVER MILE:

DATE: 10/12/11 SCORER: DEW/KSS COMMENTS: (Long: -86.55371) (Dump Rock Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 3'/0.1' **AVERAGE BANKFULL WIDTH (meters):** 0.91

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	7
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S43b_2

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/12/11** Quantity: **0.02**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

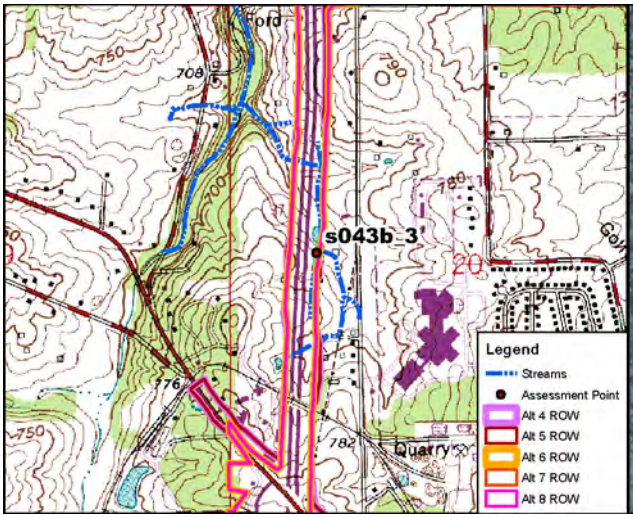
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf

Reset Form

Stream Impacts S043b_3



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	20
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	0.9 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1766878 ft	**UTMN:** 14236172 ft		

Stream S043b_3 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	334	0.01	0.00
5	334	0.01	0.00
6	334	0.01	0.00
7	334	0.01	0.00
8	334	0.01	0.00

Description of Potential Impact:
Impacts to S043b_3 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter. There is narrow riparian buffer associated with this artificial channel. The adjacent floodplain is dominated by INDOT ROW on the left and new field on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S043b_3 are on the second page of this form.

Stream Impacts S043b_3

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s043b_3 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.20112 LONG.: RIVER CODE: RIVER MILE:

DATE: 10/12/11 SCORER: DEW/KSS COMMENTS: (Long: -86.55359) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 0.9'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.27

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	7
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/12/11** Quantity: **0.02**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

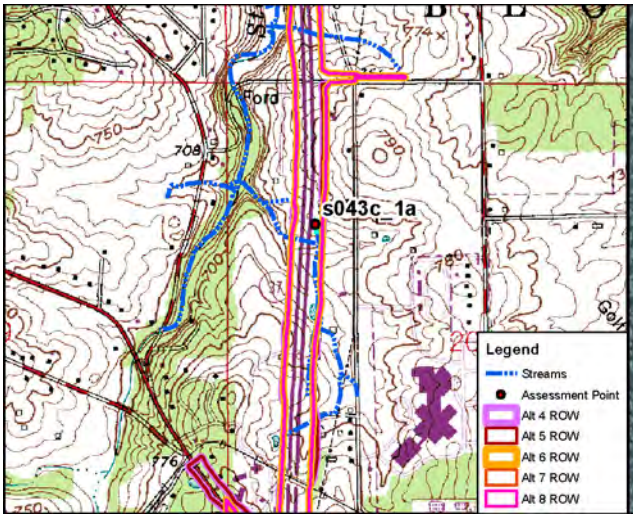
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

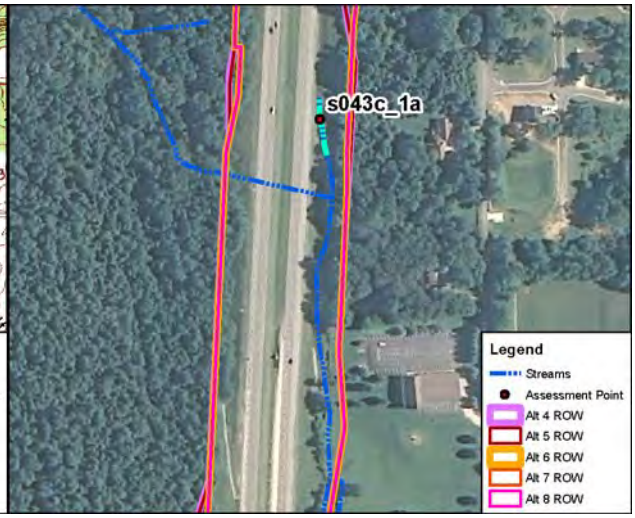
FLOW ➔

Save as pdf Reset Form

Stream Impacts S043c_1a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	20
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.0 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1766888 ft	**UTMN:** 14237282 ft		

Stream S043c_1a – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	151	0.01	0.15
5	151	0.01	0.16
6	151	0.01	0.11
7	151	0.01	0.11
8	151	0.01	0.11

Description of Potential Impact:
Impacts to S043c_1a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S043c_1a are on the second page of this form.

Stream Impacts S043c_1a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s043c_1a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 150 | LAT.: 39.20420 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/30/12 | SCORER: JDP | COMMENTS: (Long: -86.55354) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 1'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.30

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	7
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **05/29/12** Quantity: **0.14**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

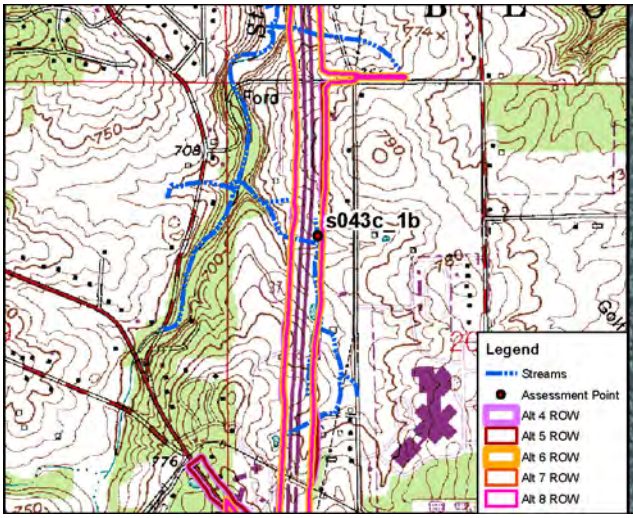
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S043c_1b



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	20
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.0 feet
Channelized/Type:	Yes/Dump Rock Gutter	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1766913 ft	**UTMN:** 14237160 ft		

Stream S043c_1b – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	62	0.01	0.00
5	62	0.01	0.00
6	62	0.01	0.00
7	62	0.01	0.00
8	62	0.01	0.00

Description of Potential Impact:
Impacts to S043c_1b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a dump rock gutter. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S043c_1b are on the second page of this form.

Stream Impacts S043c_1b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s043c_1b RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 62 LAT.: 39.20387 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/30/12 SCORER: JDP COMMENTS: (Long: -86.55345) (Dump Rock Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 3'/0.1' **AVERAGE BANKFULL WIDTH (meters):** 1.00

HHEI Metric Points

	Max	Points
Substrate	40	7
Pool Depth	30	0
Bankfull Width	30	5
A + B		

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S43b_2

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **05/29/12** Quantity: **0.14**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

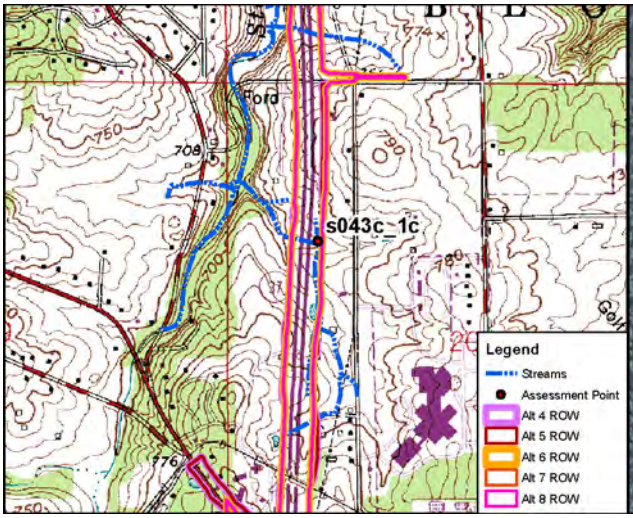
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

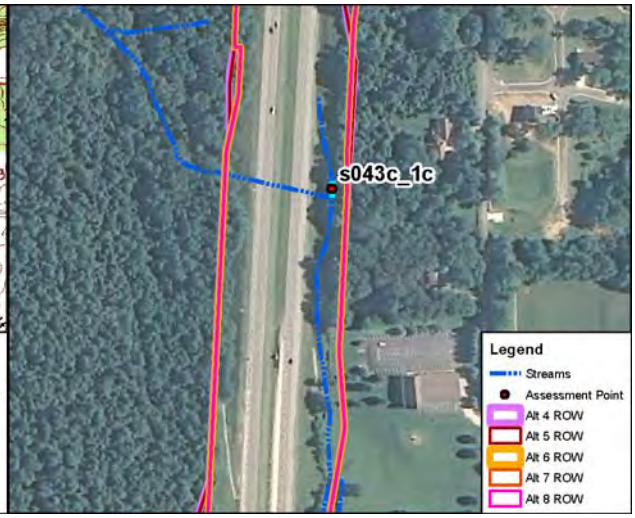
FLOW ➔

Save as pdf Reset Form

Stream Impacts S043c_1c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	20
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	0.9 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1766919 ft	**UTMN:** 14237102 ft		

Stream S043c_1c – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	49	0.01	0.00
5	49	0.01	0.00
6	49	0.01	0.00
7	49	0.01	0.00
8	49	0.01	0.00

Description of Potential Impact:
Impacts to S043c_1c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken downstream in the area where these Alternatives cross S043c_1c are on the second page of this form.

Stream Impacts S043c_1c

Photograph Taken Downstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s043c_1c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 50 | LAT.: 39.20371 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/30/12 | SCORER: JDP | COMMENTS: (Long: -86.55343) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 0.9'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.27

HHEI Metric Points

Substrate Max = 40	7
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **05/29/12** Quantity: **0.14**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

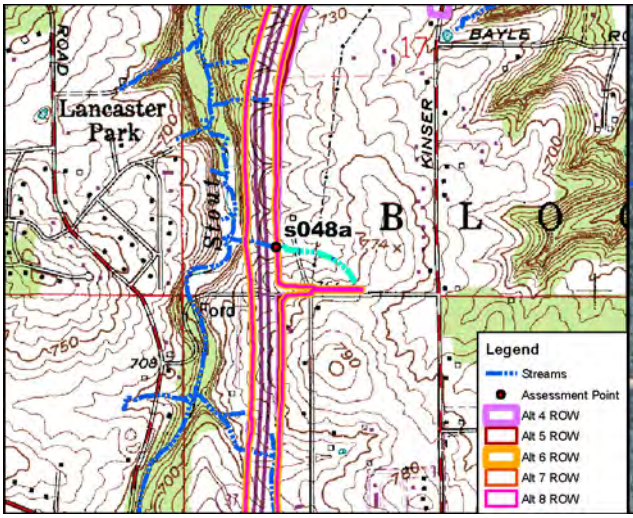
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S048a



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	17
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	18	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 1766936 ft	**UTMN:** 14239254 ft		

Stream S048a – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	14	0.01	0.00
5	16	0.01	0.00
6	16	0.01	0.00
7	16	0.01	0.00
8	16	0.01	0.00

Description of Potential Impact:
Impacts to S048a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of sand, silt and boulders. There is a wide riparian corridor consisting of immature trees on the left bank and no woody vegetation on the right bank consisting of an old herbaceous field. Photographs taken upstream and downstream in the area where these Alternatives cross S048a are on the second page of this form.

Stream Impacts S048a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 18

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S048a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.20962 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/12/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.55333) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	15%
☐	BOULDER (>256 mm) [16 pts]	10%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	5%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	70%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40: 13

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 3'/1.3' | **AVERAGE BANKFULL WIDTH (meters):** 0.90

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☑ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

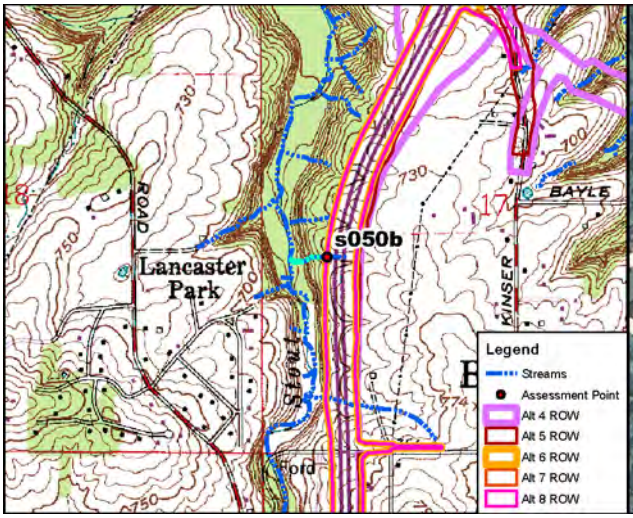
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

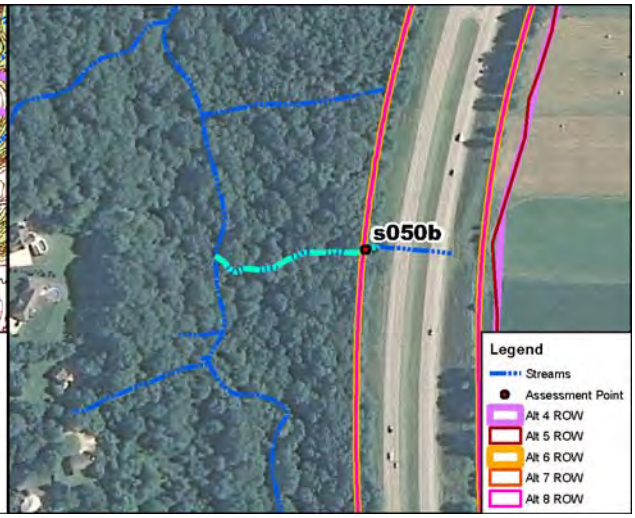
FLOW ➔

Save as pdf Reset Form

Stream Impacts S050b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Stout Creek	**Section:**	17
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	9.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	48	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Boulder Slabs
UTME: 1766627 ft	**UTMN:** 14240794 ft		

Stream S050b –Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	42	0.01	0.05
5	42	0.01	0.05
6	42	0.01	0.05
7	42	0.01	0.05
8	42	0.01	0.05

Description of Potential Impact:
Impacts to S050b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of boulder slabs. There is a wide forested buffer associated with both stream banks where the Alternatives cross this stream. Photographs taken upstream and downstream in the area where these Alternatives cross S050b are on the second page of this form.

Stream Impacts S050b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 48

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S050b | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.21385 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/12/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.55440) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☑	BLDR SLABS [16 pts]	80%		SILT [3 pt]	0%
	BOULDER (>256 mm) [16 pts]	9%		LEAF PACK/WOODY DEBRIS [3 pts]	0%
	BEDROCK [16 pt]	0%		FINE DETRITUS [3 pts]	0%
	COBBLE (65-256 mm) [12 pts]	0%		CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	11%		MUCK [0 pts]	0%
	SAND (<2 mm) [6 pts]	0%		ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 89.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 25 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 9'/1.2' | **AVERAGE BANKFULL WIDTH (meters):** 2.75

HHEI Metric Points

Substrate Max = 40	A + B	28
Pool Depth Max = 30		0
Bankfull Width Max=30		20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Stout Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

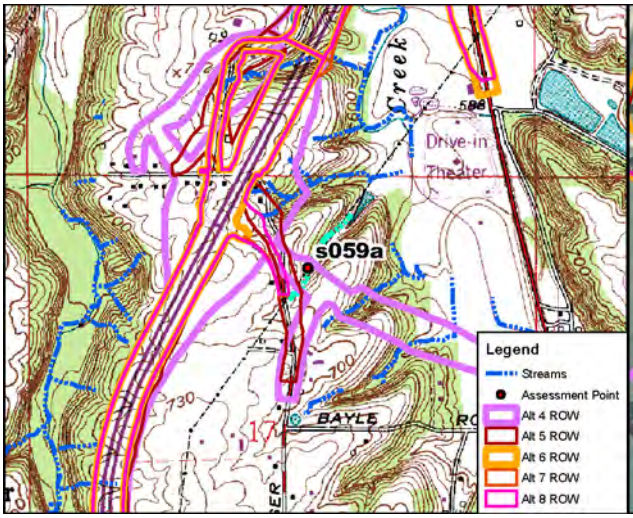
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S059a



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	17
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	6.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	42	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/cobble
UTME: 1768849 ft	**UTMN:** 14243034 ft		

Stream S059a –Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	330	0.05	0.77
5	174	0.02	0.41
6	0	0.00	0.00
7	0	0.00	0.01
8	0	0.00	0.01

Description of Potential Impact:
Impacts to S059a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of sand, cobble, and silt. There is a wide immature forested buffer associated with both stream banks where the Alternatives 4 and 5 cross this stream. No photographs are available at this time.

Stream Impacts S059a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 42

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S059a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.21997 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/12/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.54651) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	10%	☐	SILT [3 pt]	15%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	25%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	50%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 35.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 18

TOTAL NUMBER OF SUBSTRATE TYPES: 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 6'/1.2' | AVERAGE BANKFULL WIDTH (meters): 1.82

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	22
Pool Depth	30	0
Bankfull Width	30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☑ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **0%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

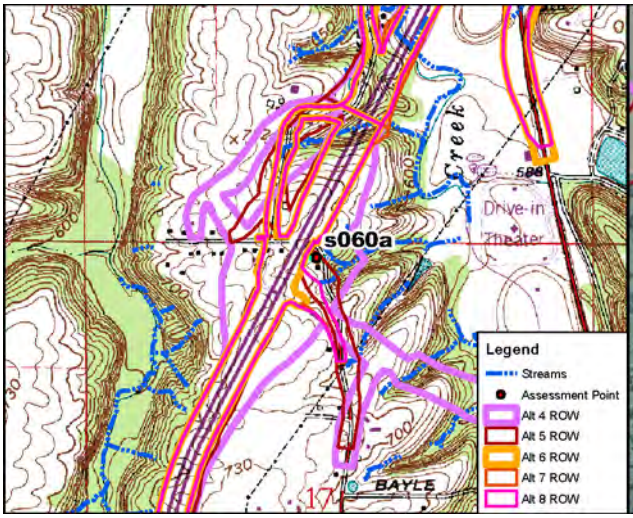
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

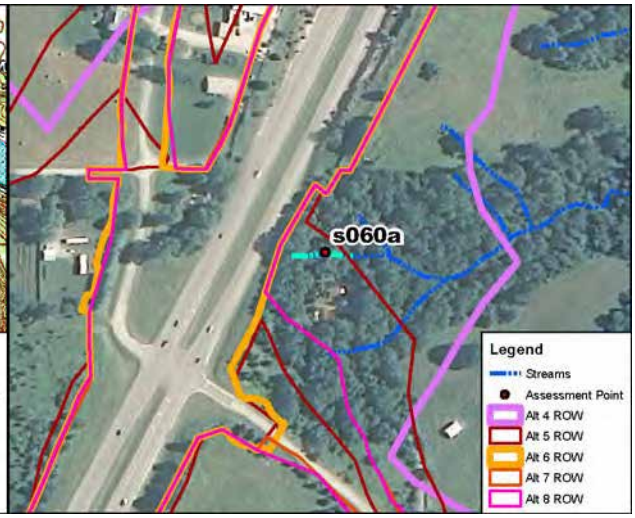
FLOW ➔

Save as pdf Reset Form

Stream Impacts S060a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	17
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.2 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	34	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Bedrock
UTME: 1768343 ft	**UTMN:** 14243839 ft		

Stream S060a –Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	165	0.01	0.07
5	147	0.01	0.07
6	0	0.00	0.01
7	0	0.00	0.01
8	0	0.00	0.01

Description of Potential Impact:

Impacts to S060a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of bedrock. There is a wide riparian corridor on the left bank and a narrow riparian zone on the right bank where the Alternatives cross this stream. The adjacent floodplain consists of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S060a are on the second page of this form.

Stream Impacts S060a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 34

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S060a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 165 | LAT.: 39.22219 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.54828) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	1%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☑ ☐	BEDROCK [16 pt]	90%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	2%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	2%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 92.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 1

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.2' / 1.0' **AVERAGE BANKFULL WIDTH (meters):** 0.70

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	24
Pool Depth	30	5
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S60

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Griffy Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 23 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

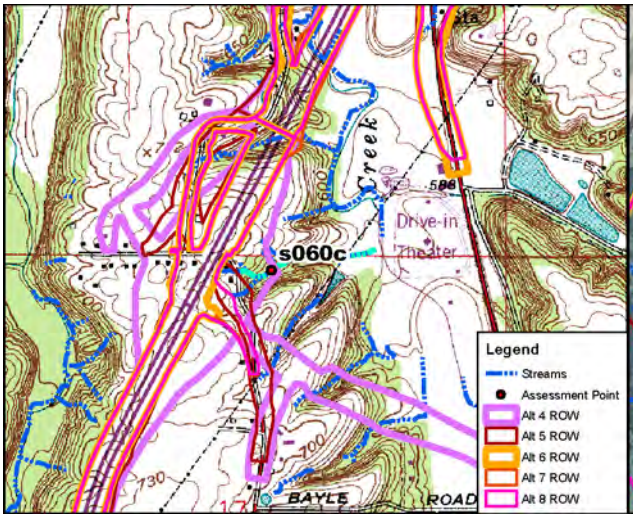
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

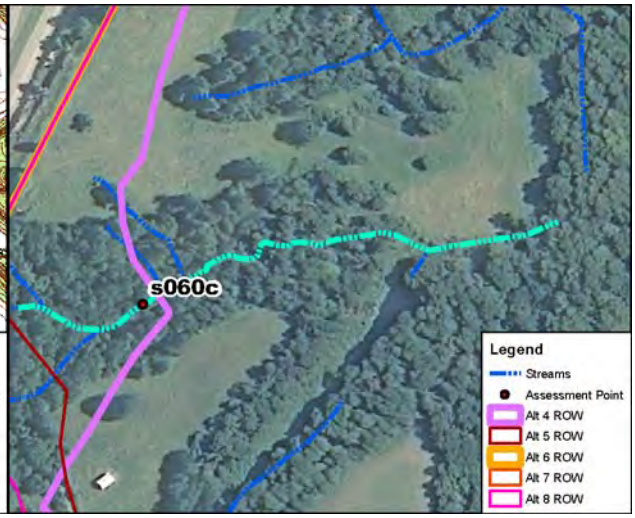
FLOW ➔

Save as pdf Reset Form

Stream Impacts S060c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	17
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.2 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	34	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Bedrock
UTME: 1768775 ft	**UTMN:** 14243837 ft		

Stream S060c –Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	404	0.02	1.75
5	0	0.00	0.01
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S060c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of bedrock. There is a wide riparian corridor where Alternative 4 crosses this stream. The adjacent floodplain consists of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S060c are on the second page of this form.

Stream Impacts S060c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 34

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S060c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.22218 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.54676) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	1%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☑ ☐	BEDROCK [16 pt]	90%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	2%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	2%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 92.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 1

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: OHW - 2.2' / 1.0' **AVERAGE BANKFULL WIDTH (meters):** 0.70

HHEI Metric Points

Substrate Max = 40	24
A + B	
Pool Depth Max = 30	5
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☑ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S60

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Griffy Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 23 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

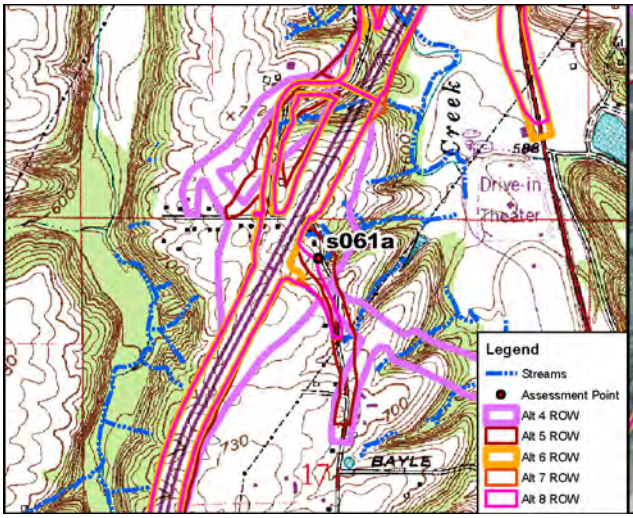
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

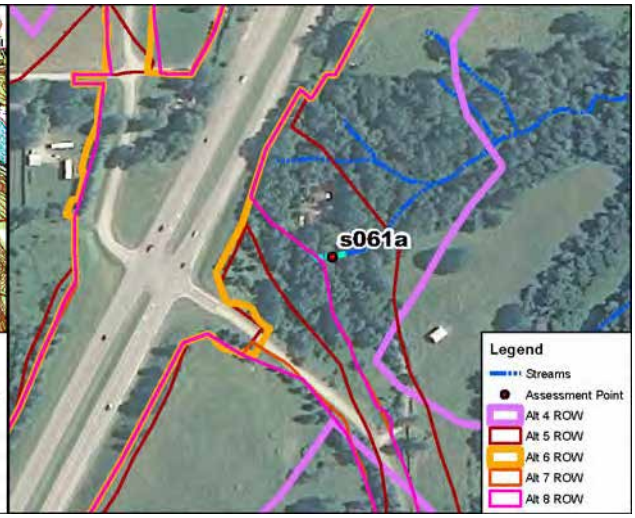
FLOW ➔

Save as pdf Reset Form

Stream Impacts S061a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	17
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	8.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	51	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Boulder slabs/cobble
UTME: 1768401 ft	**UTMN:** 14243581 ft		

Stream S061a – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	87	0.02	0.59
5	87	0.02	0.59
6	0	0.00	0.00
7	13	0.01	0.34
8	12	0.01	0.34

Description of Potential Impact:
Impacts to S061a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of boulder slabs and cobble. There is a wide riparian corridor where the Alternatives cross this stream. The adjacent floodplain consists of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S061a are on the second page of this form.

Stream Impacts S061a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 51

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S061a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 85 | LAT.: 39.22148 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/12/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.54808) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☑	BLDR SLABS [16 pts]	70%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	20%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 90.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 28 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 8'/1.1' | **AVERAGE BANKFULL WIDTH (meters):** 2.44

HHEI Metric Points

Substrate Max = 40	31
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

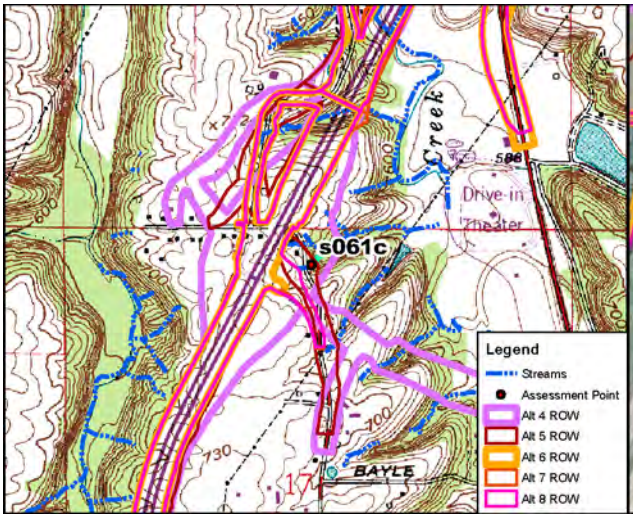
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

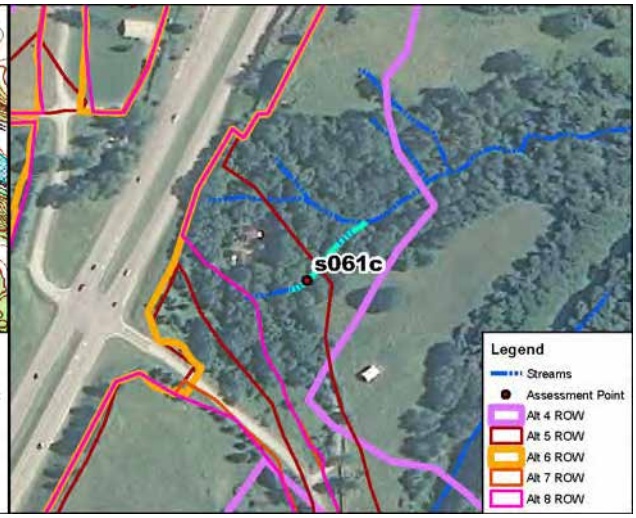
FLOW ➔

Save as pdf Reset Form

Stream Impacts S061c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	17
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.9 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	30	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Bedrock
UTME: 1768511 ft	**UTMN:** 14243619 ft		

Stream S061c – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	273	0.02	0.46
5	102	0.01	0.28
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S061c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of bedrock. There is a wide riparian corridor where Alternatives 4 and 5 cross this stream. The adjacent floodplain consists of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S061c are on the second page of this form.

Stream Impacts S061c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 30

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S061c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.22158 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.54770) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	1%
☐ ☐	BOULDER (>256 mm) [16 pts]	1%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☑ ☐	BEDROCK [16 pt]	90%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	2%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	1%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 93.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19 **TOTAL NUMBER OF SUBSTRATE TYPES:** 6

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 2.9' / 1.1' **AVERAGE BANKFULL WIDTH (meters):** 0.88

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	25
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S61c

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **23** NRCS Soil Map Stream Order **1**

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **115 Upstream / 119 Downstream / 117 Right bank / 118 Left bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **40%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

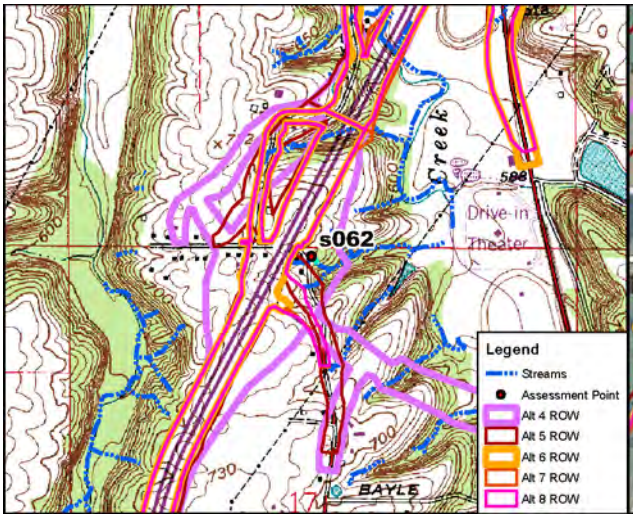
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

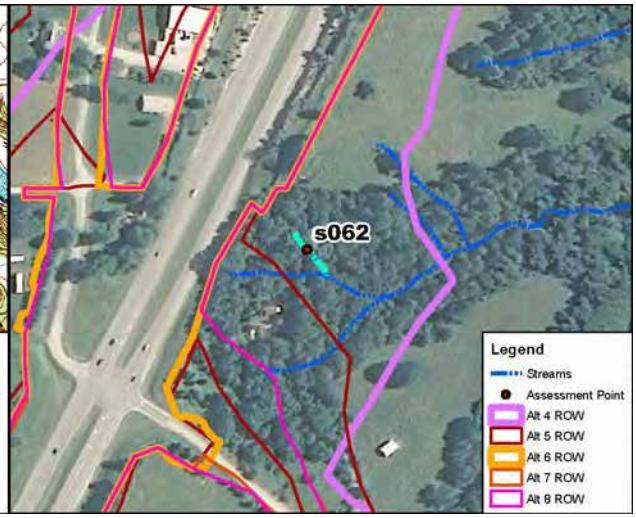
FLOW ➔

Save as pdf Reset Form

Stream Impacts S062



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	17
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	43	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Cobble
UTME: 1768463 ft	**UTMN:** 14243895 ft		

Stream S062 – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	140	0.01	0.30
5	0	0.00	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S062 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of cobble. There is a wide riparian buffer associated with this stream. The floodplain consists of mature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S062 are on the second page of this form.

Stream Impacts S062

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 43

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S062 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 140 LAT.: 39.22234 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.54786) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	2%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☑	BEDROCK [16 pt]	10%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	80%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	3%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 90.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 28 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 1

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 2.0' / 1.0' **AVERAGE BANKFULL WIDTH (meters):** 0.60

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	33
Pool Depth	30	5
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S62

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **23** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

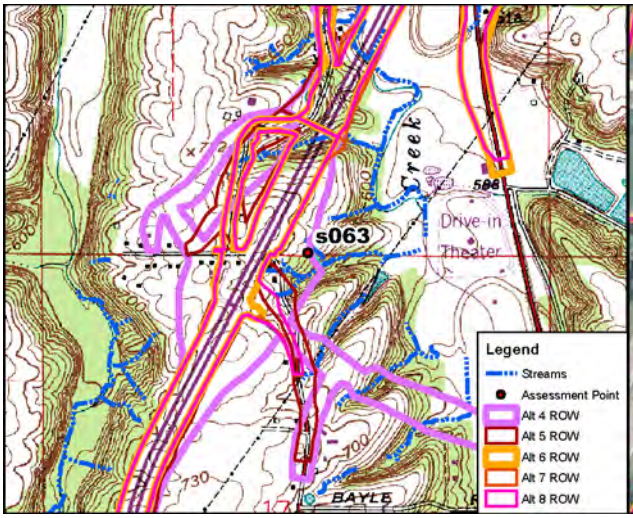
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

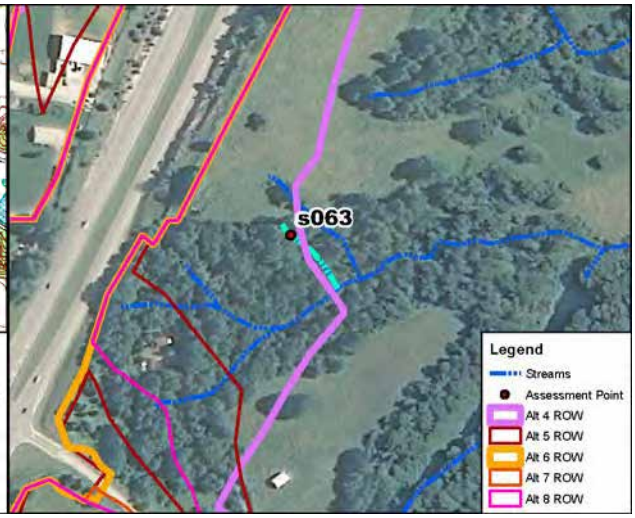
FLOW ➔

Save as pdf Reset Form

Stream Impacts S063



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.9 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	43	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Bedrock
UTME: 1768703 ft	**UTMN:** 14244015 ft		

Stream S063 – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	82	0.01	0.29
5	0	0.00	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S063 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of bedrock. There is a moderately-wide riparian buffer where Alternative 4 crosses this stream. The floodplain consists of mature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S063 are on the second page of this form.

Stream Impacts S063

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 43

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S063 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.22267 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.54701) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE			PERCENT	TYPE			PERCENT
☐	☐	BLDR SLABS [16 pts]	0%	☐	☐	SILT [3 pt]	1%
☐	☐	BOULDER (>256 mm) [16 pts]	0%	☐	☐	LEAF PACK/WOODY DEBRIS [3 pts]	2%
☑	☐	BEDROCK [16 pt]	90%	☐	☐	FINE DETRITUS [3 pts]	0%
☐	☑	COBBLE (65-256 mm) [12 pts]	5%	☐	☐	CLAY or HARDPAN [0 pt]	0%
☐	☐	GRAVEL (2-64 mm) [9 pts]	2%	☐	☐	MUCK [0 pts]	0%
☐	☐	SAND (<2 mm) [6 pts]	0%	☐	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 95.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 28 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 1

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 1.9' / 1.0' **AVERAGE BANKFULL WIDTH (meters):** 0.60

HHEI Metric Points

Substrate Max = 40	33
A + B	
Pool Depth Max = 30	5
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S63

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **23** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **25%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

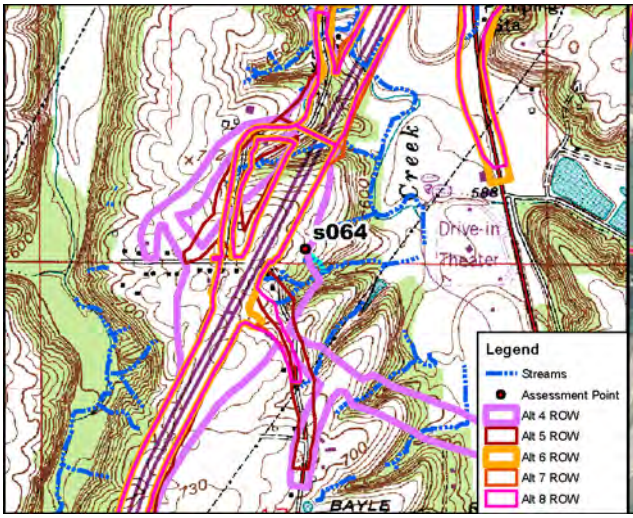
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S064



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.9 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	38	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Bedrock
UTME: 1768691 ft	**UTMN:** 14244134 ft		

Stream S064 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	102	0.01	0.19
5	0	0.00	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	79	0.00	0.00

Description of Potential Impact:
Impacts to S064 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately bedrock. There is a wide riparian buffer associated with this stream. The floodplain consists of mature forests on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S064 are on the second page of this form.

Stream Impacts S064

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 38

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S064 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.22300 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.54705) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	1%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	2%
☑	BEDROCK [16 pt]	90%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	2%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 95.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 28 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 1.9' / 1.0' **AVERAGE BANKFULL WIDTH (meters):** 0.70

HHEI Metric Points

Substrate Max = 40	33
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S64

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Griffy Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 23 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

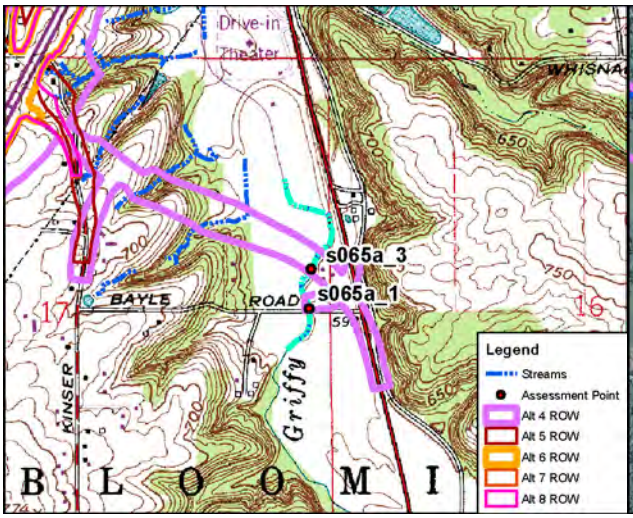
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

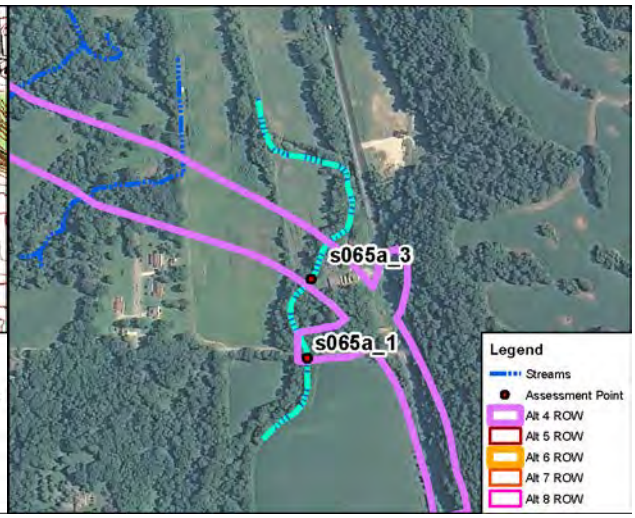
FLOW ➔

Save as pdf Reset Form

Stream Impacts S065a_1



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Griffy Creek	**Section:**	17
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	4.4 feet
Channelized:	No	**OHWM Depth:**	6.5 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	61.5	**Watershed Area:**	12.49 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1761019 ft	**UTMN:** 14241418 ft		

Stream S065a_1 – Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	32	0.03	0.03
5	0	0.00	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S065a_1at this location for the Alternatives are listed in the table above. Segments S065a_1 and S065a_3 were evaluated together. Segment S065a_1 is upstream of the Bayles Road culverts and S065a_3 is downstream of the road crossing. At the time of evaluation, this stream is a perennial stream with good habitat development and moderate sinuosity. The predominant substrate consists of gravel and sand. The stream has a wide riparian corridor associated with both banks. The adjacent floodplain is dominated by forest land. Photographs taken upstream and downstream at the S065a_3 segment are on the second page of this form. Implementation of the Preferred Alternative 8 will decrease the amount of impacts at this location.

Stream Impacts S065a_1

Photograph Taken Upstream

Photograph Taken Downstream

OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

IDEM

Sample #	bioSample #	Stream Name	Location
S65a-1, -2, 3		Griffy Creek	

Surveyor	Sample Date	County	Macro Sample Type	☒ Habitat Complete	QHEI Score:
RSS	4/23/12	Monroe			61.5

1] *SUBSTRATE* Check ONLY Two predominant substrate TYPE BOXES; estimate % and check every type present

BEST TYPES

PREDOMINANT P	PREDOMINANT R		PRESENT P	PRESENT R	TOTAL %
☐	☐	BLDR/SLABS [10]	☐	☐	
☐	☐	BOULDER [9]	☐	☐	
☐	☐	COBBLE [8]	☐	☒	5
☐	☒	GRAVEL [7]	☐	☐	55
☒	☐	SAND [6]	☐	☒	25
☐	☐	BEDROCK [5]	☐	☐	

OTHER TYPES

PREDOMINANT P	PREDOMINANT R		PRESENT P	PRESENT R	TOTAL %
☐	☐	HARDPAN [4]	☐	☐	
☐	☐	DETRITUS [3]	☒	☐	5
☐	☐	MUCK [2]	☐	☐	
☐	☐	SILT [2]	☒	☒	10
☐	☐	ARTIFICIAL [0]	☐	☐	

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

ORIGIN (Check ONE (Or 2 & average))

- ☐ LIMESTONE [1]
- ☒ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTRINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT:
- ☐ HEAVY [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS:
- ☐ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Substrate 12 (Maximum 20)

Comments

2] *INSTREAM COVER* Indicate presence 0 to 3 and estimate percent: **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 root wad in deep/fast water, or deep, well-defined, functional pools.)

%	Amount		%	Amount		%	Amount	
20	1	UNDERCUT BANKS [1]			POOLS > 70cm [2]			OXBOWS, BACKWATERS [1]
20	1	OVERHANGING VEGETATION [1]			ROOTWADS [1]			AQUATIC MACROPHYTES [1]
35	2	SHALLOWS (IN SLOW WATER) [1]			BOULDERS [1]	10	1	LOGS OR WOODY DEBRIS [1]
		ROOTMATS [1]						

AMOUNT (Check ONE (Or 2 & average))

- ☐ EXTENSIVE > 75% [11]
- ☐ MODERATE 25 - 75% [7]
- ☒ SPARSE 5 - < 25% [3]
- ☐ NEARLY ABSENT < 5% [1]

Cover 7 (Maximum 20)

Comments

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

SINUOSITY
- ☐ HIGH [4]
- ☒ MODERATE [3]
- ☐ LOW [2]
- ☐ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☒ GOOD [5]
- ☐ FAIR [3]
- ☐ POOR [1]

CHANNELIZATION
- ☒ NONE [6]
- ☐ RECOVERED [4]
- ☐ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Channel 16 (Maximum 20)

Comments

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

River right looking downstream

EROSION
- L ☐ R ☒ NONE/LITTLE [3]
- L ☒ R ☐ MODERATE [2]
- L ☐ R ☐ HEAVY/SEVERE [1]

RIPARIAN WIDTH
- L ☒ R ☒ WIDE > 50m [4]
- L ☐ R ☐ MODERATE 10-50m [3]
- L ☐ R ☐ NARROW 5-10m [2]
- L ☐ R ☐ VERY NARROW [1]
- L ☐ R ☐ NONE [0]

2.5 + 4 + 3

FLOOD PLAIN QUALITY
- L ☒ R ☒ FOREST, SWAMP [3]
- L ☐ R ☐ SHRUB OR OLD FIELD [2]
- L ☐ R ☐ RESIDENTIAL, PARK, NEW FIELD [1]
- L ☐ R ☐ FENCED PASTURE [1]
- L ☐ R ☐ OPEN PASTURE, ROWCROP [0]
- L ☐ R ☐ CONSERVATION TILLAGE [1]
- L ☐ R ☐ URBAN OR INDUSTRIAL [0]
- L ☐ R ☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Riparian 9.5 (Maximum 10)

Comments

5] *POOL/GLIDE AND RIFFLE/RUN QUALITY*

MAXIMUM DEPTH (Check ONE (ONLY!))
- ☐ > 1m [6]
- ☐ 0.7 - < 1m [4]
- ☐ 0.4 - < 0.7m [2]
- ☒ 0.2 - < 0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH (Check ONE (Or 2 & average))
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☒ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY (Check ALL that apply)
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☒ MODERATE [1]
- ☐ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach – pools and riffles.

Recreation Potential (Circle one and comment on back)
- ☐ Primary Contact
- ☐ Secondary Contact

Pool/Current 2 (Maximum 12)

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

☐ NO RIFFLE [metric = 0]

RIFFLE DEPTH
- ☒ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5 - 10cm [1]
- ☐ BEST AREAS < 5cm [metric = 0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☒ MAXIMUM < 50cm [1]

RIFFLE/RUN SUBSTRATE (Check ONE (Or 2 & average))
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☒ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☒ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Riffle/Run 5 (Maximum 8)

Comments

6] *GRADIENT* (8 ft/mi)

- ☐ VERY LOW - LOW [2–4]
- ☒ MODERATE [6 - 10]
- ☐ HIGH - VERY HIGH [10 - 6]

%POOL: 15 %GLIDE: ____

DRAINAGE AREA (12.5 mi²) %RUN: 45 %RIFFLE: 40

Gradient 10 (Maximum 10)

OHW = 44' x 6.5' (13.4 m)

S65a-1, -2, -3

IDEM OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
		[illegible] Creek	

Surveyor	Sample Date	County	Macro SampleType	☒ Habitat Complete	QHEI Score 61.5

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☒ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☐ Urban Runoff
- ☐ Suburban
- ☐ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

Subjective rating (1-10): | % Riffle: 40 | *Is reach representative of stream?* Yes

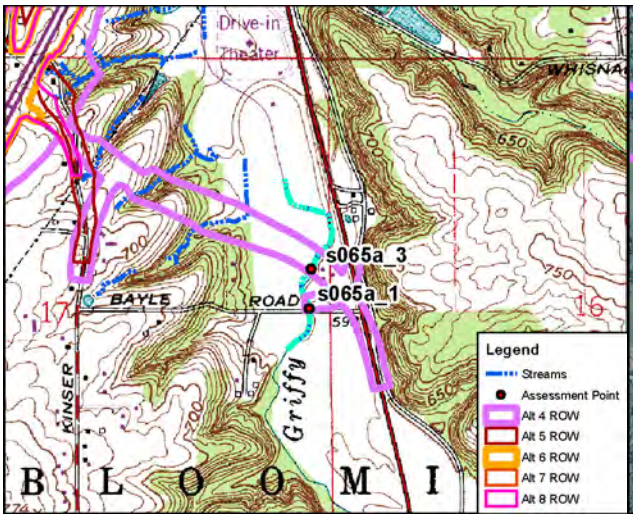
Aesthetic rating (1-10): 8 | % Run: | % Glide: 45

Canopy Cover (% Open): 50 | % Pool: 15

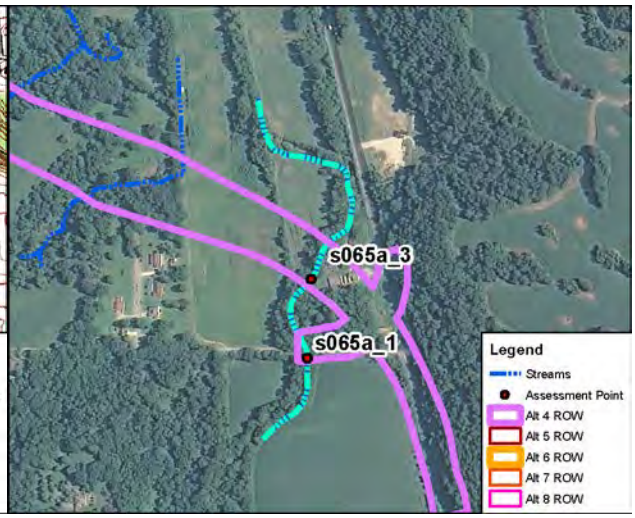
General QHEI Notes

P. 10 LP
50 drw
LF
52 RF

Stream Impacts S065a_3



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Griffy Creek	**Section:**	17
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	4.4 feet
Channelized:	No	**OHWM Depth:**	6.5 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	61.5	**Watershed Area:**	12.49 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1761019 ft	**UTMN:** 14241418 ft		

StreamS065a_3 – Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	321	0.32	0.45
5	0	0.00	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts S065a_3 at this location for the Alternatives are listed in the table above. Segments S065a_3 and S065a_1 were evaluated together. Segment S065a_1 is upstream of the Bayles Road culverts and S065a_3 is downstream of the road crossing. At the time of evaluation, this stream is a perennial stream with good habitat development and moderate sinuosity. The predominant substrate consists of gravel and sand. The stream has a wide riparian corridor associated with both banks. The adjacent floodplain is dominated by forest land. Photographs taken upstream and downstream at the S065a_3 segment are on the second page of this form. Implementation of the Preferred Alternative 8 will decrease the amount of impacts at this location.

Stream Impacts S065a_3

Photograph Taken Upstream

Photograph Taken Downstream

OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

IDEM

Sample #	bioSample #	Stream Name	Location
S65a-1, -2, 3		Griffy Creek	

Surveyor	Sample Date	County	Macro Sample Type	☒ Habitat Complete	QHEI Score:
RSS	4/23/12	Monroe			61.5

1] *SUBSTRATE* Check ONLY Two predominant substrate TYPE BOXES; estimate % and check every type present

BEST TYPES

PREDOMINANT P	PREDOMINANT R		PRESENT P	PRESENT R	TOTAL %
☐	☐	BLDR/SLABS [10]	☐	☐	
☐	☐	BOULDER [9]	☐	☐	
☐	☐	COBBLE [8]	☐	☒	5
☐	☒	GRAVEL [7]	☐	☐	55
☒	☐	SAND [6]	☐	☒	25
☐	☐	BEDROCK [5]	☐	☐	

OTHER TYPES

PREDOMINANT P	PREDOMINANT R		PRESENT P	PRESENT R	TOTAL %
☐	☐	HARDPAN [4]	☐	☐	
☐	☐	DETRITUS [3]	☒	☐	5
☐	☐	MUCK [2]	☐	☐	
☐	☐	SILT [2]	☒	☒	10
☐	☐	ARTIFICIAL [0]	☐	☐	

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

ORIGIN (Check ONE (Or 2 & average))

- ☐ LIMESTONE [1]
- ☒ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTRINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT:
- ☐ HEAVY [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS:
- ☐ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Substrate 12 (Maximum 20)

Comments

2] *INSTREAM COVER* Indicate presence 0 to 3 and estimate percent: **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 root wad in deep/fast water, or deep, well-defined, functional pools.)

%	Amount		%	Amount		%	Amount	
20	1	UNDERCUT BANKS [1]			POOLS > 70cm [2]			OXBOWS, BACKWATERS [1]
20	1	OVERHANGING VEGETATION [1]			ROOTWADS [1]			AQUATIC MACROPHYTES [1]
35	2	SHALLOWS (IN SLOW WATER) [1]			BOULDERS [1]	10	1	LOGS OR WOODY DEBRIS [1]
		ROOTMATS [1]						

AMOUNT (Check ONE (Or 2 & average))

- ☐ EXTENSIVE > 75% [11]
- ☐ MODERATE 25 - 75% [7]
- ☒ SPARSE 5 - < 25% [3]
- ☐ NEARLY ABSENT < 5% [1]

Cover 7 (Maximum 20)

Comments

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

SINUOSITY
- ☐ HIGH [4]
- ☒ MODERATE [3]
- ☐ LOW [2]
- ☐ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☒ GOOD [5]
- ☐ FAIR [3]
- ☐ POOR [1]

CHANNELIZATION
- ☒ NONE [6]
- ☐ RECOVERED [4]
- ☐ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Channel 16 (Maximum 20)

Comments

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

River right looking downstream

EROSION
- L ☐ R ☒ NONE/LITTLE [3]
- L ☒ R ☐ MODERATE [2]
- L ☐ R ☐ HEAVY/SEVERE [1]

RIPARIAN WIDTH
- L ☒ R ☒ WIDE > 50m [4]
- L ☐ R ☐ MODERATE 10-50m [3]
- L ☐ R ☐ NARROW 5-10m [2]
- L ☐ R ☐ VERY NARROW [1]
- L ☐ R ☐ NONE [0]

2.5 + 4 + 3

FLOOD PLAIN QUALITY
- L ☒ R ☒ FOREST, SWAMP [3]
- L ☐ R ☐ SHRUB OR OLD FIELD [2]
- L ☐ R ☐ RESIDENTIAL, PARK, NEW FIELD [1]
- L ☐ R ☐ FENCED PASTURE [1]
- L ☐ R ☐ OPEN PASTURE, ROWCROP [0]
- L ☐ R ☐ CONSERVATION TILLAGE [1]
- L ☐ R ☐ URBAN OR INDUSTRIAL [0]
- L ☐ R ☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Riparian 9.5 (Maximum 10)

Comments

5] *POOL/GLIDE AND RIFFLE/RUN QUALITY*

MAXIMUM DEPTH (Check ONE (ONLY!))
- ☐ > 1m [6]
- ☐ 0.7 - < 1m [4]
- ☐ 0.4 - < 0.7m [2]
- ☒ 0.2 - < 0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH (Check ONE (Or 2 & average))
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☒ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY (Check ALL that apply)
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☒ MODERATE [1]
- ☐ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach – pools and riffles.

Recreation Potential (Circle one and comment on back)
- ☐ Primary Contact
- ☐ Secondary Contact

Pool/Current 2 (Maximum 12)

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

☐ NO RIFFLE [metric = 0]

RIFFLE DEPTH
- ☒ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5 - 10cm [1]
- ☐ BEST AREAS < 5cm [metric = 0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☒ MAXIMUM < 50cm [1]

RIFFLE/RUN SUBSTRATE (Check ONE (Or 2 & average))
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☒ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☒ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Riffle/Run 5 (Maximum 8)

Comments

6] *GRADIENT* (8 ft/mi)

- ☐ VERY LOW - LOW [2–4]
- ☒ MODERATE [6 - 10]
- ☐ HIGH - VERY HIGH [10 - 6]

%POOL: 15 %GLIDE: ____

DRAINAGE AREA (12.5 mi²) %RUN: 45 %RIFFLE: 40

Gradient 10 (Maximum 10)

OHW = 44' x 6.5' (13.4 m)

S65a-1, -2, -3

IDEM OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
		[illegible] Creek	

Surveyor	Sample Date	County	Macro SampleType	☒ Habitat Complete	QHEI Score 61.5

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☒ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☐ Urban Runoff
- ☐ Suburban
- ☐ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

Subjective rating (1-10): | % Riffle: 40 | *Is reach representative of stream?* Yes

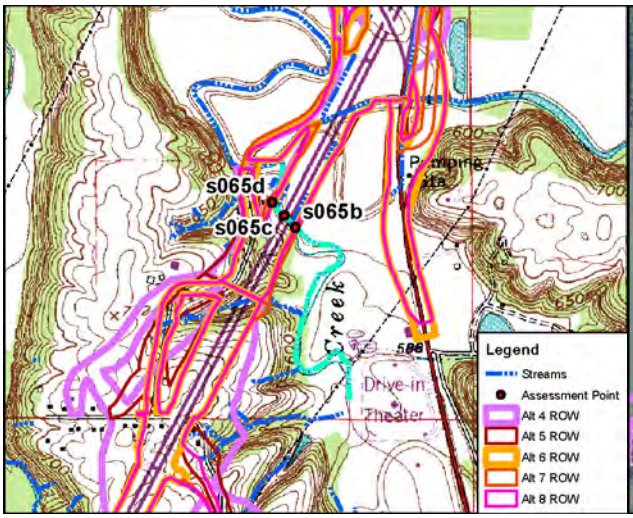
Aesthetic rating (1-10): 8 | % Run: | % Glide: 45

Canopy Cover (% Open): 50 | % Pool: 15

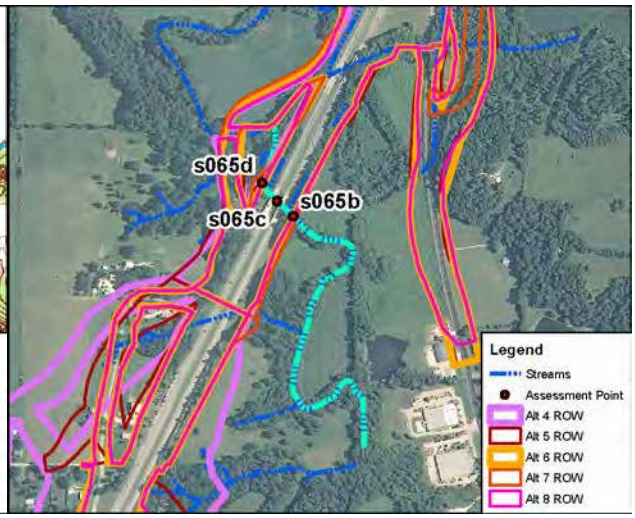
General QHEI Notes

P. 10 LP
50 drw
LF
52 RF

Stream Impacts S065b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Griffy Creek	**Section:**	8
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	52.0 feet
Channelized:	Yes	**OHWM Depth:**	13.0 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	37	**Watershed Area:**	14.10 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt
UTME: 1769250 ft	**UTMN:** 14246108 ft		

Stream s065b – Modified Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	113	0.13	0.32
5	115	0.14	0.33
6	102	0.12	0.27
7	137	0.16	0.42
8	102	0.12	0.27

Description of Potential Impact:
Impacts to S065b at this location for the Alternatives are listed in the table above. Segments S065b, S065c, and S065d were evaluated together. Segment S065b is upstream of the existing SR 37 bridge, S065c is the portion of stream being bridged, and S065d is downstream of the bridge. These segments have experienced previous disturbance and exhibit no recovery at the time of the evaluation. This stream is a perennial stream with poor habitat development and low to no sinuosity where these Alternatives cross this stream. The predominant substrate consists of silt. The stream has a moderately wide riparian corridor associated with both banks. The adjacent floodplain is dominated by an old field. Photographs taken upstream and downstream for this location at S065b are on the second page of this form. Implementation of the Preferred Alternative 8 will decrease the amount of impacts to Griffy Creek at this location.

Stream Impacts S065b

Photograph Taken Upstream

Photograph Taken Downstream

Sec5-565 b, c, d

IDEM — OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
		GRIFFEY CREEK	SR-37 bridge & below

Surveyor	Sample Date	County	Macro SampleType	Habitat Complete	QHEI Score:
RW		Monroe		☑	37

Modified Warmwater Habitat

1-Substrate (20 points maximum)

Substrate Score: 1

Check 1 Predominant Pool & 1 Predominant Riffle

Check all that are present — P=Pool, R=Riffle

Predominant P	Predominant R	Present P	Present R		Predominant P	Predominant R	Present P	Present R	
☐	☐	☐	☐	Bldrs/Slabs(10)	☐	☐	☐	☐	Hardpan(4)
☐	☐	☑	☐	Boulders(9)	☐	☐	☑	☐	Detritus(3)
☐	☐	☐	☑	Cobble(8)	☐	☐	☑	☐	Muck(2)
☐	☐	☐	☑	Gravel(7)	☑	☑	☐	☐	Silt(2)
☐	☐	☐	☑	Sand(6)	☐	☐	☐	☐	Sludge(1)
☐	☐	☐	☐	Bedrock(5)	☐	☐	☐	☐	Artificial(0)

Substrate Quality (check only 1, or check 2 and AVERAGE)

Substrate Origin: ☐ Limestone(1) ☐ Hardpan(0) ☐ Lacustrine(0) ☐ Tills(1) ☐ Sandstone(0) ☑ Shale(-1) ☐ Wetlands(0) ☐ Rip/Rap(0) ☐ Coal fines(-2)

Silt Cover: ☑ Silt heavy(-2) ☐ Silt moderate(-1) ☐ Silt normal(0) ☐ Silt free(1)

Embeddedness: ☑ Extensive(-2) ☐ Moderate(-1) ☐ Low/Normal(0) ☐ None(1)

NOTE: ignore sludge originating from point sources; score based on natural substrates

☑ >4 substrates present(2)

Comments: 4+2 = 6 (-5) 1

2-Instream Cover (20 points maximum

Instream Cover Score: 8

Type (check ALL that apply)

☐ Undercut banks(1) ☑ Deep pools(2) ☐ Oxbows(1)
☐ Overhanging vegetation(1) ☐ Rootwads(1) ☐ Aquatic macrophytes(1)
☑ Shallows(in slow water)(1) ☑ Boulders(1) ☑ Logs and woody debris(1)
☐ Rootmats(1)

Amount (check only 1, or 2 and AVERAGE)

☐ Extensive >75% (11)
☐ Moderate 25-75% (7)
☑ Sparse 5-25% (3)
☐ Nearly absent <5% (1)

Comments: 5+3

3-Channel Morphology (20) (check only one per category, OR two and AVERAGE)

Channel Score: 5

Sinuosity	Development	Channelization	Stability	Modifications/Other	
☐ High (4)	☐ Excellent (7)	☐ None (6)	☐ High (3)	☐ Snagging	☐ Impound
☐ Moderate (3)	☐ Good (5)	☐ Recovered (4)	☑ Moderate (2)	☐ Relocation	☐ Islands
☑ Low (2)	☐ Fair (3)	☐ Recovering (3)	☐ Low (1)	☐ Canopy Removal	☐ Leveed
☑ None (1)	☑ Poor (1)	☑ Recent or no recovery (1)		☐ Dredging	☐ Bank shaping
				☐ One side channel modifications	

Comments:

4-Riparian Zone & Bank Erosion (10 points maximum)

Riparian Score: 5

Left/Right banks looking downstream (For each category, check only one per bank, OR two per bank and AVERAGE).

Riparian width (per bank)

L	R	
☐	☐	Wide >50m (4)
☑	☑	Moderate 10-50m (3)
☐	☐	Narrow 5-10m (2)
☐	☐	Very narrow <5m (1)
☐	☐	None (0)

Erosion/Runoff-Floodplain quality (past 100 ft Riparian) (most predominant per bank)

L	R	
☐	☐	Forest, Swamp (3)
☑	☑	Shrub or Old field (2)
☐	☐	Residential, Park, New field (1)
☐	☐	Fenced pasture (1)
☐	☐	Conservation Tillage (1)
☐	☐	Urban or Industrial (0)
☐	☐	Mining, Construction (0)
☑	☑	Open Pasture/Rowcrop (0)

Bank Erosion (per bank)

L	R	
☐	☐	None or little (3)
☐	☐	Moderate (2)
☑	☑	Heavy/Severe (1)

Comments:

5a-Pool/Glide Quality (12 points maximum

Pool/Glide Score: 8

Max pool depth (check one)
☑ >1m (6)
☐ 0.7-1m (4)
☐ 0.4-0.7m (2)
☐ 0.2-0.4m (1)
☐ <0.2m (pool=0)

Morphology (check only one, OR check two and AVERAGE)
☐ Pool width > riffle width (2)
☑ Pool width = riffle width (1)
☐ Pool width < riffle width (0)

Pool/Run/Riffle current velocity (check all that apply)
☐ Eddies (1) ☐ Torrential (-1)
☐ Fast (1) ☐ Interstitial (-1)
☐ Moderate (1) ☐ Intermittent (-2)
☑ Slow (1) ☐ No pool (0)

Comments:

5b-Riffle/Run Quality (8) (check only one per category, OR two and AVERAGE)

Riffle/Run Score: 0

Riffle/run depth (check one)
☐ Generally>10cm, Max>50cm (4)
☐ Generally>10cm, Max<50cm(3)
☑ Generally 5-10cm (1)
☐ Generally<5cm (riffle=0)

Riffle/run substrate
☐ Stable-e.g. cobble, boulder (2)
☐ Mod. stable-e.g. pea gravel (1)
☑ Unstable-e.g. sand, gravel (0)

Riffle/run embeddedness
☑ Extensive (-1) ☐ Normal/Low (1)
☐ Moderate (0) ☐ None (2)
☐ No riffle (0)

Comments:

6-Gradient (10 points maximum)

Gradient Score: 10

Average width: 16 m Gradient: 10 (ft/mile) Drainage Area: 14.1 (square miles)

Comments:

OHWM 52' x 13' (15.85)

IDEM Surface Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
3656 c, d		GRIFFEY CREEK	@ SR 37

Surveyor	Sample Date	County	Macro SampleType	☒ Habitat Complete	QHEI Score:

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☑ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☑ Urban Runoff
- ☐ Suburban
- ☑ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

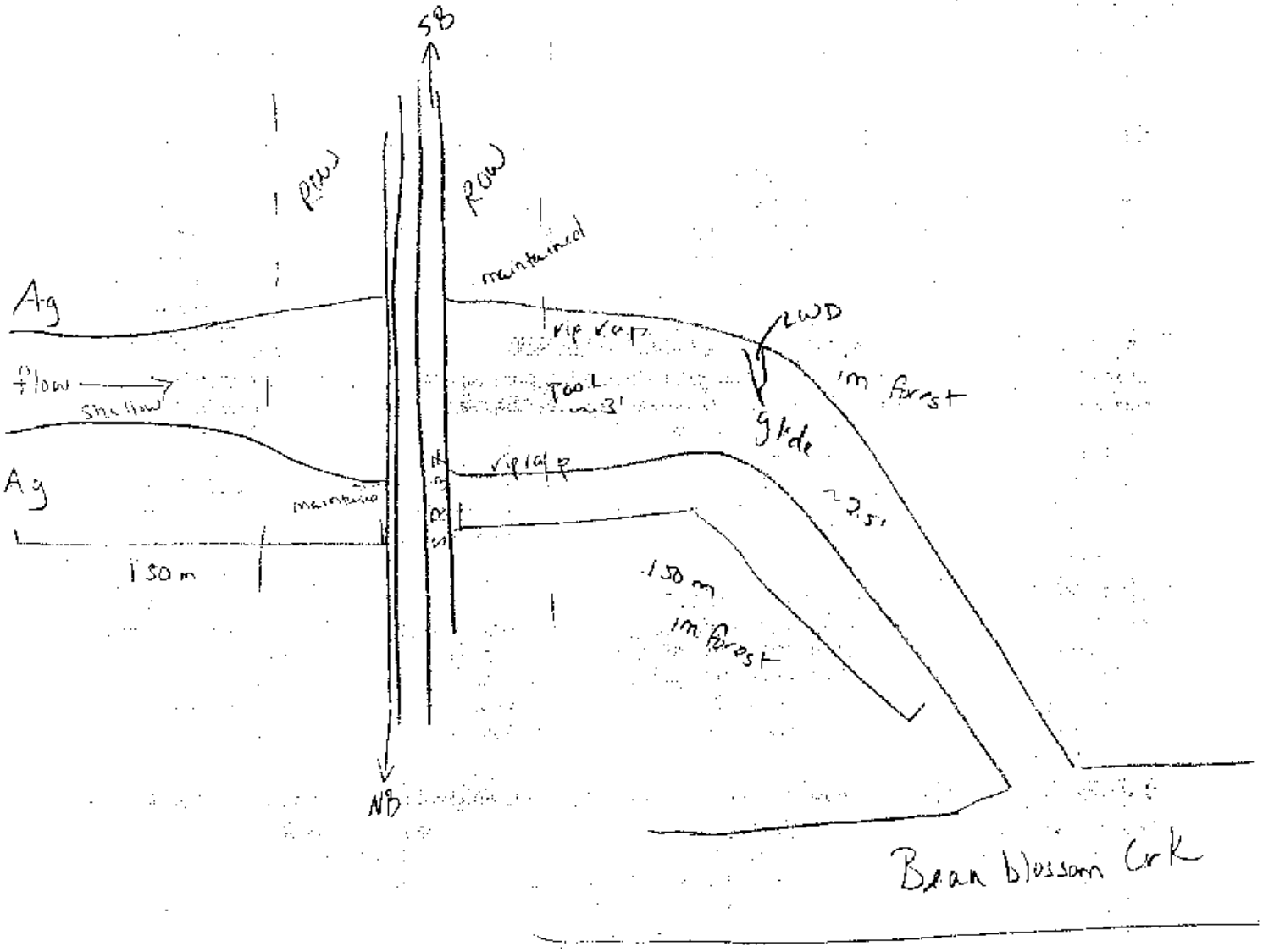
Subjective rating (1-10): 5 | % Riffle: 0 | Is reach representative of stream? Yes

Aesthetic rating (1-10): 3 | % Run: 80

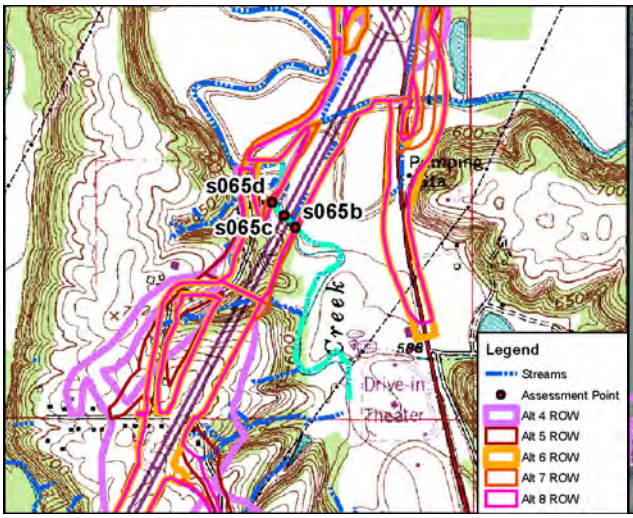
Canopy Cover (% Open): 30 | % Glide: 10 | % Pool: 10

General QHEI Notes:

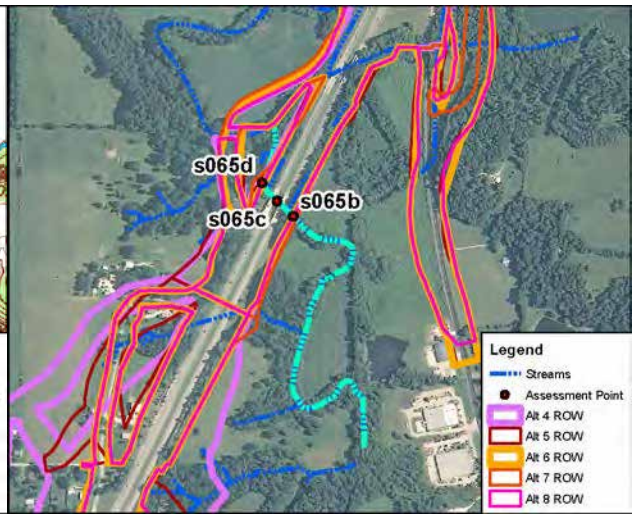
Substrate very loose, shifty



Stream Impacts S065c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Griffy Creek	**Section:**	8
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	52.0 feet
Channelized:	Yes	**OHWM Depth:**	13.0 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	37	**Watershed Area:**	14.10 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt
UTME: 1769250 ft	**UTMN:** 14246108 ft		

Stream S065c – Modified Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	135	0.16	0.01
5	135	0.16	0.01
6	135	0.16	0.01
7	135	0.16	0.01
8	135	0.16	0.01

Description of Potential Impact:
Impacts to S065c at this location for the Alternatives are listed in the table above. Segments S065c, S065b, and S065d were evaluated together. Segment S065b is upstream of the existing SR 37 bridge, S065c is the portion of stream being bridged, and S065d is downstream of the bridge. These segments have experienced previous disturbance and exhibit no recovery at the time of the evaluation. This stream is a perennial stream with poor habitat development and low to no sinuosity where these Alternatives cross this stream. The predominant substrate consists of silt. The stream has a moderately wide riparian corridor associated with both banks. The adjacent floodplain is dominated by an old field. Photographs taken upstream and downstream for this location at S065b are on the second page of this form. Implementation of the Preferred Alternative 8 will decrease the amount of impacts to Griffy Creek at this location.

Stream Impacts S065c

Photograph Taken Upstream

Photograph Taken Downstream

Sec5-565 b, c, d

IDEM — OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
		GRIFFEY CREEK	SR-37 bridge & below

Surveyor	Sample Date	County	Macro SampleType	Habitat Complete	QHEI Score:
RW		Monroe		☑	37

Modified Warmwater Habitat

1-Substrate (20 points maximum)

Substrate Score: 1

Check 1 Predominant Pool & 1 Predominant Riffle

Check all that are present — P=Pool, R=Riffle

Predominant P	Predominant R	Present P	Present R		Predominant P	Predominant R	Present P	Present R	
☐	☐	☐	☐	Bldrs/Slabs(10)	☐	☐	☐	☐	Hardpan(4)
☐	☐	☑	☐	Boulders(9)	☐	☐	☑	☐	Detritus(3)
☐	☐	☐	☑	Cobble(8)	☐	☐	☑	☐	Muck(2)
☐	☐	☐	☑	Gravel(7)	☑	☑	☐	☐	Silt(2)
☐	☐	☐	☑	Sand(6)	☐	☐	☐	☐	Sludge(1)
☐	☐	☐	☐	Bedrock(5)	☐	☐	☐	☐	Artificial(0)

Substrate Quality (check only 1, or check 2 and AVERAGE)

Substrate Origin: ☐ Limestone(1) ☐ Hardpan(0) ☐ Lacustrine(0) ☐ Tills(1) ☐ Sandstone(0) ☑ Shale(-1) ☐ Wetlands(0) ☐ Rip/Rap(0) ☐ Coal fines(-2)

Silt Cover: ☑ Silt heavy(-2) ☐ Silt moderate(-1) ☐ Silt normal(0) ☐ Silt free(1)

Embeddedness: ☑ Extensive(-2) ☐ Moderate(-1) ☐ Low/Normal(0) ☐ None(1)

NOTE: ignore sludge originating from point sources; score based on natural substrates

☑ >4 substrates present(2)

Comments: 4+2 = 6 (-5) 1

2-Instream Cover (20 points maximum

Instream Cover Score: 8

Type (check ALL that apply)

☐ Undercut banks(1) ☑ Deep pools(2) ☐ Oxbows(1)
☐ Overhanging vegetation(1) ☐ Rootwads(1) ☐ Aquatic macrophytes(1)
☑ Shallows(in slow water)(1) ☑ Boulders(1) ☑ Logs and woody debris(1)
☐ Rootmats(1)

Amount (check only 1, or 2 and AVERAGE)

☐ Extensive >75% (11)
☐ Moderate 25-75% (7)
☑ Sparse 5-25% (3)
☐ Nearly absent <5% (1)

Comments: 5+3

3-Channel Morphology (20) (check only one per category, OR two and AVERAGE)

Channel Score: 5

Sinuosity	Development	Channelization	Stability	Modifications/Other	
☐ High (4)	☐ Excellent (7)	☐ None (6)	☐ High (3)	☐ Snagging	☐ Impound
☐ Moderate (3)	☐ Good (5)	☐ Recovered (4)	☑ Moderate (2)	☐ Relocation	☐ Islands
☑ Low (2)	☐ Fair (3)	☐ Recovering (3)	☐ Low (1)	☐ Canopy Removal	☐ Leveed
☑ None (1)	☑ Poor (1)	☑ Recent or no recovery (1)		☐ Dredging	☐ Bank shaping
				☐ One side channel modifications	

Comments:

4-Riparian Zone & Bank Erosion (10 points maximum)

Riparian Score: 5

Left/Right banks looking downstream (For each category, check only one per bank, OR two per bank and AVERAGE).

Riparian width (per bank)

L	R	
☐	☐	Wide >50m (4)
☑	☑	Moderate 10-50m (3)
☐	☐	Narrow 5-10m (2)
☐	☐	Very narrow <5m (1)
☐	☐	None (0)

Erosion/Runoff-Floodplain quality (past 100 ft Riparian) (most predominant per bank)

L	R	
☐	☐	Forest, Swamp (3)
☑	☑	Shrub or Old field (2)
☐	☐	Residential, Park, New field (1)
☐	☐	Fenced pasture (1)
☐	☐	Conservation Tillage (1)
☐	☐	Urban or Industrial (0)
☐	☐	Mining, Construction (0)
☑	☑	Open Pasture/Rowcrop (0)

Bank Erosion (per bank)

L	R	
☐	☐	None or little (3)
☐	☐	Moderate (2)
☑	☑	Heavy/Severe (1)

Comments:

5a-Pool/Glide Quality (12 points maximum

Pool/Glide Score: 8

Max pool depth (check one)
☑ >1m (6)
☐ 0.7-1m (4)
☐ 0.4-0.7m (2)
☐ 0.2-0.4m (1)
☐ <0.2m (pool=0)

Morphology (check only one, OR check two and AVERAGE)
☐ Pool width > riffle width (2)
☑ Pool width = riffle width (1)
☐ Pool width < riffle width (0)

Pool/Run/Riffle current velocity (check all that apply)
☐ Eddies (1) ☐ Torrential (-1)
☐ Fast (1) ☐ Interstitial (-1)
☐ Moderate (1) ☐ Intermittent (-2)
☑ Slow (1) ☐ No pool (0)

Comments:

5b-Riffle/Run Quality (8) (check only one per category, OR two and AVERAGE)

Riffle/Run Score: 0

Riffle/run depth (check one)
☐ Generally>10cm, Max>50cm (4)
☐ Generally>10cm, Max<50cm(3)
☑ Generally 5-10cm (1)
☐ Generally<5cm (riffle=0)

Riffle/run substrate
☐ Stable-e.g. cobble, boulder (2)
☐ Mod. stable-e.g. pea gravel (1)
☑ Unstable-e.g. sand, gravel (0)

Riffle/run embeddedness
☑ Extensive (-1) ☐ Normal/Low (1)
☐ Moderate (0) ☐ None (2)
☐ No riffle (0)

Comments:

6-Gradient (10 points maximum)

Gradient Score: 10

Average width: 16 m Gradient: 10 (ft/mile) Drainage Area: 14.1 (square miles)

Comments:

OHWM 52' x 13' (15.85)

IDEM Surface Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
3656 c, d		GRIFFEY CREEK	@ SR 37

Surveyor	Sample Date	County	Macro SampleType	☒ Habitat Complete	QHEI Score:

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☑ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☑ Urban Runoff
- ☐ Suburban
- ☑ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

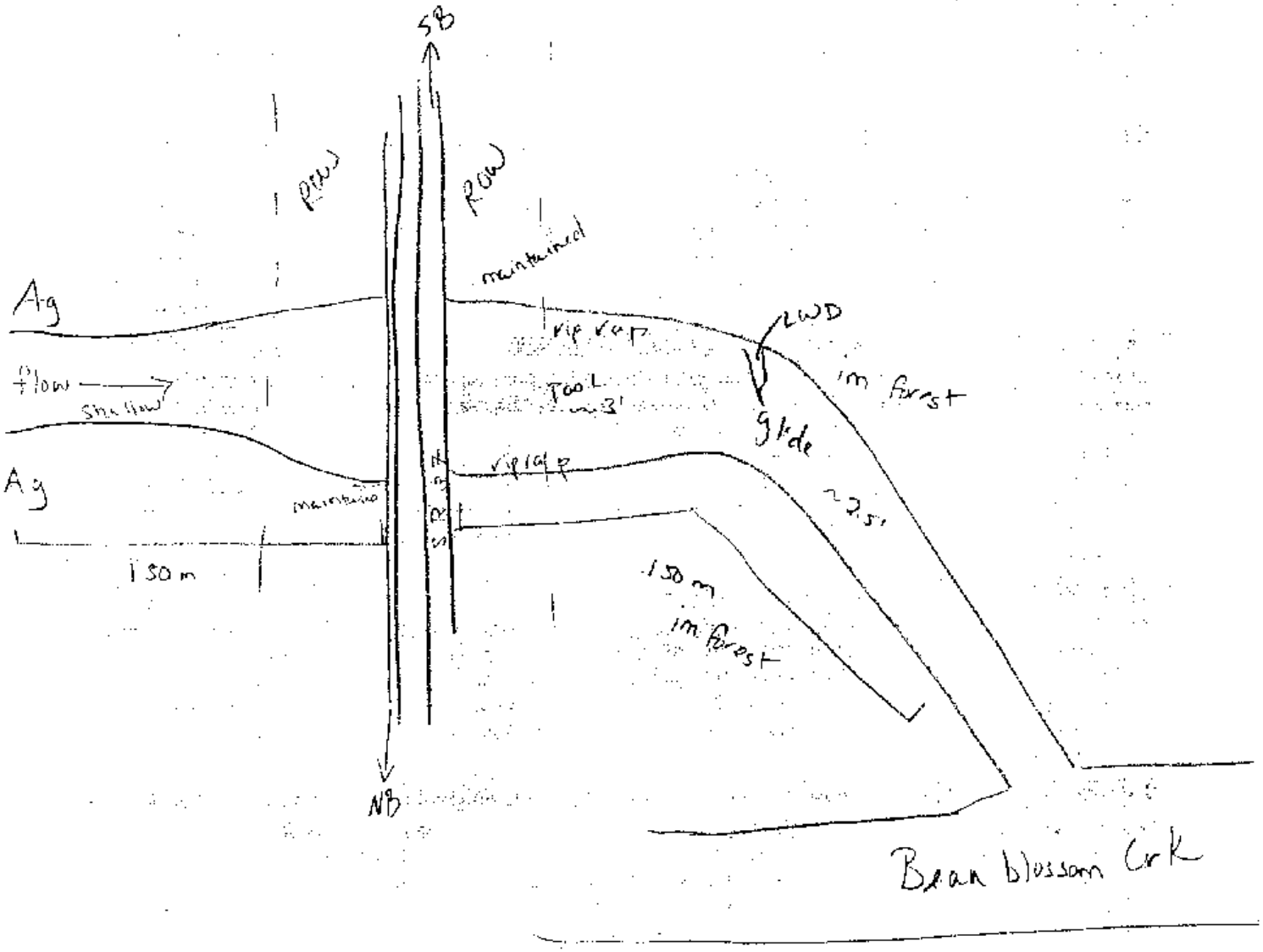
Subjective rating (1-10): 5 | % Riffle: 0 | Is reach representative of stream? Yes

Aesthetic rating (1-10): 3 | % Run: 80

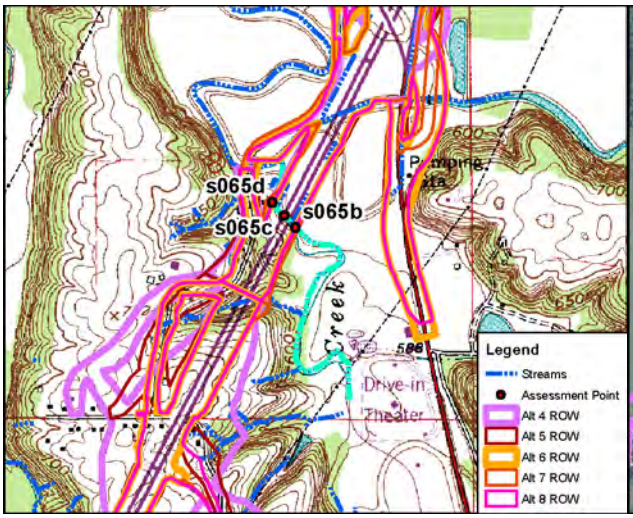
Canopy Cover (% Open): 30 | % Glide: 10 | % Pool: 10

General QHEI Notes:

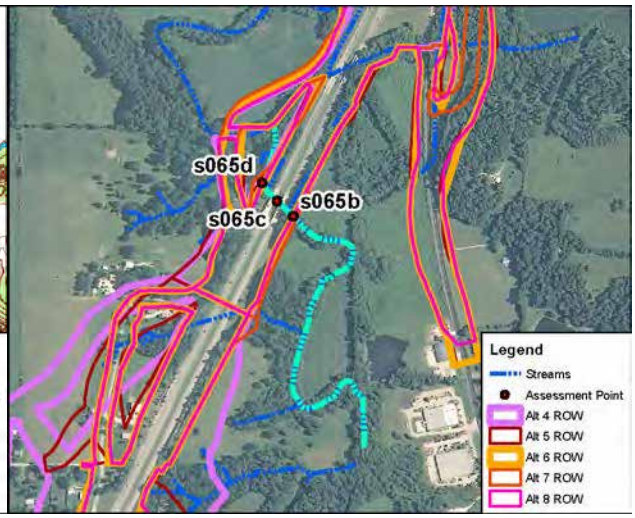
Substrate very loose, shifty



Stream Impacts S065d



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Griffy Creek	**Section:**	8
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	52.0 feet
Channelized:	Yes	**OHWM Depth:**	13.0 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	37	**Watershed Area:**	14.10 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt
UTME: 1769250 ft	**UTMN:** 14246108 ft		

Stream S065d – Modified Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	220	0.26	0.77
5	175	0.21	0.72
6	125	0.15	0.59
7	251	0.30	0.76
8	131	0.16	0.61

Description of Potential Impact:
Impacts to S065d at this location for the Alternatives are listed in the table above. Segments S065b, S065c, and S065d were evaluated together. Segment S065b is upstream of the existing SR 37 bridge, S065c is the portion of stream being bridged, and S065d is downstream of the bridge. These segments have experienced previous disturbance and exhibit no recovery at the time of the evaluation. This stream is a perennial stream with poor habitat development and low to no sinuosity where these Alternatives cross this stream. The predominant substrate consists of silt. The stream has a moderately wide riparian corridor associated with both banks. The adjacent floodplain is dominated by an old field. Photographs taken upstream and downstream for this location at S065b are on the second page of this form. Implementation of the Preferred Alternative 8 will decrease the amount of impacts to Griffy Creek at this location.

Stream Impacts S065d

Photograph Taken Upstream

Photograph Taken Downstream

Sec5-565 b, c, d

IDEM — OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
		GRIFFEY CREEK	SR-37 bridge & below

Surveyor	Sample Date	County	Macro SampleType	Habitat Complete	QHEI Score:
RW		Monroe		☑	37

Modified Warmwater Habitat

1-Substrate (20 points maximum)

Substrate Score: 1

Check 1 Predominant Pool & 1 Predominant Riffle

Check all that are present — P=Pool, R=Riffle

Predominant P	Predominant R	Present P	Present R		Predominant P	Predominant R	Present P	Present R	
☐	☐	☐	☐	Bldrs/Slabs(10)	☐	☐	☐	☐	Hardpan(4)
☐	☐	☑	☐	Boulders(9)	☐	☐	☑	☐	Detritus(3)
☐	☐	☐	☑	Cobble(8)	☐	☐	☑	☐	Muck(2)
☐	☐	☐	☑	Gravel(7)	☑	☑	☐	☐	Silt(2)
☐	☐	☐	☑	Sand(6)	☐	☐	☐	☐	Sludge(1)
☐	☐	☐	☐	Bedrock(5)	☐	☐	☐	☐	Artificial(0)

Substrate Quality (check only 1, or check 2 and AVERAGE)

Substrate Origin: ☐ Limestone(1) ☐ Hardpan(0) ☐ Lacustrine(0) ☐ Tills(1) ☐ Sandstone(0) ☑ Shale(-1) ☐ Wetlands(0) ☐ Rip/Rap(0) ☐ Coal fines(-2)

Silt Cover: ☑ Silt heavy(-2) ☐ Silt moderate(-1) ☐ Silt normal(0) ☐ Silt free(1)

Embeddedness: ☑ Extensive(-2) ☐ Moderate(-1) ☐ Low/Normal(0) ☐ None(1)

NOTE: ignore sludge originating from point sources; score based on natural substrates

☑ >4 substrates present(2)

Comments: 4+2 = 6 (-5) 1

2-Instream Cover (20 points maximum

Instream Cover Score: 8

Type (check ALL that apply)

☐ Undercut banks(1) ☑ Deep pools(2) ☐ Oxbows(1)
☐ Overhanging vegetation(1) ☐ Rootwads(1) ☐ Aquatic macrophytes(1)
☑ Shallows(in slow water)(1) ☑ Boulders(1) ☑ Logs and woody debris(1)
☐ Rootmats(1)

Amount (check only 1, or 2 and AVERAGE)

☐ Extensive >75% (11)
☐ Moderate 25-75% (7)
☑ Sparse 5-25% (3)
☐ Nearly absent <5% (1)

Comments: 5+3

3-Channel Morphology (20) (check only one per category, OR two and AVERAGE)

Channel Score: 5

Sinuosity	Development	Channelization	Stability	Modifications/Other	
☐ High (4)	☐ Excellent (7)	☐ None (6)	☐ High (3)	☐ Snagging	☐ Impound
☐ Moderate (3)	☐ Good (5)	☐ Recovered (4)	☑ Moderate (2)	☐ Relocation	☐ Islands
☑ Low (2)	☐ Fair (3)	☐ Recovering (3)	☐ Low (1)	☐ Canopy Removal	☐ Leveed
☑ None (1)	☑ Poor (1)	☑ Recent or no recovery (1)		☐ Dredging	☐ Bank shaping
				☐ One side channel modifications	

Comments:

4-Riparian Zone & Bank Erosion (10 points maximum)

Riparian Score: 5

Left/Right banks looking downstream (For each category, check only one per bank, OR two per bank and AVERAGE).

Riparian width (per bank)

L	R	
☐	☐	Wide >50m (4)
☑	☑	Moderate 10-50m (3)
☐	☐	Narrow 5-10m (2)
☐	☐	Very narrow <5m (1)
☐	☐	None (0)

Erosion/Runoff-Floodplain quality (past 100 ft Riparian) (most predominant per bank)

L	R	
☐	☐	Forest, Swamp (3)
☑	☑	Shrub or Old field (2)
☐	☐	Residential, Park, New field (1)
☐	☐	Fenced pasture (1)
☐	☐	Conservation Tillage (1)
☐	☐	Urban or Industrial (0)
☐	☐	Mining, Construction (0)
☑	☑	Open Pasture/Rowcrop (0)

Bank Erosion (per bank)

L	R	
☐	☐	None or little (3)
☐	☐	Moderate (2)
☑	☑	Heavy/Severe (1)

Comments:

5a-Pool/Glide Quality (12 points maximum

Pool/Glide Score: 8

Max pool depth (check one)
☑ >1m (6)
☐ 0.7-1m (4)
☐ 0.4-0.7m (2)
☐ 0.2-0.4m (1)
☐ <0.2m (pool=0)

Morphology (check only one, OR check two and AVERAGE)
☐ Pool width > riffle width (2)
☑ Pool width = riffle width (1)
☐ Pool width < riffle width (0)

Pool/Run/Riffle current velocity (check all that apply)
☐ Eddies (1) ☐ Torrential (-1)
☐ Fast (1) ☐ Interstitial (-1)
☐ Moderate (1) ☐ Intermittent (-2)
☑ Slow (1) ☐ No pool (0)

Comments:

5b-Riffle/Run Quality (8) (check only one per category, OR two and AVERAGE)

Riffle/Run Score: 0

Riffle/run depth (check one)
☐ Generally>10cm, Max>50cm (4)
☐ Generally>10cm, Max<50cm(3)
☑ Generally 5-10cm (1)
☐ Generally<5cm (riffle=0)

Riffle/run substrate
☐ Stable-e.g. cobble, boulder (2)
☐ Mod. stable-e.g. pea gravel (1)
☑ Unstable-e.g. sand, gravel (0)

Riffle/run embeddedness
☑ Extensive (-1) ☐ Normal/Low (1)
☐ Moderate (0) ☐ None (2)
☐ No riffle (0)

Comments:

6-Gradient (10 points maximum)

Gradient Score: 10

Average width: 16 m Gradient: 10 (ft/mile) Drainage Area: 14.1 (square miles)

Comments:

OHWM 52' x 13' (15.85)

IDEM Surface Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
3656 c, d		GRIFFEY CREEK	@ SR 37

Surveyor	Sample Date	County	Macro SampleType	☒ Habitat Complete	QHEI Score:

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☑ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☑ Urban Runoff
- ☐ Suburban
- ☑ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

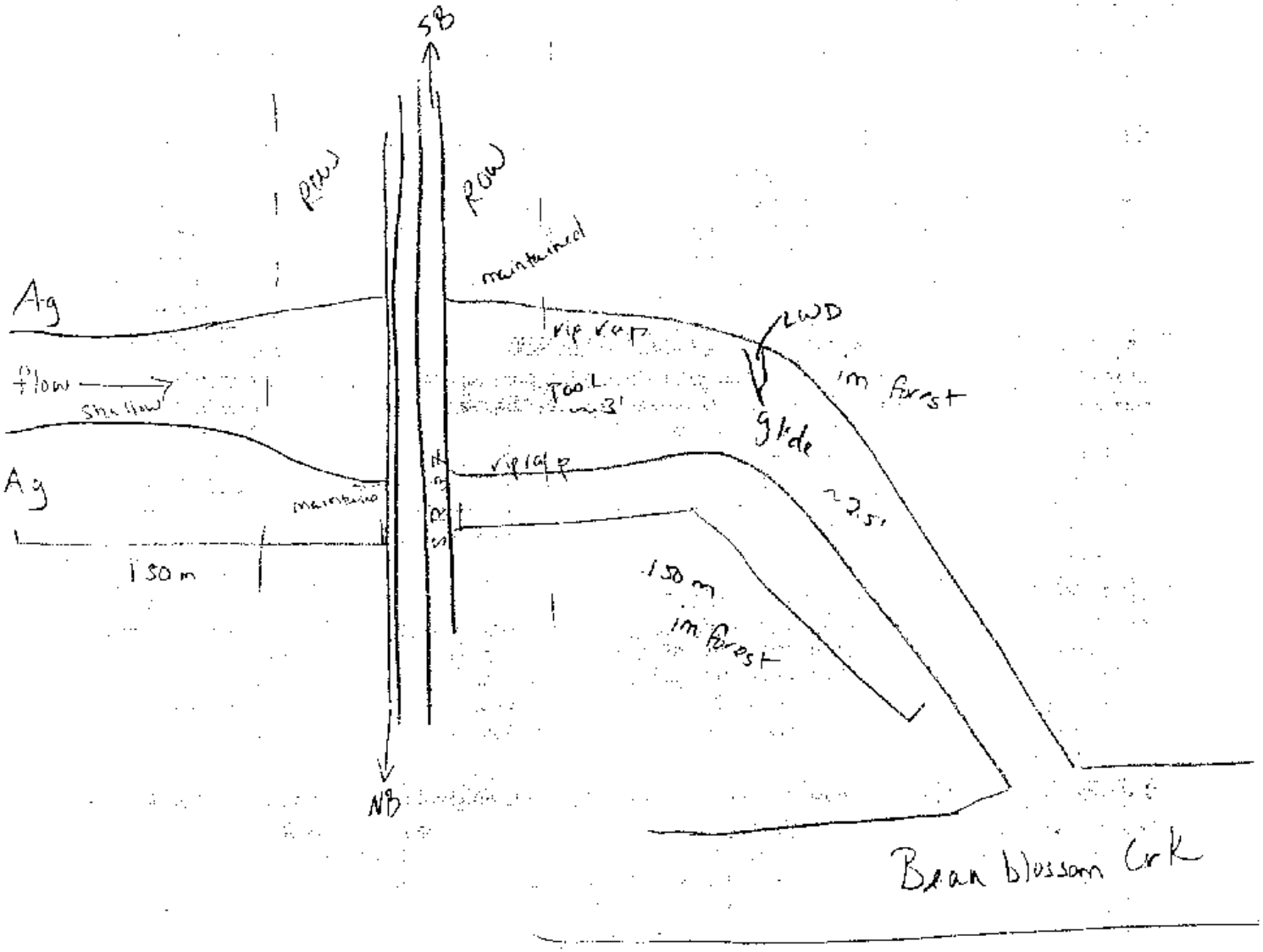
Subjective rating (1-10): 5 | % Riffle: 0 | Is reach representative of stream? Yes

Aesthetic rating (1-10): 3 | % Run: 80

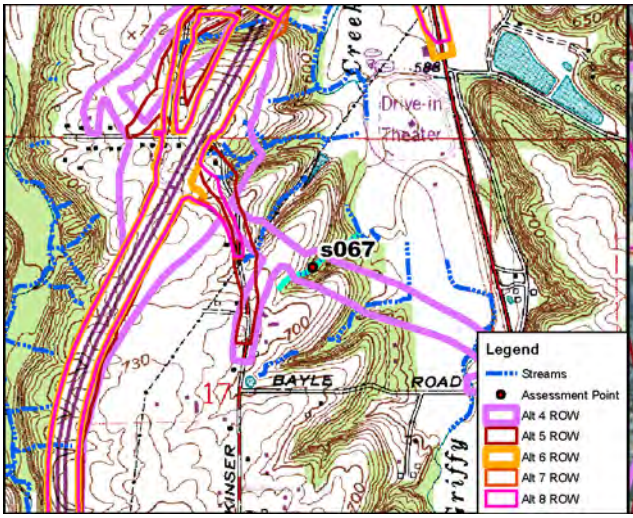
Canopy Cover (% Open): 30 | % Glide: 10 | % Pool: 10

General QHEI Notes:

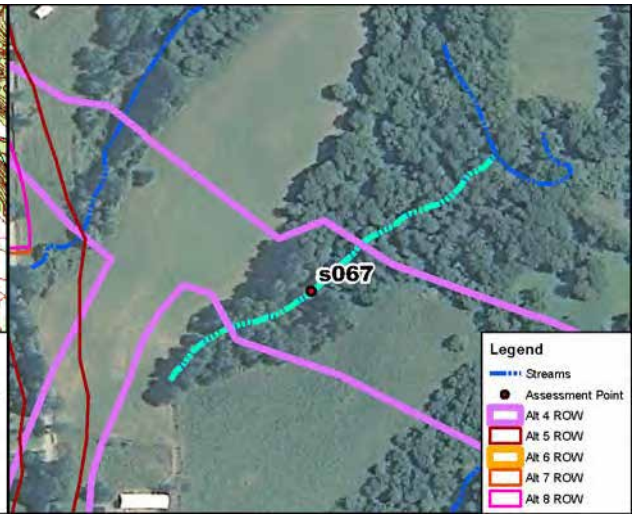
Substrate very loose, shifty



Stream Impacts S067



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	17
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	5.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	52	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Boulder/cobble
UTME: 1769375 ft	**UTMN:** 14242649 ft		

Stream S067 – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	415	0.05	1.81
5	0	0.00	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:

Impacts to S067 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of boulder, cobble, and sand. There is a wide riparian corridor where Alternative 4 crosses this stream. The adjacent floodplain consists of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S067 are on the second page of this form.

Stream Impacts S067

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 52

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S067 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.21891 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 10/12/11 SCORER: DEW/KSS COMMENTS: (Long: -86.54466) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☑	BOULDER (>256 mm) [16 pts]	40%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	30%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	5%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	25%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 70.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 28 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 5'/0.5' **AVERAGE BANKFULL WIDTH (meters):** 1.52

HHEI Metric Points

Substrate	Max = 40	32
A + B		
Pool Depth	Max = 30	0
Bankfull Width	Max=30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

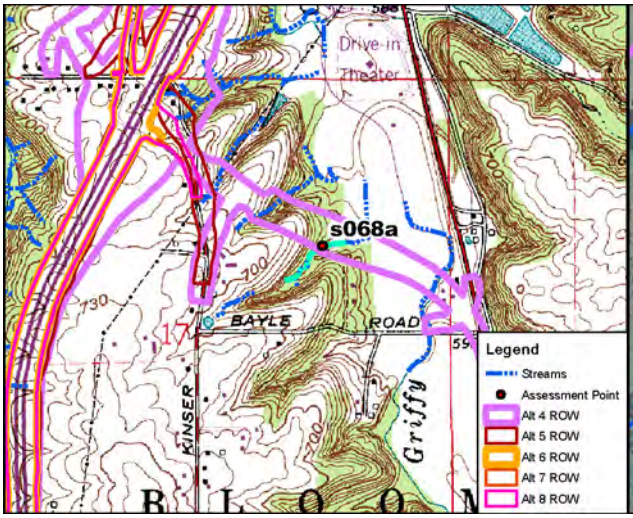
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

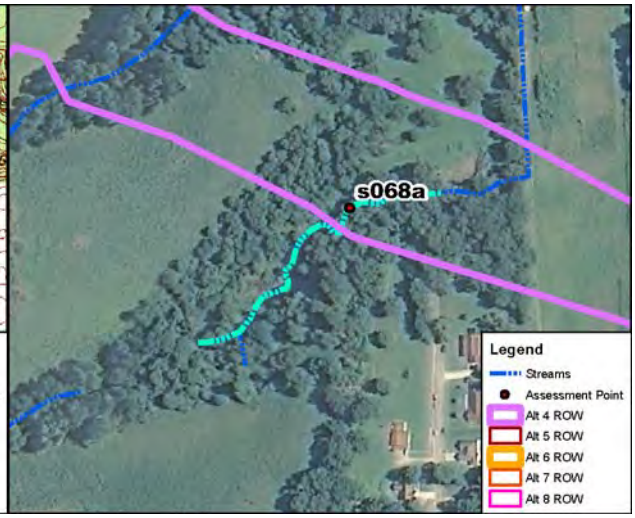
FLOW ➔

Save as pdf Reset Form

Stream Impacts S068a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	17
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.5 feet
Channelized/Type:	No/Natural	**OHWM Depth**	0.8 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	44	**Watershed Area:**	0.09 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Bedrock/cobble
UTME: 1769912 ft	**UTMN:** 14242245 ft		

Stream S068a –Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	309	0.02	1.35
5	0	0.00	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S068a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately bedrock, cobble, and leaf pack. There is a wide riparian buffer associated with this stream. The floodplain consists of mature forests on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S068a are on the second page of this form.

Stream Impacts S068a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 44

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S068a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.09

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.21779 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.54277) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	19%
☑	BEDROCK [16 pt]	40%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	21%	☐	CLAY or HARDPAN [0 pt]	10%
☐	GRAVEL (2-64 mm) [9 pts]	5%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 61.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 28 **TOTAL NUMBER OF SUBSTRATE TYPES:** 6

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 4

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.5' / 0.8' | **AVERAGE BANKFULL WIDTH (meters):** 0.80

HHEI Metric Points

Substrate Max = 40	34	A + B
Pool Depth Max = 30	5	
Bankfull Width Max=30	5	

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S68

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Griffy Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 23 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

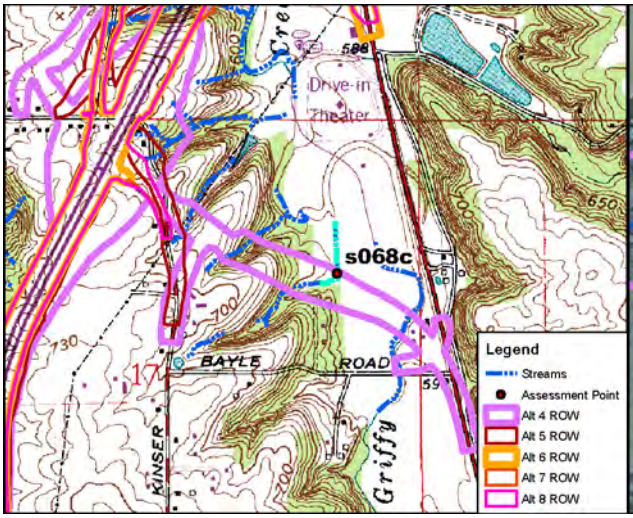
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

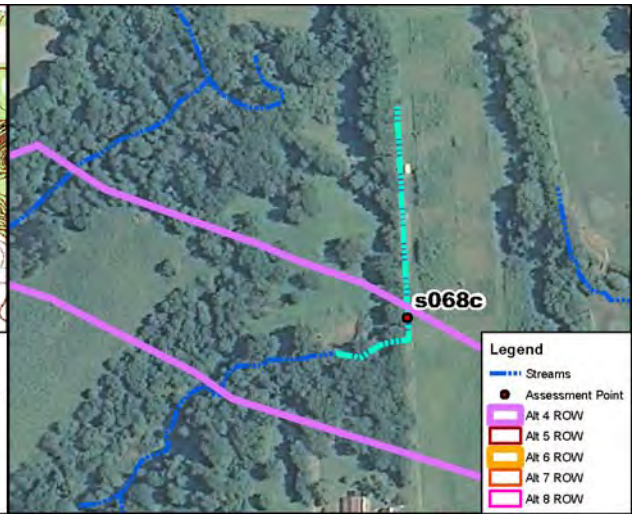
FLOW ➔

Save as pdf Reset Form

Stream Impacts S068c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	17
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	5.7 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	45	**Watershed Area:**	0.09 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/cobble
UTME: 1770374 ft	**UTMN:** 14242384 ft		

Stream S068c –Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	286	0.04	0.49
5	0	0.00	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S068c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately gravel, cobble, and sand. The stream has a wide riparian corridor on the right bank and narrow riparian corridor on the right bank. The adjacent floodplain is dominated with mature forest on the right and an old field on the left where Alternative 4 crosses this stream. Photographs taken upstream and downstream in the area where these Alternatives cross S068c are on the second page of this form.

Stream Impacts S068c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 45

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s068c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.09

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.21817 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/26/12 | SCORER: KSS/DEW | COMMENTS: (Long: -86.54114) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	10%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	30%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	40%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	20%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40: 25

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 5.7'/0.4' **AVERAGE BANKFULL WIDTH (meters):** 1.75

Bankfull Width Max=30: 20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☑	Wide >10m	☐	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/24/12** Quantity: **0.15**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **75%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

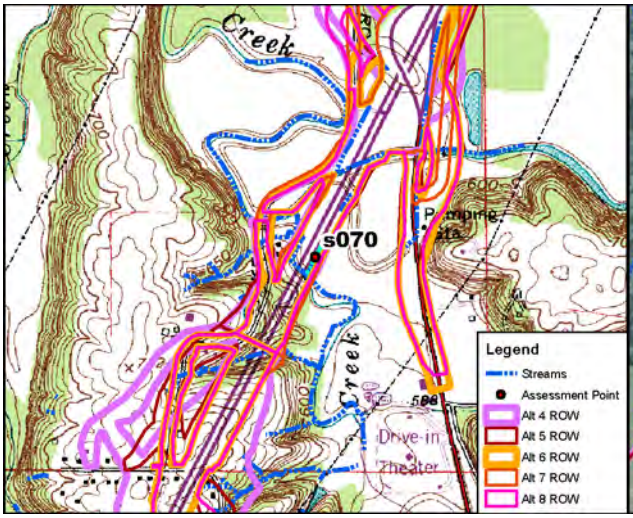
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

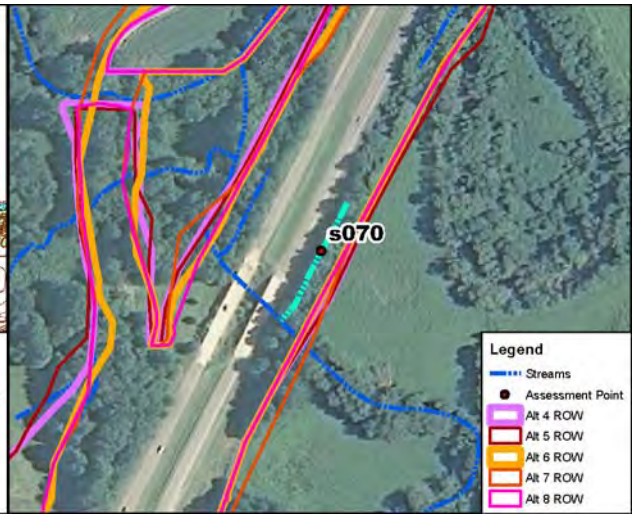
FLOW ➔

Save as pdf Reset Form

Stream Impacts S070



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.0 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	36	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay
UTME: 1769427 ft	**UTMN:** 14246218 ft		

Stream S070 – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	351	0.02	0.40
5	351	0.02	0.40
6	351	0.02	0.39
7	351	0.02	0.40
8	351	0.02	0.39

Description of Potential Impact:
Impacts to S070 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The roadside ditch is located at the edge of existing INDOT ROW. Its substrate is predominately clay. This ditch flows directly into Griffy Creek. There is a narrow riparian buffer associated with this artificial channel. The floodplain consists of INDOT ROW on the right bank and agricultural land on the left. Photographs taken upstream and downstream in the area where these Alternatives cross S070 are on the second page of this form.

Stream Impacts S070

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 36

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S070 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.22871 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.54441) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	6%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	4%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	90%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: 6

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ditch is a long pool MAXIMUM POOL DEPTH (centimeters): 15

Pool Depth Max = 30: 25

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.0' / 0.5' AVERAGE BANKFULL WIDTH (meters): 0.65

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S70

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **132 Upstream / 133 Downstream / 134 Right Bank / 135 Left Bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **70%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

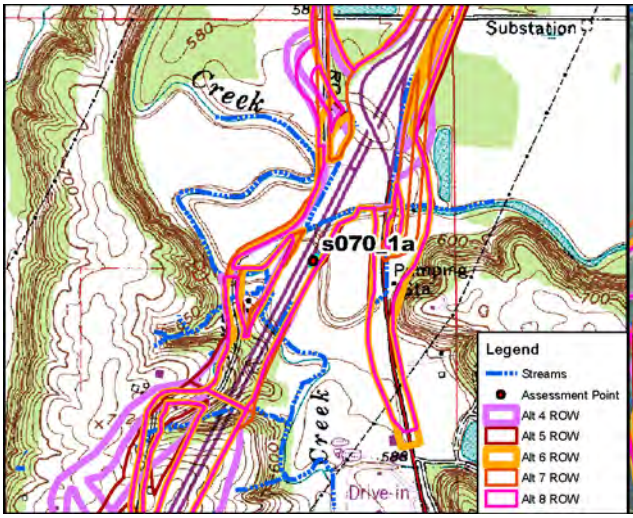
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

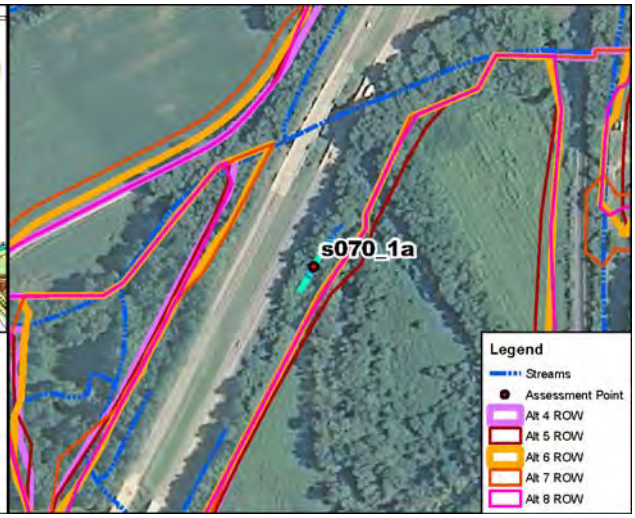
FLOW ➔

Save as pdf Reset Form

Stream Impacts S070_1a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.0 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	17	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1769722 ft	**UTMN:** 14246762 ft		

Stream S070_1a – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	155	0.01	0.39
5	155	0.01	0.47
6	155	0.01	0.40
7	155	0.01	0.40
8	155	0.01	0.40

Description of Potential Impact:
Impacts to S070_1a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter. There is a wide riparian corridor consisting of immature forest on the right bank and a narrow riparian corridor consisting of maintained INDOT ROW on the left bank. Photographs taken upstream and downstream in the area where these Alternatives cross S070_1a are on the second page of this form.

Stream Impacts S070_1a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s070_1a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 150 | LAT.: 39.23020 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/25/12 | SCORER: KSS/DEW | COMMENTS: (Long: -86.54337) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 1

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 2.0'/0.4' **AVERAGE BANKFULL WIDTH (meters):** 0.60

HHEI Metric Points

Substrate Max = 40	A + B	7
Pool Depth Max = 30		5
Bankfull Width Max=30		5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☑	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S70_1a

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: **0.00**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

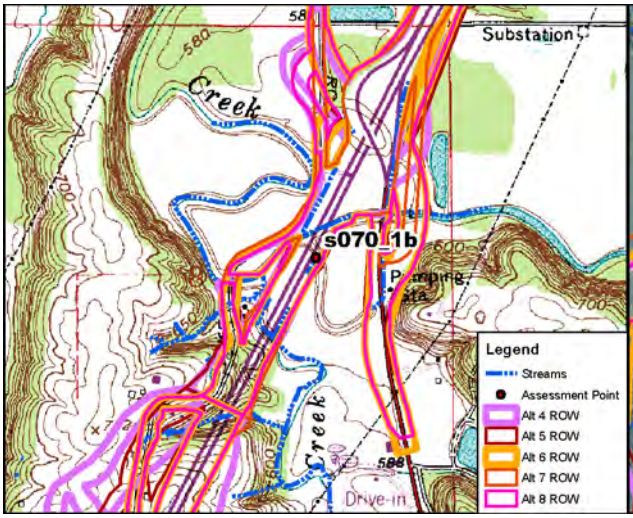
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

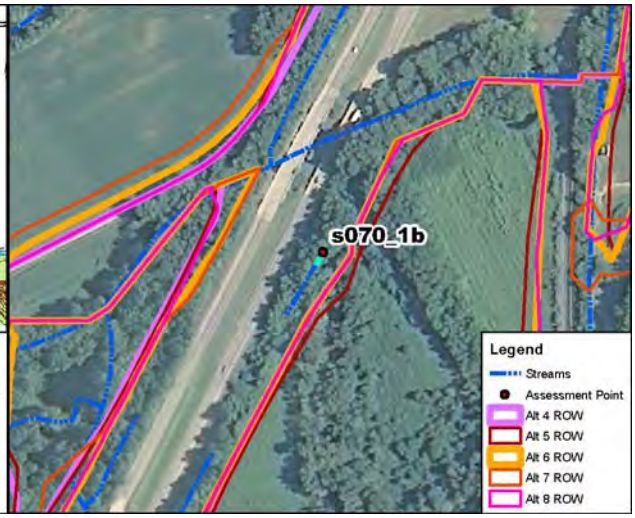
FLOW ➔

Save as pdf Reset Form

Stream Impacts S070_1b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.8 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	14	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/leaf pack
UTME: 1769783 ft	**UTMN:** 14246862 ft		

Stream S070_1b – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	52	0.01	0.23
5	52	0.01	0.31
6	52	0.01	0.24
7	52	0.01	0.24
8	52	0.01	0.24

Description of Potential Impact:

Impacts to S070_1b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate consists of silt and leaf pack. There is a wide riparian corridor consisting of immature forest and wetland on the right bank and a narrow riparian corridor consisting of maintained INDOT ROW on the left bank. This ditch provides some hydrology to Wetland W62. Photographs taken upstream and downstream in the area where these Alternatives cross S070_1b are on the second page of this form.

Stream Impacts S070_1b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 14

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s070_1b RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.23047 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 04/24/12 SCORER: KSS COMMENTS: (Long: -86.54315) (Natural-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	70%
☐	BOULDER (>256 mm) [16 pts]	0%	☑	LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	10%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 1.8'/0.3' **AVERAGE BANKFULL WIDTH (meters):** 0.55

HHEI Metric Points

Substrate Max = 40 (A + B)	9
Pool Depth Max = 30	0
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☑	Wide >10m	☐	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☑	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek (>2 miles)** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

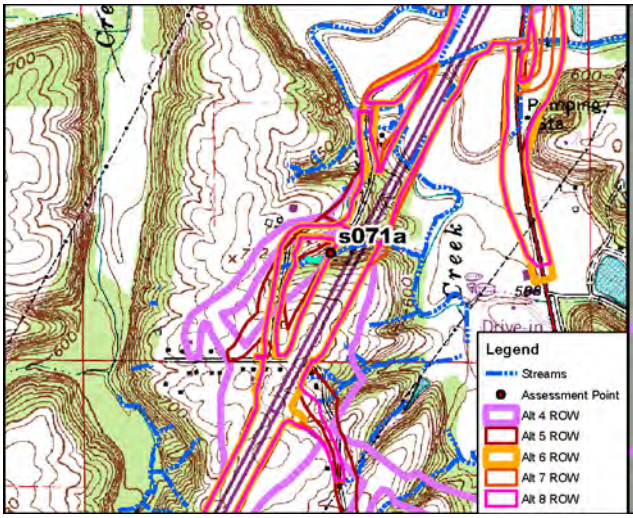
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

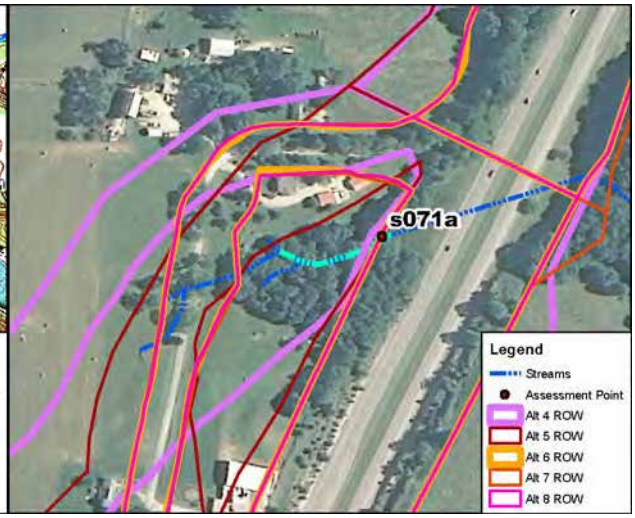
FLOW ➔

Save as pdf Reset Form

Stream Impacts S071a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	8.2 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.9 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	50	**Watershed Area:**	0.06 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Cobble/gravel
UTME: 1768509 ft	**UTMN:** 14245118 ft		

Stream S071a – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	82	0.02	0.34
5	32	0.01	0.26
6	31	0.01	0.24
7	31	0.01	0.24
8	31	0.01	0.24

Description of Potential Impact:
Impacts to S071a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of cobble, gravel, and bedrock. There is a moderately wide riparian buffer along the left bank consisting of immature forest. Immature forest is the dominant habitat on the right bank floodplain, as well, where these Alternatives cross this stream. Photographs taken upstream and downstream in the area where these Alternatives cross S071a are on the second page of this form.

Stream Impacts S071a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 50

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s071a RIVER BASIN: White River DRAINAGE AREA (mi²): 0.06

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.22570 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 04/24/12 SCORER: KSS COMMENTS: (Long: -86.54768) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	20%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	40%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	10%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 60.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: **25** (A + B)

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ MAXIMUM POOL DEPTH (centimeters): 5

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 8.2'/0.9' AVERAGE BANKFULL WIDTH (meters): 2.50

Bankfull Width Max=30: **20**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream **0.20**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **45%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

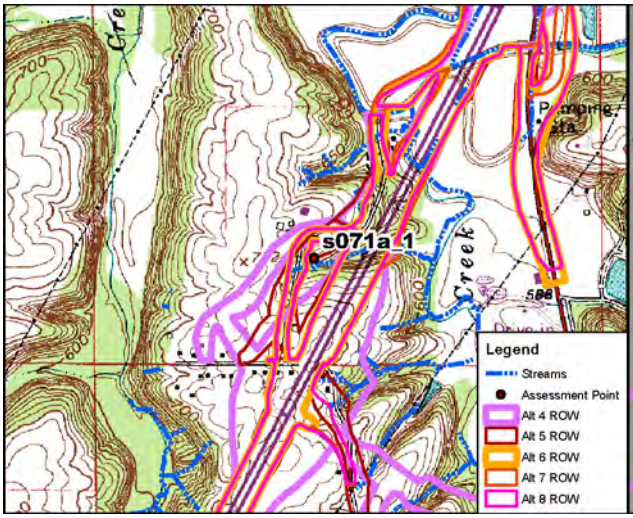
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

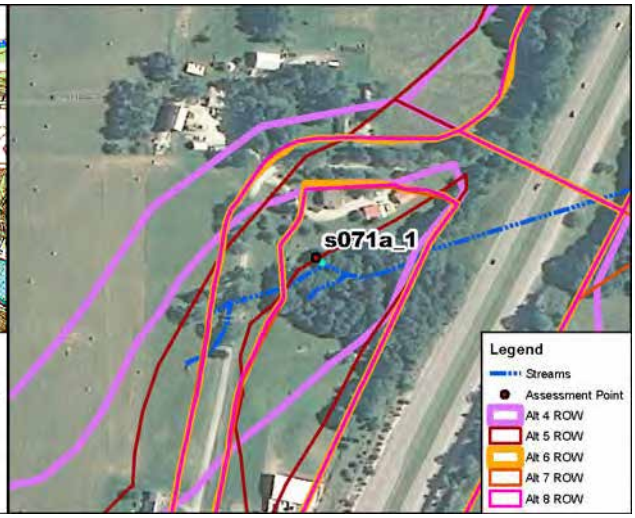
FLOW ➔

Save as pdf Reset Form

Stream Impacts S071a_1



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	24	**Watershed Area:**	0.06 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Cobble/artificial
UTME: 1768218 ft	**UTMN:** 14245100 ft		

Stream S071a_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.00
5	18	0.01	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:

Impacts to S071a_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of cobble and large riprap. There is a moderately wide riparian corridor along the left bank where Alternative 5 crosses this stream. The floodplain of the left bank consists of a residential yard. The right bank consists of a narrow immature forested floodplain. Photographs taken upstream and downstream in the area where these Alternatives cross S071a_1 are on the second page of this form.

Stream Impacts S071a_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 24

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S071a_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.06

LENGTH OF STREAM REACH (ft): 45 LAT.: 39.22565 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/24/12 SCORER: KSS COMMENTS: (Long: -86.54871) (Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	40%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	15%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	15%	☑	ARTIFICIAL [3 pts]	30%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 3'/0.5' AVERAGE BANKFULL WIDTH (meters): 0.90

HHEI Metric Points

	Max	Points
Substrate	40	19
Pool Depth	30	0
Bankfull Width	30	5

A + B

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☑	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream **0.25**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **80%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

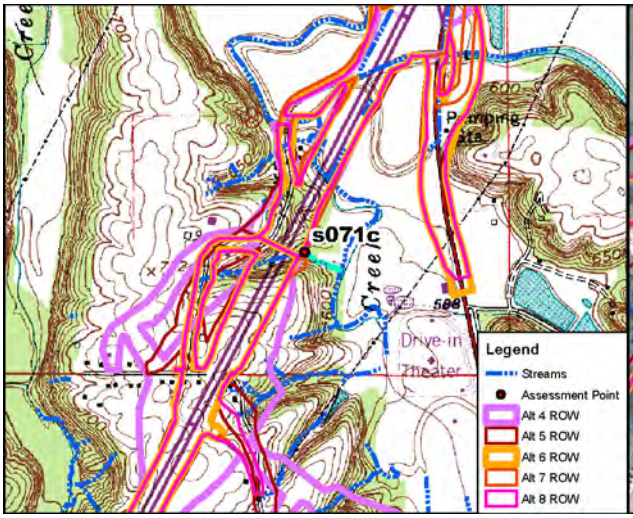
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

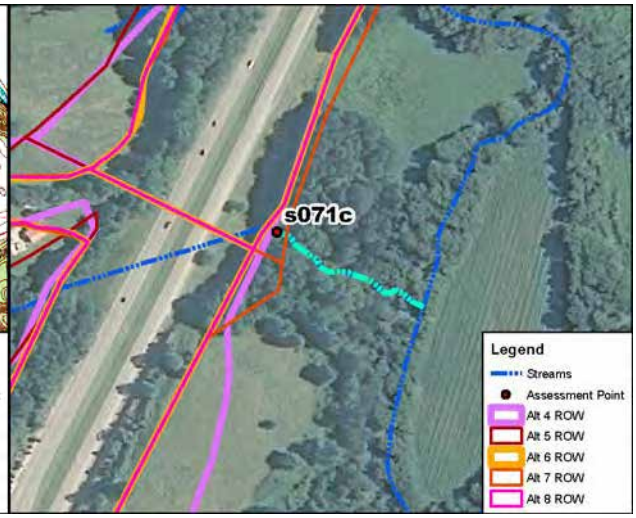
FLOW ➔

Save as pdf Reset Form

Stream Impacts S071c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	17	**Watershed Area:**	0.05 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 1769077 ft	**UTMN:** 14245264 ft		

Stream S071c – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	18	0.01	0.03
5	4	0.01	0.02
6	4	0.01	0.02
7	60	0.01	0.22
8	4	0.01	0.02

Description of Potential Impact:
Impacts to S071c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate consists of sand and silt. There is a wide riparian corridor where the Alternatives cross this stream. The adjacent floodplain consists of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S071c are on the second page of this form.

Stream Impacts S071c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S071c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.05

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.22609 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/12/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.54567) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	44%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	46%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40: 12

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 3'/0.6' **AVERAGE BANKFULL WIDTH (meters):** 0.91

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **5%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

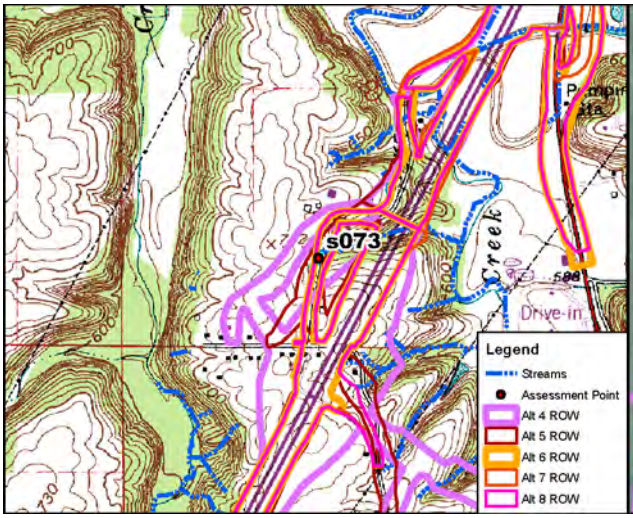
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

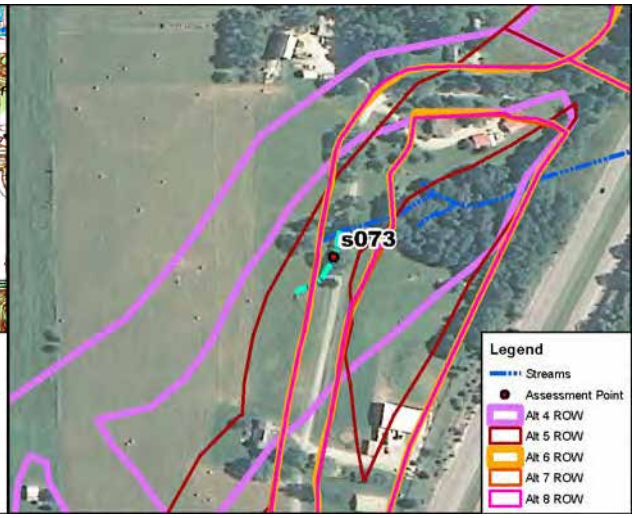
FLOW ➔

Save as pdf Reset Form

Stream Impacts S073



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.2 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.9 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	28	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1767979 ft	**UTMN:** 14244916 ft		

Stream S073 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.00
5	212	0.01	0.00
6	163	0.01	0.00
7	166	0.01	0.00
8	163	0.01	0.00

Description of Potential Impact:
Impacts to S073 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of gravel and sand. There is a no riparian corridor associated with this stream. The adjacent floodplain consists of open pasture. Photographs taken upstream and downstream in the area where these Alternatives cross S073 are on the second page of this form.

Stream Impacts S073

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 28

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S073 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.22515 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.54955) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	45%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 3

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.2' / 0.9' **AVERAGE BANKFULL WIDTH (meters):** 0.70

HHEI Metric Points

Substrate Max = 40	A + B	18
Pool Depth Max = 30		5
Bankfull Width Max=30		5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☑ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S73

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Griffy Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 18 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

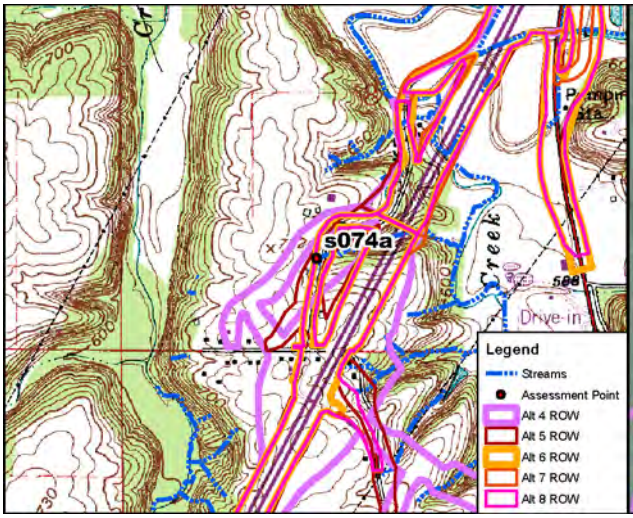
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

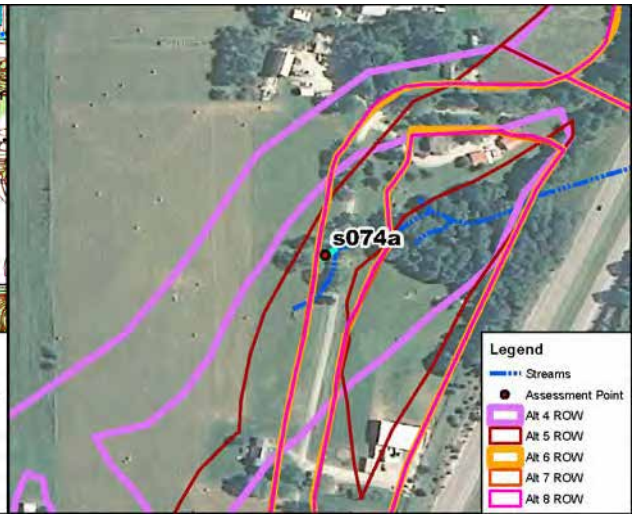
FLOW ➔

Save as pdf Reset Form

Stream Impacts S074a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	28	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1767964 ft	**UTMN:** 14244965 ft		

Stream S074a – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.01	0.00
5	71	0.01	0.00
6	61	0.01	0.00
7	61	0.01	0.00
8	61	0.01	0.00

Description of Potential Impact:
Impacts to S074a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of gravel and sand. There is a no riparian corridor associated with this stream. The adjacent floodplain consists of open pasture. Photographs taken upstream and downstream in the area where these Alternatives cross S074a are on the second page of this form.

Stream Impacts S074a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 28

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S074a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 70 | LAT.: 39.22529 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.54960) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	45%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 4

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.5' / 1.0' **AVERAGE BANKFULL WIDTH (meters):** 0.90

HHEI Metric Points

Substrate	Max = 40	18
A + B		
Pool Depth	Max = 30	5
Bankfull Width	Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☑ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Griffy Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 18 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

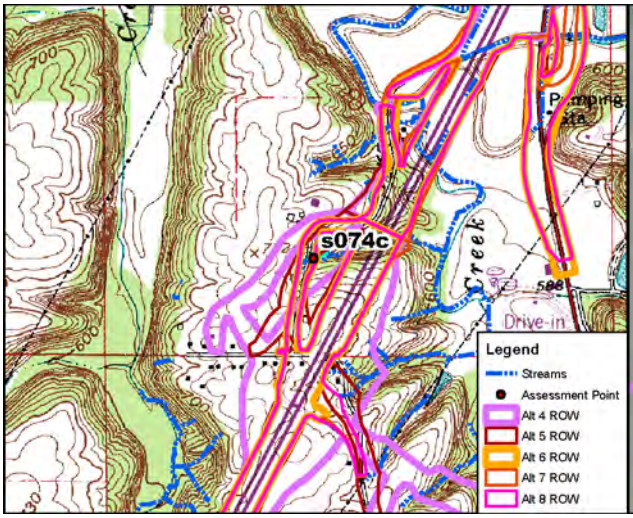
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

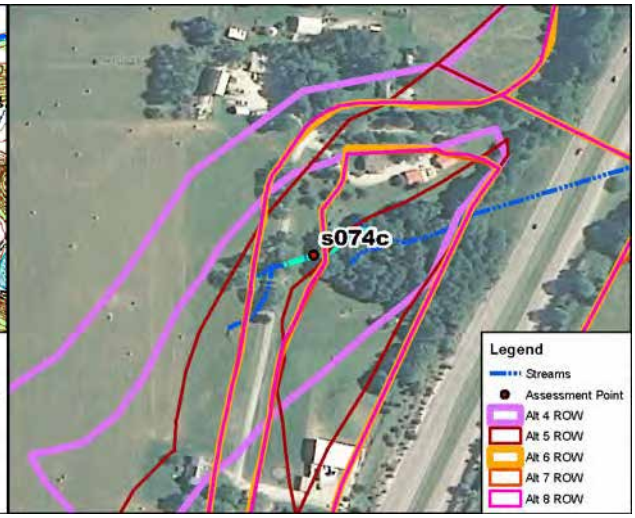
FLOW ➔

Save as pdf Reset Form

Stream Impacts S074c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.0 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	28	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1768102 ft	**UTMN:** 14245013 ft		

Stream S074c – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.00
5	125	0.01	0.08
6	114	0.01	0.01
7	114	0.01	0.01
8	114	0.01	0.01

Description of Potential Impact:
Impacts to S074c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of gravel and sand. There is no riparian corridor where the Alternatives cross this stream. The adjacent floodplain consists of new fields. Photographs taken upstream and downstream near the area where these Alternatives cross S074c are on the second page of this form.

Stream Impacts S074c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 28

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S074c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.22542 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.54912) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	45%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 4

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.5' / 1.0' **AVERAGE BANKFULL WIDTH (meters):** 0.90

HHEI Metric Points

Substrate	Max = 40	18
A + B		
Pool Depth	Max = 30	5
Bankfull Width	Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☑	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☑ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Griffy Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 18 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

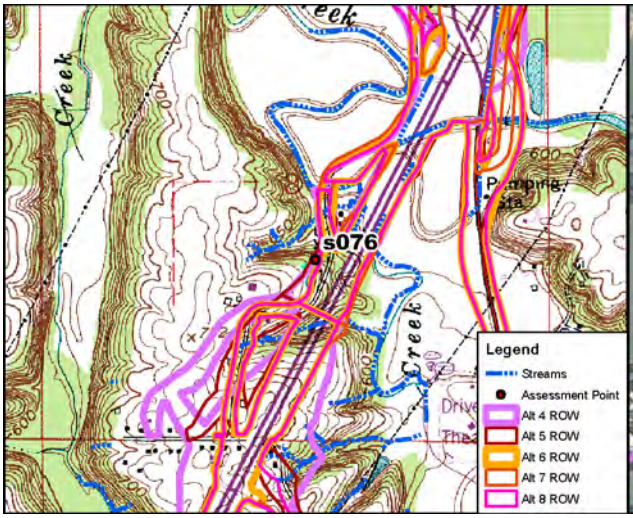
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S076



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.7 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	27	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 17687775 ft	**UTMN:** 14245872 ft		

Stream S076 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	44	0.01	0.61
5	275	0.02	0.84
6	0	0.00	0.29
7	27	0.01	0.43
8	23	0.01	0.44

Description of Potential Impact:
Impacts to S076 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately sand and silt. There is a moderately-wide riparian buffer associated with this stream. The adjacent floodplain consists of mature forests along both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S076 are on the second page of this form.

Stream Impacts S076

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 27

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S076 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.22777 LONG.: RIVER CODE: RIVER MILE:

DATE: 10/12/11 SCORER: DEW/KSS COMMENTS: (Long: -86.54673) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	44%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	46%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: 12

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 3.5'/0.7' AVERAGE BANKFULL WIDTH (meters): 1.07

Bankfull Width Max=30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **5%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

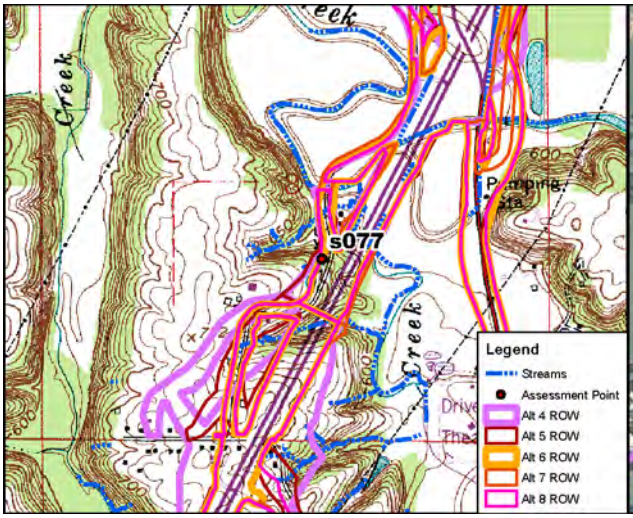
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S077



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.7 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	40	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1768841 ft	**UTMN:** 14245882 ft		

Stream S077 – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	221	0.01	0.31
5	221	0.01	0.31
6	168	0.01	0.30
7	192	0.01	0.29
8	212	0.01	0.29

Description of Potential Impact:
Impacts to S077 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately sand and gravel. There is a moderately-wide riparian buffer associated with this stream. The adjacent floodplain consists of mature forests along both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S077 are on the second page of this form.

Stream Impacts S077

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 40

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S077 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.22780 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.54649) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	10%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	5%
☑	GRAVEL (2-64 mm) [9 pts]	39%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	41%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

HHEI Metric Points

Substrate Max = 40: 20

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH (centimeters):** 9

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 1.7' / 0.4' **AVERAGE BANKFULL WIDTH (meters):** 0.52

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S77

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Griffy Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 18 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

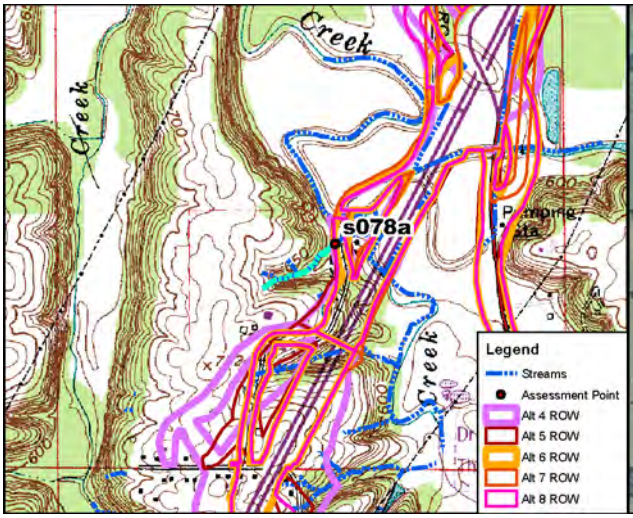
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

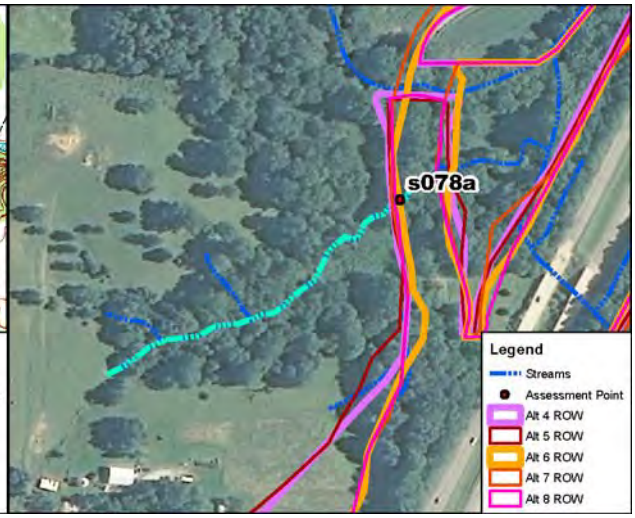
FLOW ➔

Save as pdf Reset Form

Stream Impacts S078a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	6.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	33	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 1768817 ft	**UTMN:** 14246329 ft		

Stream S078a – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	65	0.01	0.23
5	64	0.01	0.23
6	44	0.01	0.15
7	65	0.01	0.22
8	55	0.01	0.19

Description of Potential Impact:
Impacts to S078a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately sand and silt. There is a narrow riparian buffer associated with this stream. The floodplain consists of old fields along both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S078a are on the second page of this form.

Stream Impacts S078a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 33

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S078a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.22902 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/17/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.54657) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	45%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9

TOTAL NUMBER OF SUBSTRATE TYPES: 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 6'/0.4' | AVERAGE BANKFULL WIDTH (meters): 1.82

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	13
Pool Depth	30	0
Bankfull Width	30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☑ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

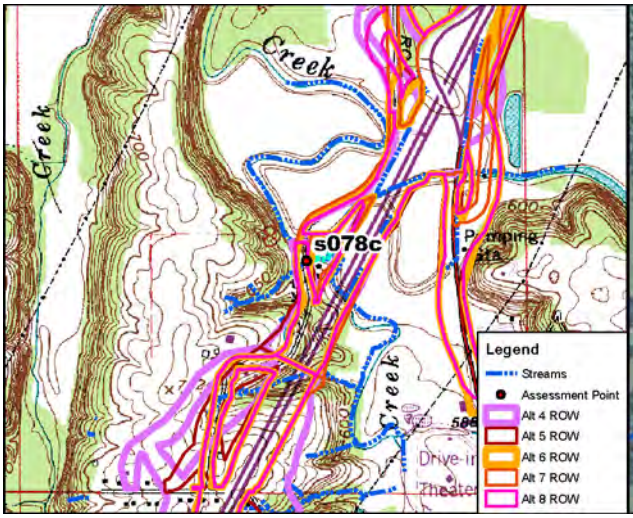
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

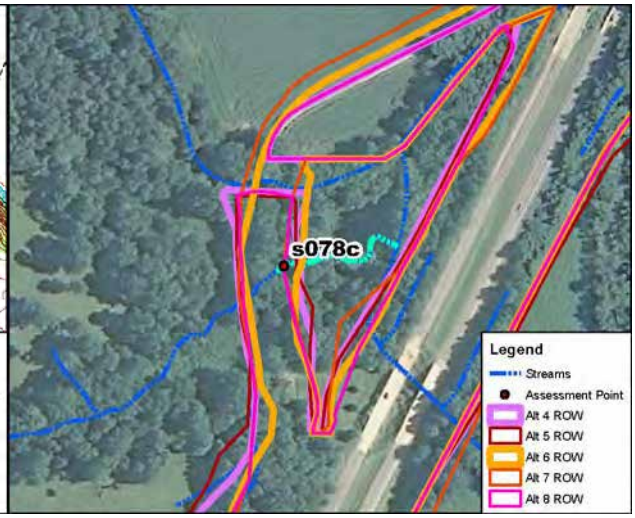
FLOW ➔

Save as pdf Reset Form

Stream Impacts S078c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	6.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	33	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 1768912 ft	**UTMN:** 14246407 ft		

Stream S078c – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	72	0.01	0.22
5	60	0.01	0.22
6	74	0.01	0.21
7	22	0.01	0.10
8	23	0.01	0.10

Description of Potential Impact:
Impacts to S078c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is mostly sand and silt. There is a narrow riparian buffer associated with this stream. The right bank floodplain consists of a residential yard and the left bank is predominately new field. Photographs taken upstream and downstream in the area where these Alternatives cross S078c are on the second page of this form.

Stream Impacts S078c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 33

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S078c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.22923 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/17/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.54623) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	45%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 6'/0.4' | **AVERAGE BANKFULL WIDTH (meters):** 1.83

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	13
Pool Depth	30	0
Bankfull Width	30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☑	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☑ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

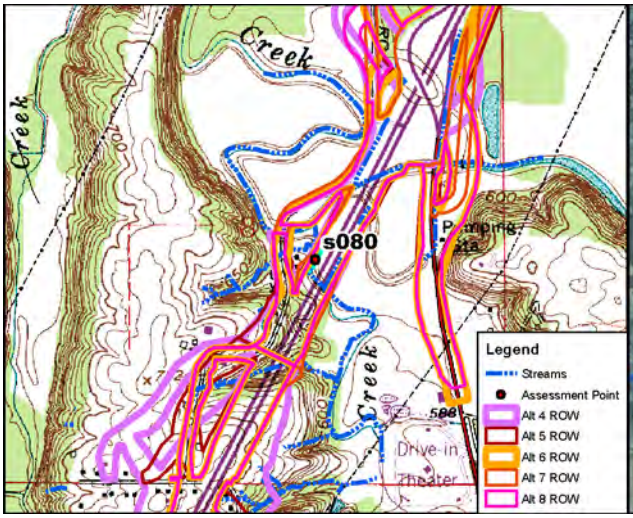
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

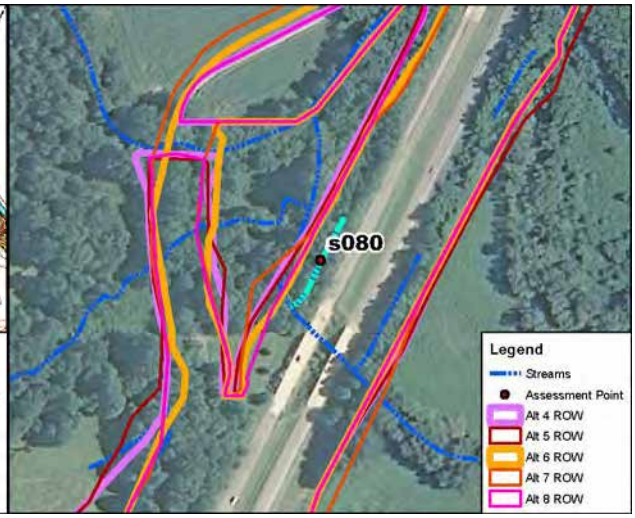
FLOW ➔

Save as pdf Reset Form

Stream Impacts S080



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib. Griffy Creek	**Section:**	8
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.1 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	43	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay
UTME: 1769236 ft	**UTMN:** 14246325 ft		

Stream S080 – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	274	0.01	0.01
5	274	0.01	0.01
6	274	0.01	0.01
7	274	0.01	0.01
8	274	0.01	0.01

Description of Potential Impact:
Impacts to S080 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. This roadside ditch flows along SR 37 directly into Griffy Creek. There is a narrow riparian buffer associated with this clay bottom ditch. The floodplain consists of the urban roadway on the left bank and immature forest on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S080 are on the second page of this form.

Stream Impacts S080

Photograph Taken Upstream

Photograph Taken Downstream and toward roadway

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 43

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S080 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.22901 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/12/06 SCORER: A Rogers COMMENTS: (Long: -86.54509) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	80%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	2%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	3%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 5

HHEI Metric Points

Substrate Max = 40: 8

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☑	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ditch is a long pool MAXIMUM POOL DEPTH (centimeters): 25

Pool Depth Max = 30: 30

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: OHW - 2.1' / 0.4' AVERAGE BANKFULL WIDTH (meters): 0.64

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S80

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Griffy Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **111 Upstream / 112 Downstream / 113 Right Bank / 114 Left Bank**

Elevated Turbidity? (Y/N): **Y** Canopy (% open): **90%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

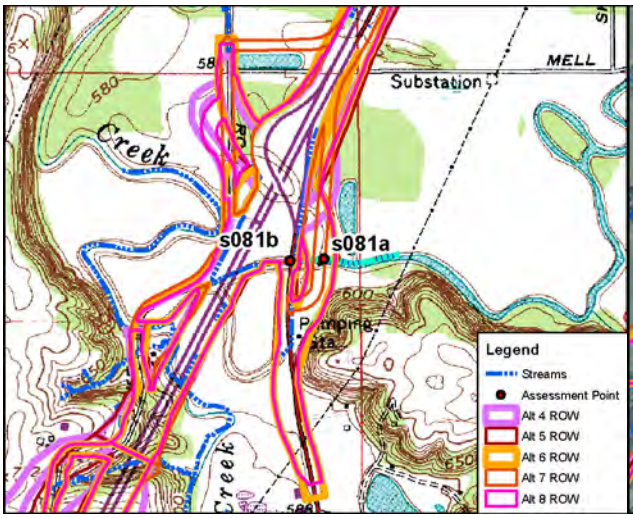
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

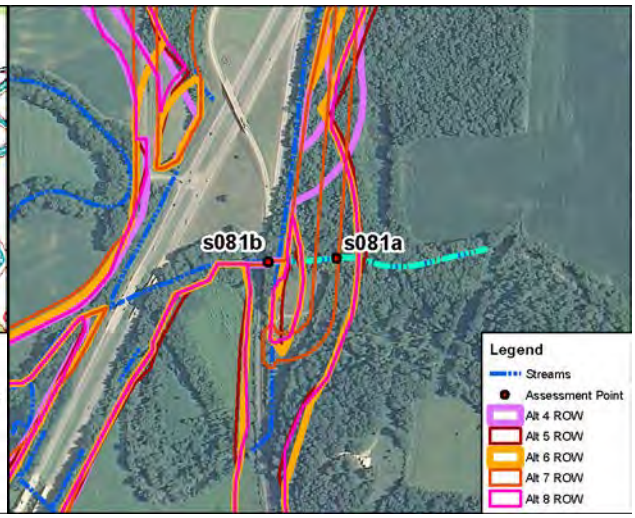
FLOW ➔

Save as pdf Reset Form

Stream Impacts S081a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Beanblossom Creek	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	Yes
Watershed:	05120202010	**OHWM Width:**	64.0 feet
Channelized:	No	**OHWM Depth:**	16.0 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	51.5	**Watershed Area:**	42.73 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Hardpan
UTME: 1770816 ft	**UTMN:** 14247338 ft		

Stream S081a – Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0	0.17
5	443	0.65	1.50
6	370	0.54	1.34
7	123	0.18	0.56
8	386	0.57	1.35

Description of Potential Impact:
Impacts to S081a at this location for the Alternatives are listed in the table above. Segments S081a and S081b were evaluated together. Segment S081b includes the bridge carrying old SR 37 over Beanblossom Creek while S081a is the segment upstream from the bridge. At the time of evaluation, this stream is a perennial stream with poor habitat development and low sinuosity where the Alternatives cross this stream. Hardpan is the predominant substrate. The stream has a wide riparian corridor associated with its right bank and a narrow to wide riparian buffer along its left bank. The adjacent floodplain is dominated by forest land. Photographs taken upstream and downstream at the S081a segment are on the second page of this form. Implementation of the Alternative 4 will decrease the amount of impacts to Beanblossom Creek at this location.

Stream Impacts S081a

Photograph Taken Upstream

Photograph Taken Downstream

OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

IDEM

Sample #	bioSample #	Stream Name	Location
s81ab		Beanblossom Creek	

Surveyor	Sample Date	County	Macro Sample Type	☒ Habitat Complete	QHEI Score:
KSS	4/24/12	Monroe			51.5

1] *SUBSTRATE* Check ONLY Two predominant substrate TYPE BOXES; estimate % and check every type present

BEST TYPES

PREDOMINANT P	PREDOMINANT R		PRESENT P	PRESENT R	TOTAL %
☐	☐	BLDR/SLABS [10]	☐	☐	____
☐	☐	BOULDER [9]	☐	☐	____
☐	☐	COBBLE [8]	☐	☐	____
☐	☐	GRAVEL [7]	☐	☐	____
☐	☐	SAND [6]	☐	☐	____
☐	☐	BEDROCK [5]	☐	☐	____

OTHER TYPES

PREDOMINANT P	PREDOMINANT R		PRESENT P	PRESENT R	TOTAL %
☒	☒	HARDPAN [4]	☐	☐	90
☐	☐	DETRITUS [3]	☐	☐	____
☐	☐	MUCK [2]	☐	☐	____
☐	☐	SILT [2]	☒	☒	10
☐	☐	ARTIFICIAL [0]	☐	☐	____

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

ORIGIN (Check ONE (Or 2 & average))

- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☒ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTRINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT:
- ☒ HEAVY [-2]
- ☐ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS:
- ☐ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Substrate Maximum 20: 5

Comments

2] *INSTREAM COVER* Indicate presence 0 to 3 and estimate percent: **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 root wad in deep/fast water, or deep, well-defined, functional pools.)

%	Amount		%	Amount		%	Amount	
____	____	UNDERCUT BANKS [1]	____	____	POOLS > 70cm [2]	____	____	OXBOWS, BACKWATERS [1]
10	1	OVERHANGING VEGETATION [1]	10	1	ROOTWADS [1]	____	____	AQUATIC MACROPHYTES [1]
____	____	SHALLOWS (IN SLOW WATER) [1]	____	____	BOULDERS [1]	5	1	LOGS OR WOODY DEBRIS [1]
35	3	ROOTMATS [1]						

AMOUNT (Check ONE (Or 2 & average))

- ☐ EXTENSIVE > 75% [11]
- ☒ MODERATE 25 - 75% [7]
- ☐ SPARSE 5 - < 25% [3]
- ☐ NEARLY ABSENT < 5% [1]

Cover Maximum 20: 11

Comments

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

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☒ LOW [2]
- ☐ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

CHANNELIZATION
- ☒ NONE [6]
- ☐ RECOVERED [4]
- ☐ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Channel Maximum 20: 11

Comments

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

River right looking downstream

EROSION

L	R	
☒	☐	NONE/LITTLE [3]
☐	☒	MODERATE [2]
☐	☐	HEAVY/SEVERE [1]

RIPARIAN WIDTH

L	R	
☐	☒	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☒	☐	NARROW 5-10m [2]
☐	☐	VERY NARROW [1]
☐	☐	NONE [0]

2.5 + 3 + 2

FLOOD PLAIN QUALITY

L	R	
☐	☒	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☒	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING /CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Riparian Maximum 10: 7.5

Comments

5] *POOL/GLIDE AND RIFFLE/RUN QUALITY*

MAXIMUM DEPTH (Check ONE (ONLY!))
- ☒ > 1m [6]
- ☐ 0.7 - < 1m [4]
- ☐ 0.4 - < 0.7m [2]
- ☐ 0.2 - < 0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH (Check ONE (Or 2 & average))
- ☒ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY (Check ALL that apply)
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☒ MODERATE [1]
- ☐ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach – pools and riffles.

Recreation Potential (Circle one and comment on back)
- ☐ Primary Contact
- ☐ Secondary Contact

Pool/ Current Maximum 12: 9

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

☒ NO RIFFLE [metric = 0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5 - 10cm [1]
- ☐ BEST AREAS < 5cm [metric = 0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE/RUN SUBSTRATE (Check ONE (Or 2 & average))
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Riffle/ Run Maximum 8: 0

Comments

6] *GRADIENT* (3 ft/mi)

- ☐ VERY LOW - LOW [2–4]
- ☒ MODERATE [6 - 10]
- ☐ HIGH - VERY HIGH [10 - 6]

%POOL: 10 %GLIDE: ____

%RUN: 90 %RIFFLE: ____

DRAINAGE AREA (12.3 mi²)

Gradient Maximum 10: 8

OHW 64' x 16' (19.5 m)

581a.b

IDEM OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
		Beanblossom	

Surveyor	Sample Date	County	Macro SampleType	☒ Habitat Complete	QHEI Score 51.5

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☒ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☒ Urban Runoff
- ☐ Suburban
- ☐ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

Subjective rating (1-10):		% Riffle:	
Aesthetic rating (1-10):	7	% Run:	90
Canopy Cover (% Open):	50	% Glide:	
		% Pool:	10

Is reach representative of stream? Yes

General QHEI Notes

~ 400' reach Representative Sample

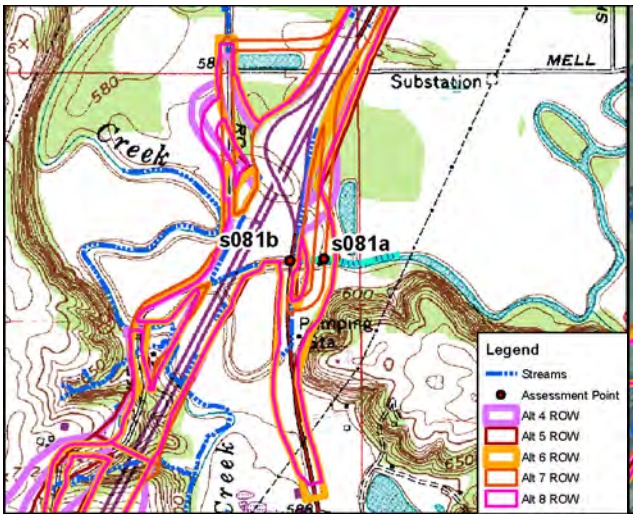
Ph # 5 down
6 RF
7 LF
8 UP

Flow ↑

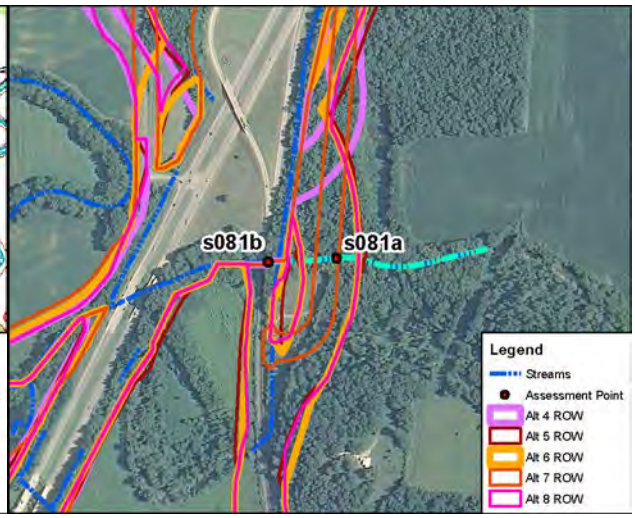
Bridge
Northwoods Ln.

Small Falls

Stream Impacts S081b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Beanblossom Creek	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	Yes
Watershed:	05120202010	**OHWM Width:**	64.0 feet
Channelized:	No	**OHWM Depth:**	16.0 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	51.5	**Watershed Area:**	42.73 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Hardpan
UTME: 1770816 ft	**UTMN:** 14247338 ft		

Stream S081b – Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	13	0.01	0.00
5	32	0.04	0.00
6	32	0.04	0.00
7	15	0.02	0.00
8	32	0.04	0.00

Description of Potential Impact:
Impacts to S081b at this location for the Alternatives are listed in the table above. Segments S081a and S081b were evaluated together. Segment S081b includes the bridge carrying old SR 37 over Beanblossom Creek while S081a is the segment upstream from the bridge. At the time of evaluation, this stream is a perennial stream with poor habitat development and low sinuosity where the Alternatives cross this stream. Hardpan is the predominant substrate. The stream has a wide riparian corridor associated with its right bank and a narrow to wide riparian buffer along its left bank. The adjacent floodplain is dominated by forest land. Photographs taken upstream and downstream at the S081a segment are on the second page of this form. Implementation of the Alternative 4 will decrease the amount of impacts to Beanblossom Creek at this location.

Stream Impacts S081b

Photograph Taken Upstream

Photograph Taken Downstream

OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

IDEM

Sample #	bioSample #	Stream Name	Location
s81ab		Beanblossom Creek	

Surveyor	Sample Date	County	Macro Sample Type	☒ Habitat Complete	QHEI Score:
KSS	4/24/12	Monroe			51.5

1] *SUBSTRATE* Check ONLY Two predominant substrate TYPE BOXES; estimate % and check every type present

BEST TYPES

PREDOMINANT P	PREDOMINANT R		PRESENT P	PRESENT R	TOTAL %
☐	☐	BLDR/SLABS [10]	☐	☐	____
☐	☐	BOULDER [9]	☐	☐	____
☐	☐	COBBLE [8]	☐	☐	____
☐	☐	GRAVEL [7]	☐	☐	____
☐	☐	SAND [6]	☐	☐	____
☐	☐	BEDROCK [5]	☐	☐	____

OTHER TYPES

PREDOMINANT P	PREDOMINANT R		PRESENT P	PRESENT R	TOTAL %
☒	☒	HARDPAN [4]	☐	☐	90
☐	☐	DETRITUS [3]	☐	☐	____
☐	☐	MUCK [2]	☐	☐	____
☐	☐	SILT [2]	☒	☒	10
☐	☐	ARTIFICIAL [0]	☐	☐	____

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

ORIGIN (Check ONE (Or 2 & average))

- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☒ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTRINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT:
- ☒ HEAVY [-2]
- ☐ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS:
- ☐ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Substrate Maximum 20: 5

Comments

2] *INSTREAM COVER* Indicate presence 0 to 3 and estimate percent: **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 root wad in deep/fast water, or deep, well-defined, functional pools.)

%	Amount		%	Amount		%	Amount	
____	____	UNDERCUT BANKS [1]	____	____	POOLS > 70cm [2]	____	____	OXBOWS, BACKWATERS [1]
10	1	OVERHANGING VEGETATION [1]	10	1	ROOTWADS [1]	____	____	AQUATIC MACROPHYTES [1]
____	____	SHALLOWS (IN SLOW WATER) [1]	____	____	BOULDERS [1]	5	1	LOGS OR WOODY DEBRIS [1]
35	3	ROOTMATS [1]						

AMOUNT (Check ONE (Or 2 & average))

- ☐ EXTENSIVE > 75% [11]
- ☒ MODERATE 25 - 75% [7]
- ☐ SPARSE 5 - < 25% [3]
- ☐ NEARLY ABSENT < 5% [1]

Cover Maximum 20: 11

Comments

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

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☒ LOW [2]
- ☐ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

CHANNELIZATION
- ☒ NONE [6]
- ☐ RECOVERED [4]
- ☐ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Channel Maximum 20: 11

Comments

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

River right looking downstream

EROSION

L	R	
☒	☐	NONE/LITTLE [3]
☐	☒	MODERATE [2]
☐	☐	HEAVY/SEVERE [1]

RIPARIAN WIDTH

L	R	
☐	☒	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☒	☐	NARROW 5-10m [2]
☐	☐	VERY NARROW [1]
☐	☐	NONE [0]

2.5 + 3 + 2

FLOOD PLAIN QUALITY

L	R	
☐	☒	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☒	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING /CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Riparian Maximum 10: 7.5

Comments

5] *POOL/GLIDE AND RIFFLE/RUN QUALITY*

MAXIMUM DEPTH (Check ONE (ONLY!))
- ☒ > 1m [6]
- ☐ 0.7 - < 1m [4]
- ☐ 0.4 - < 0.7m [2]
- ☐ 0.2 - < 0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH (Check ONE (Or 2 & average))
- ☒ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY (Check ALL that apply)
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☒ MODERATE [1]
- ☐ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach – pools and riffles.

Recreation Potential (Circle one and comment on back)
- ☐ Primary Contact
- ☐ Secondary Contact

Pool/ Current Maximum 12: 9

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

☒ NO RIFFLE [metric = 0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5 - 10cm [1]
- ☐ BEST AREAS < 5cm [metric = 0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE/RUN SUBSTRATE (Check ONE (Or 2 & average))
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Riffle/ Run Maximum 8: 0

Comments

6] *GRADIENT* (3 ft/mi)

- ☐ VERY LOW - LOW [2–4]
- ☒ MODERATE [6 - 10]
- ☐ HIGH - VERY HIGH [10 - 6]

%POOL: 10 %GLIDE: ____

%RUN: 90 %RIFFLE: ____

DRAINAGE AREA (12.3 mi²)

Gradient Maximum 10: 8

OHW 64' x 16' (19.5 m)

581a.b

IDEM OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
		Beanblossom	

Surveyor	Sample Date	County	Macro SampleType	☒ Habitat Complete	QHEI Score 51.5

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☒ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☒ Urban Runoff
- ☐ Suburban
- ☐ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

Subjective rating (1-10):		% Riffle:	
Aesthetic rating (1-10):	7	% Run:	90
Canopy Cover (% Open):	50	% Glide:	
		% Pool:	10

Is reach representative of stream? Yes

General QHEI Notes

~ 400' reach Representative Sample

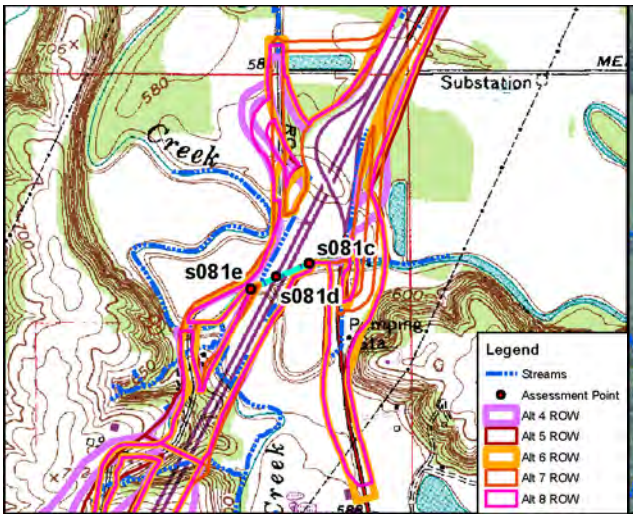
Ph # 5 down
6 RF
7 LF
8 UP

Flow ↑

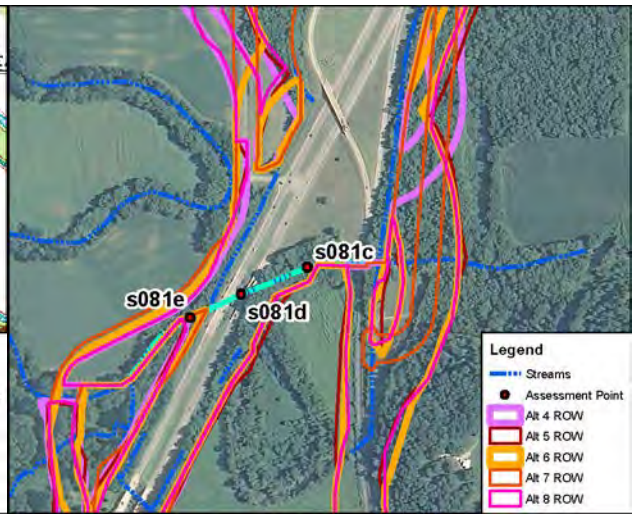
Bridge
Northwoods Ln.

Small Falls

Stream Impacts S081c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Beanblossom Creek	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	Yes
Watershed:	05120202010	**OHWM Width:**	64.0 feet
Channelized:	Yes	**OHWM Depth:**	16.0 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	34.75	**Watershed Area:**	42.73 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/detritus
UTME: 1770143 ft	**UTMN:** 14247299 ft		

Stream S081c – Modified Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	575	0.69	1.11
5	575	0.69	1.31
6	575	0.69	1.24
7	575	0.69	1.11
8	575	0.69	1.23

Description of Potential Impact:
Impacts to S081c at this location for the Alternatives are listed in the table above. Stream segments S081c, S081d, and S081e were evaluated together. These segments are recovering from channelization due to historic agricultural practices. Segment S081c is the portion upstream from the existing bridge carrying SR 37 over Beanblossom Creek, S081d is the bridge portion, and S081e is the portion located downstream from the bridge. At the time of evaluation, this stream is a perennial stream with poor habitat development and no sinuosity where the Alternatives cross this stream. The predominant substrate consists of silt and detritus. The stream has a wide riparian corridor associated with its left bank and a moderately wide riparian buffer along its right bank. The adjacent floodplain is dominated by forest land. Photographs taken upstream and downstream at the S081c segment are on the second page of this form. All of the Alternatives possess similar impacts at this location.

Stream Impacts S081c

Photograph Taken Upstream

Photograph Taken Downstream

See 5-S81c,d,e

IDEM — OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample # | bioSample # | Stream Name: Beanblossom Creek | Location: SR 37 Xing

Surveyor: RLL | Sample Date: 6/29/2005 | County: Monroe | Macro SampleType | ☑ Habitat Complete | **QHEI Score: 34.75**

1-Substrate (20 points maximum) — Substrate Score: 3

Check 1 Predominant Pool & 1 Predominant Riffle

Check all that are present — P=Pool, R=Riffle

Predominant P R	Present P R	Predominant P R	Present P R
☐☐ Bldrs/Slabs(10)	☐☐	☐☐ Hardpan(4)	☐☐
☐☐ Boulders(9)	☐☐	☑☑ Detritus(3)	☑☑
☐☐ Cobble(8)	☑☐	☐☐ Muck(2)	☐☐
☐☐ Gravel(7)	☐☐	☑☐ Silt(2)	☑☑
☐☐ Sand(6)	☐☐	☐☐ Sludge(1)	☐☐
☐☐ Bedrock(5)	☐☐	☐☐ Artificial(0)	☐☐

Substrate Quality (check only 1, or check 2 and AVERAGE)

Substrate Origin: ☐ Limestone(1) ☐ Hardpan(0) ☐ Lacustrine(0) ☐ Tills(1) ☐ Sandstone(0) ☐ Shale(-1) ☐ Wetlands(0) ☑ Rip/Rap(0) ☐ Coal fines(-2)

Silt Cover: ☑ Silt heavy(-2) ☐ Silt moderate(-1) ☐ Silt normal(0) ☐ Silt free(1)

Embeddedness: ☑ Extensive(-2) ☐ Moderate(-1) ☐ Low/Normal(0) ☐ None(1)

NOTE: ignore sludge originating from point sources; score based on natural substrates

☑ >4 substrates present(2)

Comments: 2.5 + 2.5

2-Instream Cover (20 points maximum — Instream Cover Score: 8

Type (check ALL that apply): ☐ Undercut banks(1) ☑ Deep pools(2) ☐ Oxbows(1) ☐ Overhanging vegetation(1) ☐ Rootwads(1) ☐ Aquatic macrophytes(1) ☑ Shallows(in slow water)(1) ☑ Boulders(1) ☑ Logs and woody debris(1) ☐ Rootmats(1)

Amount (check only 1, or 2 and AVERAGE): ☐ Extensive >75% (11) ☐ Moderate 25-75% (7) ☑ Sparse 5-25% (3) ☐ Nearly absent <5% (1)

Comments:

3-Channel Morphology (20) (check only one per category, OR two and AVERAGE) — Channel Score: 7

Sinuosity	Development	Channelization	Stability	Modifications/Other	
☐ High (4)	☐ Excellent (7)	☐ None (6)	☐ High (3)	☐ Snagging	☐ Impound
☐ Moderate (3)	☐ Good (5)	☐ Recovered (4)	☑ Moderate (2)	☐ Relocation	☐ Islands
☐ Low (2)	☐ Fair (3)	☑ Recovering (3)	☐ Low (1)	☐ Canopy Removal	☐ Leveed
☑ None (1)	☑ Poor (1)	☐ Recent or no recovery (1)		☐ Dredging	☐ Bank shaping
				☐ One side channel modifications	

Comments: appears channelized - very uniform

4-Riparian Zone & Bank Erosion (10 points maximum) — Riparian Score: 6.75

Left/Right banks looking downstream (For each category, check only one per bank, OR two per bank and AVERAGE).

Riparian width L R (per bank)	Erosion/Runoff-Floodplain quality (past 100 ft Riparian) L R (most predominant per bank)	L R	Bank Erosion L R (per bank)
☑☐ Wide >50m (4)	☑☑ Forest, Swamp (3)	☐☐ Conservation Tillage (1)	☐☐ None or little (3)
☐☑ Moderate 10-50m (3)	☐☐ Shrub or Old field (2)	☐☐ Urban or Industrial (0)	☐☐ Moderate (2)
☐☐ Narrow 5-10m (2)	☐☐ Residential, Park, New field (1)	☐☐ Mining, Construction (0)	☑☐ Heavy/Severe (1)
☐☐ Very narrow <5m (1)	☐☐ Fenced pasture (1) 1.5	☐☑ Open Pasture/Rowcrop (0)	
☐☐ None (0)			

Comments: 1.5 + 1.5

5a-Pool/Glide Quality (12 points maximum — Pool/Glide Score: 8

Max pool depth (check one): ☑ >1m (6) ☐ 0.7-1m (4) ☐ 0.4-0.7m (2) ☐ 0.2-0.4m (1) ☐ <0.2m (pool=0)

Morphology (check only one, OR check two and AVERAGE): ☐ Pool width > riffle width (2) ☑ Pool width = riffle width (1) ☐ Pool width < riffle width (0)

Pool/Run/Riffle current velocity (check all that apply): ☐ Eddies (1) ☐ Fast (1) ☐ Moderate (1) ☑ Slow (1) ☐ Torrential (-1) ☐ Interstitial (-1) ☐ Intermittent (-2) ☐ No pool (0)

Comments:

5b-Riffle/Run Quality (8) (check only one per category, OR two and AVERAGE) — Riffle/Run Score: Ø

Riffle/run depth (check one): ☐ Generally>10cm, Max>50cm (4) ☐ Generally>10cm, Max<50cm(3) ☐ Generally 5-10cm (1) ☑ Generally<5cm (riffle=0)

Riffle/run substrate: ☐ Stable-e.g. cobble, boulder (2) ☐ Mod. stable-e.g. pea gravel (1) ☑ Unstable-e.g. sand, gravel (0)

Riffle/run embeddedness: ☐ Extensive (-1) ☐ Moderate (0) ☐ Normal/Low (1) ☐ None (2) ☑ No riffle (0)

Comments:

6-Gradient (10 points maximum) — Gradient Score: 2

Average width: 12 m | Gradient: 0 (ft/mile) | Drainage Area: 12.4 (square miles)

Comments:

OHWM 52' x 18'

IDEM OWQ Biological Studies QHEI Qualitative Habitat Evaluation Index

Sample #	bioSample #	Stream Name	Location
581cde		Beanblossom Creek	@ SR 37

Surveyor	Sample Date	County	Macro SampleType	☑ Habitat Complete	QHEI Score:
		Monroe			

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☑ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☑ Urban Runoff
- ☐ Suburban
- ☐ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

Subjective rating (1-10): 4 % Riffle: 5 Is reach representative of stream? yes

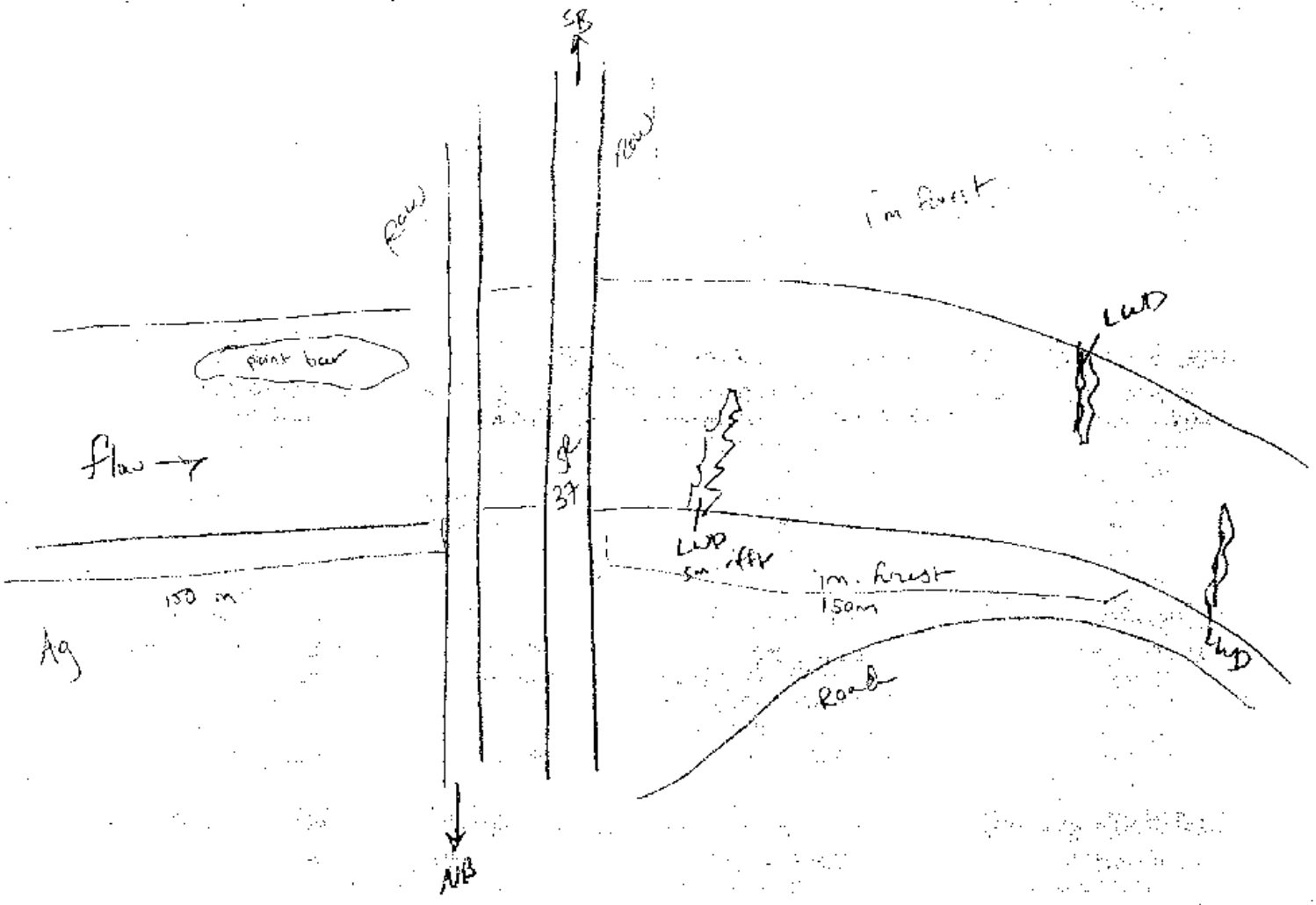
Aesthetic rating (1-10): 3 % Run: 80

% Glide: 15

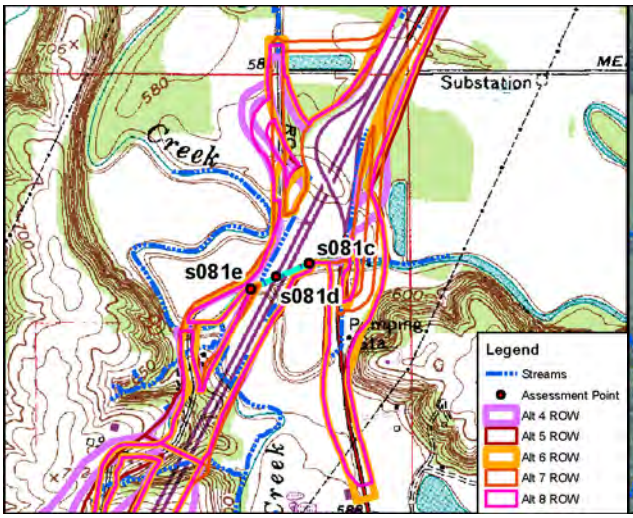
Canopy Cover (% Open): 20 % Pool:

General QHEI Notes:

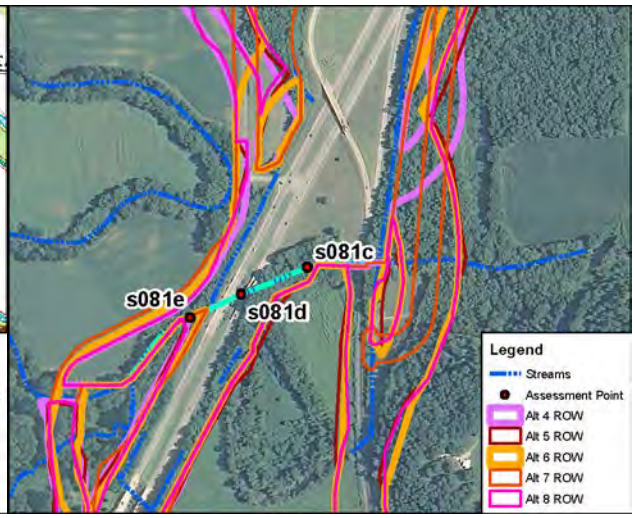
Very homogeneous substrate & morphology



Stream Impacts S081d



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Beanblossom Creek	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	Yes
Watershed:	05120202010	**OHWM Width:**	64.0 feet
Channelized:	Yes	**OHWM Depth:**	16.0 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	34.75	**Watershed Area:**	42.73 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/detritus
UTME: 1770143 ft	**UTMN:** 14247299 ft		

Stream S081d – Modified Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	207	0.25	0.26
5	207	0.25	0.26
6	207	0.25	0.26
7	207	0.25	0.26
8	207	0.25	0.26

Description of Potential Impact:
Impacts to S081d at this location for the Alternatives are listed in the table above. Segments S081c, S081d, and S081e were evaluated together. These segments are recovering from channelization due to historic agricultural practices. Segment S081c is the portion upstream from the existing bridge carrying SR 37 over Beanblossom Creek, S081d is the bridge portion, and S081e is the portion located downstream from the bridge. At the time of evaluation, this stream is a perennial stream with poor habitat development and no sinuosity where the Alternatives cross this stream. The predominant substrate consists of silt and detritus. The stream has a wide riparian corridor associated with its left bank and a moderately wide riparian buffer along its right bank. The adjacent floodplain is dominated by forest land. Photographs taken upstream and downstream at the S081c segment are on the second page of this form. All of the Alternatives possess similar impacts at this location.

Stream Impacts S081d

Photograph Taken Upstream

Photograph Taken Downstream

See 5-S81c,d,e

IDEM — OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample # | bioSample # | Stream Name: Beanblossom Creek | Location: SR 37 Xing

Surveyor: RLL | Sample Date: 6/29/2005 | County: Monroe | Macro SampleType | ☑ Habitat Complete | **QHEI Score: 34.75**

1-Substrate (20 points maximum) — Substrate Score: 3

Check 1 Predominant Pool & 1 Predominant Riffle

Check all that are present — P=Pool, R=Riffle

Predominant P R	Present P R	Predominant P R	Present P R
☐☐ Bldrs/Slabs(10)	☐☐	☐☐ Hardpan(4)	☐☐
☐☐ Boulders(9)	☐☐	☑☑ Detritus(3)	☑☑
☐☐ Cobble(8)	☑☐	☐☐ Muck(2)	☐☐
☐☐ Gravel(7)	☐☐	☑☐ Silt(2)	☑☑
☐☐ Sand(6)	☐☐	☐☐ Sludge(1)	☐☐
☐☐ Bedrock(5)	☐☐	☐☐ Artificial(0)	☐☐

Substrate Quality (check only 1, or check 2 and AVERAGE)

Substrate Origin: ☐ Limestone(1) ☐ Hardpan(0) ☐ Lacustrine(0) ☐ Tills(1) ☐ Sandstone(0) ☐ Shale(-1) ☐ Wetlands(0) ☑ Rip/Rap(0) ☐ Coal fines(-2)

Silt Cover: ☑ Silt heavy(-2) ☐ Silt moderate(-1) ☐ Silt normal(0) ☐ Silt free(1)

Embeddedness: ☑ Extensive(-2) ☐ Moderate(-1) ☐ Low/Normal(0) ☐ None(1)

NOTE: ignore sludge originating from point sources; score based on natural substrates

☑ >4 substrates present(2)

Comments: 2.5 + 2.5

2-Instream Cover (20 points maximum — Instream Cover Score: 8

Type (check ALL that apply): ☐ Undercut banks(1) ☑ Deep pools(2) ☐ Oxbows(1) ☐ Overhanging vegetation(1) ☐ Rootwads(1) ☐ Aquatic macrophytes(1) ☑ Shallows(in slow water)(1) ☑ Boulders(1) ☑ Logs and woody debris(1) ☐ Rootmats(1)

Amount (check only 1, or 2 and AVERAGE): ☐ Extensive >75% (11) ☐ Moderate 25-75% (7) ☑ Sparse 5-25% (3) ☐ Nearly absent <5% (1)

Comments:

3-Channel Morphology (20) (check only one per category, OR two and AVERAGE) — Channel Score: 7

Sinuosity	Development	Channelization	Stability	Modifications/Other	
☐ High (4)	☐ Excellent (7)	☐ None (6)	☐ High (3)	☐ Snagging	☐ Impound
☐ Moderate (3)	☐ Good (5)	☐ Recovered (4)	☑ Moderate (2)	☐ Relocation	☐ Islands
☐ Low (2)	☐ Fair (3)	☑ Recovering (3)	☐ Low (1)	☐ Canopy Removal	☐ Leveed
☑ None (1)	☑ Poor (1)	☐ Recent or no recovery (1)		☐ Dredging	☐ Bank shaping
				☐ One side channel modifications	

Comments: appears channelized - very uniform

4-Riparian Zone & Bank Erosion (10 points maximum) — Riparian Score: 6.75

Left/Right banks looking downstream (For each category, check only one per bank, OR two per bank and AVERAGE).

Riparian width L R (per bank)	Erosion/Runoff-Floodplain quality (past 100 ft Riparian) L R (most predominant per bank)	L R	Bank Erosion L R (per bank)
☑☐ Wide >50m (4)	☑☑ Forest, Swamp (3)	☐☐ Conservation Tillage (1)	☐☐ None or little (3)
☐☑ Moderate 10-50m (3)	☐☐ Shrub or Old field (2)	☐☐ Urban or Industrial (0)	☐☐ Moderate (2)
☐☐ Narrow 5-10m (2)	☐☐ Residential, Park, New field (1)	☐☐ Mining, Construction (0)	☑☐ Heavy/Severe (1)
☐☐ Very narrow <5m (1)	☐☐ Fenced pasture (1) 1.5	☐☑ Open Pasture/Rowcrop (0)	
☐☐ None (0)			

Comments: 1.5 + 1.5

5a-Pool/Glide Quality (12 points maximum — Pool/Glide Score: 8

Max pool depth (check one): ☑ >1m (6) ☐ 0.7-1m (4) ☐ 0.4-0.7m (2) ☐ 0.2-0.4m (1) ☐ <0.2m (pool=0)

Morphology (check only one, OR check two and AVERAGE): ☐ Pool width > riffle width (2) ☑ Pool width = riffle width (1) ☐ Pool width < riffle width (0)

Pool/Run/Riffle current velocity (check all that apply): ☐ Eddies (1) ☐ Fast (1) ☐ Moderate (1) ☑ Slow (1) ☐ Torrential (-1) ☐ Interstitial (-1) ☐ Intermittent (-2) ☐ No pool (0)

Comments:

5b-Riffle/Run Quality (8) (check only one per category, OR two and AVERAGE) — Riffle/Run Score: Ø

Riffle/run depth (check one): ☐ Generally>10cm, Max>50cm (4) ☐ Generally>10cm, Max<50cm(3) ☐ Generally 5-10cm (1) ☑ Generally<5cm (riffle=0)

Riffle/run substrate: ☐ Stable-e.g. cobble, boulder (2) ☐ Mod. stable-e.g. pea gravel (1) ☑ Unstable-e.g. sand, gravel (0)

Riffle/run embeddedness: ☐ Extensive (-1) ☐ Moderate (0) ☐ Normal/Low (1) ☐ None (2) ☑ No riffle (0)

Comments:

6-Gradient (10 points maximum) — Gradient Score: 2

Average width: 12 m | Gradient: 0 (ft/mile) | Drainage Area: 12.4 (square miles)

Comments:

OHWM 52' x 18'

IDEM OWQ Biological Studies QHEI Qualitative Habitat Evaluation Index

Sample #	bioSample #	Stream Name	Location
581cde		Beanblossom Creek	@ SR 37

Surveyor	Sample Date	County	Macro SampleType	☑ Habitat Complete	QHEI Score:
		Monroe			

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☑ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☑ Urban Runoff
- ☐ Suburban
- ☐ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

Subjective rating (1-10): 4 % Riffle: 5 Is reach representative of stream? yes

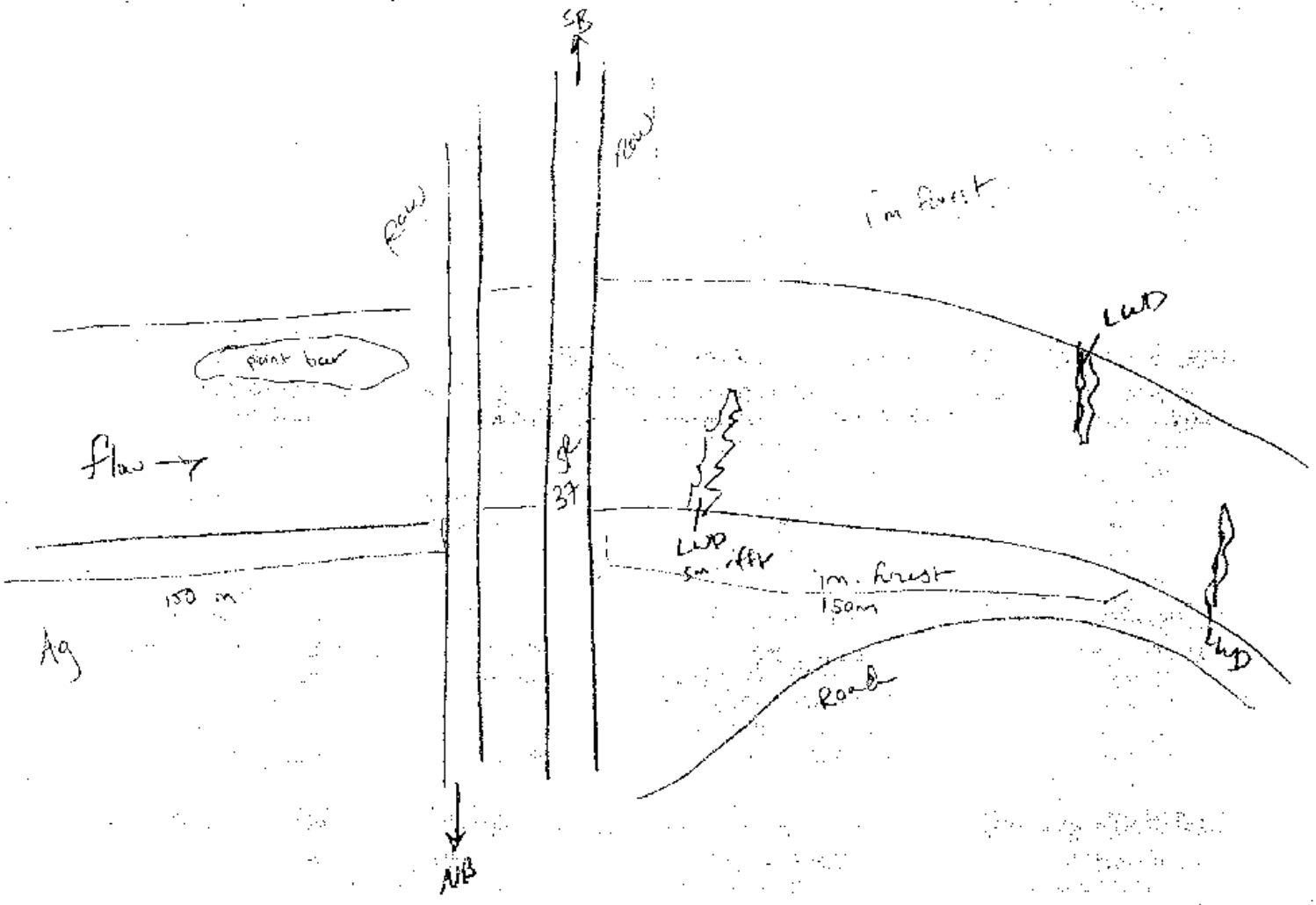
Aesthetic rating (1-10): 3 % Run: 80

% Glide: 15

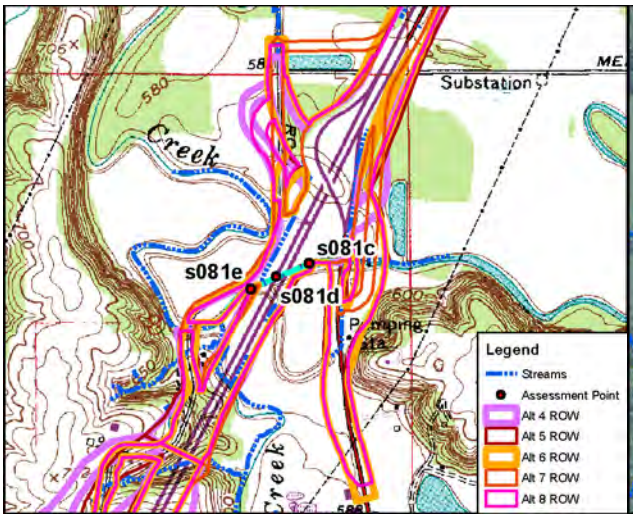
Canopy Cover (% Open): 20 % Pool:

General QHEI Notes:

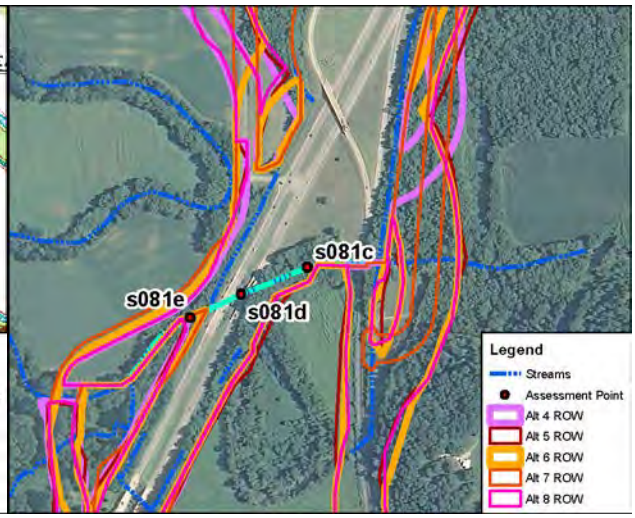
Very homogeneous substrate & morphology



Stream Impacts S081e



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Beanblossom Creek	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	Yes
Watershed:	05120202010	**OHWM Width:**	64.0 feet
Channelized:	Yes	**OHWM Depth:**	16.0 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	34.75	**Watershed Area:**	42.73 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/detritus
UTME: 1770143 ft	**UTMN:** 14247299 ft		

Stream S081e – Modified Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	539	0.64	0.92
5	559	0.67	0.93
6	444	0.53	0.71
7	437	0.52	0.69
8	569	0.68	0.88

Description of Potential Impact:
Impacts to S081e at this location for the Alternatives are listed in the table above. Segments S081c, S081d, and S081e were evaluated together. These segments are recovering from channelization due to historic agricultural practices. Segment S081c is the portion upstream from the existing bridge carrying SR 37 over Beanblossom Creek, S081d is the bridge portion, and S081e is the portion located downstream from the bridge. At the time of evaluation, this stream is a perennial stream with poor habitat development and no sinuosity where the Alternatives cross this stream. The predominant substrate consists of silt and detritus. The stream has a wide riparian corridor associated with its left bank and a moderately wide riparian buffer along its right bank. The adjacent floodplain is dominated by forest land. Photographs taken upstream and downstream at the S081c segment are on the second page of this form. All of the Alternatives possess similar impacts at this location.

Stream Impacts S081e

Photograph Taken Upstream

Photograph Taken Downstream

See 5-S81c,d,e

IDEM — OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample # | bioSample # | Stream Name: Beanblossom Creek | Location: SR 37 Xing

Surveyor: RLL | Sample Date: 6/29/2005 | County: Monroe | Macro SampleType | ☑ Habitat Complete | **QHEI Score: 34.75**

1-Substrate (20 points maximum) — Substrate Score: 3

Check 1 Predominant Pool & 1 Predominant Riffle

Check all that are present — P=Pool, R=Riffle

Predominant P R	Present P R	Predominant P R	Present P R
☐☐ Bldrs/Slabs(10)	☐☐	☐☐ Hardpan(4)	☐☐
☐☐ Boulders(9)	☐☐	☑☑ Detritus(3)	☑☑
☐☐ Cobble(8)	☑☐	☐☐ Muck(2)	☐☐
☐☐ Gravel(7)	☐☐	☑☐ Silt(2)	☑☑
☐☐ Sand(6)	☐☐	☐☐ Sludge(1)	☐☐
☐☐ Bedrock(5)	☐☐	☐☐ Artificial(0)	☐☐

Substrate Quality (check only 1, or check 2 and AVERAGE)

Substrate Origin: ☐ Limestone(1) ☐ Hardpan(0) ☐ Lacustrine(0) ☐ Tills(1) ☐ Sandstone(0) ☐ Shale(-1) ☐ Wetlands(0) ☑ Rip/Rap(0) ☐ Coal fines(-2)

Silt Cover: ☑ Silt heavy(-2) ☐ Silt moderate(-1) ☐ Silt normal(0) ☐ Silt free(1)

Embeddedness: ☑ Extensive(-2) ☐ Moderate(-1) ☐ Low/Normal(0) ☐ None(1)

NOTE: ignore sludge originating from point sources; score based on natural substrates

☑ >4 substrates present(2)

Comments: 2.5 + 2.5

2-Instream Cover (20 points maximum — Instream Cover Score: 8

Type (check ALL that apply): ☐ Undercut banks(1) ☑ Deep pools(2) ☐ Oxbows(1) ☐ Overhanging vegetation(1) ☐ Rootwads(1) ☐ Aquatic macrophytes(1) ☑ Shallows(in slow water)(1) ☑ Boulders(1) ☑ Logs and woody debris(1) ☐ Rootmats(1)

Amount (check only 1, or 2 and AVERAGE): ☐ Extensive >75% (11) ☐ Moderate 25-75% (7) ☑ Sparse 5-25% (3) ☐ Nearly absent <5% (1)

Comments:

3-Channel Morphology (20) (check only one per category, OR two and AVERAGE) — Channel Score: 7

Sinuosity	Development	Channelization	Stability	Modifications/Other	
☐ High (4)	☐ Excellent (7)	☐ None (6)	☐ High (3)	☐ Snagging	☐ Impound
☐ Moderate (3)	☐ Good (5)	☐ Recovered (4)	☑ Moderate (2)	☐ Relocation	☐ Islands
☐ Low (2)	☐ Fair (3)	☑ Recovering (3)	☐ Low (1)	☐ Canopy Removal	☐ Leveed
☑ None (1)	☑ Poor (1)	☐ Recent or no recovery (1)		☐ Dredging	☐ Bank shaping
				☐ One side channel modifications	

Comments: appears channelized - very uniform

4-Riparian Zone & Bank Erosion (10 points maximum) — Riparian Score: 6.75

Left/Right banks looking downstream (For each category, check only one per bank, OR two per bank and AVERAGE).

Riparian width L R (per bank)	Erosion/Runoff-Floodplain quality (past 100 ft Riparian) L R (most predominant per bank)	L R	Bank Erosion L R (per bank)
☑☐ Wide >50m (4)	☑☑ Forest, Swamp (3)	☐☐ Conservation Tillage (1)	☐☐ None or little (3)
☐☑ Moderate 10-50m (3)	☐☐ Shrub or Old field (2)	☐☐ Urban or Industrial (0)	☐☐ Moderate (2)
☐☐ Narrow 5-10m (2)	☐☐ Residential, Park, New field (1)	☐☐ Mining, Construction (0)	☑☐ Heavy/Severe (1)
☐☐ Very narrow <5m (1)	☐☐ Fenced pasture (1) 1.5	☐☑ Open Pasture/Rowcrop (0)	
☐☐ None (0)			

Comments: 1.5 + 1.5

5a-Pool/Glide Quality (12 points maximum — Pool/Glide Score: 8

Max pool depth (check one): ☑ >1m (6) ☐ 0.7-1m (4) ☐ 0.4-0.7m (2) ☐ 0.2-0.4m (1) ☐ <0.2m (pool=0)

Morphology (check only one, OR check two and AVERAGE): ☐ Pool width > riffle width (2) ☑ Pool width = riffle width (1) ☐ Pool width < riffle width (0)

Pool/Run/Riffle current velocity (check all that apply): ☐ Eddies (1) ☐ Fast (1) ☐ Moderate (1) ☑ Slow (1) ☐ Torrential (-1) ☐ Interstitial (-1) ☐ Intermittent (-2) ☐ No pool (0)

Comments:

5b-Riffle/Run Quality (8) (check only one per category, OR two and AVERAGE) — Riffle/Run Score: Ø

Riffle/run depth (check one): ☐ Generally>10cm, Max>50cm (4) ☐ Generally>10cm, Max<50cm(3) ☐ Generally 5-10cm (1) ☑ Generally<5cm (riffle=0)

Riffle/run substrate: ☐ Stable-e.g. cobble, boulder (2) ☐ Mod. stable-e.g. pea gravel (1) ☑ Unstable-e.g. sand, gravel (0)

Riffle/run embeddedness: ☐ Extensive (-1) ☐ Moderate (0) ☐ Normal/Low (1) ☐ None (2) ☑ No riffle (0)

Comments:

6-Gradient (10 points maximum) — Gradient Score: 2

Average width: 12 m | Gradient: 0 (ft/mile) | Drainage Area: 12.4 (square miles)

Comments:

OHWM 52' x 18'

IDEM OWQ Biological Studies QHEI Qualitative Habitat Evaluation Index

Sample #	bioSample #	Stream Name	Location
581cde		Beanblossom Creek	@ SR 37

Surveyor	Sample Date	County	Macro SampleType	☑ Habitat Complete	QHEI Score:
		Monroe			

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☑ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☑ Urban Runoff
- ☐ Suburban
- ☐ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

Subjective rating (1-10): 4 % Riffle: 5 Is reach representative of stream? yes

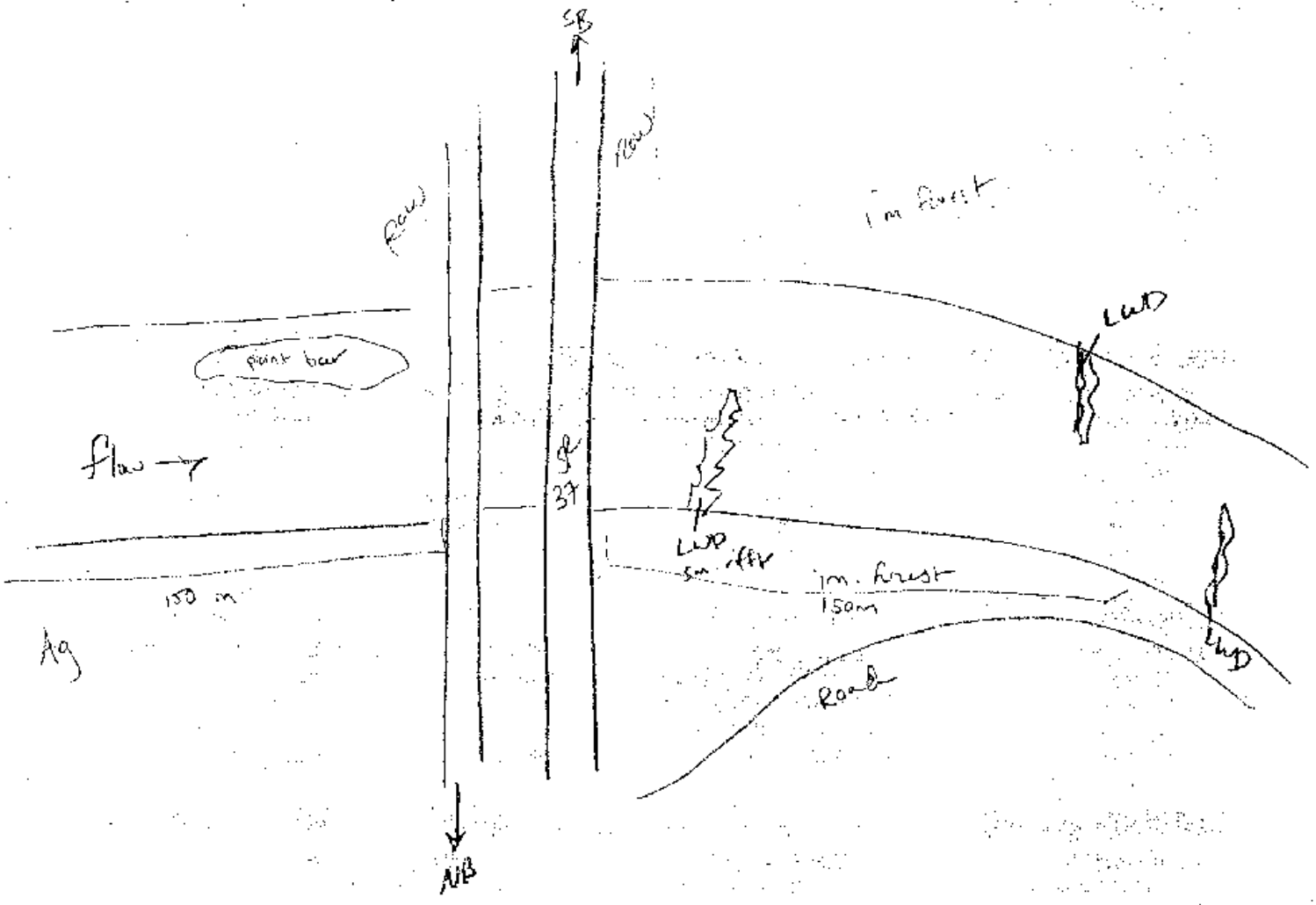
Aesthetic rating (1-10): 3 % Run: 80

% Glide: 15

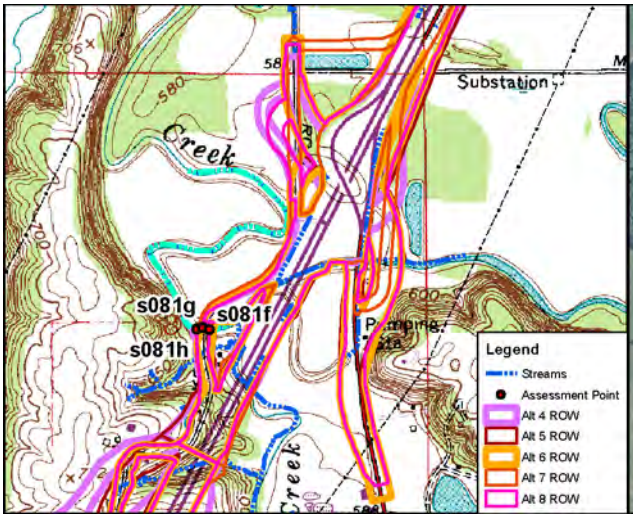
Canopy Cover (% Open): 20 % Pool:

General QHEI Notes:

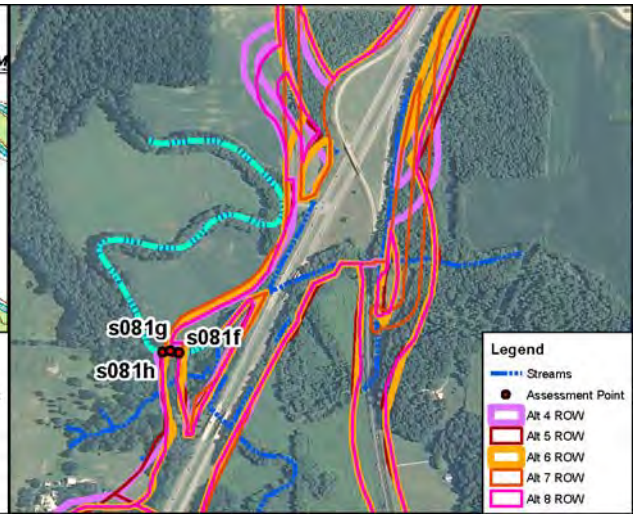
Very homogeneous substrate & morphology



Stream Impacts S081f, S081g, S081h



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Beanblossom Creek	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	Yes
Watershed:	05120202010	**OHWM Width:**	45.0 feet
Channelized:	No	**OHWM Depth:**	18.5 feet
Stream Type:	Perennial	**USCOE Jurisdiction:**	Yes
Evaluation Type:	QHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	48	**Watershed Area:**	42.73 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Hardpan
UTME: 1768864 ft	**UTMN:** 14246629 ft		

Stream S081f, S081g, S081h – Warm Water Habitat			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	59	0.06	0.72
5	67	0.07	0.74
6	208	0.21	1.03
7	206	0.21	1.00
8	67	0.07	0.64

Description of Potential Impact:
Impacts to S081f, S081g, and S081h at this location for the Alternatives are listed in the table above. Segment S081f is the portion from the mouth of Griffy Creek to the North Kinser Pike bridge, while segment S081g is the North Kinser Road bridged portion and S081g is located downstream from the bridge. At the time of evaluation, this stream is a perennial stream with poor habitat development and moderate sinuosity where the Alternatives cross this stream. Hardpan is the predominant substrate. The stream has a wide riparian corridor associated with its left bank and a moderately wide riparian buffer along its right bank. The adjacent floodplain is dominated by forest land. Photographs taken upstream and downstream at the S081f segment are on the second page of this form. Implementation of Alternative 4, Alternative 5, or the Preferred Alternative 8 will decrease the amount of impacts at this location.

Stream Impacts S081f, S081g, S081h

Photograph Taken Upstream

Photograph Taken Downstream

OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
581f,g,h		Beanblossom Creek	

Surveyor	Sample Date	County	Macro Sample Type	☒ Habitat Complete	QHEI Score:
KSS	4/24/12	Monroe			48

1] *SUBSTRATE* Check ONLY Two predominant substrate TYPE BOXES; estimate % and check every type present

BEST TYPES

PREDOMINANT P	PREDOMINANT R		PRESENT P	PRESENT R	TOTAL %
☐	☐	BLDR/SLABS [10]	☐	☐	
☐	☐	BOULDER [9]	☐	☐	
☐	☐	COBBLE [8]	☐	☐	
☐	☐	GRAVEL [7]	☐	☐	
☐	☐	SAND [6]	☐	☐	
☐	☐	BEDROCK [5]	☐	☐	

OTHER TYPES

PREDOMINANT P	PREDOMINANT R		PRESENT P	PRESENT R	TOTAL %
☒	☒	HARDPAN [4]	☐	☐	90
☐	☐	DETRITUS [3]	☐	☐	
☐	☐	MUCK [2]	☐	☐	
☐	☐	SILT [2]	☒	☒	10
☐	☐	ARTIFICIAL [0]	☐	☐	

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

ORIGIN (Check ONE (Or 2 & average))

- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☒ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTRINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT:
- ☐ HEAVY [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS:
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☒ NORMAL [0]
- ☐ NONE [1]

Substrate 7 (Maximum 20)

Comments

2] *INSTREAM COVER* Indicate presence 0 to 3 and estimate percent: **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 root wad in deep/fast water, or deep, well-defined, functional pools.)

%	Amount		%	Amount		%	Amount	
		UNDERCUT BANKS [1]	20	2	POOLS > 70cm [2]			OXBOWS, BACKWATERS [1]
		OVERHANGING VEGETATION [1]	5	1	ROOTWADS [1]			AQUATIC MACROPHYTES [1]
		SHALLOWS (IN SLOW WATER) [1]			BOULDERS [1]	5	1	LOGS OR WOODY DEBRIS [1]
10	1	ROOTMATS [1]						

AMOUNT (Check ONE (Or 2 & average))

- ☐ EXTENSIVE > 75% [11]
- ☐ MODERATE 25 - 75% [7]
- ☒ SPARSE 5 - < 25% [3]
- ☐ NEARLY ABSENT < 5% [1]

Cover 8 (Maximum 20)

Comments

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

SINUOSITY
- ☐ HIGH [4]
- ☒ MODERATE [3]
- ☐ LOW [2]
- ☐ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

CHANNELIZATION
- ☒ NONE [6]
- ☐ RECOVERED [4]
- ☐ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Channel 12 (Maximum 20)

Comments

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

River right looking downstream

EROSION

L	R	
☐	☒	NONE/LITTLE [3]
☒	☐	MODERATE [2]
☐	☐	HEAVY/SEVERE [1]

RIPARIAN WIDTH

L	R	
☒	☐	WIDE > 50m [4]
☐	☒	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☐	☐	VERY NARROW [1]
☐	☐	NONE [0]

2.5 + 3.5 + 2

FLOOD PLAIN QUALITY

L	R	
☒	☐	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☐	☒	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Riparian 8 (Maximum 10)

Comments

5] *POOL/GLIDE AND RIFFLE/RUN QUALITY*

MAXIMUM DEPTH (Check ONE (ONLY!))
- ☐ > 1m [6]
- ☒ 0.7 - < 1m [4]
- ☐ 0.4 - < 0.7m [2]
- ☐ 0.2 - < 0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH (Check ONE (Or 2 & average))
- ☒ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY (Check ALL that apply)
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☒ MODERATE [1]
- ☐ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach – pools and riffles.

Recreation Potential (Circle one and comment on back)
- ☐ Primary Contact
- ☐ Secondary Contact

Pool/Current 7 (Maximum 12)

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

☒ NO RIFFLE [metric = 0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5 - 10cm [1]
- ☐ BEST AREAS < 5cm [metric = 0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE/RUN SUBSTRATE (Check ONE (Or 2 & average))
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Riffle/Run 0 (Maximum 8)

Comments

6] *GRADIENT* (3 ft/mi)

- ☐ VERY LOW - LOW [2–4]
- ☒ MODERATE [6 - 10]
- ☐ HIGH - VERY HIGH [10 - 6]

%POOL: 30 %GLIDE: ____

%RUN: 70 %RIFFLE: ____

DRAINAGE AREA (12.4 mi²)

Gradient 6 (Maximum 10)

OHW 45' x 18.5' (13.7m)

IDEM 07/06/10

S8 LF f g, h

IDEM OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
		Beanblossom	

Surveyor	Sample Date	County	Macro SampleType	☒ Habitat Complete	QHEI Score

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- ☐ None
- ☐ Industrial
- ☐ WWTP
- ☒ Agricultural
- ☐ Livestock
- ☐ Silviculture
- ☐ Construction
- ☐ Urban Runoff
- ☐ Suburban
- ☐ Channelization
- ☐ Riparian Removal
- ☐ Flow Alteration
- ☐ CSOs
- ☐ Mining
- ☐ Landfills
- ☐ Natural

Pollution Impact Comments:

Miscellaneous QHEI Information

Subjective rating (1-10): ___ % Riffle: ___

Aesthetic rating (1-10): 6 % Run: 70

Canopy Cover (% Open): 45 % Glide: ___

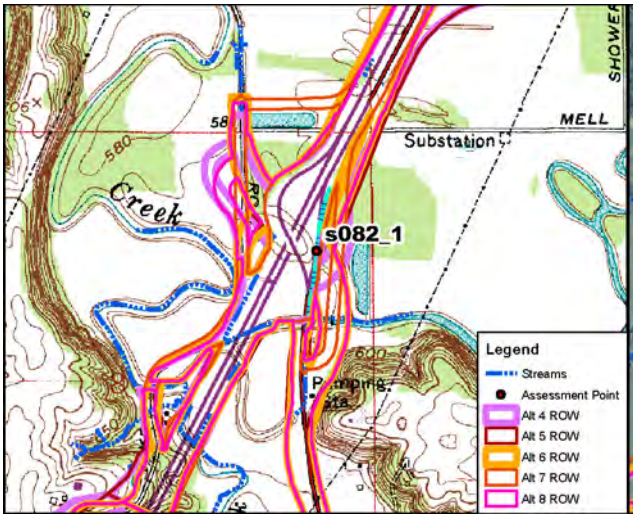
% Pool: 30

Is reach representative of stream? Yes

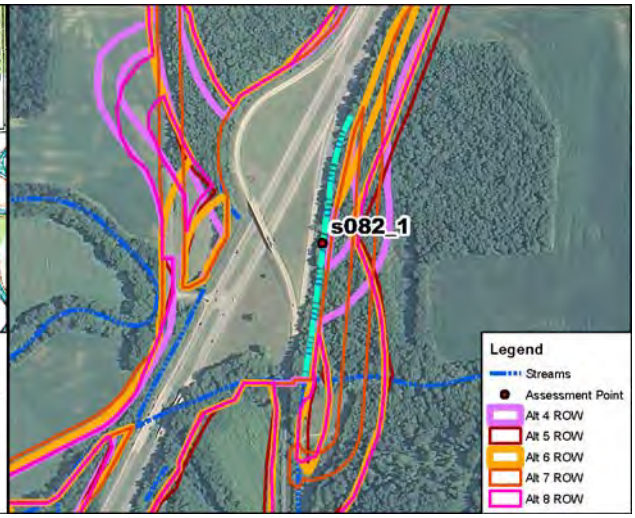
General QHEI Notes

Ph 37 - up
38 - down
39 LF
40 RF

Stream Impacts S082_1



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	4.0 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	46	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Muck
UTME: 1770608 ft	**UTMN:** 14248033 ft		

Stream S082_1 – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	1400	0.13	1.75
5	1404	0.13	2.65
6	1404	0.13	2.23
7	1399	0.13	1.18
8	1404	0.13	2.65

Description of Potential Impact:
Impacts to S082_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The roadside ditch is located within existing INDOT ROW. Its substrate is mostly muck with some scattered leaf pack. This ditch flows directly into Beanblossom Creek. The ditch is located within existing INDOT ROW. There is a narrow riparian buffer along the right bank and a wide forested floodplain along the left bank. Photographs taken upstream and downstream in the area where these Alternatives cross S082_1 are on the second page of this form.

Stream Impacts S082_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 46

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S082_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.23368 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 04/24/12 SCORER: KSS COMMENTS: (Long: -86.54021) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	15%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	25%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☑ ☐	MUCK [0 pts]	60%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☑ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 13

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 4'/0.6' **AVERAGE BANKFULL WIDTH (meters):** 1.22

HHEI Metric Points

Substrate Max = 40	6
A + B	
Pool Depth Max = 30	25
Bankfull Width Max=30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☐	Wide >10m	☑	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None
☐ 0.5
☐ 1.0
☐ 1.5
☐ 2.0
☐ 2.5
☐ 3.0
☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream **0.00**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **60%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

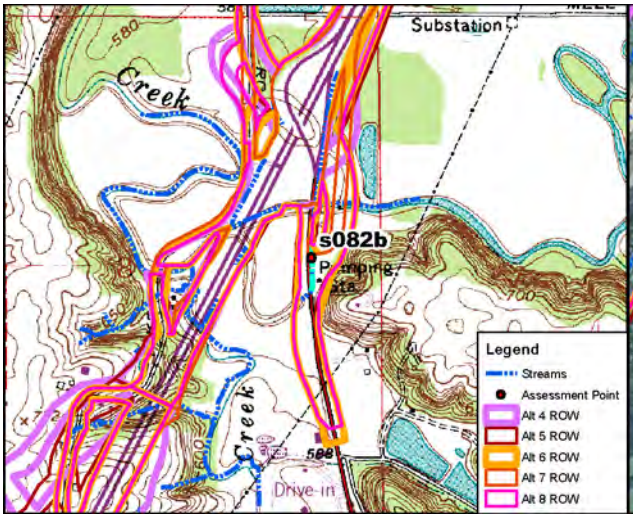
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

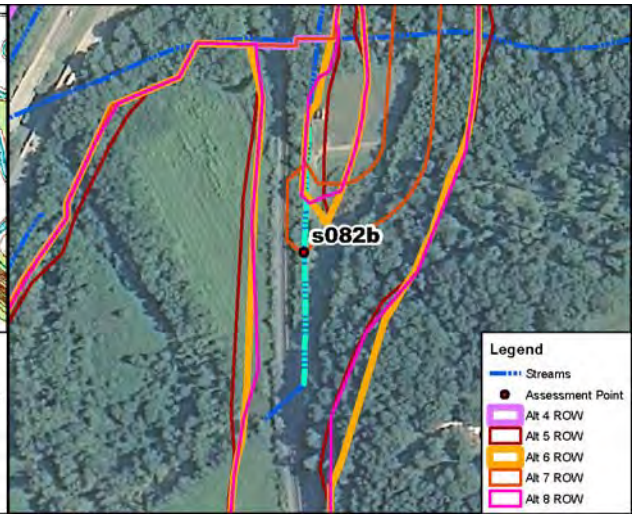
FLOW ➔

Save as pdf Reset Form

Stream Impacts S082b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.0 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	43	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay
UTME: 1770475 ft	**UTMN:** 14246768 ft		

Stream S082b – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.00
5	671	0.03	0.03
6	493	0.02	0.03
7	232	0.01	0.00
8	482	0.02	0.03

Description of Potential Impact:
Impacts to S082b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The roadside ditch is located within existing INDOT ROW. This ditch flows to S082d via pipe and then into Beanblossom Creek. There is a narrow riparian corridor associated with this ditch. The floodplain consists of urban roadways on both banks. Photographs taken upstream and downstream in the area where the Alternatives cross S082b are on the second page of this form.

Stream Impacts S082b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 43

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S082b | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.23021 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.54071) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	10%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	80%
☐	GRAVEL (2-64 mm) [9 pts]	2%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	3%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

TOTAL NUMBER OF SUBSTRATE TYPES: 5

HHEI Metric Points

Substrate Max = 40: 8

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☑ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 25

Pool Depth Max = 30: 30

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.0' / 0.4' | AVERAGE BANKFULL WIDTH (meters): 0.75

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S82b

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **95%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

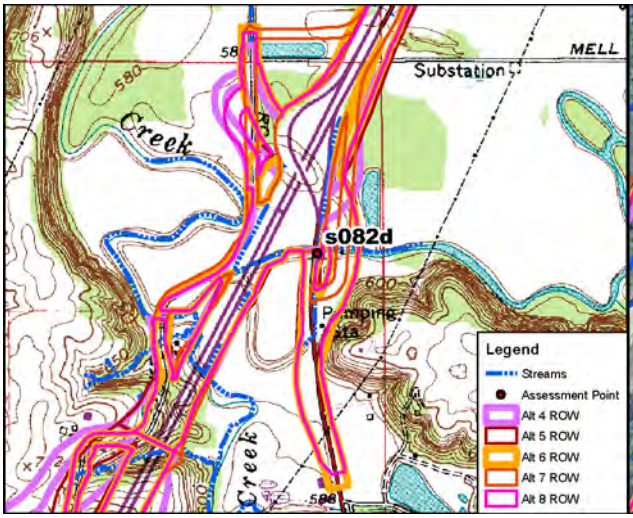
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

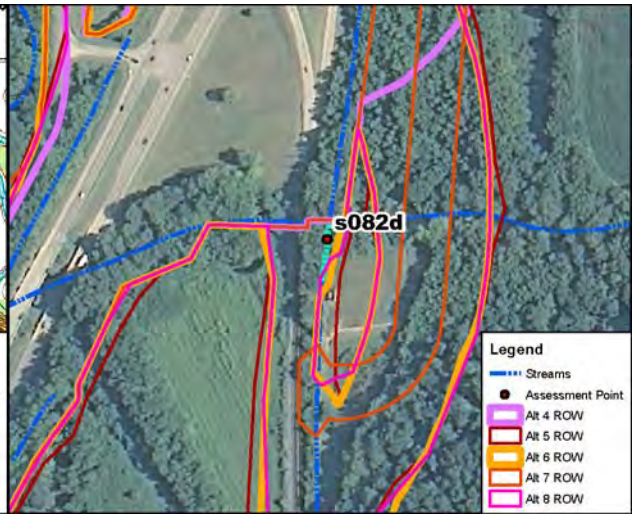
FLOW ➔

Save as pdf Reset Form

Stream Impacts S082d



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.0 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	43	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay
UTME: 1770505 ft	**UTMN:** 14247274 ft		

Stream S082d – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.00
5	156	0.01	0.01
6	156	0.01	0.01
7	0	0.00	0.00
8	136	0.01	0.01

Description of Potential Impact:
Impacts to S082d for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The roadside ditch is located within existing INDOT ROW. This ditch flows directly into Beanblossom Creek. There is a narrow riparian corridor associated with this ditch. The floodplain consists of urban roadways on both banks. Photographs taken upstream and downstream in the area where the Alternatives cross S082d are on the second page of this form.

Stream Impacts S082d

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 43

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S082d | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 150 | LAT.: 39.23159 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.54059) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	10%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	80%
☐	GRAVEL (2-64 mm) [9 pts]	2%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	3%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

TOTAL NUMBER OF SUBSTRATE TYPES: 5

HHEI Metric Points

Substrate Max = 40: 8

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☑ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 25

Pool Depth Max = 30: 30

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 2.0' / 0.4' | AVERAGE BANKFULL WIDTH (meters): 0.75

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S82d

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **95%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

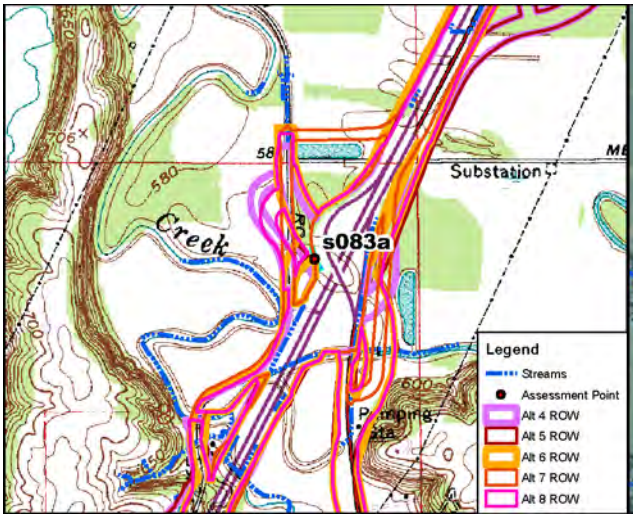
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

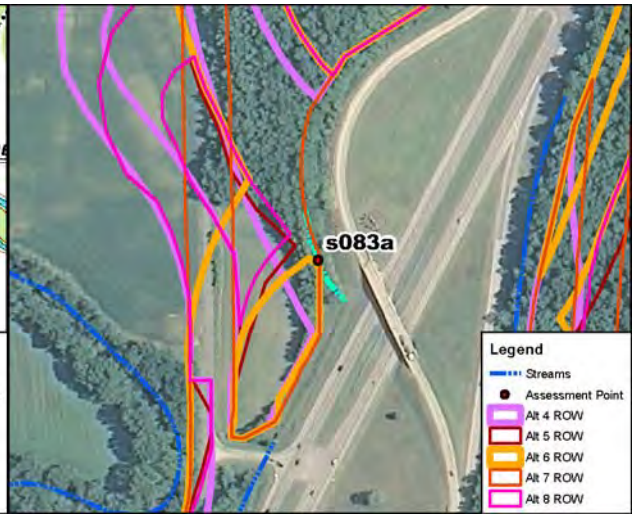
FLOW ➔

Save as pdf Reset Form

Stream Impacts S083a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	6.0 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	30	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Muck
UTME: 1770103 ft	**UTMN:** 14248270 ft		

Stream S083a – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	262	0.04	0.97
5	262	0.04	0.96
6	262	0.04	0.81
7	136	0.02	0.44
8	262	0.04	0.96

Description of Potential Impact:
Impacts to S083a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate of S083a is predominantly muck and leaf pack. There is a moderately-wide riparian corridor on both banks of the stream. The adjacent floodplain consists of agricultural land on the right and maintained INDOT ROW on the left. Photographs taken upstream and downstream in the area where these Alternatives cross S083a are on the second page of this form.

Stream Impacts S083a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 30

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S083a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.23434 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/24/12 | SCORER: KSS | COMMENTS: (Long: -86.54199) (Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☑	LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☑	MUCK [0 pts]	80%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 2

HHEI Metric Points

Substrate Max = 40: 5

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 4

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 6'/0.4' **AVERAGE BANKFULL WIDTH (meters):** 1.83

Bankfull Width Max=30: 20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream **0.41**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **45%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

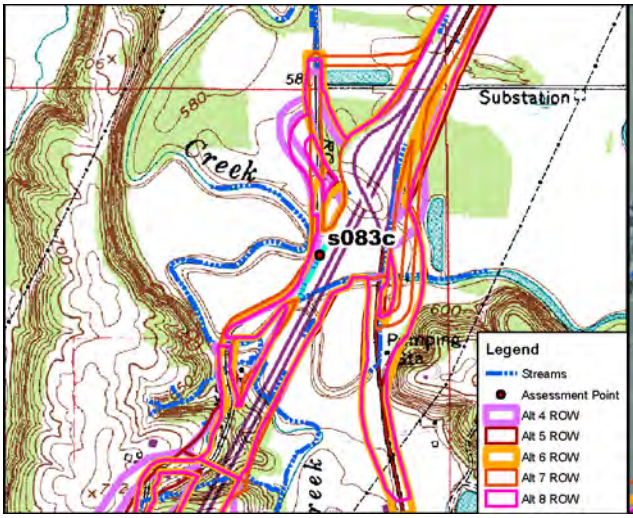
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

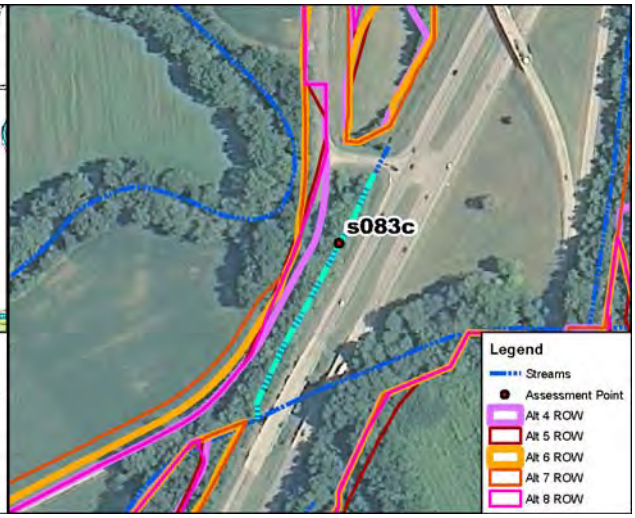
FLOW ➔

Save as pdf Reset Form

Stream Impacts S083c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	8
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.1 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	1.7 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	39	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay
UTME: 1769859 ft	**UTMN:** 14247543 ft		

Stream S083c – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	712	0.05	0.80
5	712	0.05	0.85
6	712	0.05	0.83
7	712	0.05	0.87
8	712	0.05	0.83

Description of Potential Impact:
Impacts to S083c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The roadside ditch is located within existing INDOT ROW. This ditch flows directly to Beanblossom Creek. There is a narrow riparian corridor associated with this ditch. The floodplain consists of urban roadways adjacent to both banks. Photographs taken upstream and downstream in the area where the Alternatives cross S083c are on the second page of this form.

Stream Impacts S083c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 39

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S083c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.23234 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: J Meeker | COMMENTS: (Long: -86.54287) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	4%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	80%
☑	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	1%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☑ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ditch is a long pool **MAXIMUM POOL DEPTH (centimeters):** 45

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 3.1' / 1.7' **AVERAGE BANKFULL WIDTH (meters):** 0.94

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	14
Pool Depth	30	20
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S83c

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **103 Upstream / 104 Downstream / 105 Right Bank / 106 Left Bank**

Elevated Turbidity? (Y/N): **Y** Canopy (% open): **90%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

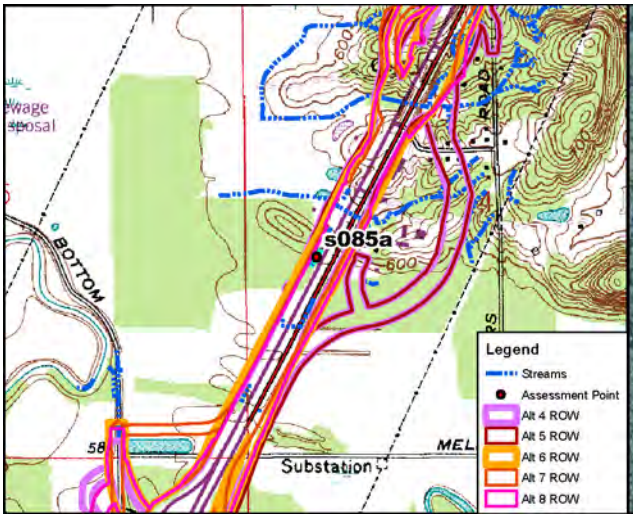
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

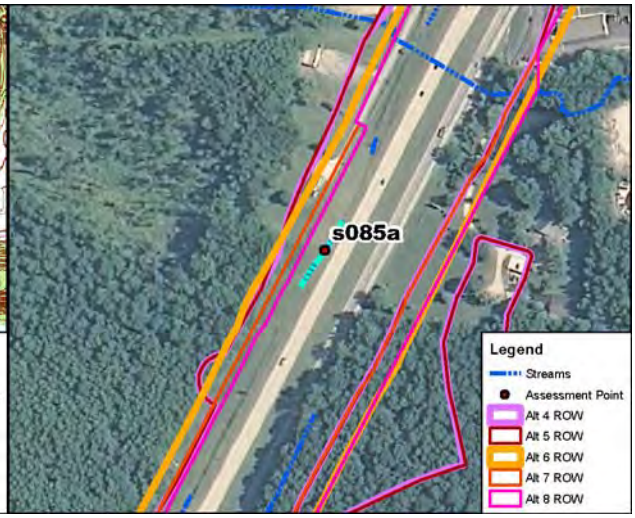
FLOW ➔

Save as pdf Reset Form

Stream Impacts S085a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.1 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1771882 ft	**UTMN:** 14241363 ft		

Stream S085a – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	202	0.01	0.09
5	202	0.01	0.11
6	202	0.01	0.11
7	202	0.01	0.00
8	202	0.01	0.00

Description of Potential Impact:

Impacts to S085a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter. There is no riparian corridor associated with this artificial drainageway. This ditch flows into an emergent wetland. The adjacent floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S085a are on the second page of this form.

Stream Impacts S085a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s085a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.24280 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/25/12 | SCORER: KSS/DEW | COMMENTS: (Long: -86.53565) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

TOTAL NUMBER OF SUBSTRATE TYPES: 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 1.1'/0.2' | **AVERAGE BANKFULL WIDTH (meters):** 0.33

HHEI Metric Points

Substrate Max = 40	7
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S85a

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/24/12** Quantity: **0.15**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

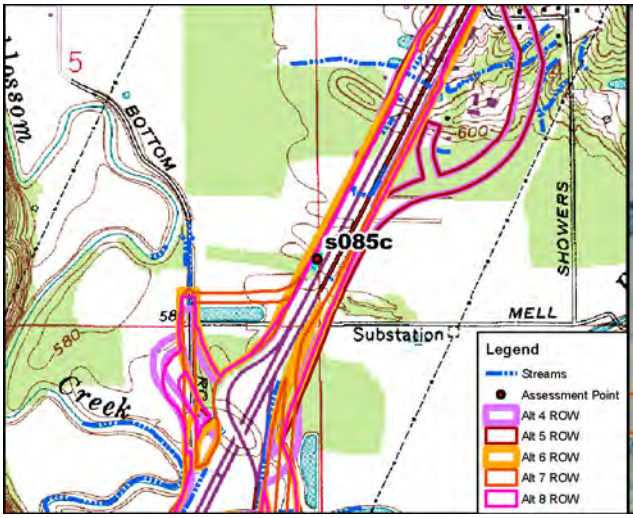
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

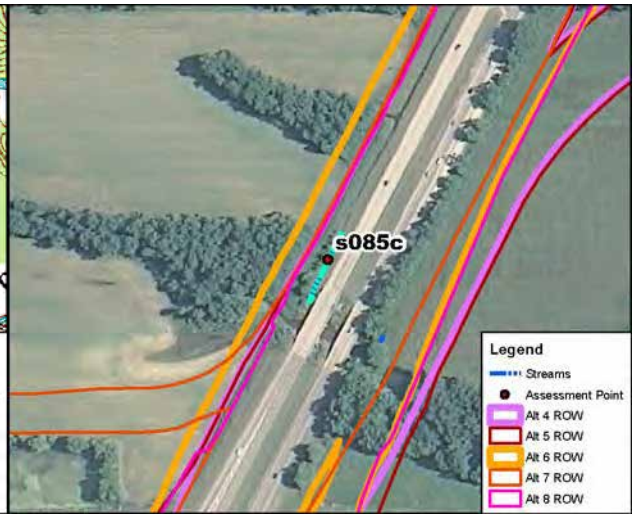
FLOW ➔

Save as pdf Reset Form

Stream Impacts S085c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	5
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	4.6 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	26	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Muck/leaf pack
UTME: 1771147 ft	**UTMN:** 14249966 ft		

Stream S085c – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	203	0.02	0.00
5	203	0.02	0.00
6	203	0.02	0.12
7	203	0.02	0.01
8	203	0.02	0.00

Description of Potential Impact:
Impacts to S085c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a roadside ditch with a muck, clay, and silt bottom. There is a narrow riparian corridor associated with this man-made drainageway. This ditch flows into an emergent wetland. The adjacent floodplain consists of maintained INDOT ROW on the left side and shrub rangeland on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S085c are on the second page of this form.

Stream Impacts S085c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 26

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s085c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.23898 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/24/12 | SCORER: KSS | COMMENTS: (Long: -86.53827) *(Roadside Ditch-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	25%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	35%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☑ ☐	MUCK [0 pts]	40%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 4.6'/0.5' | **AVERAGE BANKFULL WIDTH (meters):** 1.40

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	6
Pool Depth	30	5
Bankfull Width	30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream **0.30**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **95%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

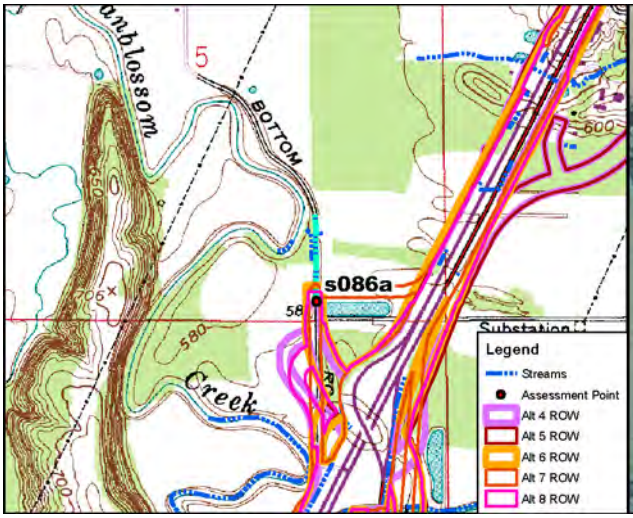
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

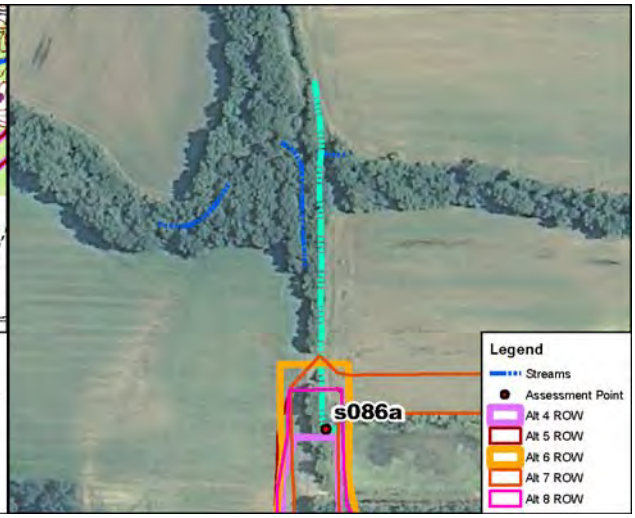
FLOW ➔

Save as pdf Reset Form

Stream Impacts S086a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	5
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.9 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	34	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay/gravel
UTME: 1769827 ft	**UTMN:** 14249472 ft		

Stream S086a – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.00
5	142	0.01	0.00
6	210	0.01	0.00
7	228	0.01	0.00
8	142	0.01	0.00

Description of Potential Impact:
Impacts to S086a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The roadside ditch is located east and parallel to Bottom Road. This nearly flat ditch flows between wetland systems. There is no riparian buffer associated with the left bank (Bottom Road). The right bank floodplain consists of an old field. Photographs taken upstream and downstream in the area where these Alternatives cross S086a are on the second page of this form.

Stream Impacts S086a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 34

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S086a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.23764 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.54295) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	10%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	60%
☑	GRAVEL (2-64 mm) [9 pts]	20%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	5%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

HHEI Metric Points

Substrate Max = 40: 14

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 7

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.9' / 0.1' **AVERAGE BANKFULL WIDTH (meters):** 0.70

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☑	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S86a

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Beanblossom Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: 18 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/12/06 Quantity: 0.39

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 65%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

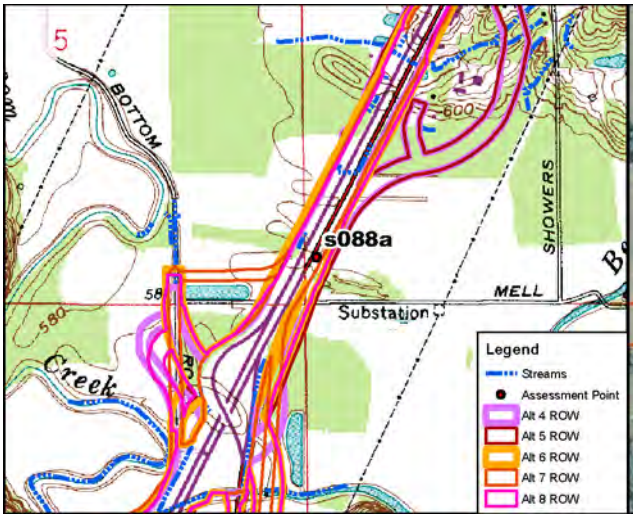
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

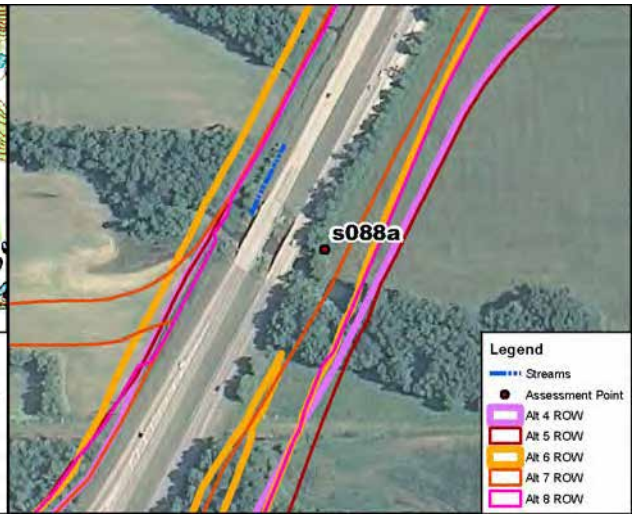
FLOW ➔

Save as pdf Reset Form

Stream Impacts S088a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	SE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.9 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.4 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	19	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay/silt
UTME: 1761288 ft	**UTMN:** 14249764 ft		

Stream S088a – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	20	0.01	0.09
5	20	0.01	0.09
6	20	0.01	0.09
7	20	0.01	0.09
8	20	0.01	0.09

Description of Potential Impact:
Impacts to S088a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The roadside ditch is located east of and parallel to Bottom Road. This nearly flat ditch flows between wetland systems. There is no riparian buffer associated with the right bank (SR 37). The left bank has a moderately wide riparian buffer and a cropland in the adjacent floodplain. Photographs taken upstream and downstream in the area where these Alternatives cross S088a are on the second page of this form.

Stream Impacts S088a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 19

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S088a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 20 | LAT.: 39.23842 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/12/06 | SCORER: A Rogers | COMMENTS: (Long: -86.53778) (Roadside Ditch-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	10%
☐ ☐	COBBLE (65-256 mm) [12 pts]	5%	☑ ☐	CLAY or HARDPAN [0 pt]	40%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	5%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 6

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 4

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 1.9' / 0.4' **AVERAGE BANKFULL WIDTH (meters):** 0.70

HHEI Metric Points

Substrate Max = 40	A + B	9
Pool Depth Max = 30		5
Bankfull Width Max=30		5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☐	Open Pasture, Row Crop
☐	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☑ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S88a

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/12/06** Quantity: **0.39**

Photograph Information: **5807 Upstream / 5805 Downstream**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **90%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

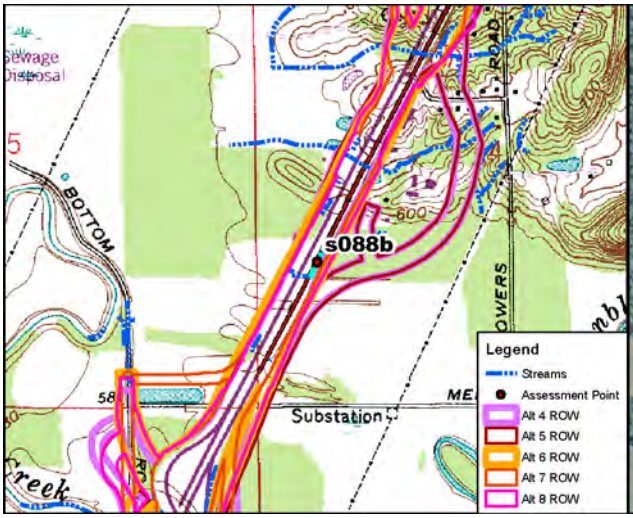
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

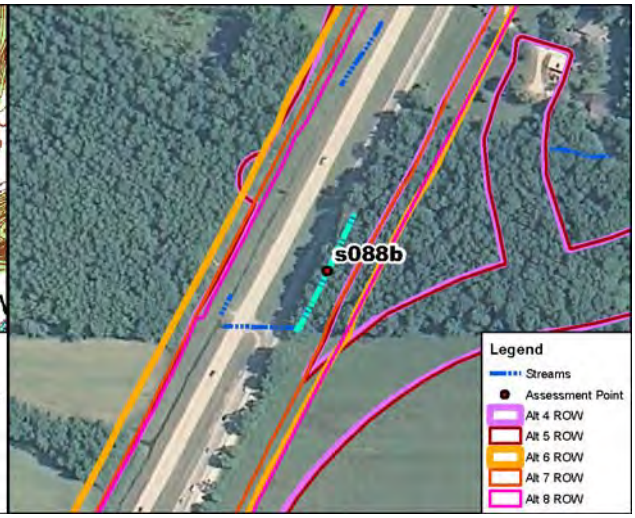
FLOW ➔

Save as pdf Reset Form

Stream Impacts S088b



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	5.0 feet
Channelized/Type:	Yes/Roadside Ditch	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	31	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Muck/silt
UTME: 1771885 ft	**UTMN:** 14250786 ft		

Stream S088b – Modified Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	345	0.04	0.58
5	345	0.04	0.59
6	345	0.04	0.82
7	345	0.04	0.58
8	345	0.04	0.82

Description of Potential Impact:
Impacts to S088b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The roadside ditch is located adjacent to SR 37. Substrate primarily consists of muck and silt. There is no riparian buffer associated with the right bank (SR 37). The wide left side riparian corridor and associated floodplain consists of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S088b are on the second page of this form.

Stream Impacts S088b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 31

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s088b | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.24122 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/24/12 | SCORER: KSS | COMMENTS: (Long: -86.53601) (Roadside Ditch-Modified Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	16%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	14%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☑	MUCK [0 pts]	70%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40: 6

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 3

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 5'/0.5' **AVERAGE BANKFULL WIDTH (meters):** 1.52

Bankfull Width Max=30: 20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☐	Wide >10m	☑	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream **0.57**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **95%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

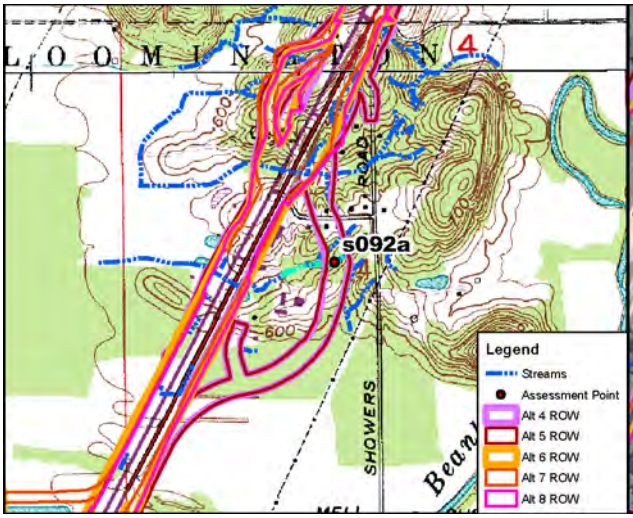
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

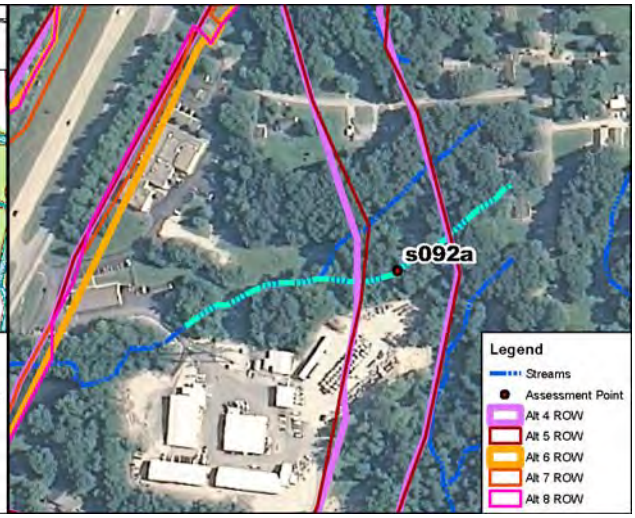
FLOW ➔

Save as pdf Reset Form

Stream Impacts S092a



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.4 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.7 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	28	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay/fine detritus
UTME: 1773339 ft	**UTMN:** 14252011 ft		

Stream S092a – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	273	0.02	1.13
5	263	0.01	1.09
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S092a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately clay and fine detritus. There is a wide riparian buffer associated with this stream where Alternatives 4 and 5 cross this stream. The floodplain consists of mature forests on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S092a are on the second page of this form.

Stream Impacts S092a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 28

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S092a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.24456 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/11/06 | SCORER: J Meeker | COMMENTS: (Long: -86.53049) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☑	FINE DETRITUS [3 pts]	20%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	60%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	5%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 7

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 2.4' / 0.7' **AVERAGE BANKFULL WIDTH (meters):** 0.75

HHEI Metric Points

Substrate Max = 40	8
A + B	
Pool Depth Max = 30	15
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S92a

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order **2**

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: **87 Upstream / 88 Downstream / 89 Right Bank / 90 Left Bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **45%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

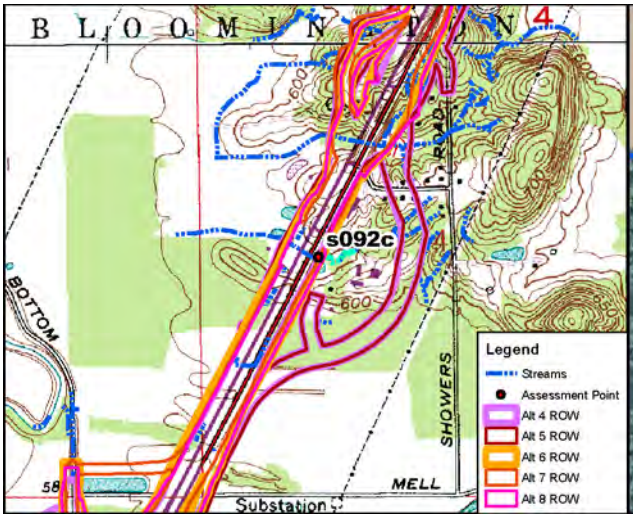
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

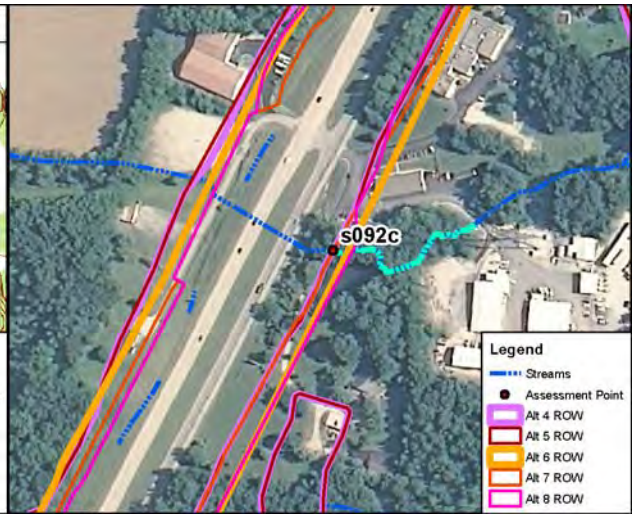
FLOW ➔

Save as pdf Reset Form

Stream Impacts S092c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	4.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	43	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/sand
UTME: 1772307 ft	**UTMN:** 14251772 ft		

Stream S092c – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	16	0.01	0.06
5	17	0.01	0.06
6	56	0.01	0.16
7	17	0.01	0.06
8	69	0.01	0.16

Description of Potential Impact:
Impacts to S092c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately silt and sand. There is a wide riparian buffer associated with this stream's right bank and a moderately wide buffer associated with the left bank where Alternatives 4 and 5 cross this stream. The floodplain consists of mature forests on the right and a pond on the left. Photographs taken upstream and downstream in the area where these Alternatives cross S092c are on the second page of this form.

Stream Impacts S092c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 43

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S092c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.24391 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/17/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.53389) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	60%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	5%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40: 13 (A + B)

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 9

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 4'/0.6' **AVERAGE BANKFULL WIDTH (meters):** 1.22

Bankfull Width Max=30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☑	Wide >10m	☐	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☑ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Bloomington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township / City: Township 8 North

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/13/11 Quantity: 0.25

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 5%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

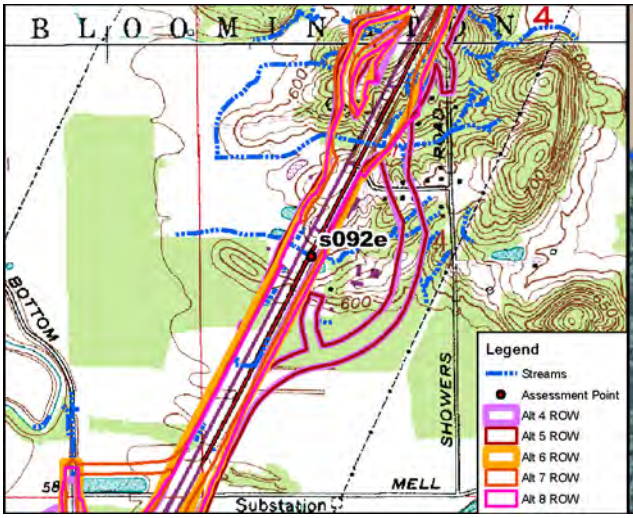
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

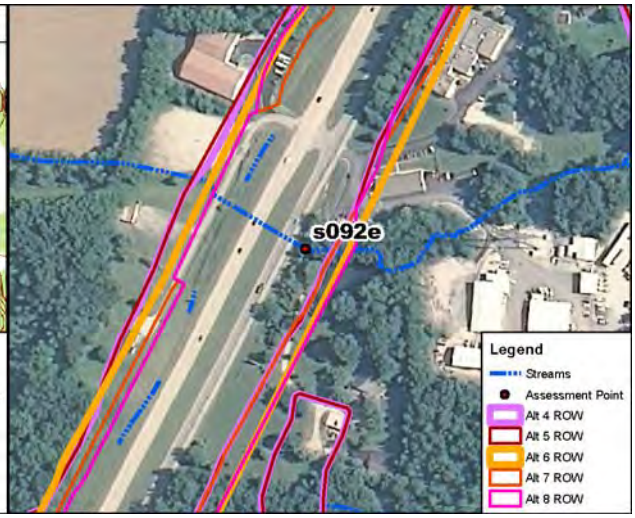
FLOW ➔

Save as pdf Reset Form

Stream Impacts S092e



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	4.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	53	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/sand
UTME: 1772307 ft	**UTMN:** 14251772 ft		

Stream S092e – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	15	0.01	0.00
5	15	0.01	0.00
6	15	0.01	0.00
7	15	0.01	0.00
8	15	0.01	0.00

Description of Potential Impact:
Impacts to S092e for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately silt and sand. There is a narrow riparian buffer associated with this stream. The floodplain is in transportation use. Photographs taken upstream and downstream in the area where these Alternatives cross S092e are on the second page of this form.

Stream Impacts S092e

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 53

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s092e | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 15 | LAT.: 39.24392 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/17/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.53414) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	60%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	5%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS | **MAXIMUM POOL DEPTH (centimeters):** 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 4.0'/0.6' | **AVERAGE BANKFULL WIDTH (meters):** 1.22

HHEI Metric Points

Substrate	Max = 40	13
A + B		
Pool Depth	Max = 30	25
Bankfull Width	Max=30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: **0.00**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **65%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

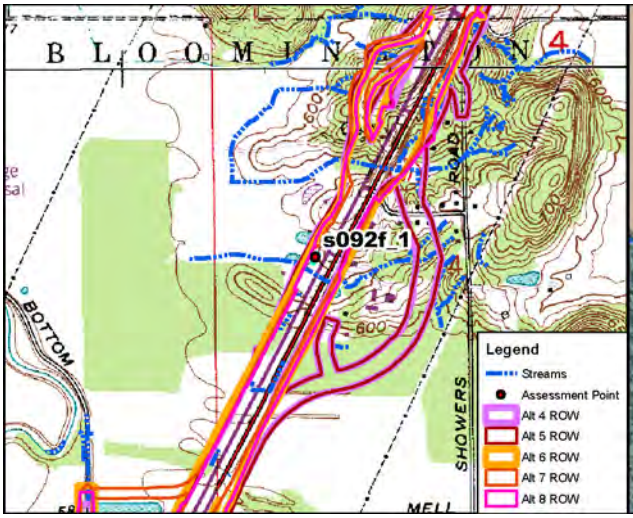
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

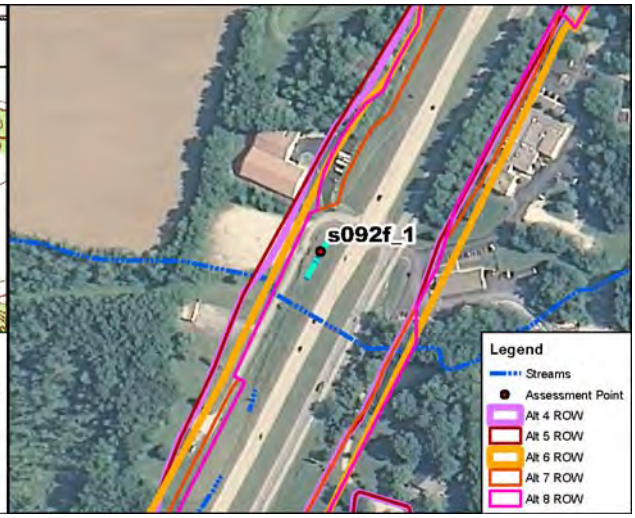
FLOW ➔

Save as pdf Reset Form

Stream Impacts S092f_1



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.0 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.15 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1772189 ft	**UTMN:** 14252020 ft		

Stream S092f_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	137	0.01	-
5	137	0.01	-
6	137	0.01	-
7	137	0.01	-
8	137	0.01	-

Description of Potential Impact:
Impacts to S092f_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter situated in between SR 37 and an unnamed frontage road. This channel flows into a wetland. There is no riparian buffer associated with this artificial channel. The floodplain consists of the maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S092f_1 are on the second page of this form.

Stream Impacts S092f_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s092f_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 135 LAT.: 39.24461 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/25/12 SCORER: KSS/DEW COMMENTS: (Long: -86.53456) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 1.0'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.30

HHEI Metric Points

Substrate Max = 40	7	A + B
Pool Depth Max = 30	0	
Bankfull Width Max=30	5	

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S92f_1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/24/12** Quantity: **0.15**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

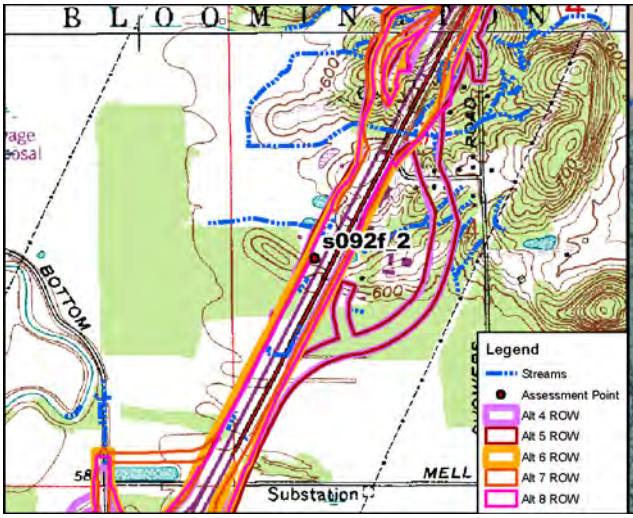
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

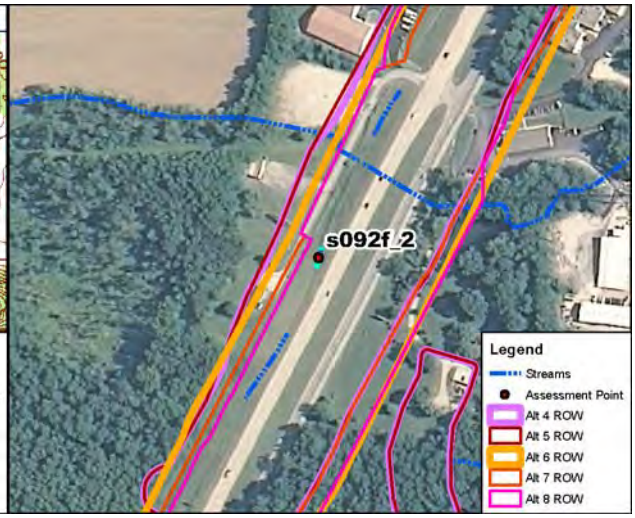
FLOW ➔

Save as pdf Reset Form

Stream Impacts S092f_2



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	SW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.0 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1772011 ft	**UTMN:** 14251635 ft		

Stream S092f_2 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	57	0.01	0.00
5	57	0.01	0.00
6	57	0.01	0.00
7	57	0.01	0.00
8	57	0.01	0.00

Description of Potential Impact:
Impacts to S092f_2 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter situated in between SR 37 and an unnamed frontage road. This channel flows into a wetland. There is no riparian buffer associated with this artificial channel. The floodplain consists of the maintained INDOT ROW. A photographs taken upstream in the area where these Alternatives cross S092f_2 are on the second page of this form.

Stream Impacts S092f_2

Photograph Taken Upstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s092f_2 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 55 LAT.: 39.24355 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/25/12 SCORER: KSS/DEW COMMENTS: (Long: -86.53519) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 1.0'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.30

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	7
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S92f_2

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/25/12** Quantity: **0.15**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

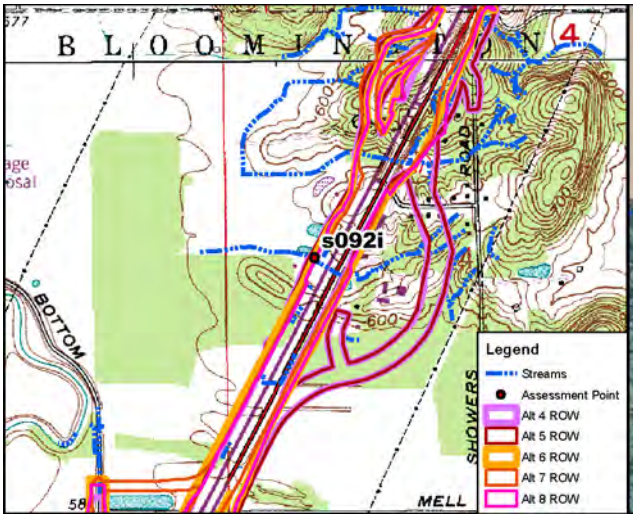
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S092i



Site Location on Bloomington USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	4.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	26	**Watershed Area:**	0.04 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Leaf pack/muck
UTME: 1772063 ft	**UTMN:** 14251937 ft		

Stream S092i – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	40	0.01	0.00
5	40	0.01	0.00
6	35	0.01	0.00
7	2	0.01	0.00
8	2	0.01	0.00

Description of Potential Impact:
Impacts to S092i for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. This is a 40-foot long day-lighted portion of stream situated in between culverts. The substrate is predominately muck and leaf pack. There is a narrow riparian buffer associated with this short stream segment. The floodplain consists of the new field on the left bank and a newly graded area on the right. Photographs taken upstream and downstream in the area where these Alternatives cross S092i are on the second page of this form.

Stream Impacts S092i

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 26

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s092i | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.04

LENGTH OF STREAM REACH (ft): 40 | LAT.: 39.24438 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/24/12 | SCORER: KSS | COMMENTS: (Long: -86.53500) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☑ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	60%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☑	MUCK [0 pts]	30%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 | **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40: 6

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: | **MAXIMUM POOL DEPTH (centimeters):** 4

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 4.5'/1.3' | **AVERAGE BANKFULL WIDTH (meters):** 1.40

Bankfull Width Max=30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☑	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☑	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream **0.57**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **95%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

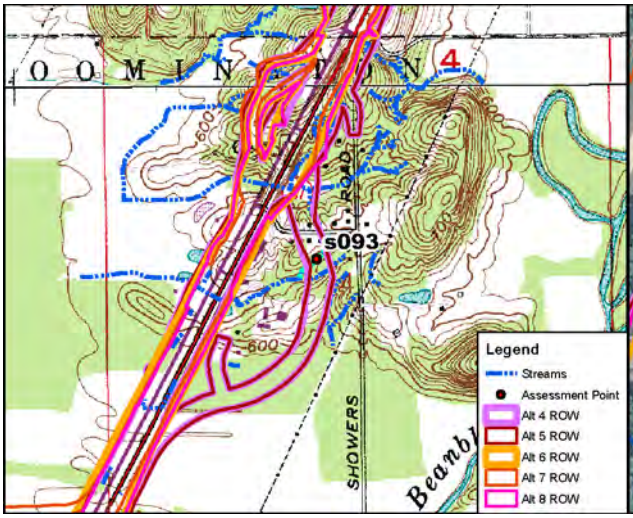
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

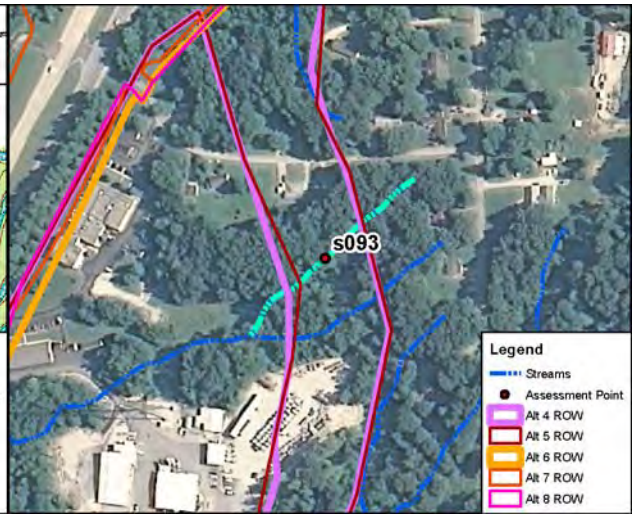
FLOW ➔

Save as pdf Reset Form

Stream Impacts S093



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	42	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Clay/bedrock
UTME: 1773330 ft	**UTMN:** 14252193 ft		

Stream S093 – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	265	0.01	0.84
5	228	0.01	0.75
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S093 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate consists of clay, bedrock, and gravel. There is a wide riparian corridor on both banks of the stream where Alternatives 4 and 5 cross this stream. The floodplain consists primarily of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S093 are on the second page of this form.

Stream Impacts S093

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 42

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S093 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.24506 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.53053) (Natural Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☑	BEDROCK [16 pt]	20%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☑	CLAY or HARDPAN [0 pt]	40%
☐	GRAVEL (2-64 mm) [9 pts]	15%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 16 **TOTAL NUMBER OF SUBSTRATE TYPES:** 6

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 6

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 2.1' / 0.1' **AVERAGE BANKFULL WIDTH (meters):** 0.80

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	22
Pool Depth	30	15
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S93

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **25%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

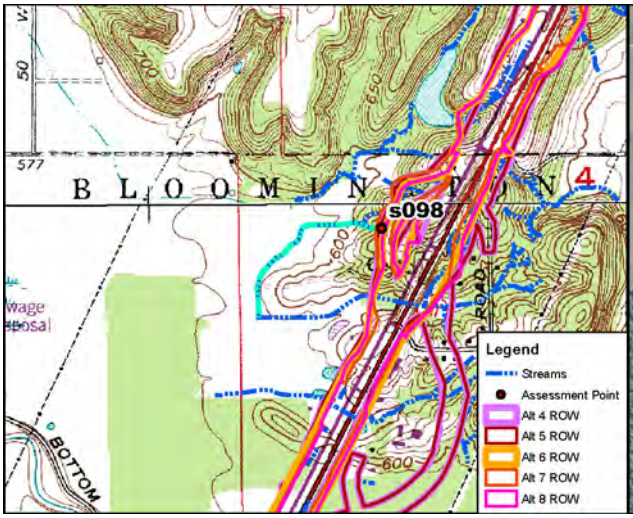
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

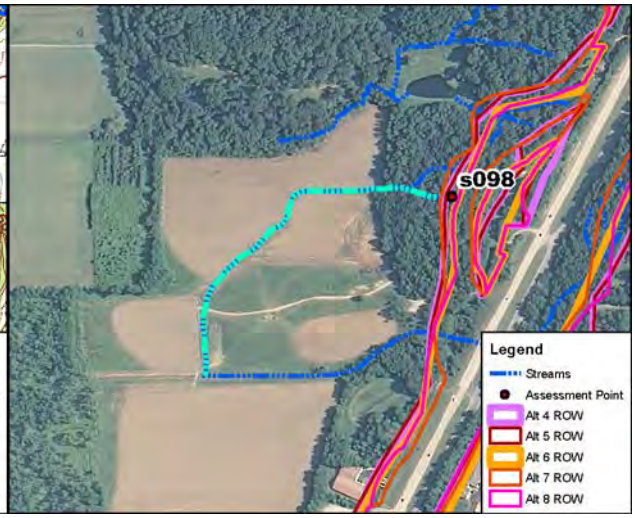
FLOW ➔

Save as pdf Reset Form

Stream Impacts S098



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.1 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	35	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Leaf pack/bedrock
UTME: 1772603 ft	**UTMN:** 14253738 ft		

Stream S098 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	76	0.01	0.67
5	74	0.01	0.66
6	0	0.00	0.37
7	100	0.01	0.74
8	1	0.01	0.37

Description of Potential Impact:
Impacts to S098 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate consists of bedrock, gravel, and leaf pack. There is a wide riparian corridor on both banks of the stream where the Alternatives cross this stream. The floodplain consists primarily of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S098 are on the second page of this form.

Stream Impacts S098

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 35

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S098 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.24932 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.53306) (Natural Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☑	LEAF PACK/WOODY DEBRIS [3 pts]	45%
☑	BEDROCK [16 pt]	20%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	5%
☐	GRAVEL (2-64 mm) [9 pts]	15%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19 **TOTAL NUMBER OF SUBSTRATE TYPES:** 6

HHEI Metric Points

Substrate Max = 40: 25 (A + B)

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: Minimal pools **MAXIMUM POOL DEPTH (centimeters):** 5

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.1' / 0.5' **AVERAGE BANKFULL WIDTH (meters):** 0.80

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S98

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: **61 Upstream / 62 Downstream / 63 Right bank / 64 Left bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **5%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

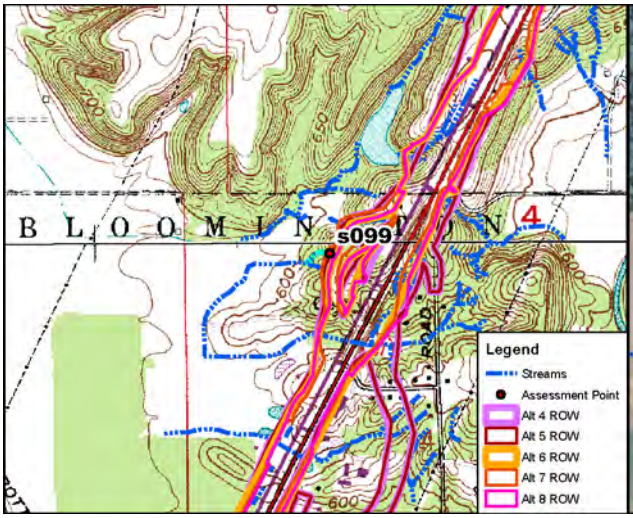
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

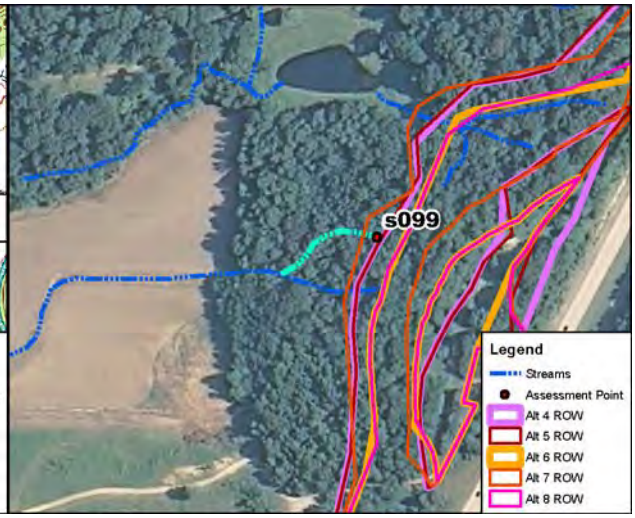
FLOW ➔

Save as pdf Reset Form

Stream Impacts S099



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	19	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Silt/sand
UTME: 1772623 ft	**UTMN:** 14253876 ft		

Stream S099 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	8	0.01	0.21
5	8	0.01	0.22
6	0	0.00	0.10
7	56	0.01	0.37
8	0	0.00	0.09

Description of Potential Impact:
Impacts to S099 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate consists primarily of silt and sand. There is a wide riparian corridor on both banks of the stream where the Alternatives cross this stream. The floodplain consists primarily of mature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S099 are on the second page of this form.

Stream Impacts S099

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 19

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S099 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.24970 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 10/17/11 SCORER: DEW/KSS COMMENTS: (Long: -86.53299) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	5%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	5%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	35%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 3'/0.3' **AVERAGE BANKFULL WIDTH (meters):** 0.90

HHEI Metric Points

Substrate Max = 40	A + B	14
Pool Depth Max = 30		0
Bankfull Width Max=30		5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/13/11** Quantity: **0.25**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **0%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

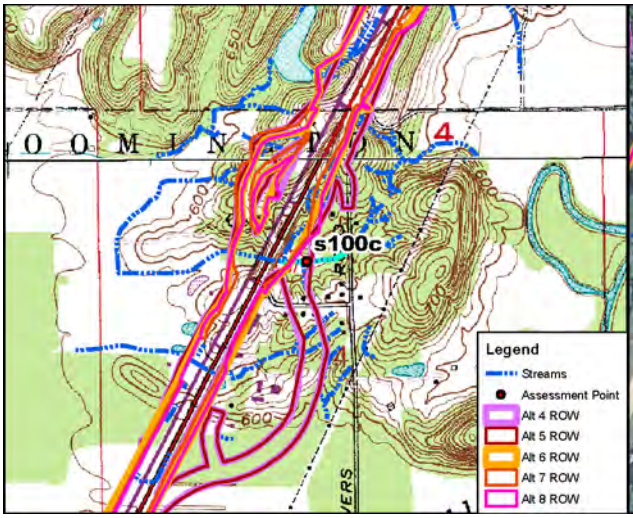
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

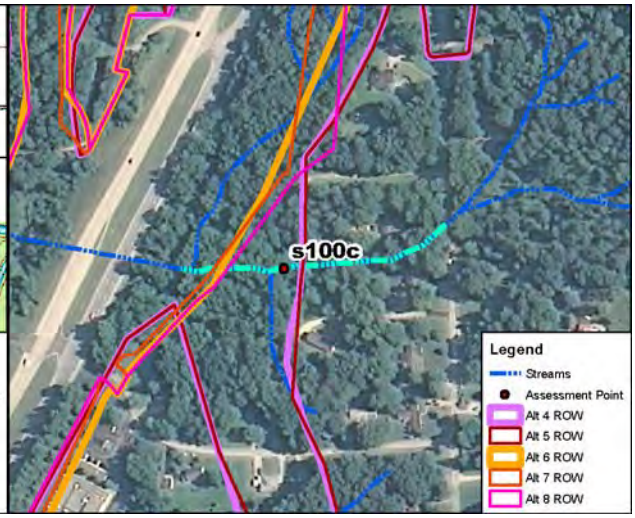
FLOW ➔

Save as pdf Reset Form

Stream Impacts S100c



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.9 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	27	**Watershed Area:**	0.09 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 1773287 ft	**UTMN:** 14252929 ft		

Stream S100c - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	321	0.03	1.46
5	323	0.03	1.48
6	107	0.01	0.48
7	89	0.01	0.39
8	124	0.01	0.55

Description of Potential Impact:

Impacts to S100c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of sand, silt and leaf pack. There is a wide riparian buffer associated with this stream. The floodplain consists of a sparsely forested area adjacent to both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S100c are on the second page of this form.

Stream Impacts S100c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 27

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S100c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.09

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.24709 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 10/17/11 | SCORER: DEW/KSS | COMMENTS: (Long: -86.53066) (Natural Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	30%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	50%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 3.5'/.9' **AVERAGE BANKFULL WIDTH (meters):** 1.07

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	12
Pool Depth	30	0
Bankfull Width	30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Through maintained residential yards - no bed/bank at many locations

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/13/11** Quantity: **0.25**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **65%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

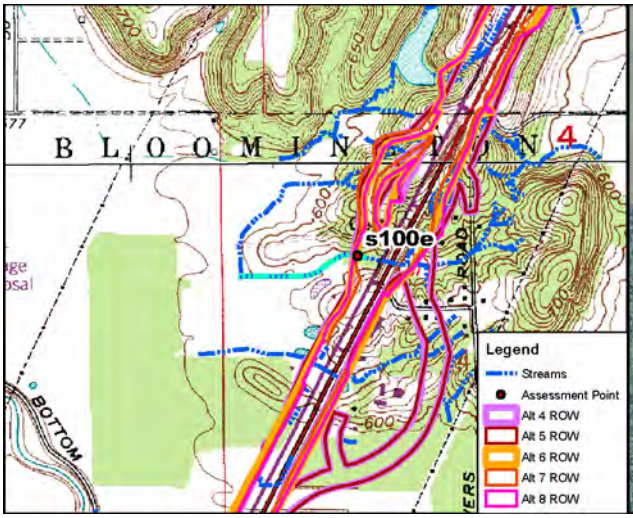
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

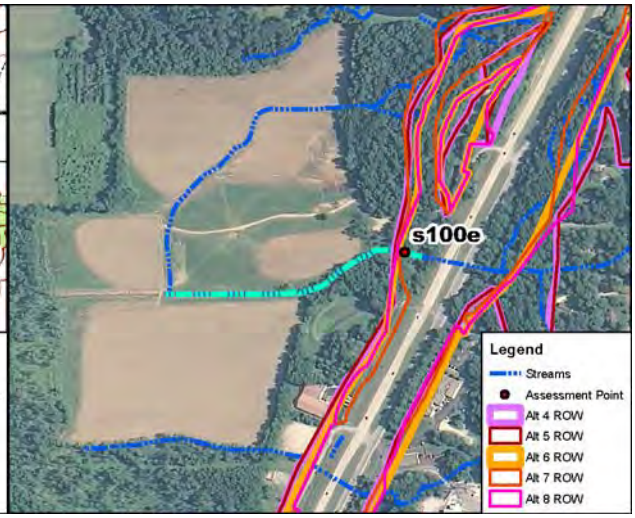
FLOW ➔

Save as pdf Reset Form

Stream Impacts S100e



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	6.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	64	**Watershed Area:**	0.09 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1772543 ft	**UTMN:** 14253023 ft		

Stream S100e - Class III PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	146	0.02	0.66
5	144	0.02	0.65
6	123	0.02	0.56
7	126	0.02	0.55
8	131	0.02	0.59

Description of Potential Impact:
Impacts to S100e for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of sand and gravel. There is a wide riparian buffer associated with this stream. The floodplain consists of the immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S100e are on the second page of this form.

Stream Impacts S100e

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 64

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s100e | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.09

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.24736 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/30/12 | SCORER: JDP | COMMENTS: (Long: -86.53329) (Natural Class III)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	10%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	10%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	50%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 18

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 6.5'/1.0' **AVERAGE BANKFULL WIDTH (meters):** 1.98

HHEI Metric Points

	Max	Score
Substrate	40	19
A + B		
Pool Depth	30	25
Bankfull Width	30	20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **05/28/12** Quantity: **0.14**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **25%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

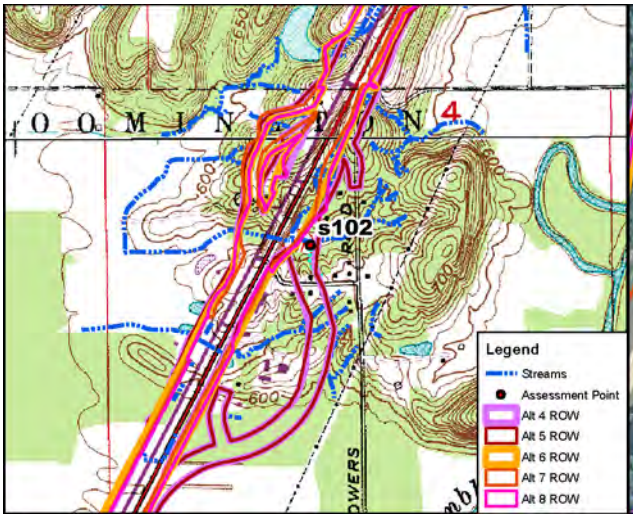
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

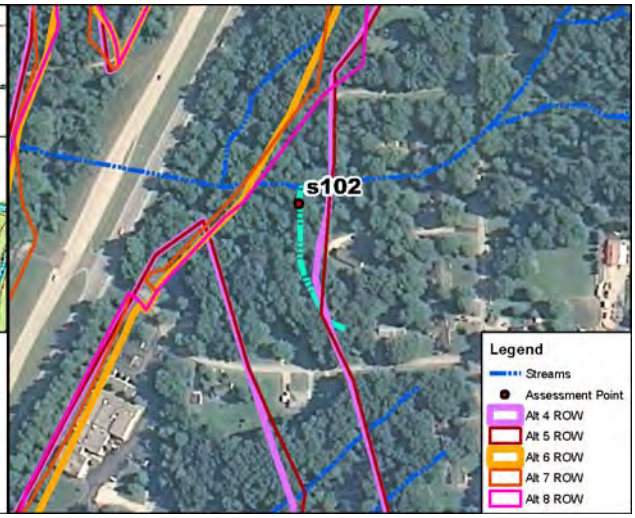
FLOW ➔

Save as pdf Reset Form

Stream Impacts S102



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	41	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Leaf Pack/cobble
UTME: 1773250 ft	**UTMN:** 14252878 ft		

Stream S102 - Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	361	0.01	0.87
5	334	0.01	0.93
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:

Impacts to S102 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of cobble, gravel, bedrock, and leaf pack. There is a wide riparian buffer associated with this stream. The floodplain consists of a sparsely forested area adjacent to both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S102 are on the second page of this form.

Stream Impacts S102

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 41

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S102 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.24695 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.53080) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	10%
☐	BOULDER (>256 mm) [16 pts]	0%	☑	LEAF PACK/WOODY DEBRIS [3 pts]	40%
☐	BEDROCK [16 pt]	10%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	20%	☐	CLAY or HARDPAN [0 pt]	5%
☐	GRAVEL (2-64 mm) [9 pts]	15%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 6

HHEI Metric Points

Substrate Max = 40: 21 (A + B)

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 6

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1' / 0.1' **AVERAGE BANKFULL WIDTH (meters):** 0.35

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S102

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **25%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts:

Flows only during storm events.

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

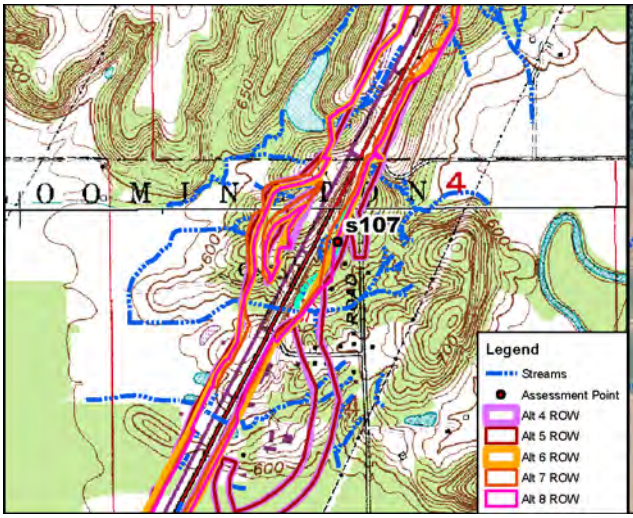
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

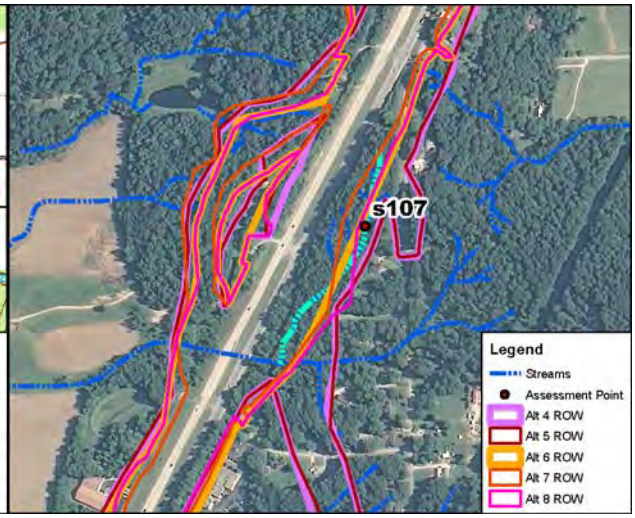
FLOW ➔

Save as pdf Reset Form

Stream Impacts S107



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington, Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	5.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	1.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	33	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 1773491 ft	**UTMN:** 14253639 ft		

Stream S107 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	1282	0.16	5.18
5	1282	0.16	5.23
6	765	0.10	3.48
7	520	0.07	2.36
8	942	0.12	4.02

Description of Potential Impact:
Impacts to S107 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of sand and silt. There is a wide riparian buffer associated with this stream. The floodplain consists of the immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S107 are on the second page of this form.

Stream Impacts S107

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 33

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S107 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.24903 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 10/17/11 SCORER: DEW/KSS COMMENTS: (Long: -86.52993) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	25%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	60%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40: 13

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 5.5'/1.3' **AVERAGE BANKFULL WIDTH (meters):** 1.70

Bankfull Width Max=30: 20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☑ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington / Modesto** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/13/11** Quantity: **0.25**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

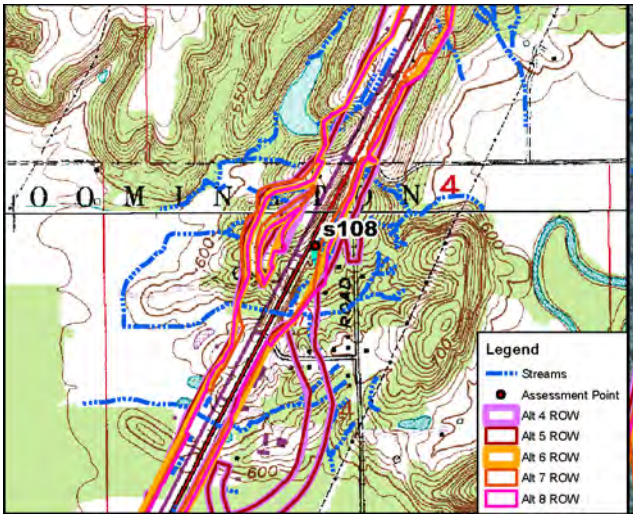
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

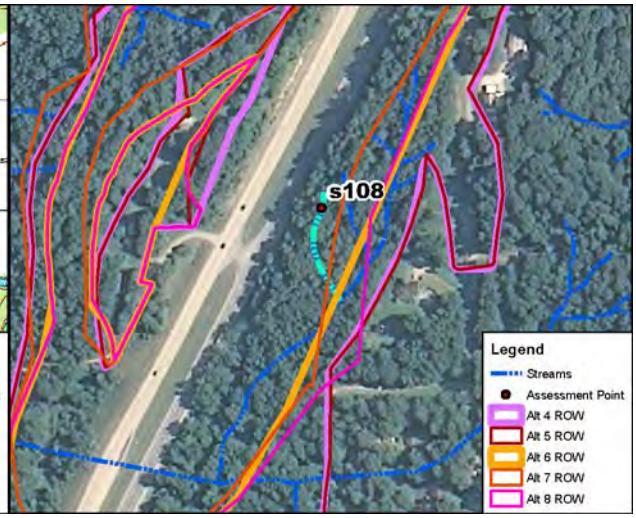
FLOW ➔

Save as pdf Reset Form

Stream Impacts S108



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.3 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	30	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/grand
UTME: 1773319 ft	**UTMN:** 14253637 ft		

Stream S108 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	302	0.01	0.40
5	302	0.01	0.40
6	288	0.01	0.40
7	245	0.01	0.40
8	302	0.01	0.40

Description of Potential Impact:
Impacts to S108 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel and sand. There is a wide riparian buffer associated with this stream. The floodplain consists of the immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S108 are on the second page of this form.

Stream Impacts S108

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 30

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S108 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.24903 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.53054) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	3%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	2%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	40%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 3

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.3' / .2' **AVERAGE BANKFULL WIDTH (meters):** 0.50

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	20
Pool Depth	30	5
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S108

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **n** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **20%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

Flows only during storm events.

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

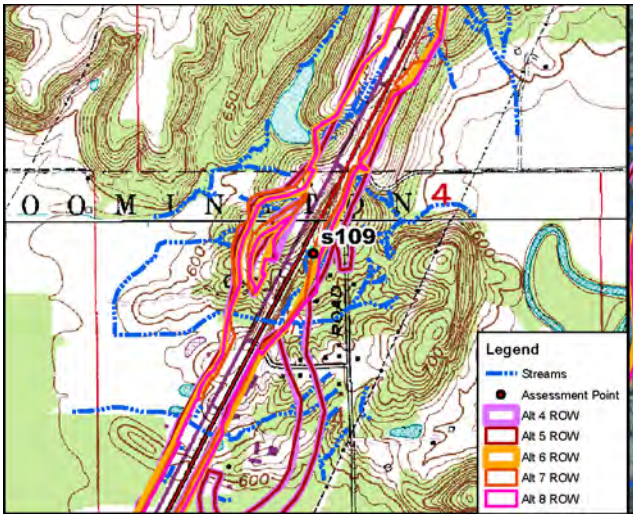
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

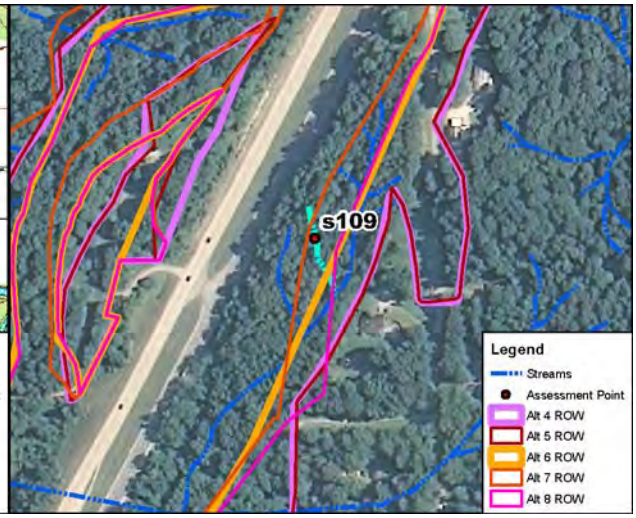
FLOW ➔

Save as pdf Reset Form

Stream Impacts S109



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.2 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	30	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1773392 ft	**UTMN:** 14253644 ft		

Stream S109 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	247	0.01	0.60
5	247	0.01	0.60
6	184	0.01	0.60
7	43	0.01	0.52
8	229	0.01	0.60

Description of Potential Impact:
Impacts to S109 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel and sand. There is a wide riparian buffer associated with this stream. The floodplain consists of the immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S109 are on the second page of this form.

Stream Impacts S109

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 30

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S109 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.24905 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.53028) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	3%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	2%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	40%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 3

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.2' / 0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.50

HHEI Metric Points

Substrate Max = 40	20	A + B
Pool Depth Max = 30	5	
Bankfull Width Max=30	5	

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S109

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **20%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

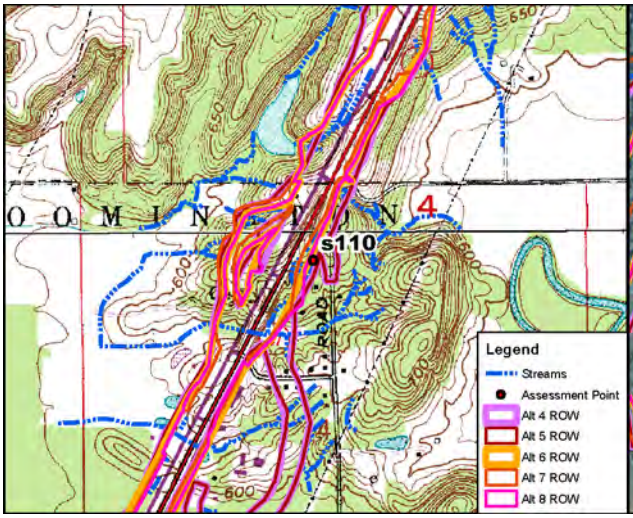
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

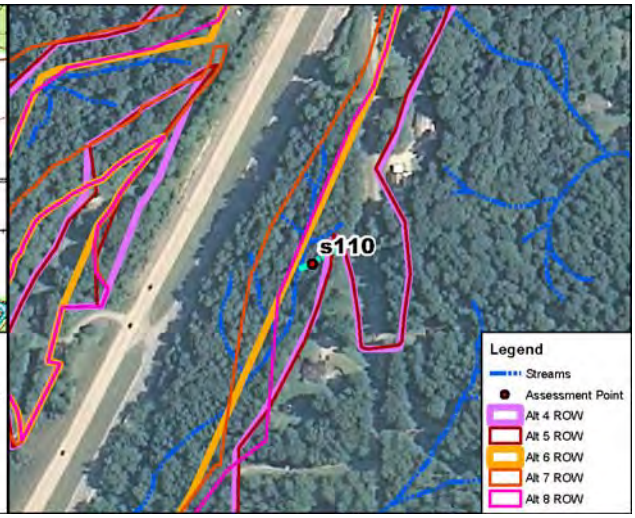
FLOW ➔

Save as pdf Reset Form

Stream Impacts S110



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	0.8 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	29	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1773536 ft	**UTMN:** 14253699 ft		

Stream S110 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	86	0.01	0.00
5	96	0.01	0.00
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S110 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel and sand. There is a wide riparian buffer where this stream crosses Alternatives 4 and 5. The floodplain consists of the immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S110 are on the second page of this form.

Stream Impacts S110

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 29

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S110 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 120 LAT.: 39.24920 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.52977) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	5%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	35%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40: 19

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 2

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 0.8' / .2' **AVERAGE BANKFULL WIDTH (meters):** 0.50

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S110

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **n** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts:

Flows only during storm events.

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

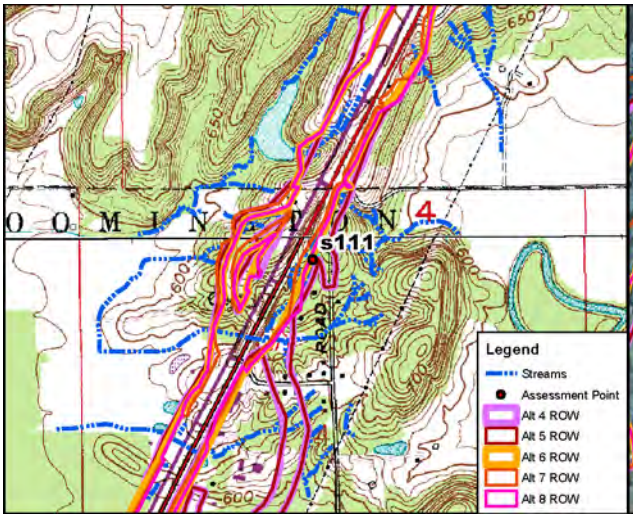
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

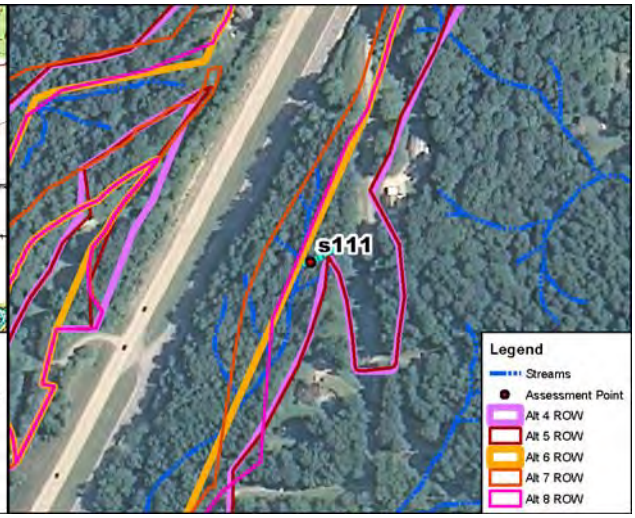
FLOW ➔

Save as pdf Reset Form

Stream Impacts S111



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.1 feet
Channelized/Type:	No/	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	29	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1773547 ft	**UTMN:** 14253761 ft		

Stream S111 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	103	0.01	0.08
5	103	0.01	0.08
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S111 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel and sand. There is a wide riparian buffer where this stream crosses Alternatives 4 and 5. The floodplain consists of the immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S111 are on the second page of this form.

Stream Impacts S111

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 29

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S111 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 100 LAT.: 39.24937 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.52973) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	5%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	40%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40: 19

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 1

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.1' / 0.1' **AVERAGE BANKFULL WIDTH (meters):** 0.50

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S111

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts:

Flows only during storm events.

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

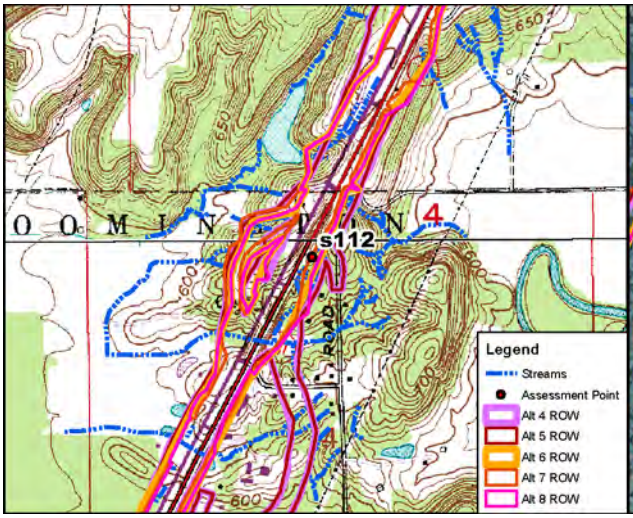
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

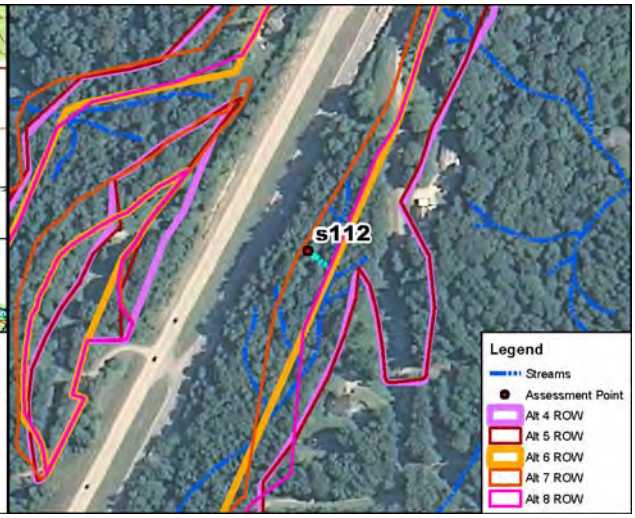
FLOW ➔

Save as pdf Reset Form

Stream Impacts S112



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	0.4 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	29	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1773460 ft	**UTMN:** 14253820 ft		

Stream S112 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	94	0.01	0.10
5	94	0.01	0.10
6	88	0.01	0.10
7	0	0.00	0.10
8	81	0.01	0.10

Description of Potential Impact:
Impacts to S112 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel and sand. There is a wide riparian buffer where the Alternatives cross this stream. The floodplain consists of the immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S112 are on the second page of this form.

Stream Impacts S112

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 29

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S112 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 94 LAT.: 39.24953 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.53003) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	5%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	40%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 3

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 0.4' / 0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.50

HHEI Metric Points

Substrate Max = 40	19	A + B
Pool Depth Max = 30	5	
Bankfull Width Max=30	5	

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S112

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **20%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts:

Flows only during storm events.

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

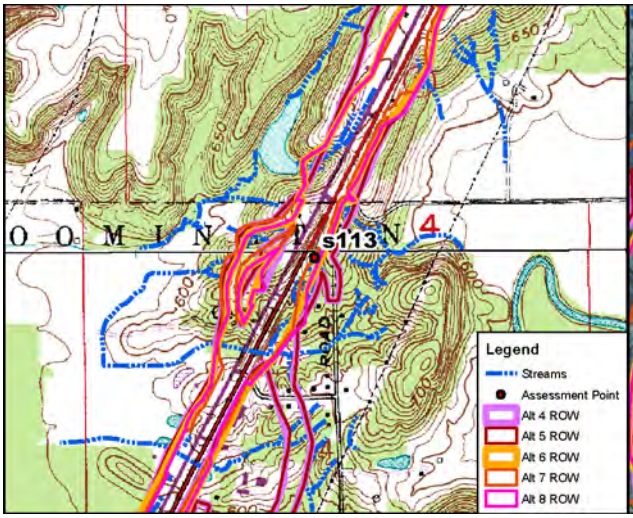
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

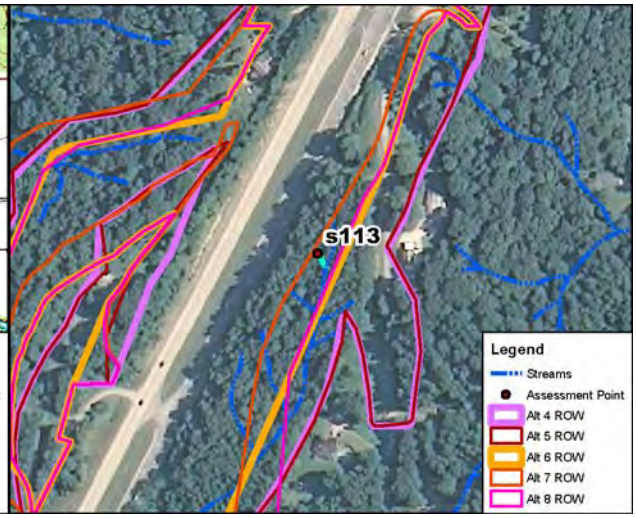
FLOW ➔

Save as pdf Reset Form

Stream Impacts S113



Site Location on Bloomington USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	0.4 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	29	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1773522 ft	**UTMN:** 14253927 ft		

Stream S113 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	51	0.01	0.06
5	51	0.01	0.06
6	51	0.01	0.06
7	0	0.00	0.06
8	51	0.01	0.06

Description of Potential Impact:
Impacts to S113 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel and sand. There is a wide riparian buffer where the Alternatives cross this stream. The floodplain consists of the immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S113 are on the second page of this form.

Stream Impacts S113

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 29

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S113 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 50 LAT.: 39.24982 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.52981) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

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☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	5%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	40%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 1

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 0.4' / 0.3' **AVERAGE BANKFULL WIDTH (meters):** 0.12

HHEI Metric Points

Substrate Max = 40	19	A + B
Pool Depth Max = 30	5	
Bankfull Width Max=30	5	

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S113

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

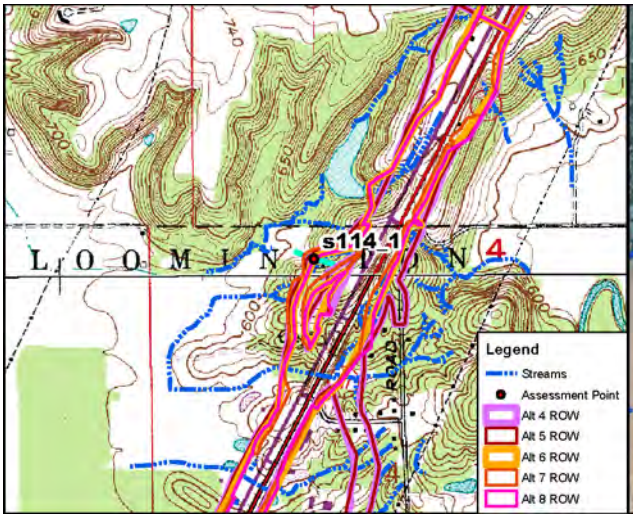
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

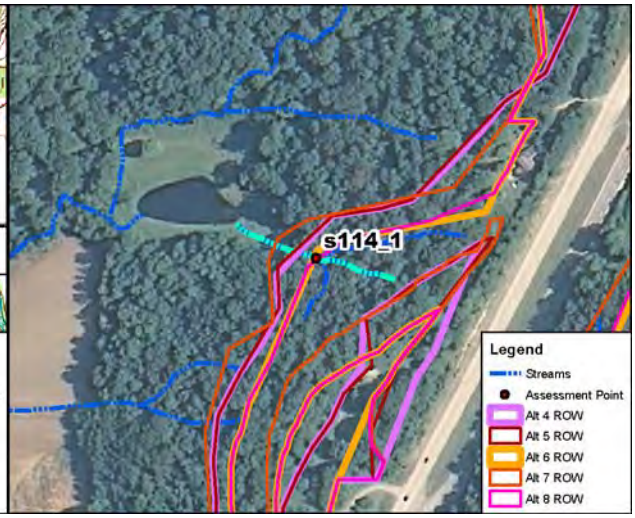
FLOW ➔

Save as pdf Reset Form

Stream Impacts S114_1



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.2 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	39	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/bedrock
UTME: 1772827 ft	**UTMN:** 14254164 ft		

Stream S114_1 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	267	0.01	1.39
5	277	0.01	1.42
6	222	0.01	1.27
7	330	0.01	1.61
8	211	0.01	1.25

Description of Potential Impact:
Impacts to S114_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel and bedrock. There is a wide riparian buffer where the Alternatives cross this stream. The floodplain consists of immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S114_1 are on the second page of this form.

Stream Impacts S114_1

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 39

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S114_1 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.25048 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/11/06 SCORER: J Meeker COMMENTS: (Long: -86.53226) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐ ☑	BEDROCK [16 pt]	30%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	15%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 25 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 4

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 1.2' / 0.5' **AVERAGE BANKFULL WIDTH (meters):** 0.60

HHEI Metric Points

Substrate Max = 40	29
A + B	
Pool Depth Max = 30	5
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

S114_1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order **1**

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: **66 Upstream / 67 Downstream / 68 Right bank / 69 Left bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

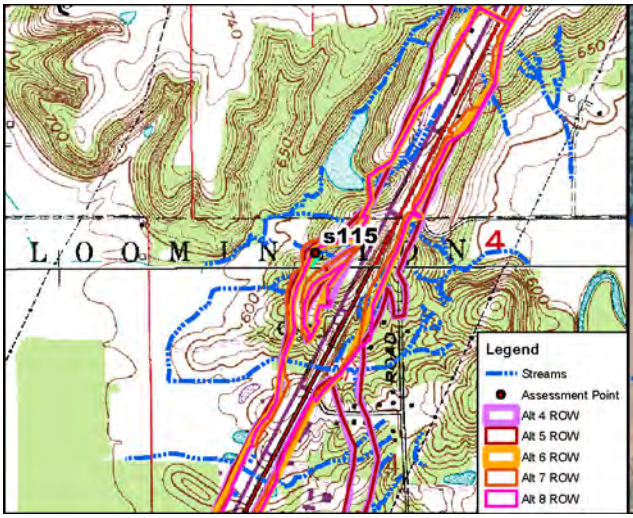
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S115



Site Location on Modesto USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	0.6 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	39	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/bedrock
UTME: 1772850 ft	**UTMN:** 14254135 ft		

Stream S115 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	177	0.01	0.60
5	177	0.01	0.60
6	177	0.01	0.49
7	177	0.01	0.61
8	177	0.01	0.49

Description of Potential Impact:
Impacts to S115 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel and bedrock. There is a wide riparian buffer where the Alternatives cross this stream. The floodplain consists of immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S115 are on the second page of this form.

Stream Impacts S115

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 39

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S115 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 175 LAT.: 39.25040 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.53218) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐ ☑	BEDROCK [16 pt]	30%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	15%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 25 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 1

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 0.6' / 0.1' **AVERAGE BANKFULL WIDTH (meters):** 0.50

HHEI Metric Points

Substrate Max = 40	29
A + B	
Pool Depth Max = 30	5
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S115

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Beanblossom Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Modesto NRCS Soil Map Page: 18 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Bloomington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/11/06 Quantity: 0.60

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

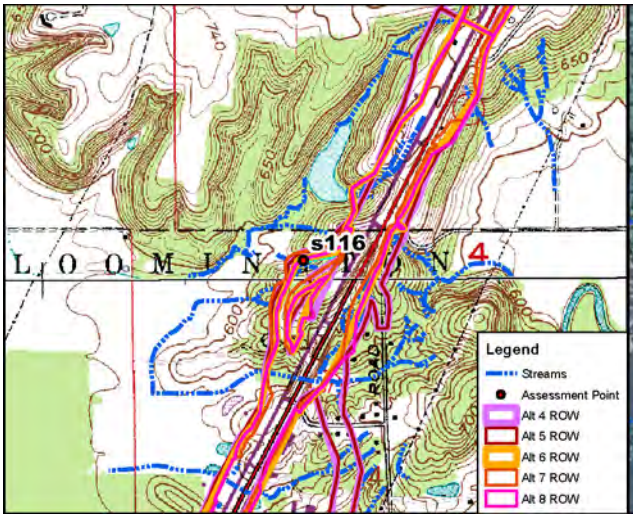
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

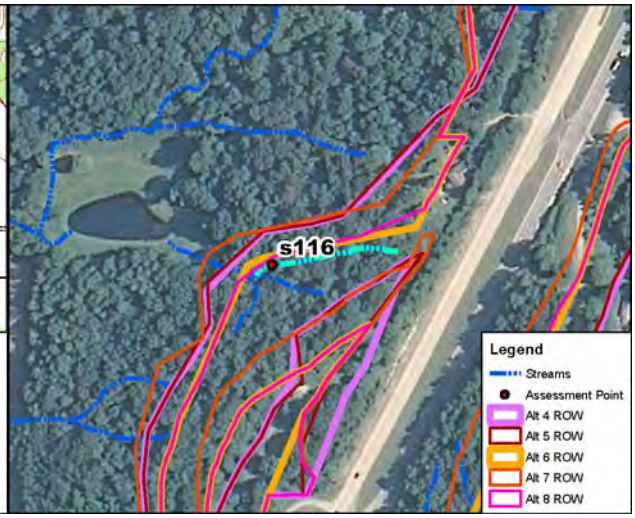
FLOW ➔

Save as pdf Reset Form

Stream Impacts S116



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NW	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.9 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	39	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/bedrock
UTME: 1772895 ft	**UTMN:** 14254186 ft		

Stream S116 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	387	0.02	1.08
5	387	0.02	1.06
6	387	0.02	0.65
7	387	0.02	1.07
8	387	0.02	0.74

Description of Potential Impact:
Impacts to S116 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel and bedrock. There is a wide riparian buffer where the Alternatives cross this stream. The floodplain consists of immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S116 are on the second page of this form.

Stream Impacts S116

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 39

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S116 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.25055 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.53202) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐ ☑	BEDROCK [16 pt]	30%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	15%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 25

TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: 29

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 3

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.9' / 0.2' AVERAGE BANKFULL WIDTH (meters): 0.75

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S116

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

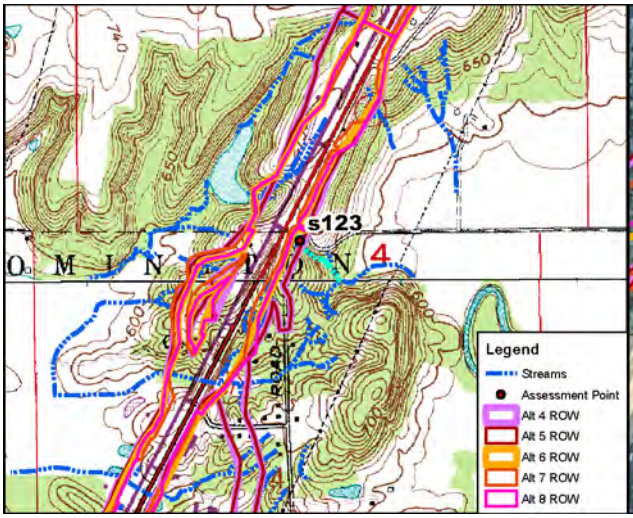
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

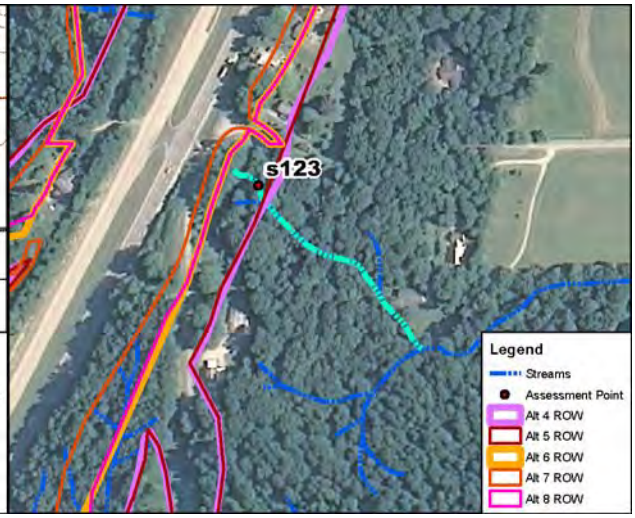
FLOW ➔

Save as pdf Reset Form

Stream Impacts S123



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto, Bloomington
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.8 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	28	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/silt
UTME: 1773881 ft	**UTMN:** 14254409 ft		

Stream S123 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	131	0.01	0.68
5	121	0.01	0.64
6	0	0.00	0.09
7	0	0.00	0.00
8	0	0.00	0.09

Description of Potential Impact:
Impacts to S123 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The substrate is predominately sand and silt. There is a wide riparian corridor on both banks where Alternatives 4 and 5 cross this stream. The floodplain consists primarily of immature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S123 are on the second page of this form.

Stream Impacts S123

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 28

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S123 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.25114 LONG.: RIVER CODE: RIVER MILE:

DATE: 10/17/11 SCORER: DEW/KSS COMMENTS: (Long: -86.52854) (Natural-Class 1)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	20%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	5%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	65%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 3.5'/0.8' **AVERAGE BANKFULL WIDTH (meters):** 1.07

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	13
Pool Depth	30	0
Bankfull Width	30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☑ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Bloomington / Modesto** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/13/11** Quantity: **0.25**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

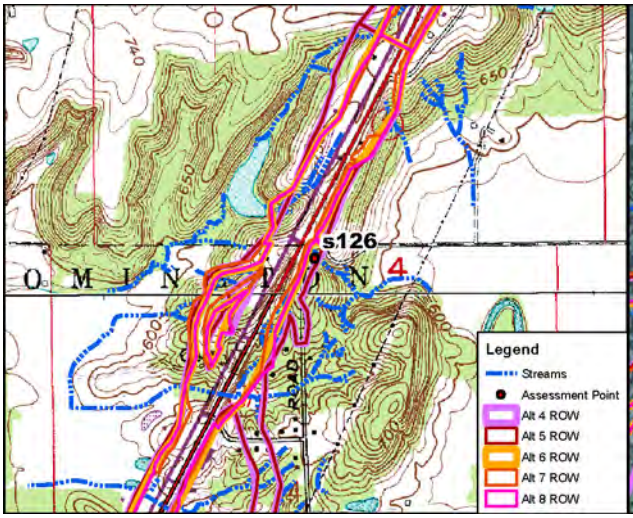
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

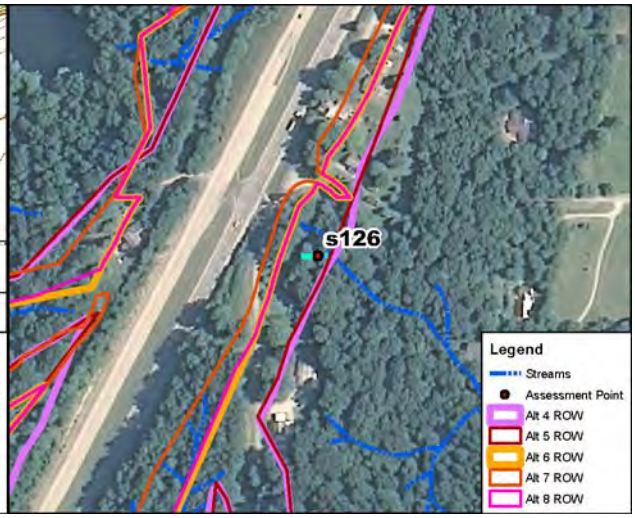
FLOW ➔

Save as pdf Reset Form

Stream Impacts S126



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	4
Quarter:	NE	**Township:**	T9N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	0.6 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	28	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1773860 ft	**UTMN:** 14254366 ft		

Stream S126 - Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	86	0.01	0.02
5	77	0.01	0.02
6	0	0.00	0.01
7	0	0.00	0.00
8	0	0.00	0.01

Description of Potential Impact:
Impacts to S126 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists predominantly of gravel and sand. There is a wide riparian buffer where Alternatives 4 and 5 cross this stream. The floodplain consists of immature forest on both banks. Photographs taken upstream and downstream in the area where these Alternatives cross S126 are on the second page of this form.

Stream Impacts S126

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 28

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S126 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 85 LAT.: 39.25102 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.52861) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	40%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 3

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 0.6' / 0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.60

HHEI Metric Points

Substrate Max = 40	A + B	18
Pool Depth Max = 30		5
Bankfull Width Max=30		5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S126

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: **18** NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Bloomington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **20%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

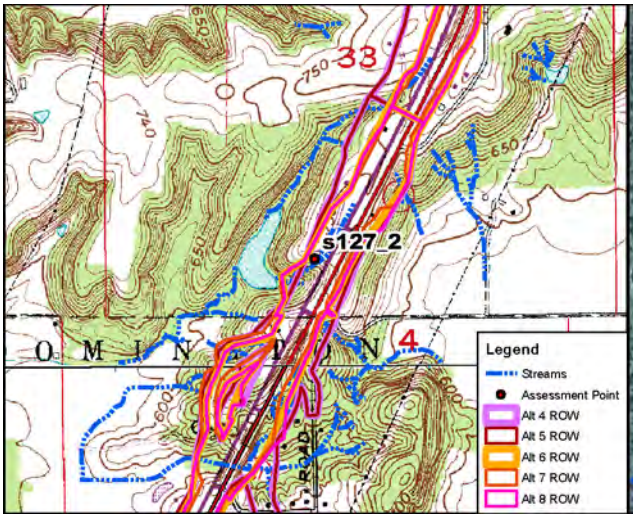
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

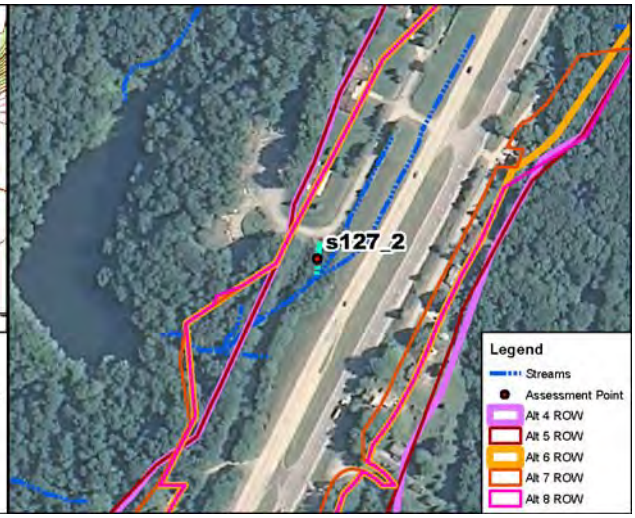
FLOW ➔

Save as pdf Reset Form

Stream Impacts S127_2



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SW	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.0 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1773741 ft	**UTMN:** 14255106 ft		

Stream S127_2 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	87	0.01	0.02
5	87	0.01	0.02
6	87	0.01	0.02
7	87	0.01	0.02
8	87	0.01	0.02

Description of Potential Impact:
Impacts to S127_2 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter. There is a narrow riparian buffer associated with this artificial channel. The floodplain consists of immature forest adjacent to the right bank and new field on the left. Photographs taken upstream and downstream where these Alternatives cross S127_2 are on the second page of this form.

Stream Impacts S127_2

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s127_2 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 85 LAT.: 39.25306 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/25/12 SCORER: KSS/DEW COMMENTS: (Long: -86.52902) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 1.0'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.30

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	7
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☑	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S127_2

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Washington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/24/12** Quantity: **0.15**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **65%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

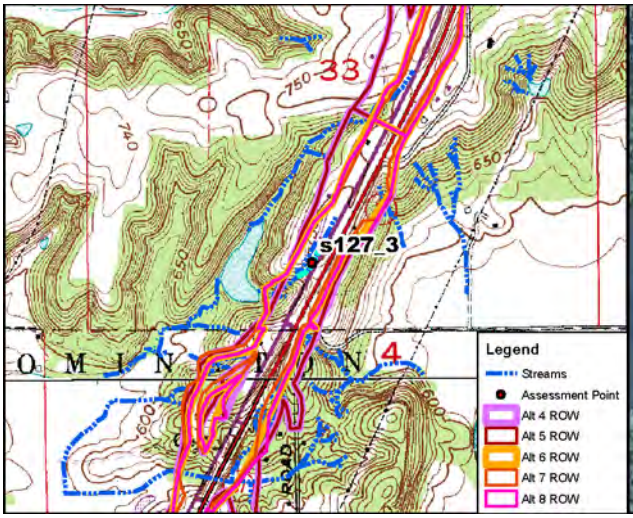
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

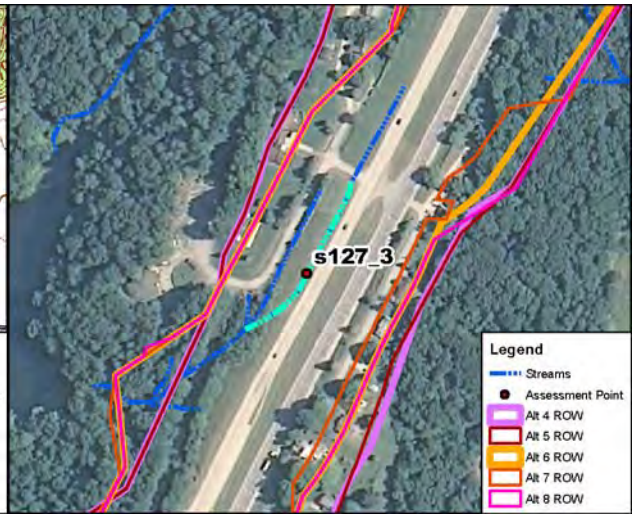
FLOW ➔

Save as pdf Reset Form

Stream Impacts S127_3



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SW	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.2 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1773895 ft	**UTMN:** 14255203 ft		

Stream S127_3 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	486	0.02	0.00
5	486	0.02	0.00
6	486	0.02	0.00
7	486	0.02	0.00
8	486	0.02	0.00

Description of Potential Impact:
Impacts to S127_3 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S127_3 are on the second page of this form.

Stream Impacts S127_3

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s127_3 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.25332 LONG.: RIVER CODE: RIVER MILE:

DATE: 04/25/12 SCORER: KSS/DEW COMMENTS: (Long: -86.52847) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 2.2'/0.1' AVERAGE BANKFULL WIDTH (meters): 0.70

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	7
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S127_3

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Washington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/24/12** Quantity: **0.15**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

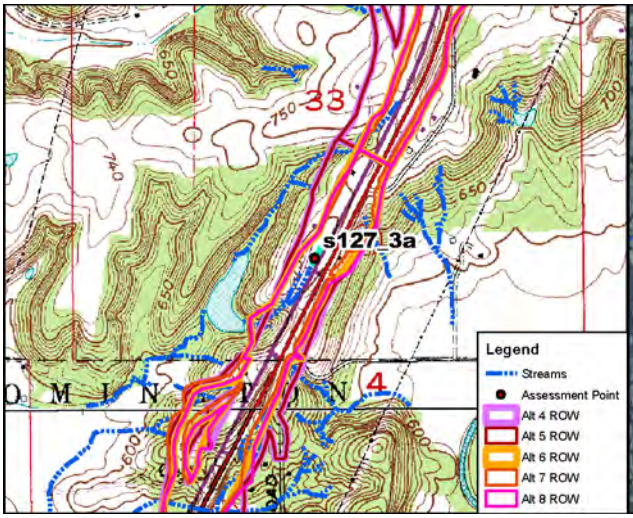
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

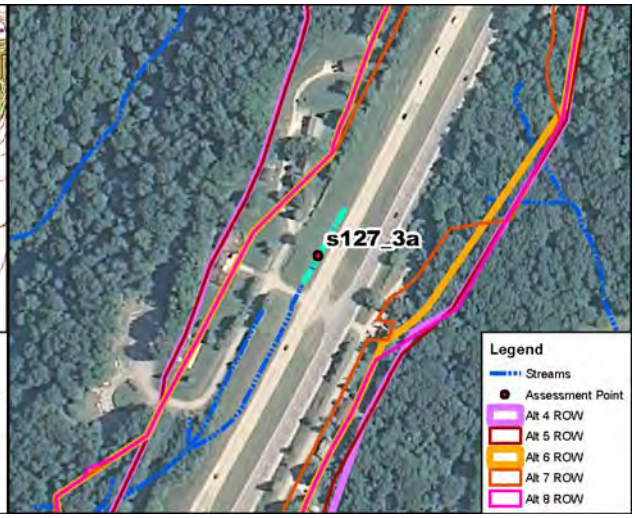
FLOW ➔

Save as pdf Reset Form

Stream Impacts S127_3a



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SW	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.2 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1771080 ft	**UTMN:** 14255564 ft		

Stream S127_3a – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	226	0.01	0.00
5	226	0.01	0.00
6	226	0.01	0.00
7	226	0.01	0.00
8	226	0.01	0.00

Description of Potential Impact:
Impacts to S127_3a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S127_3a are on the second page of this form.

Stream Impacts S127_3a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s127_3a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.25431 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/25/12 | SCORER: KSS/DEW | COMMENTS: (Long: -86.52781) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW 1.2'/0.1' **AVERAGE BANKFULL WIDTH (meters):** 0.36

HHEI Metric Points

Substrate Max = 40	A + B	7
Pool Depth Max = 30		0
Bankfull Width Max=30		5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S127_3a

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Beanblossom Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Modesto NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Monroe Township / City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/24/12 Quantity: 0.15

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: _____

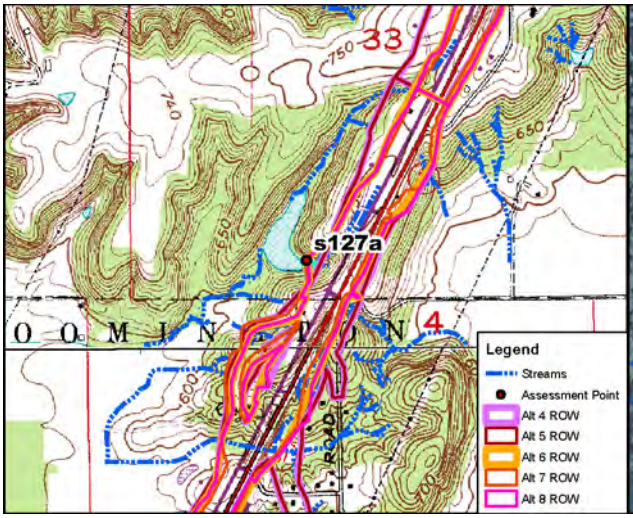
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S127a



Site Location on Modesto USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SW	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.1 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	51	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/boulders
UTME: 1773393 ft	**UTMN:** 14254905 ft		

Stream S127a – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.19
5	0	0.00	0.19
6	173	0.01	0.74
7	186	0.01	0.81
8	173	0.01	0.74

Description of Potential Impact:
Impacts to S127a for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of gravel and boulders. This stream feed into a pond. There is a wide riparian corridor along both banks of this stream. The floodplain consists of mature forest along both banks. Photographs taken upstream and downstream where the Alternatives cross S127a are on the second page of this form.

Stream Impacts S127a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 51

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S127a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.25251 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 05/11/06 | SCORER: A Rogers | COMMENTS: (Long: -86.53025) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☑	BOULDER (>256 mm) [16 pts]	15%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	5%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	10%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 25.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 25 **TOTAL NUMBER OF SUBSTRATE TYPES:** 6

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 7

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 3.1' / 0.5' **AVERAGE BANKFULL WIDTH (meters):** 0.95

HHEI Metric Points

Substrate Max = 40	31
A + B	
Pool Depth Max = 30	15
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S127

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order **1**

County: **Monroe** Township / City: **Washington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **05/11/06** Quantity: **0.60**

Photograph Information: **57 Upstream / 58 Downstream / 59 Right Bank / 60 Left Bank**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **25%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

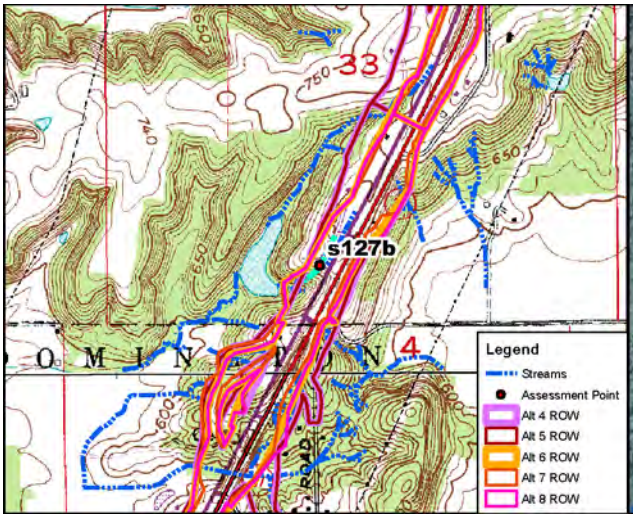
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

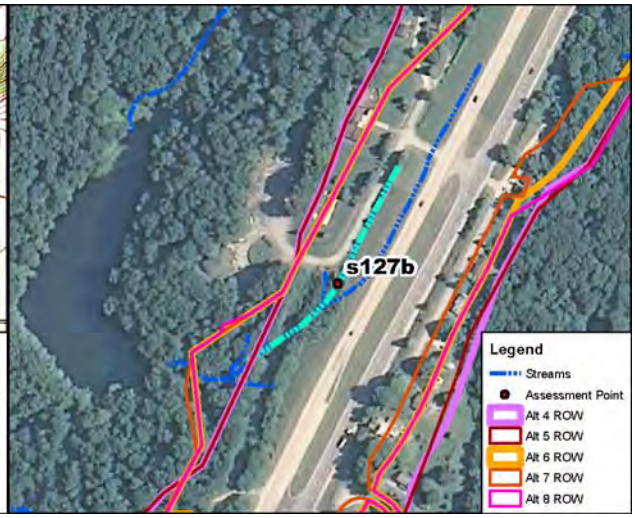
FLOW ➔

Save as pdf Reset Form

Stream Impacts S127b



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SW	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.0 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.02 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1773779 ft	**UTMN:** 14255117 ft		

Stream S127b– Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	641	0.01	0.95
5	641	0.01	0.95
6	655	0.02	1.15
7	655	0.02	1.15
8	655	0.02	1.15

Description of Potential Impact:
Impacts to S127b for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter beginning along Stone Belt Drive and feeding s127a, 655 feet later. The riparian buffer associated with this artificial channel ranges from none (upper reach) to wide (lower reach). The floodplain habitat along the upper reach is all transportation, while the lower reach is immature forest. Photographs taken upstream and downstream where these Alternatives cross S127b are on the second page of this form.

Stream Impacts S127b

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s127b | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.02

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.25309 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/25/12 | SCORER: KSS/DEW | COMMENTS: (Long: -86.52889) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 1'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.30

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	7
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S127b

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Washington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/24/12** Quantity: **0.15**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

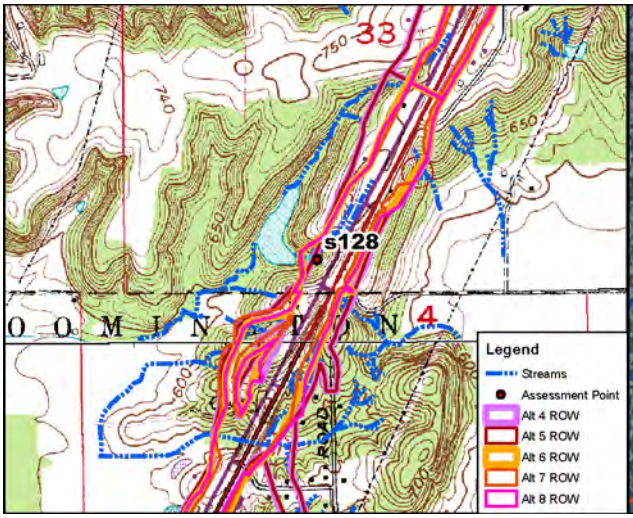
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

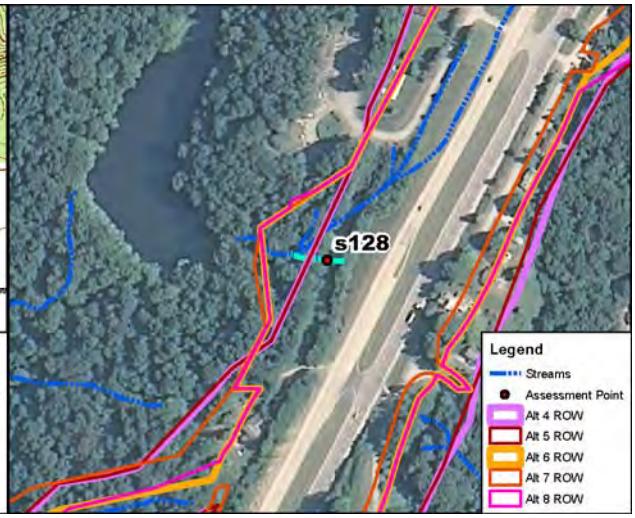
FLOW ➔

Save as pdf Reset Form

Stream Impacts S128



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SW	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.8 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	40	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1773570 ft	**UTMN:** 14254853 ft		

Stream S128 – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	92	0.01	0.18
5	92	0.01	0.18
6	141	0.01	0.18
7	141	0.01	0.18
8	141	0.01	0.18

Description of Potential Impact:
Impacts to S128 for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of gravel and sand. There is a wide riparian corridor along both banks of this stream. The floodplain consists of immature forest along both banks. Photographs taken upstream and downstream where the Alternatives cross S128 are on the second page of this form.

Stream Impacts S128

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 40

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S128 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 140 LAT.: 39.25237 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.52963) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	5%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	25%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ MAXIMUM POOL DEPTH (centimeters): 6

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.8' / 0.5' AVERAGE BANKFULL WIDTH (meters): 0.90

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	20
Pool Depth	30	15
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S128

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Beanblossom Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Modesto NRCS Soil Map Page: 13 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/11/06 Quantity: 0.60

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 45%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

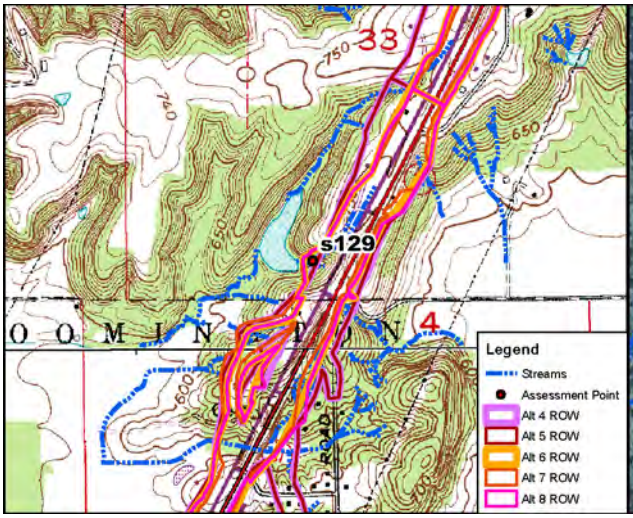
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

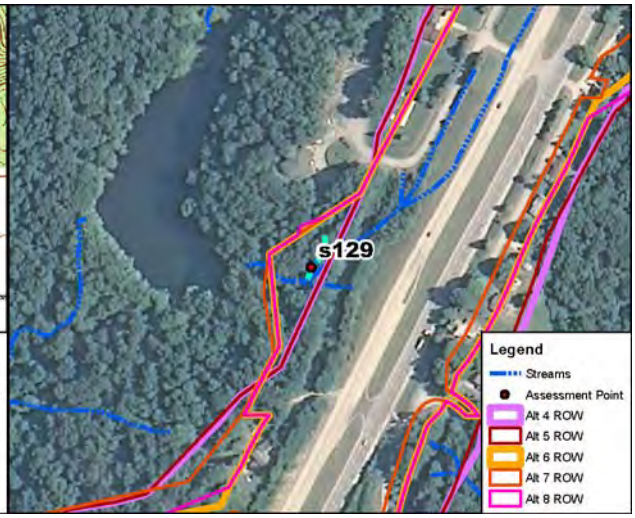
FLOW ➔

Save as pdf Reset Form

Stream Impacts S129



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SW	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.5 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.1 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	39	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/sand
UTME: 1773506 ft	**UTMN:** 14254904 ft		

Stream S129 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	0	0.00	0.00
5	0	0.00	0.00
6	124	0.01	0.01
7	124	0.01	0.01
8	124	0.01	0.01

Description of Potential Impact:
Impacts to S129 for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of gravel and sand. There is a wide riparian corridor along both banks of this stream. The floodplain consists of immature forest along both banks. Photographs taken upstream and downstream where the Alternatives cross S129 are on the second page of this form.

Stream Impacts S129

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 39

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S129 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 120 LAT.: 39.25251 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.52985) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	5%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	50%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	35%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15

TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: **19** (A + B)

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ MAXIMUM POOL DEPTH (centimeters): 6

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW - 1.5' / 0.1' AVERAGE BANKFULL WIDTH (meters): 0.90

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S129

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Beanblossom Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Modesto NRCS Soil Map Page: 13 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/11/06 Quantity: 0.60

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

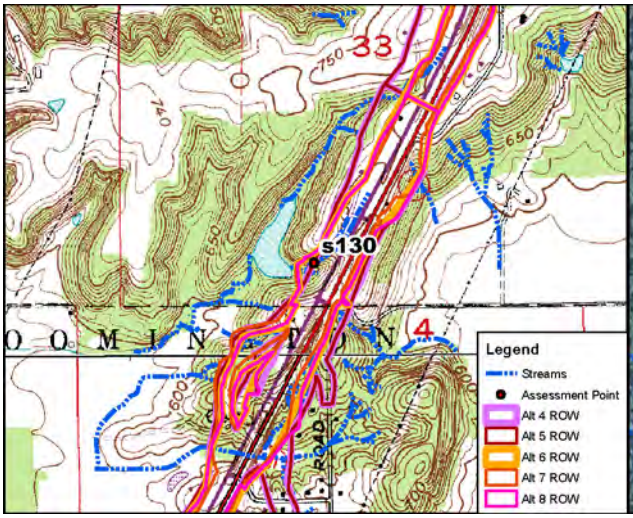
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

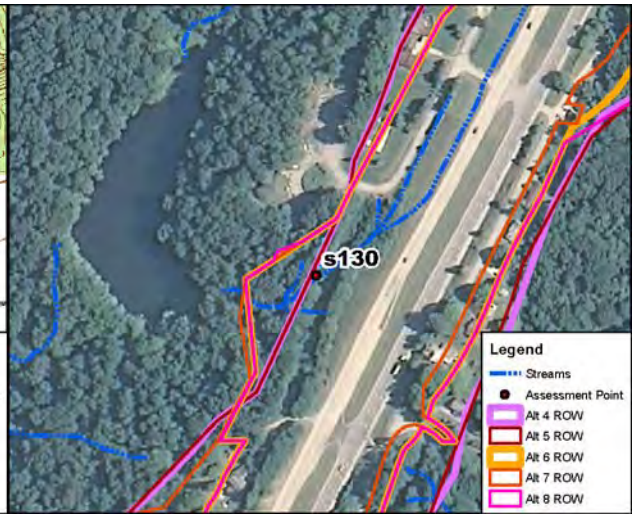
FLOW →

Save as pdf Reset Form

Stream Impacts S130



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SW	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.9 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	40	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/gravel
UTME: 1773582 ft	**UTMN:** 14254949 ft		

Stream S130 – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	59	0.01	0.01
5	58	0.01	0.01
6	108	0.01	0.01
7	108	0.01	0.01
8	108	0.01	0.01

Description of Potential Impact:
Impacts to S130 for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of sand and gravel. There is a wide riparian corridor along both banks of this stream. The floodplain consists of immature forest along both banks. Photographs taken upstream and downstream where the Alternatives cross S130 are on the second page of this form.

Stream Impacts S130

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 40

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S130 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 100 LAT.: 39.25263 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.52959) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	5%
☐	COBBLE (65-256 mm) [12 pts]	5%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	35%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	45%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 7

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 1.9' / 0.2' **AVERAGE BANKFULL WIDTH (meters):** 1.00

HHEI Metric Points

	Max	Score
Substrate	40	20
Pool Depth	30	15
Bankfull Width	30	5

A + B

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S130

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Beanblossom Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Modesto NRCS Soil Map Page: 13 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/11/06 Quantity: 0.60

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

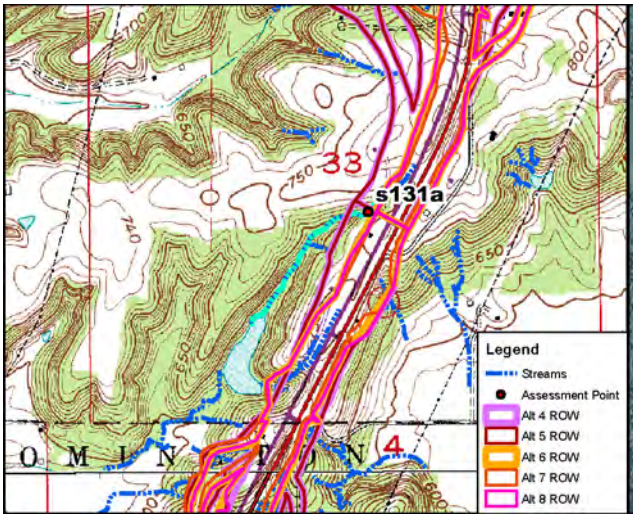
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

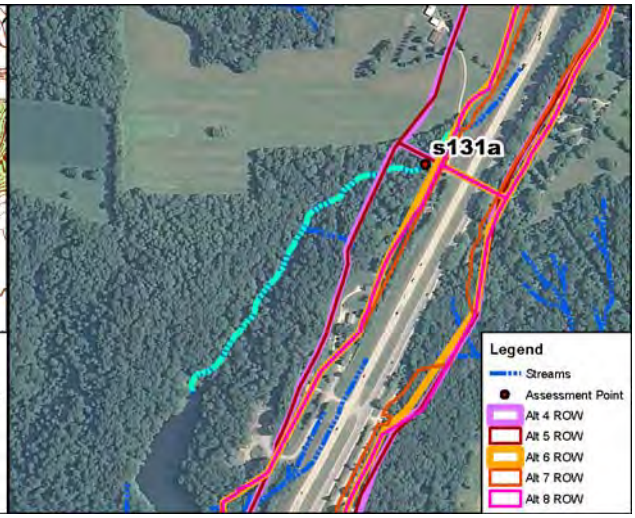
FLOW ➔

Save as pdf Reset Form

Stream Impacts S131a



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SE	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	4.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.5 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	41	**Watershed Area:**	0.03 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Sand/boulders
UTME: 1774456 ft	**UTMN:** 14256697 ft		

Stream S131a – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	478	0.05	1.80
5	467	0.05	1.77
6	3	0.01	0.17
7	0	0.00	0.00
8	0	0.00	0.04

Description of Potential Impact:
Impacts to S131a for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of sand and boulders. There is a wide riparian corridor along both banks where Alternatives 4 and 5 cross this stream. The floodplain consists of immature forest along both banks. Photographs taken upstream and downstream where the Alternatives cross S131a are on the second page of this form.

Stream Impacts S131a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 41

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S131a RIVER BASIN: White River DRAINAGE AREA (mi²): 0.03

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.25742 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 10/17/11 SCORER: DEW/KSS COMMENTS: (-86.52647) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☑	BOULDER (>256 mm) [16 pts]	35%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	5%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	50%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 35.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 22 TOTAL NUMBER OF SUBSTRATE TYPES: 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 4'/0.5' **AVERAGE BANKFULL WIDTH (meters):** 1.22

HHEI Metric Points

Substrate Max = 40	26
A + B	
Pool Depth Max = 30	0
Bankfull Width Max=30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS: ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Washington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/13/11** Quantity: **0.25**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **5%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

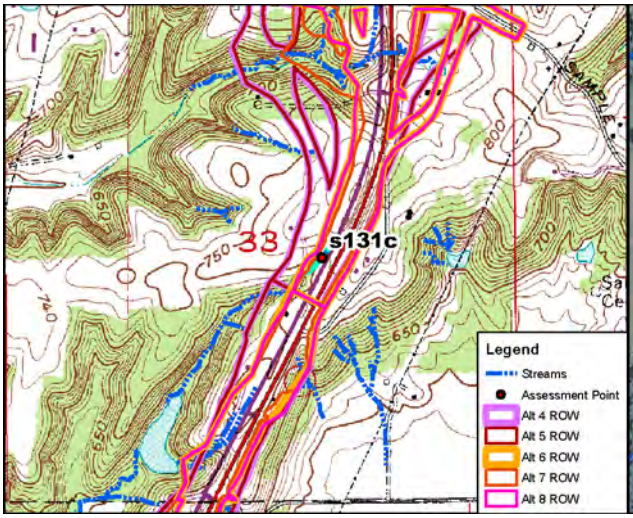
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW ➔

Save as pdf Reset Form

Stream Impacts S131c



Site Location on Modesto USGS Quadrangle

Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SE	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.0 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.03 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1774842 ft	**UTMN:** 14257040 ft		

Stream S131c – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	414	0.01	0.00
5	414	0.01	0.00
6	414	0.01	0.00
7	414	0.01	0.00
8	414	0.01	0.00

Description of Potential Impact:
Impacts to S131c for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter located within existing INDOT ROW. There is no riparian buffer associated with this artificial channel. The floodplain consists of maintained INDOT ROW. Photographs taken upstream and downstream in the area where these Alternatives cross S131c are on the second page of this form.

Stream Impacts S131c

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 12

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s131c | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.03

LENGTH OF STREAM REACH (ft): 200 | LAT.: 39.25836 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/25/12 | SCORER: KSS/DEW | COMMENTS: (Long: -86.52510) (Concrete Gutter-Modified Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☑	ARTIFICIAL [3 pts]	100%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW 1'/0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.30

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	7
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S131c

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Washington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/24/12** Quantity: **0.15**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

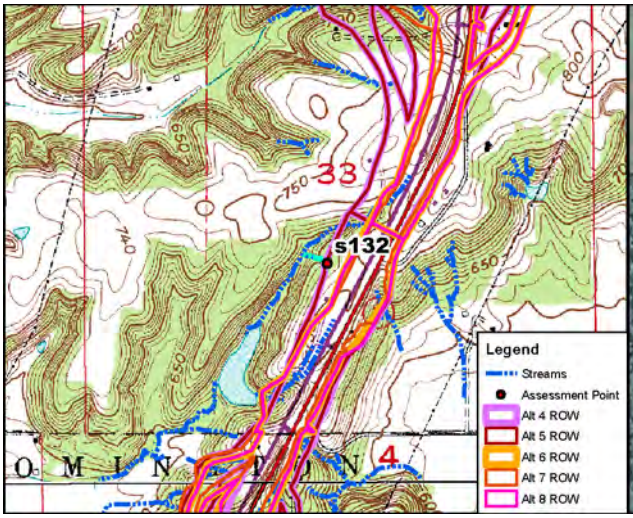
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

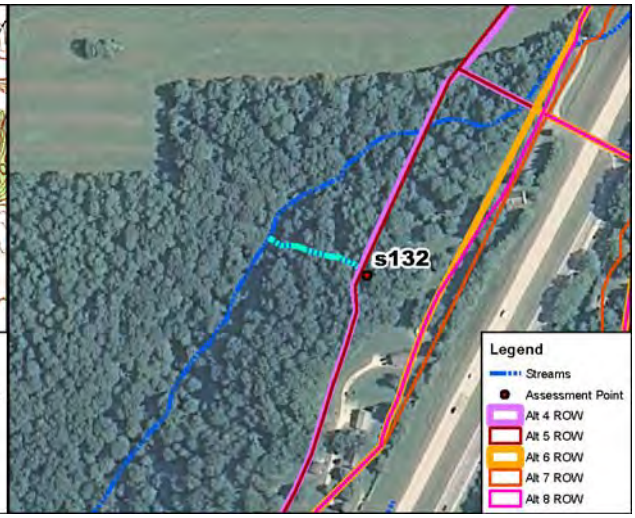
FLOW ➔

Save as pdf Reset Form

Stream Impacts S132



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SW	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	52	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/boulder slabs
UTME: 1774079 ft	**UTMN:** 14256274 ft		

Stream S132 – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	30	0.01	0.47
5	24	0.01	0.44
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S132 for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The substrate consists of gravel, boulder slabs, sand, and leaf pack. There is a wide riparian corridor where Alternatives 4 and 5 cross this stream. The floodplain consists of immature forest along both banks. Photographs taken upstream and downstream where the Alternatives cross S132 are on the second page of this form.

Stream Impacts S132

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 52

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S132 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.25626 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.52780) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☑	BLDR SLABS [16 pts]	12%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pt]	9%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	9%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	45%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 25 **TOTAL NUMBER OF SUBSTRATE TYPES:** 7

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☑	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 9

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS OHW - 2.0' / 0.2' **AVERAGE BANKFULL WIDTH (meters):** 0.90

HHEI Metric Points

Substrate Max = 40	32
A + B	
Pool Depth Max = 30	15
Bankfull Width Max=30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (Intermittent)
☐	Subsurface flow with isolated pools (Interstitial)	☐	Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S132

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Beanblossom Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Modesto NRCS Soil Map Page: 13 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/11/06 Quantity: 0.60

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

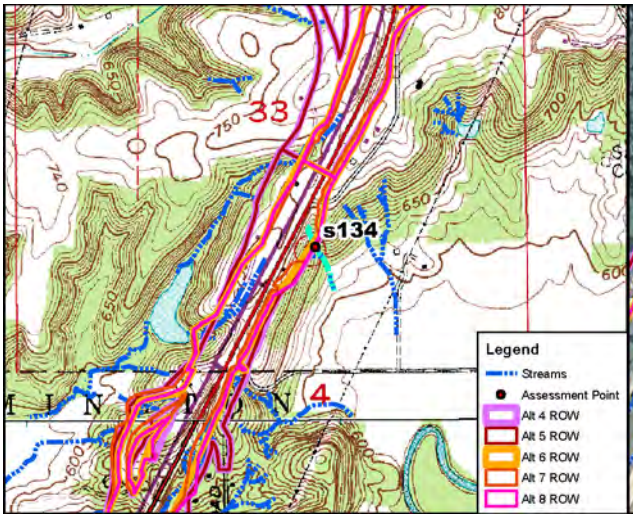
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

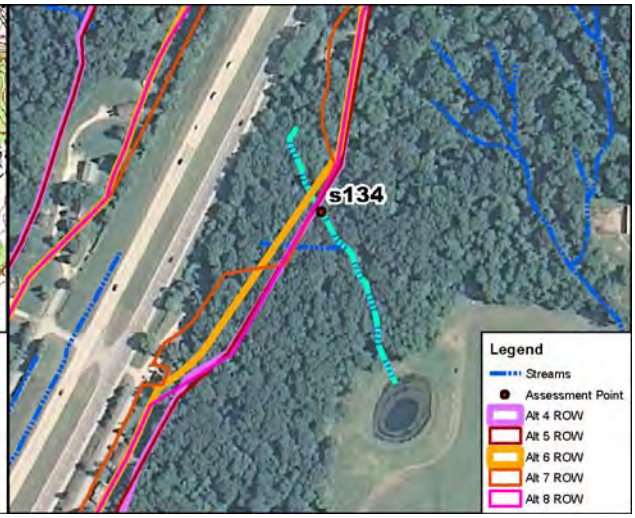
FLOW →

Save as pdf Reset Form

Stream Impacts S134



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	UNT Beanblossom Ck	**Section:**	33
Quarter:	SE	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	3.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	38	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Cobble/boulders
UTME: 1774673 ft	**UTMN:** 14255794 ft		

Stream S134 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	223	0.02	1.30
5	222	0.02	1.30
6	190	0.01	1.15
7	217	0.01	1.20
8	217	0.01	1.28

Description of Potential Impact:
Impacts to S134 for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of cobble, boulders, and sand. There is a wide riparian corridor along both banks of this stream. The floodplain consists of immature forest along both banks. Photographs taken upstream and downstream where the Alternatives cross S134 are on the second page of this form.

Stream Impacts S134

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 38

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S134 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.25493 LONG.: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 10/17/11 SCORER: DEW/KSS COMMENTS: (Long: -86.52571) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE			PERCENT	TYPE			PERCENT
☐	☐	BLDR SLABS [16 pts]	0%	☐	☐	SILT [3 pt]	5%
☑	☐	BOULDER (>256 mm) [16 pts]	30%	☐	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	☐	BEDROCK [16 pt]	0%	☐	☐	FINE DETRITUS [3 pts]	0%
☐	☑	COBBLE (65-256 mm) [12 pts]	40%	☐	☐	CLAY or HARDPAN [0 pt]	0%
☐	☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	☐	MUCK [0 pts]	0%
☐	☐	SAND (<2 mm) [6 pts]	20%	☐	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 70.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 28 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ **MAXIMUM POOL DEPTH (centimeters):** 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 3'/0.6' **AVERAGE BANKFULL WIDTH (meters):** 0.90

HHEI Metric Points

Substrate Max = 40	33	A + B
Pool Depth Max = 30	0	
Bankfull Width Max=30	5	

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Washington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/13/11** Quantity: **0.25**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **0%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

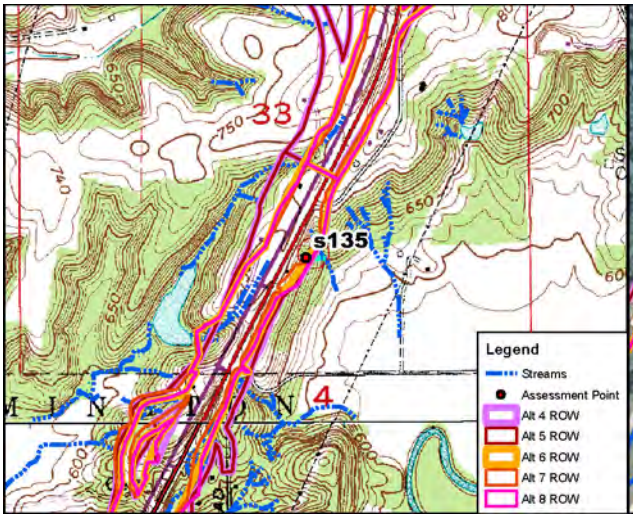
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

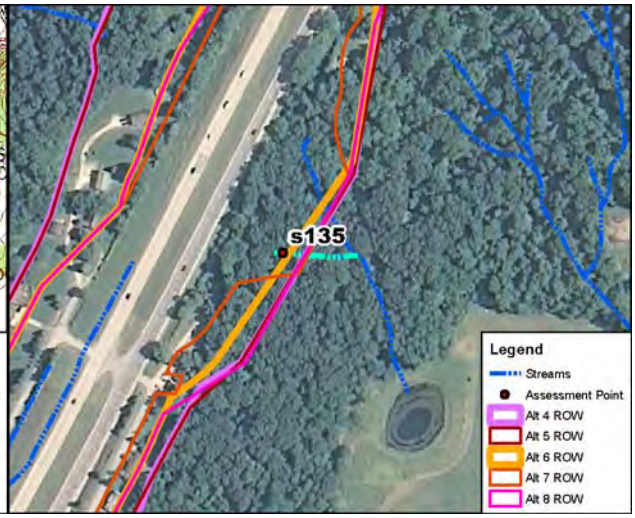
FLOW ➔

Save as pdf Reset Form

Stream Impacts S135



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SE	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	1.1 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.3 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	35	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Gravel/cobble
UTME: 1774539 ft	**UTMN:** 14255710 ft		

Stream S135 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	83	0.01	0.63
5	82	0.01	0.62
6	39	0.01	0.49
7	88	0.01	0.56
8	81	0.01	0.63

Description of Potential Impact:
Impacts to S135 for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of gravel and cobble. There is a wide riparian corridor along both banks of this stream. The floodplain consists of immature forest along both banks. Photographs taken upstream and downstream where the Alternatives cross S135 are on the second page of this form.

Stream Impacts S135

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 35

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S135 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.25471 LONG.: RIVER CODE: RIVER MILE:

DATE: 05/11/06 SCORER: A Rogers COMMENTS: (Long: -86.52619) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	20%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	60%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH (centimeters):** 4

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW - 1.1' / 0.3' **AVERAGE BANKFULL WIDTH (meters):** 0.60

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	25
Pool Depth	30	5
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☑ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

S135

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Beanblossom Creek Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Modesto NRCS Soil Map Page: 13 NRCS Soil Map Stream Order _____

County: Monroe Township / City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 05/11/06 Quantity: 0.60

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

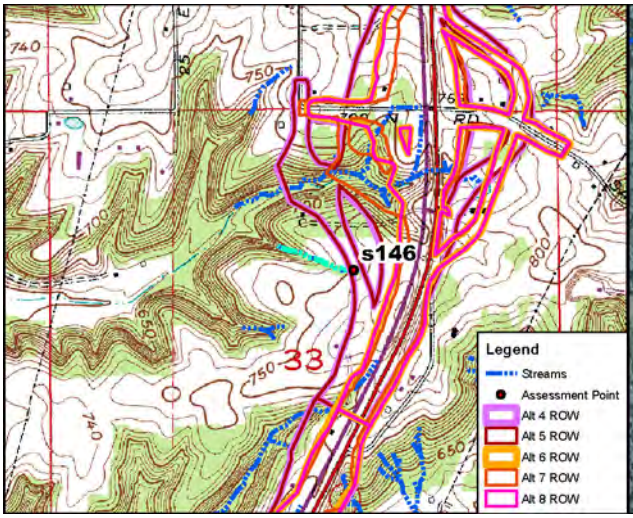
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

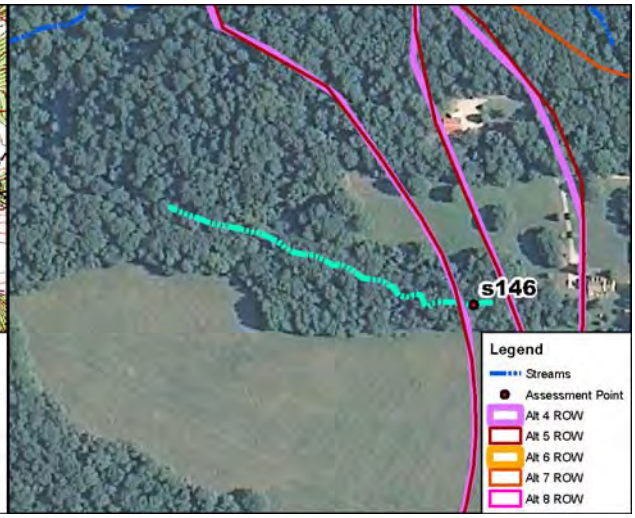
FLOW →

Save as pdf Reset Form

Stream Impacts S146



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	SE	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.6 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	28	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Boulder slabs/silt
UTME: 1774707 ft	**UTMN:** 14258133 ft		

Stream S146 – Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	87	0.01	0.50
5	90	0.01	0.51
6	0	0.00	0.00
7	0	0.00	0.00
8	0	0.00	0.00

Description of Potential Impact:
Impacts to S146 for Alternatives 4, 5, 6, 7, and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of boulder slabs and silt. There is a wide riparian corridor along the left bank and a narrow buffer along the right bank of this stream. The floodplain consists of immature forest along the left bank and residential land along the right. Photographs taken upstream and downstream where the Alternatives cross S146 are on the second page of this form

Stream Impacts S146

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 28

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: S146 RIVER BASIN: White River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT.: 39.26136 LONG.: RIVER CODE: RIVER MILE:

DATE: 10/17/11 SCORER: DEW/KSS COMMENTS: (Long: -86.52555) (Natural-Class I)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☑	BLDR SLABS [16 pts]	70%	☑ ☐	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 70.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19

TOTAL NUMBER OF SUBSTRATE TYPES: 4

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: OHW = 2'/0.6' AVERAGE BANKFULL WIDTH (meters): 0.60

HHEI Metric Points

	Max	Points
Substrate (A + B)	40	23
Pool Depth	30	0
Bankfull Width	30	5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☐	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☐	Narrow <5m	☑	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☑ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Washington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/13/11** Quantity: **0.25**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **60%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

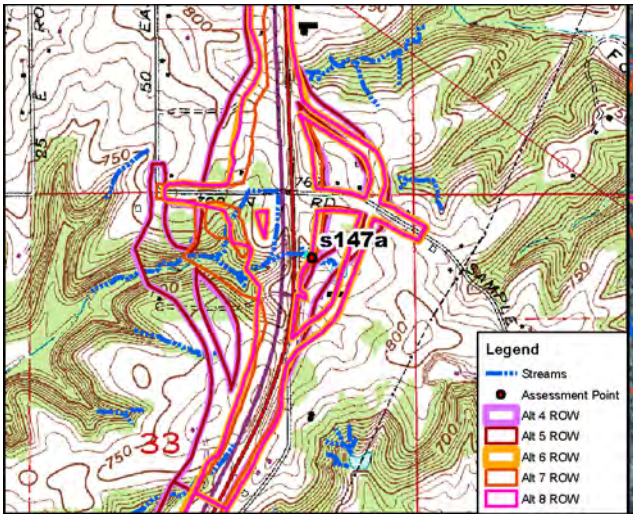
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

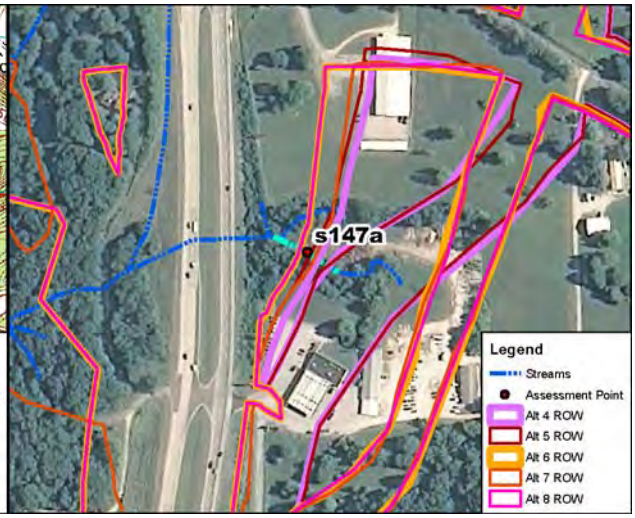
FLOW ➔

Save as pdf Reset Form

Stream Impacts S147a



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	NE	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	4.0 feet
Channelized/Type:	No/Natural	**OHWM Depth:**	0.6 feet
Stream Type:	Intermittent	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	51	**Watershed Area:**	0.17 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Boulder slabs/cobble
UTME: 1775767 ft	**UTMN:** 14259139 ft		

Stream S147a – Class II PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	159	0.01	0.81
5	137	0.01	0.76
6	76	0.01	0.33
7	121	0.01	0.48
8	75	0.01	0.32

Description of Potential Impact:
Impacts to S147a for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The predominant substrate consists of boulder slabs and cobble. There is a wide riparian corridor on the left bank and a moderately-wide riparian buffer along the right. The adjacent floodplain consists of a commercial use to the left and barren land to the right used as a spoil area. Photographs taken upstream and downstream in the area where these Alternatives cross S147a are on the second page of this form.

Stream Impacts S147a

Photograph Taken Upstream

Photograph Taken Downstream

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 51

SITE NAME/LOCATION: I-69 Section 5

SITE NUMBER: s147a | RIVER BASIN: White River | DRAINAGE AREA (mi²): 0.17

LENGTH OF STREAM REACH (ft): 190 | LAT.: 39.26411 | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 04/23/12 | SCORER: KSS | COMMENTS: (Long: -86.52179) (Natural-Class II)

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☑	BLDR SLABS [16 pts]	85%		SILT [3 pt]	0%
	BOULDER (>256 mm) [16 pts]	0%		LEAF PACK/WOODY DEBRIS [3 pts]	0%
	BEDROCK [16 pt]	0%		FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	10%		CLAY or HARDPAN [0 pt]	0%
	GRAVEL (2-64 mm) [9 pts]	0%		MUCK [0 pts]	0%
	SAND (<2 mm) [6 pts]	5%		ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 95.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 28 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 4

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS OHW = 4.0'/0.6' **AVERAGE BANKFULL WIDTH (meters):** 1.22

HHEI Metric Points

Substrate	Max = 40	31
A + B		
Pool Depth	Max = 30	5
Bankfull Width	Max=30	15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
☑	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☑	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☑	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Beanblossom Creek** Distance from Evaluated Stream **2.04**

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Modesto** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Monroe** Township / City: **Washington**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **04/19/12** Quantity: **0.20**

Photograph Information: _____

Elevated Turbidity? (Y/N): **N** Canopy (% open): **65%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

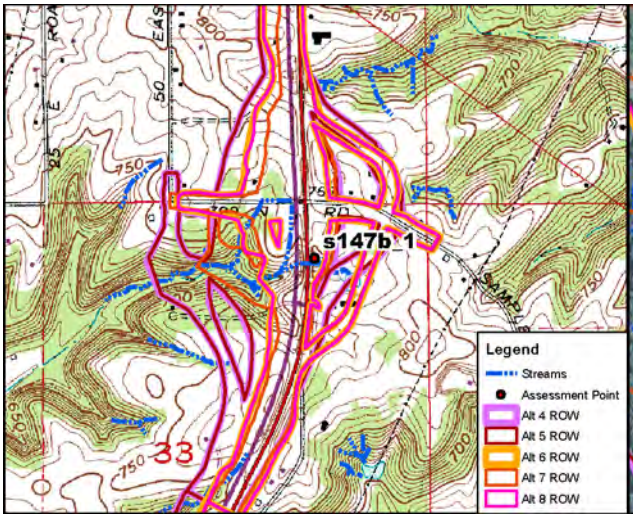
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

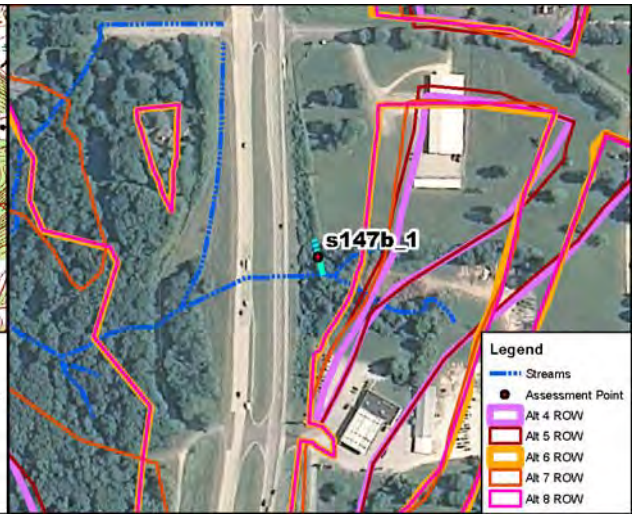
FLOW ➔

Save as pdf Reset Form

Stream Impacts S147b_1



Site Location on Modesto USGS Quadrangle



Site Location on 2010 Aerial Photograph

Aquatic Resource:	Stream	**USGS Quadrangle:**	Modesto
Stream Name:	Unnamed Trib Beanblossom Ck	**Section:**	33
Quarter:	NE	**Township:**	T10N
Range:	R1W	**IDEM 303(d) List:**	N/A
Watershed:	05120202010	**OHWM Width:**	2.2 feet
Channelized/Type:	Yes/Concrete Gutter	**OHWM Depth:**	0.2 feet
Stream Type:	Ephemeral	**USCOE Jurisdiction:**	Yes
Evaluation Type:	HHEI	**IDEM Jurisdiction:**	Yes
Evaluation Score:	12	**Watershed Area:**	0.01 sq mi
Legal Drain (Y/N):	N	**Predominant Sub:**	Artificial
UTME: 1775655 ft	**UTMN:** 14259227 ft		

Stream S147b_1 – Modified Class I PHWH			
Alternatives	**Length of Impact (feet)**	**Area of Impact (acres)**	**Riparian Impact (acres)**
4	95	0.01	0.11
5	95	0.01	0.11
6	95	0.01	0.11
7	95	0.01	0.11
8	95	0.01	0.11

Description of Potential Impact:
Impacts to S147b_1 for Alternatives 4, 5, 6, 7 and Preferred Alternative 8 are listed in the table above. The channel consists of a concrete gutter that flows into a culvert (S147b). There is a wide riparian buffer associated with this artificial channel along both banks. The floodplain consists of the immature forest. Photographs taken upstream and downstream in the area where these Alternatives cross S147b_1 are on the second page of this form.

Stream Impacts S147b_1

Photograph Taken Upstream