Ohio EPA Primary Headwater Habitat Initiative
Data Compendium, 1999-2000
Habitat, Chemistry, and Stream Morphology Data

Ohio EPA Division of Surface Water
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Robert Davic and Paul Anderson performed the editorial tasks of data compilation and report preparation. Any questions concerning the contents of this document may be directed to Paul Anderson at (330) 963-1228 or paul.anderson@epa.state.oh.us

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1.0 Introduction

As part of a primary headwater stream initiative, the Ohio EPA, Division of Surface Water, evaluated a total of 305 sites in 1999 and 2000 to document the physical, chemical, and biological characteristics of small streams in Ohio. The Ohio EPA has coined the term "Primary Headwater Habitat" (PHWH) to describe headwater streams that have a well defined bed-bank and channel with drainage areas less than 1.0 mi^2, or maximum pool depth less than 40 cm. The goals and objectives of this study were generally to provide the statewide data necessary to support a rule-making to define appropriate aquatic life use designations for primary headwater habitat streams.

The purpose of this report is to present and summarize the physical, chemical, and morphological data that were collected during the PHWH survey. Results of the biological assessment of sites are provided in separate reports (Ohio EPA, 2002 a, b). Additional information is provided in the 2002 revision of the PHWH stream assessment manual (Ohio EPA, 2002 c).

1.1 Summary of PHWH Stream Classes

The Ohio EPA has identified three main categories of primary headwater habitat streams in Ohio's watersheds, e.g., Class I, II, and III. A fourth class of drainageway, called the "non-stream waterway," conducts flowing water during runoff events, but does not have a well-defined bed-bank and channel, thus it falls outside the Ohio EPA PHWH "stream" concept (Ohio EPA, 2002 c).

The most biologically diverse PHWH streams, or the ***Class III***-PHWH streams, have a heterogeneous physical habitat, are spring-fed with continuous water flowing on an annual basis, and support cold to cool water adapted vertebrates and/or benthic macroinvertebrates. Fish species found in Class III-PHWH streams include15 species listed as either pioneering, headwater , or cold water adapted in Table V-4-5 in the Ohio EPA biocriteria guidance (Ohio EPA, 1989). In Ohio, stream salamanders with extended larval periods greater than 12 months, all from the lungless family Plethodontidae, often replace fish as the top vertebrate predator in spring-fed headwater stream habitats (Ohio EPA, 2002 a, c). In addition, Class III-PHWH streams typically support diverse macroinvertebrate communities with a variety of cool water adapted taxa (three species or greater, see Ohio EPA, 2002 a).

The second type of primary headwater stream, designated the ***Class II-***PHWH stream, provides an environment that can support a moderate diversity of aquatic benthic macroinvertebrates, and tend to support reproducing populations of pioneering fish or amphibians that are adapted to seasonal or intermittent flow conditions or other physical limitations (i.e., poor substrates, gradient extremes, the lack of deep pools, summer-dry stream bed, etc.). For example, salamanders from the genera *Desmognathus* and *Ambystoma* are characteristic vertebrates that would use Class II-PHWH streams for reproduction since they have larval periods less than 12 months, and thus populations can survive

in intermittent flow conditions. Constant flowing Class II streams tend to have warmer water in summer than Class III streams, due to differences in the primary source of groundwater inflow (i.e, Class II PHWH streams have shallow aquifer source; Class III streams have a deep and cold water aquifer source). Class II PHWH have a lower diversity of benthic macroinvertebrate taxa than Class III streams, usually without any cool water adapted taxa (see Ohio EPA, 2002 b).

A third type of headwater drainage, designated the ***Class I***-PHWH stream, are ephemeral headwater environments that do not provide a significant aquatic life function, but which can have important water quality functions for larger downstream waterways (see Ohio EPA, 2002 c). The Class I streams have little or no potential to support well balanced biological aquatic communities, with recovery precluded by natural background conditions (i.e., lack of sustained flow), or irretrievable human-induced conditions (i.e., regular flood control channel modification, dredging, etc.).

Primary headwater streams are further classified based upon the degree of anthropogenic disturbance to the stream channel morphometry. Streams showing evidence of recent channel modifications, with no signs of physical habitat recovery, or which are in the early stages of recovery, are classified as "modified" PHWH channels (see Section 3.4; Ohio EPA, 2002 c).

2.0 Methods

Sample methods used to collect the data summarized in this report are fully described in field manuals developed by the Ohio EPA Division of Surface Water for the primary headwater habitat initiative (Anderson et al., 1999; as updated by Ohio EPA, 2002 c). Readers should familiarize themselves with collection methods by consulting these documents.

3.0 General Site Information

Each surveyed PHWH site was assigned a unique site identification number based upon the following protocol:

- A two-letter district code, relating to the Ohio EPA where the site is located:
  - CD = Central District
  - NE = Northeast District
  - NW = Northwest District
  - SE = Southeast District
  - SW = Southwest District
- A two-digit year code: 99 = 1999, 00 = 2000, etc.
- A three-digit site identifier

For example, site [NE-99-002] means site 002, sampled in 1999, in the Northeast District.

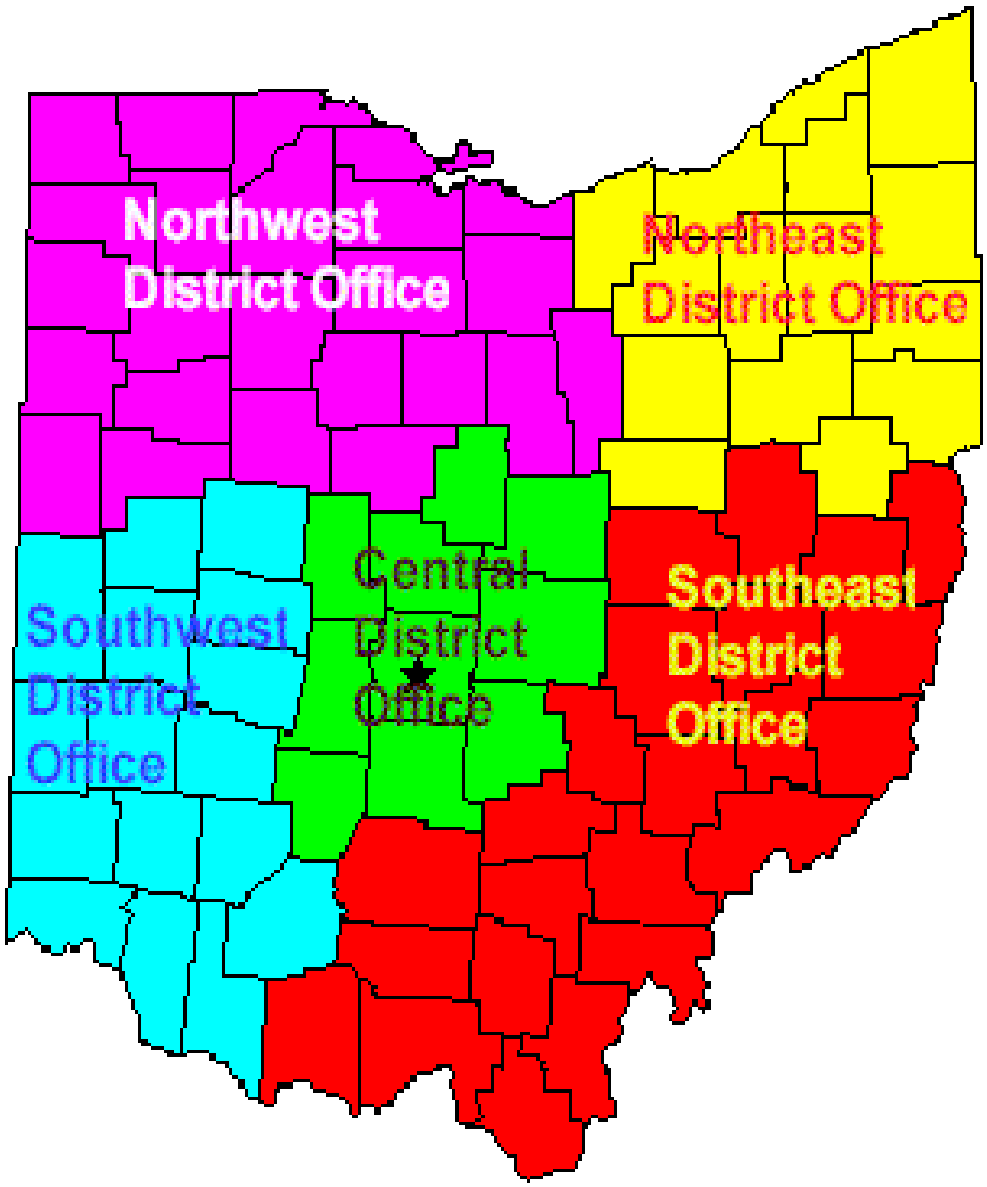


Figure 1. Ohio EPA districts.

3.1 Site Locations

The locations of sites sampled for the PHWH survey are depicted in Figure 2. Detailed site information is provided in Appendix Table I. Criteria for site selection were modified as the program developed. The following is a summary of the process used for site selection:

- Sites that were previously known to meet the PHWH definition (e.g., streams less than 1.0 mi^2 that did not have sufficient physical habitats to support well-balanced fish communities). These sites were selected as initial locations in which to test preliminary field procedures in 1999. Site numbers NE-99-001 through NE-99-011, NE-99-048 through NE-99-051, SE-99-001 through SE-99-005, SW-99-001 and SW-99-002, and NE-00-051 fall into this category (23 sites).

- A site selected for use in training Ohio EPA staff working on the PHWH project (CD-99-001)

- Sites evaluated as part of 401 State Water Quality Certification reviews. These sites were selected because they met the definition of a PHWH stream and were the subject of an application for modifications subject to a Section 404 permit from the U.S. Army Corps of Engineers. The PHWH evaluation was conducted to determine the usefulness of the procedures in evaluating their application for regulated activities. Sites included in this category include CD-99-003, NE-99-012, and SE-99-006 through SE-99-008 (five sites).

- Sites within the Cuyahoga Valley National Park which were used for preliminary geographic distribution analysis for PHWH streams (sites NE-99-013 through NE-99-046) (34 sites).

- Sites included in a year 2000 study of 10 Ohio counties with potentially rapidly developing areas (PRDA study). Sites were randomly selected within target counties for the PRDA study to provide a statistical estimation of the distribution of PHWH stream types within different areas of the State. Sites were selected in the four major ecoregions of Ohio (Figure 2). The results of the PRDA study data analysis are presented elsewhere (OSU, Statistical Consulting Service, 2001; Price, 2001; Evans, 2001; Ohio EPA 2002 c). Sites included in this study include CD-00-001 through CD-00-050, NE-00-001 through NE-00-050, NW-00-001 though NW-00-040, SE-00-001 through SE-00-050, and SW-00-001 through SW-00-053 (243 sites total visited, but only 214 used for statistical data analysis by OSU).

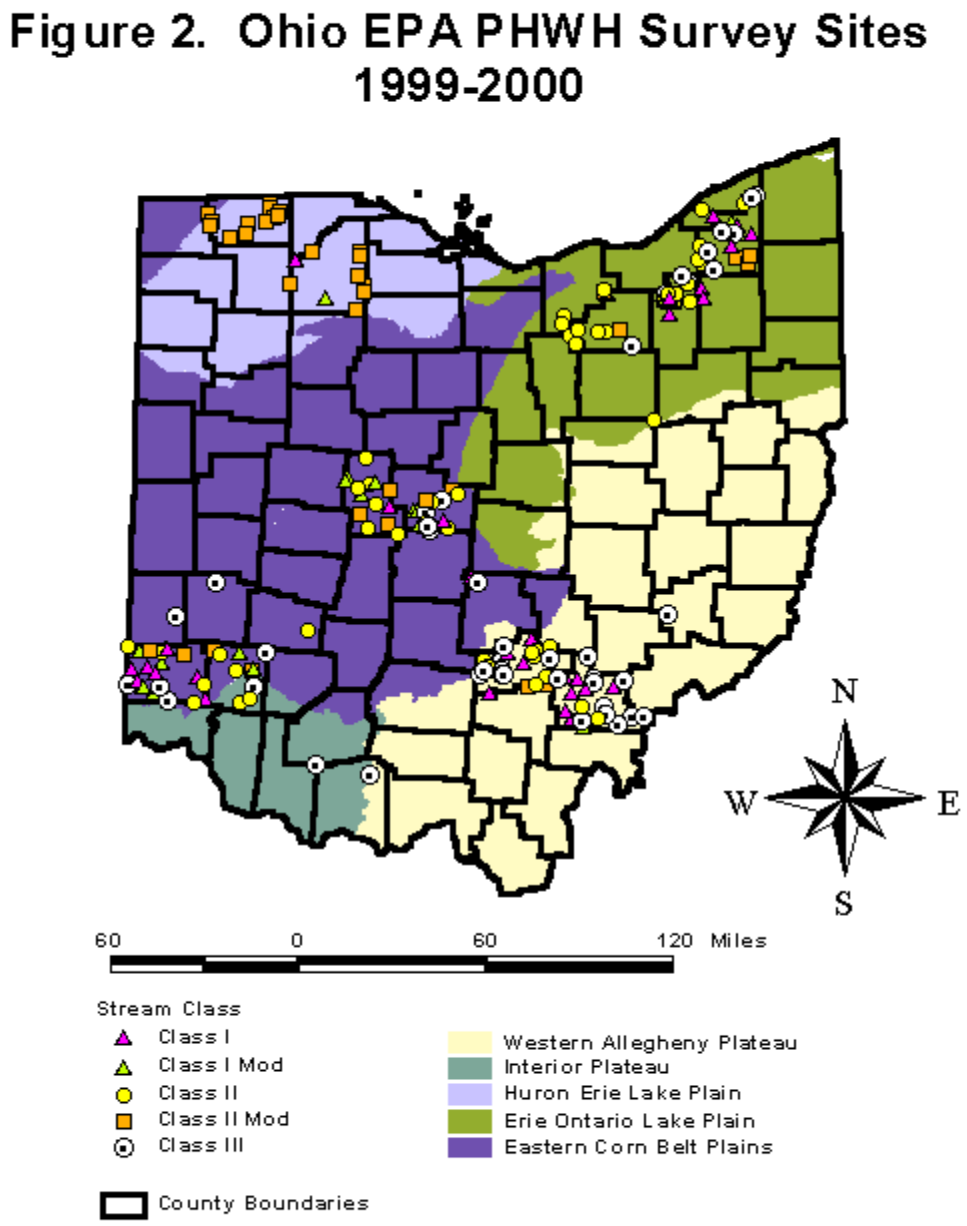


Figure 2. Location of primary headwater stream sample sites for the year 2000 PRDA study.

3.2 Excluded Sites

A total of 92 sites visited by the Ohio EPA were excluded from further analysis for the PHWH program. Eight of these sites could not be sampled because access to the stream was denied by the property owner. Eighty-one sites were excluded because they were found to fall outside of the definition of the PHWH stream universe. Six of these sites were found to meet the definition of warmwater habitat streams, one was found to be a modified warmwater habitat, and one was found to be a cold water habitat stream. Seventy-three of the sites were excluded because the drainage way indicated on the county soil map did not meet the definition of a stream in that any defined channel (bed-bank) that could be discerned. The flow in many of these drainageways had been diverted to agricultural field tiles or urban stormwater culverts. Three sites were excluded because obvious water pollution problems would have confounded the biological sampling results. One of these streams was impacted with poorly treated sewage, and the remaining two were impacted by acid mine drainage.

3.3 Ecoregion Distribution

Ohio EPA utilizes an ecoregion approach in the development of biological water quality criteria (Ohio EPA, 1989). Ecoregions are geographic areas of geology, hydrology, and ecosystem type that are more similar within each region than found in adjacent regions. Within each ecoregion, the similarities in the flora and physical characteristics of the area result in aquatic biological communities that are similar to each other, thus sites from different ecoregions can be compared to look for regional differences. In the 1999 to 2000 PHWH study, the ecoregion distribution of the sites from which data were collected is presented in Table 1 (see also Figure 2).

3.4 Distribution of PHWH Streams based upon Aquatic Life Use

The distribution of PHWH stream classes (e.g., I, II, III) as determined by biological assessments is depicted in Figure 2. Class III-PHWH streams were identified in all Ohio ecoregions except the HELP ecoregion (Table 1). A very high percentage of the streams within the HELP ecoregion were found to be modified through channel straightening, ditching, and tiling activities to facilitate agriculture. During the 2000 sampling cycle, only one unmodified channel was sampled within the HELP ecoregion. Statewide, modified channels accounted for 24% of the PHWH streams surveyed by the Ohio EPA (Table 1). This is indicative of the high degree of environmental impact affecting PHWH streams that has occurred historically in Ohio.

Table 1. Number of PHWH sites sampled by Ohio EPA by aquatic life use and ecoregion.

Stream Class	ECBP	EOLP	HELP	IP	WAP	Total
Class I Mod.	13	2	1	0	0	16
Class II Mod.	10	5	19	0	2	36
Class I	11	22	1	0	11	45
Class II	19	33	0	3	12	67
Class III	11	14	0	2	22	49
Total	67	76	21	5	48	213

3.5 Potentially Rapidly Developing Area Study Sites (the PRDA Survey)

For the year 2000 survey, a randomized site selection approach was used to allow for an unbiased estimate of the number of different PHWH stream classes present in various areas of Ohio where population growth is rapidly expanding. Using demographic data, 10 counties in Ohio were selected as having rapid population growth. These 10 counties were grouped into five categories as follows: (NE-Geauga, Medina; SE-Athens, Hocking; CD-Delaware, Union; NW-Wood, Fulton; SW-Butler, Warren). These five demographic areas were called "Potentially Rapidly Developing Areas" or PRDAs.

Individual PHWH stream sites were selected randomly within each PRDA using county soil survey map (current NRCS, old SCS). In Ohio, NRCS soil maps depict drainageways and streams and can be used to identify the potential locations of PHWH streams at a very detailed resolution, ranging from 1:15,000 to 1:20,000. Drainageways identified for assessment either had a watershed area less than 1.0 mi^2, or were not named streams in the Ohio Water Quality Standards (OAC, 3745-1).

Details of site selection were as follows: (1) for each two-county PRDA, 40 pages from the two soil books were randomly selected using a random number generator from the total number of map pages available; (2) on each of the 40 pages, an x-y grid overlay was established using 1.0 square inch grids; (3) a random number generator was then used to randomly select a single grid square for that page; finally (4) the closest drainageway from the center of that grid square that was crossed by a public road, was chosen as the PHWH stream to sample. An additional 10 streams were selected for each PRDA to serve as back-up sites if the primary selected waterway could not be located

during field verification, or permission not given from property owners for access. A total of 200 PHWH sites were identified within the five PRDAs, with 50 back-up sites. It was determined that a sample size of at least 200 streams would allow sufficient degrees of freedom during statistical analysis of data to test various hypotheses about the frequency of different PHWH stream classes (e.g., I, II, III) in the five PRDA areas.

During the field sampling, all 200 primary selected sites were identified in the field, but a few sites were not used and were replaced by the nearest backup site, either because it was found that the primary site did not meet the screening criteria for PHWH (e.g., pool depths greater than 40 cm), the stream was found to have a designated use in OAC Chapter 3745-1, or access was not granted by property owners. Some of the sites did not meet the definition of a "stream" because they either did not have a well defined bed-bank and channel, or had been placed into a culvert or agricultural tile drain. These "non-stream waterways" (originally referred to as Class D waterways) were separated from the three classes of PHWH streams (I, II, III) during the statistical analysis of data. A total of 243 sites were visited during the PRDA survey. A final sample size of 214 sites was used for the PRDA statistical analysis conducted for Ohio EPA by OSU (2001).

The locations of the sites sampled for the PRDA survey are shown in Figure 2. The estimated number of miles of the various PHWH stream types within the different eco regions is given in Table 2. The estimated 115, 206 miles of PHWH streams in Ohio (Table 2) is significantly higher than the roughly 43,917 miles of named and unnamed streams in Ohio that are identified as blue lines on USGS 7.5 minute topographic maps (Ohio EPA 2000, 305-b report). Thus, one of the significant findings of the PRDA stream study is that there exists a vast drainage network of small primary headwater streams that flow into the larger streams of Ohio. Most of these PHWH streams are not identified at the USGS 7.5 minute topographic mapping scale, but are clearly shown on the NRCS county soil maps that are available for all 88 counties in Ohio. The Class II-PHWH stream type is the most common on a statewide basis (Table 2).

Table 2. Estimate of the Miles of Primary Headwater Habitat Streams in the State of Ohio. (Based upon extrapolations from statistics provided by the The Ohio State University, Statistical Consulting Service, 2001)

Ecoregion[1]	Area (sq mi.)	Stream mi./sq.mi.	Total PHWH Stream Length (Miles)	Non-Stream Waterways Miles[2]	Class I Miles	Class II Miles	Class III Miles
EOLP	5570	4.633	18,434	7,373	3,687	11,060	3,687
ECBP I	9077	3.064	16,930	10,883	5,442	9,674	1,814
ECBP 2	9078	3.064	23,536	4,279	9,985	9,985	3,566
HELP	3177	0.771	1,348	1,102	123	1,225	0.0
WAP	9449	4.986	44,106	3,007	13,031	14,034	17,041
IP[3]	4869	3.064	10,852	4,064	4,137	5,272	1,443
Ohio Total	**41,220**	**3.540**	**115,206**	**30,708**	**36,405**	**51,250**	**27,551**

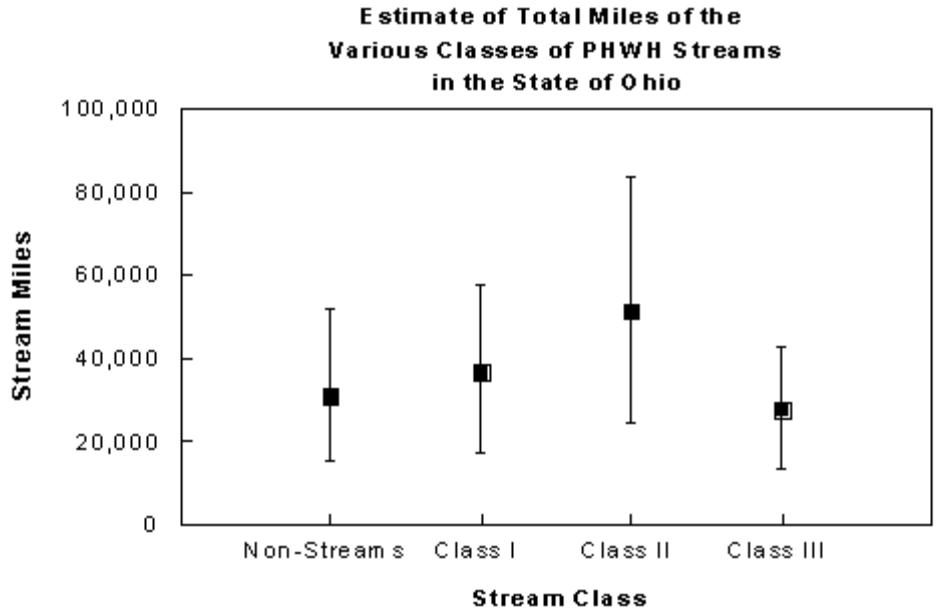
The *Gazatteer of Ohio Streams* indicates that there are 21,048.2 miles of **named** streams and 22,868.9 miles of **unnamed** streams in the State of Ohio. These streams are represented by blue lines, either solid or dashed, on USGS 7.5 minute topographic maps.

[1]Ecoregion Index:

EOLP = Erie Ontario Lake Plain
ECBP = Eastern Corn Belt Plain
HELP = Huron Erie Lake Plain
WAP = Western Allegheny Plateau
IP = Interior Plateau

[2] Non-stream waterways drainageways which do not meet the definition of a stream in that they have no defined bed and bank. Miles not included in PHWH estimate.

[3]Statistics for the ECBP ecoregion applied to the Interior Plateau ecoregion due to small sample size for the IP ecoregion.



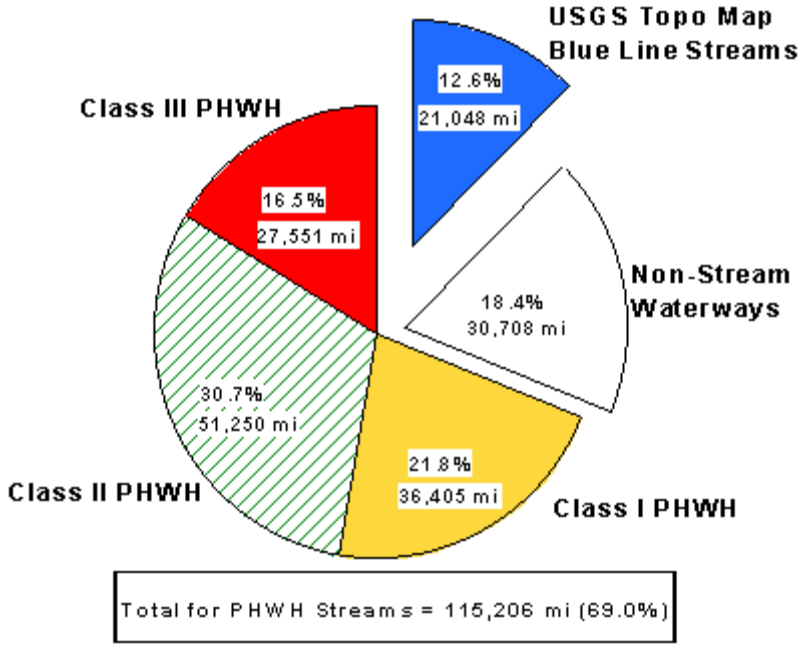


Figure 3. Estimate of total miles of various classes of PHWH streams and non-stream waterways in Ohio.

3.6 Receiving Stream Information

Sample sites for the PHWH evaluation were located within 14 major watersheds throughout the state (Table 3). Primary headwater streams sampled were tributary to129 different sub-watersheds within these basins. Twelve of the receiving streams downstream from the surveyed PHWH sites had no aquatic life use designation listed in Chapter 3745-1 of the Ohio Administrative Code (OAC). Of the remainder of the receiving streams with designated aquatic life uses, 5 were Coldwater Habitat (CWH) streams, 33 were Exceptional Warmwater Habitat (EWH) streams, 154 were Warmwater Habitat (WWH) streams, 4 were designated as Modified Warmwater Habitat (WWH), 4 were Limited Resource Waters (LRW), and one stream was designated as Limited Warmwater Habitat (LWWH). The basis for listing for all of the LRW and LWWH receiving streams was acid mine drainage.

Table 3. Major and minor watersheds downstream from PHWH survey sites, 1999-2000.

Major Drainage Basin	Number of Sub-Watersheds with Sampling Sites	Number of Sites in Major Basin
S.E. Ohio River Tributaries	8	11
Hocking River	21	24
Muskingum River	4	5
Mill Creek	1	1
Scioto River	21	43
Little Miami River	11	11
Great Miami River	15	24
Maumee River	14	16
Portage River	4	6
Black River	6	8
Rocky River	2	2
Cuyahoga River	9	45
Chagrin River	6	9
Grand River	7	8
Total	**129**	**213**

4.0 Stream Substrate Characteristics

4.1 Qualitative Evaluation

A qualitative determination of the total number and percentages of stream bed substrate types was made following procedures found in Ohio EPA (2002 c). The approach was identical to that used for the field evaluation of substrate composition found in the Ohio EPA QHEI evaluation methods (Rankin, 1989). As expected, a wide variety of substrate types are present in PHWH streams. The raw data are presented in Appendix Tables II and III. In general, it was found that various combinations of substrate types were able to discriminate among the various PHWH stream classes. (Table 4). For example, a PHWH stream with bedrock and boulder as predominant substrate types showed a very high probability of being able to support a Class III type of biological community, assuming there was sufficient flow of water present. Conversely, streams with a dominance of clay or muck substrate types were more likely to fall into a Class II or Class I PHWH stream category.

Table 4. Correlation of dominant substrate types in various classes of PHWH streams.

(Stream Class)	(Substrate Types)				
	BEDROCK	**BOULDER**	**COBBLE**	**GRAVEL**	**SAND**
CLASS I MOD	VERY LOW	VERY LOW	VERY LOW	LOW	LOW
CLASS I	LOW	LOW	HIGH	HIGH	HIGH
CLASS II MOD	LOW	LOW	LOW	MODERATE	MODERATE
CLASS II	LOW	LOW	MODERATE	VERY HIGH	HIGH
CLASS III	HIGH	HIGH	VERY HIGH	VERY HIGH	MODERATE

(Continued)

	SILT	**CLAY**	**MUCK**	**DETRITUS**	**ARTIFICIAL**
CLASS I MOD	VERY HIGH	VERY HIGH	MODERATE	MODERATE	MODERATE
CLASS I	VERY HIGH	LOW	VERY LOW	MODERATE	VERY LOW
CLASS II MOD	HIGH	VERY HIGH	HIGH	LOW	LOW
CLASS II	MODERATE	HIGH	HIGH	MODERATE	VERY LOW
CLASS III	MODERATE	LOW	VERY LOW	LOW	VERY LOW

4.2 Quantitative Pebble Counts

During the 1999 survey, a quantitative zigzag pebble count method was used in lieu of the qualitative visual approach to determine stream substrate composition. A total of 23 sites were assessed. The raw data are presented in Appendix Tables II and III under "1999" sample dates. Sample methods followed procedures as outlined in the Ohio EPA pebble count sampling fact sheet (Field-1-MAS-99). On average, 40-50 individual counts were made from a 200 foot sample zone.

The time required to complete a zigzag pebble count varied from 20-30 minutes, which was much greater than the time required for the visual assessment of substrate types. A range of 3 to 8 substrate types was identified using the pebble-count method (mean = 5.3), identical to the range found using the qualitative visual approach. It was observed that in some situations the pebble count method missed some of the rare substrate types that were visually observed. This may be due to the relatively small sample size (40-50 counts). As a result of these preliminary findings, it was suggested that a minimum of 100 counts should be made within a 200 foot stream reach if the zigzag pebble count method is to be used to determine substrate composition (Ohio EPA, 2002 c).

5.0 Watershed Information and Stream Channel Morphology

5.1 Watershed Area and Stream Order

Watershed areas were calculated using USGS topographic maps available through Arc View (ESRI International) GIS shape files. Figure 4 shows a frequency plot of watershed sizes for the sample locations during the 2000 PRDA survey. A large number of streams less than 0.4 mi^2 contribute to the flow of a much smaller number of PHWH streams greater than 0.4 mi^2 watershed size (Figure 4).

Stream order was determined from the NRSC county soil map hydrolayer scale, which ranged from 1:15,000 to 1:20,000. By defiition, first order streams do not have other streams flowing into them. Second order streams are formed by the junction of two first order streams, third order streams by the junction of two second order streams, and so on. A total of 211 stations were included in the analysis of the stream order data. As shown in Table 5, no clear predictive pattern was found between the concepts of "stream order" and "PHWH stream class", although Class III streams were rarely first order hydraulic systems, and Class I streams were rarely third order.

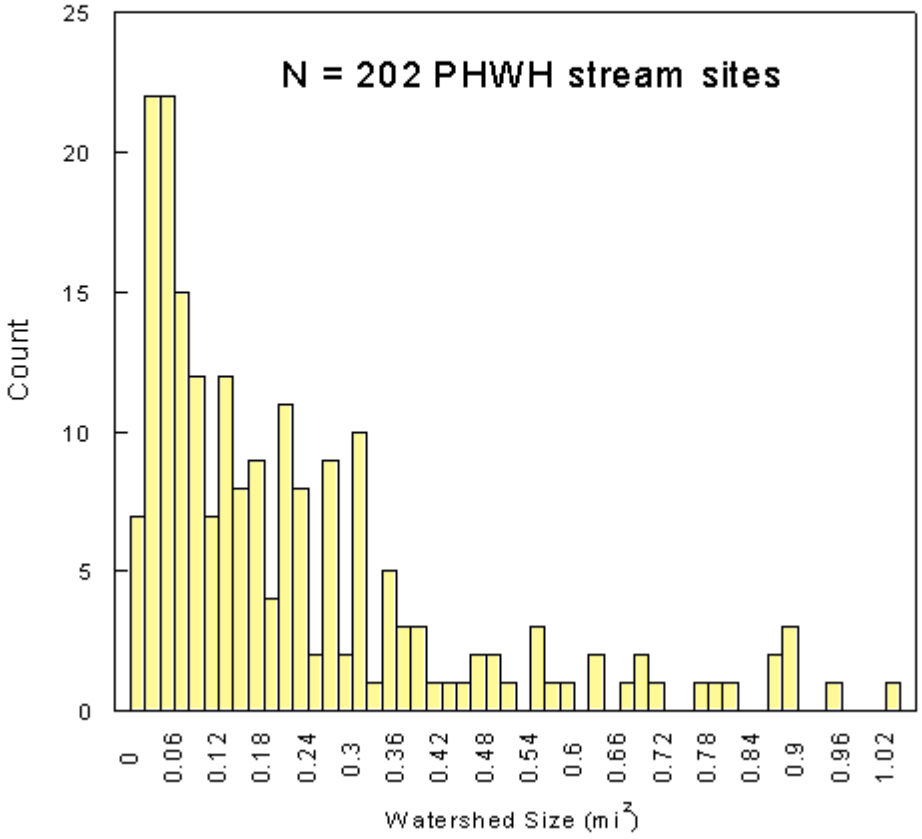


Figure 4. Frequency distribution of watershed size for PHWH sample locations for the 2000 PRDA survey. Nine stations greater than 1.0 m^2 not plotted. Sample sites selected at random from 10 Ohio counties.

Table 5. Stream order by PHWH stream class for 211 randomly selected PHWH locations during the 2000 PRDA survey. Data from OSU (2001). Data to be read left-right along rows.

Order	Class I		Class II		Class III		Non-Streams	
	Freq	%	Freq	%	Freq	%	Freq	%
Order 1	32	29.09	28	25.45	9	8.18	41	37.27
Order 2	11	14.86	43	58.11	9	12.16	11	14.86
Order 3	1	3.85	10	38.46	11	42.31	4	15.38
Order 4	0	0.0	1	100.00	0	0.0	0	0.0

The concept of "stream order" is significantly different using the NRCS soil mapping scale than what is represented by "blue-lines" from a 7.5 minute USGS topographic map. An important finding of the PRDA survey was that the 7.5 minute USGS map scale greatly underestimates the length of the primary headwater stream drainage network in Ohio. Many first order streams shown as blue-lines on USGS maps are second or third order streams on the NRCS mapping scale. In addition, a number of "dashed" blue-lines on USGS maps, which are commonly referred to as "intermittent" streams, were found to be perennial flowing cold-cool spring-fed streams during field investigation. Of equal concern, many Class III streams are not even identified as dashed lines on USGS maps.

It was found that both "watershed area"and "stream order" were relatively poor predictors of PHWH stream "Class". For example, as shown in Table 4, similar percentages of Class I and Class II streams were found to be "first order" streams. Likewise, similar percentages of Class II and Class III streams where "third order" systems. Watershed area may be a poor predictor of PHWH stream Class due to the observation that some Class III streams can have a significant watershed drainage upstream from their groundwater spring source that is ephemeral or intermittent. A better predictor of PHWH stream Class would likely be "distance from a groundwater spring source," a measurement not taken during the Ohio EPA 2000 PRDA survey. Such data could be obtained from maps that show "depth to bedrock" at a 10 foot contour interval.

5.2. Stream Channel Morphology

A variety of geomorphology measurements were made on PHWH streams as summarized in Table 6. Raw data for a select number of these measurements are provided in Appendix Table IV After statistical analysis of the data by stream class, it was found that three physical habitat measures

(bankfull width, maximum pool depth, and substrate type & percent) could be used to distinguish among non-channelized Class I, II, and III primary headwater streams using a headwater qualitative habitat index model, what is called the HHEI (Headwater Habitat Evaluation Index). Detail of HHEI development and its use is provided in a separate Ohio EPA technical report (in prep). An attempt to relate Rosgen Stream Classification terminology (i.e., B3, B4, C3, C4, etc.) with PHWH stream class was not productive, most likely because the Rosgen system was not calibrated to the small watershed size (< 1.0 mi^2) of PHWH streams.

Table 6. Geomorphology measurements conducted on PHWH streams during the PRDA survey

Substrate types & percent
Substrate origin
Embeddedness
Silt cover
Sinuosity
Pool-riffle development
Pool & riffle quality
Maximum pool depth
Channelization
Stability
Bankfull width
Flood prone width
Gradient
Flow regime
Entrenchment
Rosgen Classification

6.0 Field Water Quality Measurements

Chemical water quality data were collected at a select number of PHWH streams for (1) water temperature, (2) pH, (3) dissolved oxygen, and (4) field conductivity. The raw data are presented in Appendix Table V. It was found that Class III streams tend to have lower water temperature than Class II streams in late summer months (August, September), which would be expected given the cold groundwater flow origin of Class III streams. Some Class III and Class II streams had dissolved oxygen concentrations less than 4.0 mg/l in summer, below the WWH daily minimum dissolved oxygen water quality standard. Lower dissolved oxygen would be expected in spring-fed headwater streams given their groundwater origin. On average, Class III-PHWH streams with uninterrupted constant surface flow, had dissolved oxygen concentrations above 5.0 mg/l during summer months

(see Ohio EPA, 2002, a). A few PHWH streams had conductivity concentrations well above the 400 to 700 (umhos/cm) ecoregional background values found in larger streams in Ohio (Ohio EPA Technical Report MAS/1999-1-1, January, 1999). This is most likely due to groundwater inflow which can be high in dissolved ions such as calcium, and bicarbonate (HCO_3^-). The pH ranged from 7.0 to 8.0 for the majority of PHWH streams sampled. However, somewhat lower pH values were found in streams from the WAP ecoregion, which has extensive coal mining. The lowest pH value recorded was 4.63 (su) from a stream in the WAP ecoregion of southeast Ohio.

7.0 Riparian Area Information

A variety of measures were on riparian area quality and adjacent land including the width of the riparian zone, percent canopy open, floodplain land use, and development pressure. These data are summarized in Appendix Table VI. Most Class III streams had intact riparian corridors, which would help to maintain cooler and stable water temperatures. However, a large number of both Class I and Class II streams were also found in forested areas with undisturbed riparian habitat.

8.0 Qualitative Habitat Evaluation Index (QHEI)

At a select number of sites a QHEI physical habitat assessment was conducted. The QHEI is a habitat assessment tool that was developed by Ohio EPA (Rankin, 1989) to identify the potential for a stream to attain either a WWH or EWH fish community. In general, a QHEI value above 60 points is a good indication that the stream has sufficient habitat diversity to attain a WWH fish community.

As shown in Figure 5, it was found that the QHEI does not separate Class I PHWH streams from Class II PHWH streams. However, the QHEI does appear to provide good separation between Class III-PHWH streams and all other stream classes. A summary of QHEI values for the various PHWH stream classes is provided in Table 7.

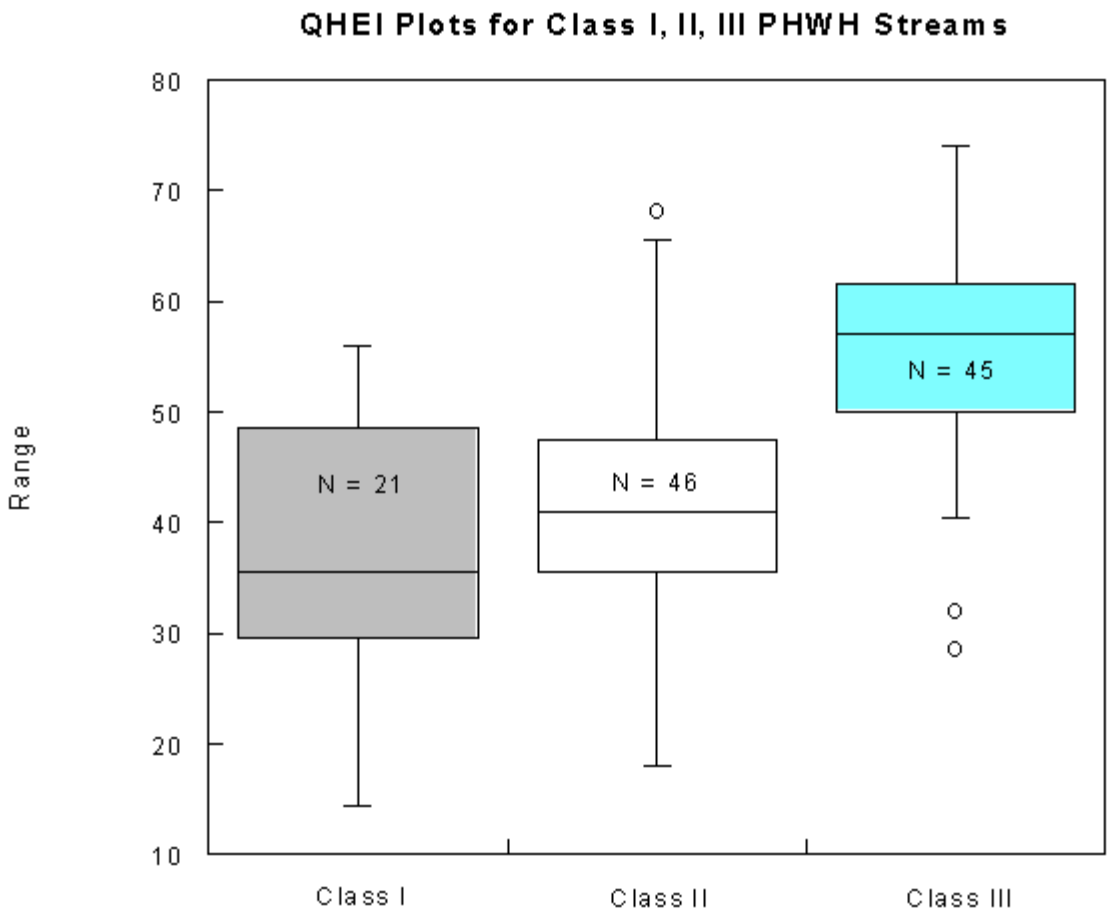


Figure 5. QHEI (Qualitative Habitat Evaluation Index) plots for PHWH stream classes.

9.0 Headwater Habitat Evaluation Index (HHEI)

A modification of the QHEI habitat assessment method, called the HHEI, was developed to help distinguish among the various classes of PHWH streams. The HHEI was deemed necessary because, as shown in Figure 5, it was found that the QHEI was not able to statistically separate Class I from Class II PHWH streams. This is understandable because the QHEI was calibrated to fish communities found in much larger streams, where numerous fish species are present. However, the fish species richness in PHWH streams is low, often with only a single dominant species present (such as the creek chub, see Ohio EPA, 2002 a). In contrast to the QHEI which is calibrated to fish communities, the HHEI was initially calibrated to the presence/absence of headwater salamander populations, which replace fish as the top vertebrate predators in PHWH streams. As with the QHEI, the HHEI is a field assessment tool to be used to determine "potential" aquatic life uses. Care should be taken not to misapply the HHEI index to directly determine biological impairment or as a goal for restoration of biological communities that require constant flowing water.

It was found that three physical habitat measures (1) bankfull width, (2) maximum depth of pools, and (3) substrate type & percent could be used to statistically separate Class III streams from Class II and Class I streams. Details of the steps used to develop the HHEI concept will be provided elsewhere (Ohio EPA, HHEI Technical Report, in prep). A summary of final HHEI values for various PHWH stream classes are given in Table 7.

Table 7. Summary of Habitat Evaluation Index scores by PHWH stream class. QHEI scores reported for streams with unmodified stream channels. HHEI = Headwater Habitat Evaluation Index; QHEI = Qualitative Habitat Evaluation Index (na = not assessed; Mod = stream with channel modification).

Site #	Stream Class	HHEI Score	QHEI Score	Site #	Stream Class	HHEI Score
CD-00-022	I	12	25.5	CD-00-005	I Mod	12
CD-00-047	I	13	35.5	CD-00-010	I Mod	13
CD-99-003	I	27	41.5	CD-00-020	I Mod	28
NE-00-021	I	26	29.5	CD-00-025	I Mod	16
NE-00-022	I	61	34.0	CD-00-030	I Mod	11
NE-00-024	I	32	34.5	CD-00-043	I Mod	12
NE-00-026	I	35	33.5	CD-00-048	I Mod	11
NE-00-029	I	14	23.0	NE-00-002	I Mod	30
NE-99-004	I	49	51.0	NW-00-029	I Mod	28
NE-99-005	I	80	51.5	SW-00-011	I Mod	17
NE-99-012	I	51	43.0	SW-00-014	I Mod	29
NE-99-014	I	21	na	SW-00-015	I Mod	27
NE-99-019	I	39	na	SW-00-020	I Mod	27
NE-99-020	I	28	na	SW-00-024	I Mod	17
NE-99-022	I	49	na	SW-00-039	I Mod	27
NE-99-030	I	24	na			
NE-99-031	I	22	na			
NE-99-037	I	44	na			
NE-99-038	I	41	na			
NE-99-039	I	45	na			
NE-99-045	I	40	na			
NW-00-023	I	35	36.5			
SE-00-001	I	43	na			
SE-00-002	I	37	na			
SE-00-007	I	17	na			
SE-00-013	I	32	na			
SE-00-018	I	27	na			
SE-00-019	I	60	na			
SE-00-021	I	50	53.0			
SE-00-027	I	21	na			
SE-00-029	I	39	na			
SE-00-036	I	42	na			
SE-00-049	I	38	na			
SW-00-005	I	41	49.5			
SW-00-008	I	74	56			
SW-00-017	I	17	14.5			
SW-00-018	I	29	23.0			
SW-00-022	I	32	41.0			
SW-00-026	I	48	48.5			
SW-00-047	I	17	35.0			
SW-00-050	I	17	16.0			

Table 7 cont. Summary of Habitat Evaluation Index scores by PHWH stream class. QHEI scores reported for streams with unmodified stream channel. HHEI = Headwater Habitat Evaluation Index; QHEI = Qualitative Habitat Evaluation Index (Na = not assessed; Mod = stream with channel modification).

Site #	Stream Class	HHEI Score	QHEI Score	Site #	Stream Class	HHEI Score	QHEI Score
CD-00-018	II	48	29.5	SW-00-038	II	41	41.0
CD-00-019	II	61	37.5	SW-00-045	II	46	31.0
CD-00-023	II	54	43.0	SW-00-046	II	85	68.0
CD-00-027	II	38	34.0	SW-00-053	II	43	36.0
CD-00-028	II	71	54.5	SW-00-007	II	70	65.6
CD-00-032	II	43	36.5	SW-00-009	II	68	40.0
CD-00-033	II	38	49.5	SW-00-013	II	33	44.5
CD-00-044	II	42	37.0	SW-00-016	II	47	18.0
CD-00-045	II	45	44.5	SW-00-025	II	60	39.0
CD-00-049	II	34	28.0	SW-00-036	II	53	34.5
NE-00-001	II	47	47.5				
NE-00-003	II	37	38.0				
NE-00-004	II	46	42.0				
NE-00-006	II	43	35.5	CD-00-006	II Mod	48	
NE-00-008	II	75	55.0	CD-00-009	II Mod	60	
NE-00-011	II	63	47.0	CD-00-013	II Mod	51	
NE-00-013	II	67	33.0	CD-00-021	II Mod	42	
NE-00-018	II	43	43.5	NE-00-014	II Mod	29	
NE-00-023	II	70	34.0	NE-00-016	II Mod	39	
NE-00-027	II	46	41.0	NE-00-020	II Mod	46	
NE-00-028	II	42	41.0	NE-00-031	II Mod	43	
NE-00-036	II	52	60.0	NE-00-033	II Mod	25	
NE-00-038	II	56	36.5	NW-00-002	II Mod	61	
NE-99-002	II	57	50.5	NW-00-004	II Mod	50	
NE-99-006	II	65	55.5	NW-00-005	II Mod	55	
NE-99-007	II	54	54.0	NW-00-007	II Mod	53	
SE-00-006	II	35	na	NW-00-008	II Mod	37	
SE-00-009	II	32	na	NW-00-009	II Mod	60	
SE-00-010	II	29	29.0	NW-00-011	II Mod	50	
SE-00-015	II	35	na	NW-00-012	II Mod	48	
SE-00-017	II	39	24.0	NW-00-015	II Mod	51	
SE-00-025	II	68	32.5	NW-00-017	II Mod	46	
SE-00-034	II	45	19.0	NW-00-019	II Mod	61	
SE-00-035	II	53	39.5	NW-00-020	II Mod	33	
SE-00-040	II	56	39.5	NW-00-021	II Mod	54	
SE-00-047	II	67	50.0	NW-00-022	II Mod	50	
SE-00-050	II	58	47.0	NW-00-025	II Mod	52	
SE-99-008	II	45	44.5	NW-00-027	II Mod	58	
SW-00-004	II	78	63.0	NW-00-033	II Mod	52	

Table 7 cont. Summary of Habitat Evaluation Index scores by PHWH stream class. QHEI scores reported for streams with unmodified stream channel. HHEI = Headwater Habitat Evaluation Index; QHEI = Qualitative Habitat Evaluation Index (Na = not assessed; Mod = stream with channel modification).

Site #	Stream Class	HHEI Score	QHEI Score	Site #	Stream Class	HHEI Score	QHEI Score
CD-00-004	III	78	64.0	SE-99-007	III	69	54.0
CD-00-016	III	81	57.5	SW-99-001	III	79	55.5
CD-00-026	III	81	63.0	SW-99-002	III	59	49.5
CD-99-001	III	75	47.5	SW-00-010	III	83	71.0
NE-00-005	III	64	na	SW-00-019	III	83	58.0
NE-00-010	III	74	55.0	SW-00-021	III	87	57.0
NE-00-025	III	74	66.5	SW-00-029	III	85	70.0
NE-00-039	III	71	53.5	SW-00-052	III	88	66.0
NE-00-045	III	62	43.0				
NE-00-051	III	94	56.5				
NE-99-001	III	76	65.0				
NE-99-003	III	71	61.5				
NE-99-008	III	75	61.5				
NE-99-010	III	82	65.0				
NE-99-011	III	79	62.5				
NE-99-021	III	62	na				
SE-00-003	III	79	57.5				
SE-00-004	III	68	61.0				
SE-00-005	III	80	55.0				
SE-00-008	III	44	44.5				
SE-00-011	III	73	67.0				
SE-00-014	III	52	54.5				
SE-00-023	III	63	49.0				
SE-00-024	III	57	49.0				
SE-00-028	III	44	28.5				
SE-00-030	III	83	74.0				
SE-00-037	III	57	40.5				
SE-00-038	III	64	50.0				
SE-00-039	III	64	42.5				
SE-00-041	III	55	42.0				
SE-00-043	III	65	52.0				
SE-00-045	III	76	61.0				
SE-00-046	III	81	58.5				
SE-99-001	III	71	55.0				
SE-99-002	III	63	58.5				
SE-99-003	III	59	57.5				
SE-99-004	III	62	61.0				
SE-99-005	III	72	55.0				
SE-99-006	III	44	32.0				

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Appendix Tables (I to VI)

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Site Name	District	Ecoregion	Receiving Stream Basin	Receiving Stream Basin Code	Receiving Stream Code
CD-99-001	Highbanks Park site	CDO	ECBP	Olentangy River	2	400
CD-99-003	Ashley Creek	CDO	ECBP	Scioto River	2	1
CD-00-004	Union/Delaware PRDA site 4	CDO	ECBP	Olentangy River	2	400
CD-00-005	Union/Delaware PRDA site 5	CDO	ECBP	Scioto River	2	1
CD-00-006	Union/Delaware PRDA site 6	CDO	ECBP	Sugar Run	2	260
CD-00-009	Union/Delaware PRDA site 9	CDO	ECBP	Buck Run	2	209
CD-00-010	Union/Delaware PRDA site 10	CDO	ECBP	Olentangy River	2	400
CD-00-013	Union/Delaware PRDA site 13	CDO	ECBP	Bokes Creek	2	138
CD-00-014	Union/Delaware PRDA site 14	CDO	ECBP	S. Fork Indian Run	2	99
CD-00-016	Union/Delaware PRDA site 16	CDO	ECBP	Olentangy River	2	400
CD-00-018	Union/Delaware PRDA site 18	CDO	ECBP	Alum Creek	2	110
CD-00-019	Union/Delaware PRDA site 19	CDO	ECBP	Big Darby Creek	2	200
CD-00-020	Union/Delaware PRDA site 20	CDO	ECBP	Mill Creek	2	109
CD-00-021	Union/Delaware PRDA site 21	CDO	ECBP	West Branch Litle Walnut Creek	2	143
CD-00-022	Union/Delaware PRDA site 22	CDO	ECBP	Dun Run	2	131
CD-00-023	Union/Delaware PRDA site 23	CDO	ECBP	Mill Creek	2	109
CD-00-025	Union/Delaware PRDA site 25	CDO	ECBP	Bartholomew Run	2	404
CD-00-026	Union/Delaware PRDA site 26	CDO	ECBP	Alum Creek	2	110
CD-00-027	Union/Delaware PRDA site 27	CDO	ECBP	Bokes Creek	2	138
CD-00-028	Union/Delaware PRDA site 28	CDO	ECBP	Olentangy River	2	400
CD-00-030	Union/Delaware PRDA site 30	CDO	ECBP	Bokes Creek	2	138
CD-00-032	Union/Delaware PRDA site 32	CDO	ECBP	East Branch Little Walnut Creek	2	142
CD-00-033	Union/Delaware PRDA site 33	CDO	ECBP	Big Run (Alum Cr)	2	112
CD-00-034	Union/Delaware PRDA site 34	CDO	ECBP	Olentangy River	2	400
CD-00-043	Union/Delaware PRDA site 43	CDO	ECBP	Bokes Creek	2	138
CD-00-044	Union/Delaware PRDA site 44	CDO	ECBP	Alum Creek	2	110
CD-00-045	Union/Delaware PRDA site 45	CDO	ECBP	Rush Creek	2	165
CD-00-047	Union/Delaware PRDA site 47	CDO	ECBP	Westerville Reservoir (Alum Creek)	2	110
CD-00-048	Union/Delaware PRDA site 48	CDO	ECBP	Mill Creek	2	109
CD-00-049	Union/Delaware PRDA site 49	CDO	ECBP	Mill Creek	2	109
NE-99-001	Twinsburg A	NEDO	EOLP	Tinkers Creek	19	7
NE-99-002	Twinsburg B	NEDO	EOLP	Tinkers Creek	19	7
NE-99-003	Adams Park	NEDO	EOLP	Tinkers Creek	19	7
NE-99-004	Aurora-Hudson Rd. site	NEDO	EOLP	Tinkers Creek	19	7
NE-99-005	Town Square	NEDO	EOLP	Tinkers Creek	19	7
NE-99-006	Hudson unimpacted	NEDO	EOLP	Mud Brook	19	24
NE-99-007	Hudson disturbed	NEDO	EOLP	Mud Brook	19	24
NE-99-008	unnamed trib Spring Cr.	NEDO	EOLP	Spring Creek	19	62

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Site Name	District	Ecoregion	Receiving Stream Basin	Receiving Stream Basin Code	Receiving Stream Code
NE-99-010	Spring Brook Upper	NEDO	EOLP	Spring Brook (UT Chagrin R. RM 47.6	15	15
NE-99-011	Spring Creek ust. Boston Mills Rd.	NEDO	EOLP	Spring Creek	19	62
NE-99-012	Woodward Cr. Trib.	NEDO	EOLP	Woodward Creek	19	23
NE-99-013	NEDO HHEI Site 6	NEDO	EOLP	Cuyahoga River	19	1
NE-99-014	NEDO HHEI Site 3	NEDO	EOLP	Salt Run	19	16
NE-99-015	NEDO HHEI Site 4	NEDO	EOLP	Salt Run	19	16
NE-99-016	NEDO HHEI Site 2	NEDO	EOLP	Salt Run	19	16
NE-99-017	NEDO HHEI Site 1	NEDO	EOLP	Salt Run	19	16
NE-99-019	NEDO HHEI Site 7	NEDO	EOLP	Spring Creek	19	62
NE-99-020	NEDO HHEI Site 8	NEDO	EOLP	Spring Creek	19	62
NE-99-021	NEDO HHEI Site 9	NEDO	EOLP	Spring Creek	19	62
NE-99-022	NEDO HHEI Site 10	NEDO	EOLP	Spring Creek	19	62
NE-99-023	NEDO HHEI Site 13	NEDO	EOLP	Spring Creek	19	62
NE-99-024	NEDO HHEI Site 12	NEDO	EOLP	Spring Creek	19	62
NE-99-025	NEDO HHEI Site 11	NEDO	EOLP	Spring Creek	19	62
NE-99-028	NEDO HHEI Site 20	NEDO	EOLP	Furnace Run	19	20
NE-99-029	NEDO HHEI Site 26	NEDO	EOLP	Cuyahoga River	19	1
NE-99-030	NEDO HHEI Site 23	NEDO	EOLP	Furnace Run	19	20
NE-99-031	NEDO HHEI Site 22	NEDO	EOLP	Furnace Run	19	20
NE-99-032	NEDO HHEI Site 21	NEDO	EOLP	Furnace Run	19	20
NE-99-033	NEDO HHEI Site 18	NEDO	EOLP	Slipper Run	19	12
NE-99-034	NEDO HHEI Site 17	NEDO	EOLP	Slipper Run	19	12
NE-99-035	NEDO HHEI Site 27	NEDO	EOLP	Cuyahoga River	19	1
NE-99-036	NEDO HHEI Site 19	NEDO	EOLP	Furnace Run	19	20
NE-99-037	NEDO HHEI Site 16	NEDO	EOLP	Slipper Run	19	12
NE-99-038	NEDO HHEI Site 15	NEDO	EOLP	Cuyahoga River	19	1
NE-99-039	NEDO HHEI Site 14	NEDO	EOLP	Cuyahoga River	19	1
NE-99-040	NEDO HHEI Site 29	NEDO	EOLP	Cuyahoga River	19	1
NE-99-041	NEDO HHEI Site 28	NEDO	EOLP	Cuyahoga River	19	1
NE-99-042	NEDO HHEI Site 35	NEDO	EOLP	Cuyahoga River	19	1
NE-99-043	NEDO HHEI Site 30	NEDO	EOLP	Furnace Run	19	20
NE-99-044	NEDO HHEI Site 33	NEDO	EOLP	Cuyahoga River	19	1
NE-99-045	NEDO HHEI Site 32	NEDO	EOLP	Cuyahoga River	19	1
NE-99-046	NEDO HHEI Site 31	NEDO	EOLP	Cuyahoga River	19	1
NE-99-048	Unnamed trib Wellington Cr. @ Cemetary Rd.	NEDO	EOLP	Wellington Creek	20	23
NE-99-049	Trib to Findley Lake	NEDO	EOLP	Wellington Creek	20	23
NE-99-050	Unnamed Trib. Chagrin River @ Garfield Rd.	NEDO	EOLP	Chagrin River	15	1
NE-99-051	Unnamed Trib. Middle Fork Sugar Creek dst US 6	NEDO	EOLP	Middle Fork Sugar Creek	17	406

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Site Name	District	Ecoregion	Receiving Stream Basin	Receiving Stream Basin Code	Receiving Stream Code
NE-00-001	UT to Coon Crk @ New London Eastern Rd	NEDO	EOLP	Coon Creek	20	13
NE-00-002	UT to Big Crk @ Rt 6 W of Penniman Dr	NEDO	EOLP	Cutts Creek	3	100
NE-00-003	UT to Chippewa Lake @ Rt317	NEDO	EOLP	Chippewa Creek	17	550
NE-00-004	UT to McFarland Crk @ Washington St	NEDO	EOLP	McFarland Creek	15	6
NE-00-005	UT to River Styx @ Harpster Rd	NEDO	EOLP	River Styx	17	553
NE-00-006	UT to E Br Black R @ Richman Rd	NEDO	EOLP	East Branch Black River	20	10
NE-00-008	UT to McFarland Crk @ Washington St	NEDO	EOLP	McFarland Creek	15	6
NE-00-010	UT to Mill Crk to Grand R @ Stocking Rd	NEDO	EOLP	Mill Creek	3	9
NE-00-011	UT to Aurora Br Chagrin R @ Savage Rd	NEDO	EOLP	McFarland Creek	15	6
NE-00-013	UT to Griswold Crk @ Dines Rd	NEDO	EOLP	Grand River	3	1
NE-00-014	UT to Cuyahoga R @ Cemetery @Rt 700	NEDO	EOLP	Cuyahoga River	19	1
NE-00-016	UT to Grand R @ Tavern Rd	NEDO	EOLP	Grand River	3	1
NE-00-018		NEDO	EOLP	Paine Creek	3	110
NE-00-020	UT to Swine Crk @ Rt 608	NEDO	EOLP	Swine Creek	3	160
NE-00-021	UT to W Br Cuyahoga R @ Chardon Windsor Rd	NEDO	EOLP	West Branch Cuyahoga River	19	36
NE-00-022	UT to E Br Chagrin R @ Mentor Rd	NEDO	EOLP	East Branch Chagrin River	15	2
NE-00-023	UT to Coon Crk @ Rt 301	NEDO	EOLP	Coon Creek	20	13
NE-00-024	UT to S Br Phelps Crk @ Rt 528	NEDO	EOLP	South Branch Phelps Creek	3	152
NE-00-025	UT to W Br Cuyahoga R @ Taylor Wells Rd	NEDO	EOLP	West Branch Cuyahoga River	19	36
NE-00-026	UT to W Br Rocky R @ Columbia W River Rd	NEDO	EOLP	West Branch Rocky River	13	200
NE-00-027	UT to E Fork E Br Black R @ Chippewa Crk	NEDO	EOLP	East Fork East Branch Black River	20	14
NE-00-028	UT to Clear Crk @ Zimmerman Rd	NEDO	EOLP	Clear Creek	20	16
NE-00-029		NEDO	EOLP	West Branch Cuyahoga River	19	36
NE-00-031	UT to Bannister Ditch to Willow Crk @ Grafton Rd	NEDO	EOLP	Bannister Ditch	20	18
NE-00-033	UT to Chippewa Lake @ Rt 3	NEDO	EOLP	Chippewa Creek	17	550
NE-00-036	UT to Chagrin R @ Chagrin Rd	NEDO	EOLP	Chagrin River	15	1
NE-00-038	UT to Plum Crk @ Crocker Rd	NEDO	EOLP	Plum Creek	13	201
NE-00-039	UT to Aurora Br @ Quinn Rd	NEDO	EOLP	Aurora Branch Chagrin River	15	5
NE-00-045	UT to Grand R @ Mosely Rd	NEDO	EOLP	Griswold Creek	3	8
NE-00-051	UT to Grand River at Alfedder Property	NEDO	EOLP	Silver Creek	15	7
NW-00-002	Fulton/Wood PRDA site 2	NWDO	HELP	Tenmile Creek	4	320
NW-00-004	Fulton/Wood PRDA site 4	NWDO	HELP	Tenmile Creek	4	320
NW-00-005	Fulton/Wood PRDA site 5	NWDO	HELP	Brush Creek	4	614
NW-00-007	Fulton/Wood PRDA site 7	NWDO	HELP	Swan Creek	4	3
NW-00-008	Fulton/Wood PRDA site 8	NWDO	ECBP	Clear Creek	4	623
NW-00-009	Fulton/Wood PRDA site 9	NWDO	HELP	Tontogony Creek	4	13
NW-00-011	Fulton/Wood PRDA site 11	NWDO	HELP	N. Turkeyfoot Creek	4	37
NW-00-012	Fulton/Wood PRDA site 12	NWDO	HELP	Ai Creek	4	10

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Site Name	District	Ecoregion	Receiving Stream Basin	Receiving Stream Basin Code	Receiving Stream Code
NW-00-015	Fulton/Wood PRDA site 15	NWDO	HELP	Sugar Creek	4	203
NW-00-017	Fulton/Wood PRDA site 17	NWDO	HELP	S. Branch Portage R.	16	100
NW-00-019	Fulton/Wood PRDA site 19	NWDO	HELP	Beaver Creek	4	15
NW-00-020	Fulton/Wood PRDA site 20	NWDO	HELP	Bates Creek	4	622
NW-00-021	Fulton/Wood PRDA site 21	NWDO	HELP	Tiffin River	4	600
NW-00-022	Fulton/Wood PRDA site 22	NWDO	HELP	Bad Creek	4	26
NW-00-023	Fulton/Wood PRDA site 23	NWDO	HELP	Maumee River	4	1
NW-00-025	Fulton/Wood PRDA site 25	NWDO	HELP	Touissaint Creek	16	215
NW-00-027	Fulton/Wood PRDA site 27	NWDO	HELP	Sugar Creek	16	6
NW-00-029	Fulton/Wood PRDA site 29	NWDO	HELP	Rocky Ford	16	103
NW-00-033	Fulton/Wood PRDA site 33	NWDO	HELP	Ai Creek	4	10
NW-00-035	Fulton/Wood PRDA site 35	NWDO	HELP	S. Branch Portage R.	16	100
NW-00-036	Fulton/Wood PRDA site 36	NWDO	HELP	Turkeyfoot Creek	4	30
NW-00-037	Fulton/Wood PRDA site 37	NWDO	HELP	Touissaint Creek	16	215
SE-99-001	Unnamed trib at Bacon Rd.	SEDO	IP	Scioto Brush Creek	2	700
SE-99-002	HWHA Buffalo Rd @ Ford	SEDO	WAP	Salt Creek	2	600
SE-99-003	HWHA Site #3 Hocking Co. off Happy Hollow Rd.	SEDO	WAP	Salt Creek	2	600
SE-99-004	Burgoon Hollow (HWH Site 3)	SEDO	WAP	Pine Creek	2	630
SE-99-005	Conkles Hollow	SEDO	WAP	Pine Creek	2	630
SE-99-006	Central Ohio Coal Stream H	SEDO	WAP	Dinner Fork	17	81
SE-99-007	Davon-unnamed trib to West Fork of Ohio Brush C	SEDO	IP	Little West Fork Ohio Brush Creek	10	229
SE-99-008	unnamed trib to Hocking River (ATH-MEG-33 AB1	SEDO	WAP	Hocking River	1	1
SE-00-001	Athens/Hocking PRDA site 1	SEDO	WAP	Salt Creek	2	600
SE-00-002	Athens/Hocking PRDA site 2	SEDO	WAP	Rush Creek	1	500
SE-00-003	Athens/Hocking PRDA site 3	SEDO	WAP	Laurel Run	2	640
SE-00-004	Athens/Hocking PRDA site 4	SEDO	WAP	Moccasin Creek	2	641
SE-00-005	Athens/Hocking PRDA site 5	SEDO	WAP	Marietta Run	1	150
SE-00-006	Athens/Hocking PRDA site 6	SEDO	WAP	Threemile Creek	1	34
SE-00-007	Athens/Hocking PRDA site 7	SEDO	WAP	W.Br. Shade River	9	640
SE-00-008	Athens/Hocking PRDA site 8	SEDO	WAP	Bryson Branch Mush Run	1	174
SE-00-009	Athens/Hocking PRDA site 9	SEDO	WAP	Hocking River	1	1
SE-00-010	Athens/Hocking PRDA site 10	SEDO	WAP	Laural Run	2	640
SE-00-011	Athens/Hocking PRDA site 11	SEDO	WAP	McDougall Branch Federal Creek	1	170
SE-00-013	Athens/Hocking PRDA site 13	SEDO	WAP	Monday Creek	1	300
SE-00-014	Athens/Hocking PRDA site 14	SEDO	WAP	Willow Creek	1	120
SE-00-015	Athens/Hocking PRDA site 15	SEDO	WAP	Kitchen Run	1	330
SE-00-016	Athens/Hocking PRDA site 16	SEDO	WAP	Honey Fk. Racoon Creek	9	576
SE-00-017	Athens/Hocking PRDA site 17	SEDO	WAP	E. Br. Racoon Creek	9	574

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Site Name	District	Ecoregion	Receiving Stream Basin	Receiving Stream Basin Code	Receiving Stream Code
SE-00-018	Athens/Hocking PRDA site 18	SEDO	WAP	Federal Creek	1	100
SE-00-019	Athens/Hocking PRDA site 19	SEDO	WAP	Little Factory Creek	1	26
SE-00-021	Athens/Hocking PRDA site 21	SEDO	WAP	East Branch Buck Run	1	43
SE-00-023	Athens/Hocking PRDA site 23	SEDO	WAP	Willow Creek	1	20
SE-00-024	Athens/Hocking PRDA site 24	SEDO	WAP	Hocking River	1	1
SE-00-025	Athens/Hocking PRDA site 25	SEDO	WAP	Long Run	2	644
SE-00-027	Athens/Hocking PRDA site 27	SEDO	WAP	Margaret Creek	1	24
SE-00-028	Athens/Hocking PRDA site 28	SEDO	WAP	Guthrie Creek	9	618
SE-00-029	Athens/Hocking PRDA site 29	SEDO	WAP	Scott Creek	1	37
SE-00-030	Athens/Hocking PRDA site 30	SEDO	WAP	Pine Creek	2	630
SE-00-033	Athens/Hocking PRDA site 33	SEDO	WAP	E. Br. Racoon Creek	9	574
SE-00-034	Athens/Hocking PRDA site 34	SEDO	WAP	Pine Creek	2	630
SE-00-035	Athens/Hocking PRDA site 35	SEDO	WAP	Laurel Run	2	640
SE-00-036	Athens/Hocking PRDA site 36	SEDO	WAP	Mill Creek	1	29
SE-00-037	Athens/Hocking PRDA site 37	SEDO	WAP	W.Br. Shade River	9	640
SE-00-038	Athens/Hocking PRDA site 38	SEDO	WAP	Whites Run	9	
SE-00-039	Athens/Hocking PRDA site 39	SEDO	WAP	Long Run	1	200
SE-00-040	Athens/Hocking PRDA site 40	SEDO	WAP	Oldtown Creek	1	36
SE-00-041	Athens/Hocking PRDA site 41	SEDO	WAP	East Branch Shade River	9	610
SE-00-043	Athens/Hocking PRDA site 43	SEDO	WAP	Clear Creek	1	400
SE-00-045	Athens/Hocking PRDA site 45	SEDO	WAP	Minkers Run	1	131
SE-00-046	Athens/Hocking PRDA site 46	SEDO	WAP	Monday Creek	1	300
SE-00-047	Athens/Hocking PRDA site 47	SEDO	WAP	West Branch Racoon Creek	9	575
SE-00-049	Athens/Hocking PRDA site 49	SEDO	WAP	Bailey Run	1	210
SE-00-050	Athens/Hocking PRDA site 50	SEDO	WAP	Middle Br. Shade River	9	630
SW-99-001	Englewood Reserve Tributary	SWDO	ECBP	Stillwater River	14	200
SW-99-002	Shaker Cemetary Tributary (unnamed trib. Caesar	SWDO	ECBP	Caesar Creek Lake (Caesar Creek)	11	29
SW-00-001	UT to Caesar Crk site 1	SWDO	ECBP	Caesar Creek	11	29
SW-00-003	UT to GMR site 3	SWDO	ECBP	Great Miami River	14	1
SW-00-004	UT to Todd Fork site 4	SWDO	IP	Todd Fork Little Miami River	11	200
SW-00-005	UT to Muddy Creek to Turtle Creek site 5	SWDO	ECBP	Muddy Creek	11	20
SW-00-007	UT to East Fork to Mill Crk to Ohio R site 7	SWDO	ECBP	East Fork Mill Creek	23	6
SW-00-008	Warren/Butler PRDA site 8	SWDO	ECBP	Panther Creek	14	121
SW-00-009	UT to Greenbrier Lake to UT to Sevenmile Run sit	SWDO	ECBP	Sevenmile Creek	14	410
SW-00-010	UT to Kiata Crk site 10	SWDO	ECBP	Kiata Creek	14	319
SW-00-011	Warren/Butler PRDA site 11	SWDO	ECBP	Four Mile Creek	14	400
SW-00-013	UT to Turtle Crk site 13	SWDO	ECBP	Turtle Creek	11	21
SW-00-014	Warren/Butler PRDA site 14	SWDO	ECBP	Newman Run	11	30

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Site Name	District	Ecoregion	Receiving Stream Basin	Receiving Stream Basin Code	Receiving Stream Code
SW-00-015	UT to Indian Run to GMR site 15	SWDO	ECBP	Indian Creek	14	69
SW-00-016	College Crk to West Fork Four Mile Run to Indian	SWDO	ECBP	Indian Creek	14	69
SW-00-017	UT to Curlane Run to Four Mile Run site 17	SWDO	ECBP	Four Mile Creek	14	400
SW-00-018	UT to Indian Crk to GMR site 18	SWDO	ECBP	Indian Creek	14	69
SW-00-019	UT to Pleasant Run site 19	SWDO	ECBP	Pleasant Run	14	13
SW-00-020	UT to Four Mile Run site 20	SWDO	ECBP	Four Mile Creek	14	400
SW-00-021	UT to Todd Fork site 21	SWDO	ECBP	Todd Fork Little Miami River	11	200
SW-00-022	UT to UT to UT to Elk Crk site 3	SWDO	ECBP	Elk Creek	14	22
SW-00-024	UT to Lick Run to Indian Crk to GMR site 24	SWDO	ECBP	Indian Creek	14	69
SW-00-025	UT to Little Muddy Crk to Turtle Crk site 25	SWDO	ECBP	Little Muddy Creek	11	23
SW-00-026	Warren/Butler PRDA site 26	SWDO	ECBP	Indian Creek	14	69
SW-00-029	UT to GMR site 29	SWDO	ECBP	Great Miami River	14	1
SW-00-036	UT to First Creek to Todd Fork site 36	SWDO	IP	First Creek	11	201
SW-00-038	Ut to UT to Sevenmile Run site 38	SWDO	ECBP	Sevenmile Creek	14	401
SW-00-039	UT to Lick Run to Indian Crk to GMR site 39	SWDO	ECBP	Indian Creek	14	69
SW-00-041	Ut to Clear Crk to GMR site 6	SWDO	ECBP	Clear Creek	14	24
SW-00-045	UT to Second Crk to Todd Fork site 45	SWDO	IP	Second Creek	11	203
SW-00-046	Goose Crk to Clear Crk to GMR site 46	SWDO	ECBP	Goose Creek	14	26
SW-00-047	UT to Beckels Run site 47	SWDO	ECBP	Becketts Run	14	407
SW-00-049	Darr's Run to Four Mile Run site 49	SWDO	ECBP	Darrs Run	14	424
SW-00-050	Ut to Elk Crk site 50	SWDO	ECBP	Elk Creek	14	22
SW-00-052	Warren/Butler PRDA site 52	SWDO	ECBP	Twin Creek	14	500
SW-00-053	UT to South Fork of Caesar Creek site 53	SWDO	ECBP	South Branch Caesar Creek	11	311

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Receiving Stream Use	County	Township	Soil Map	USGS Topo	Latitude	Longitude	Date
CD-99-001	EWH	Delaware	Powell		Powell	40.14714	-83.03039	06/15/99
CD-99-003	WWH	Fairfield	Violet		Reynoldsburg	39.91780	-82.76560	09/16/99
CD-00-004	EWH	Delaware	Orange	Delaware Map 53	Powell	40.14007	-83.01135	05/17/00
CD-00-005	WWH	Delaware	Concord	Delaware Map 33	Powell	40.22894	-83.11782	05/18/00
CD-00-006	WWH	Union	Jerome	Union Map 45	Marysville	40.16420	-83.26930	05/17/00
CD-00-009	WWH	Union	Allen	Union Map 38	Milford Center	40.21440	-83.43430	05/17/00
CD-00-010	WWH	Delaware	Liberty	Delaware Map 34	Powell	40.23260	-83.08670	05/18/00
CD-00-013	WWH	Union	Leesburg	Union Map 25	Magnetic Springs	40.32390	-83.25050	05/18/00
CD-00-014	WWH	Union	Jerome	Union Map 54	Hilliard	40.11520	-83.19630	05/17/00
CD-00-016	EWH	Delaware	Liberty	Delaware Map 34	Powell	40.21333	-83.03697	05/18/00
CD-00-018	WWH	Delaware	Genoa	Delaware Map 54	Galena	40.14583	-82.90563	05/17/00
CD-00-019	EWH	Union	Darby	Union Map 48	Milford Center	40.14800	-83.38100	05/17/00
CD-00-020	WWH	Union	Liberty	Union Map 23	Peoria	40.30120	-83.42343	05/18/00
CD-00-021	WWH	Delaware	Kingston	Delaware Map 22	Kilbourne	40.32880	-82.88020	05/19/00
CD-00-022	WWH	Delaware	Scioto	Delaware Map 32	Ostrander	40.25070	-83.24770	05/17/00
CD-00-023	WWH	Union	Paris	Union Map 34	Magnetic Springs	40.25870	-83.33780	05/17/00
CD-00-025	WWH	Delaware	Liberty	Delaware Map 46	Powell	40.16310	-83.07650	05/17/00
CD-00-026	WWH	Delaware	Berlin	Delaware Map 28	Kilbourne	40.27910	-82.93640	05/19/00
CD-00-027	WWH	Union	Taylor	Union Map 20	Peoria	40.35470	-83.37730	05/18/00
CD-00-028	EWH	Delaware	Orange	Delaware Map 47	Powell	40.17540	-83.03239	05/17/00
CD-00-030	WWH	Union	York	Union Map 14	West Mansfield	40.39391	-83.51213	05/18/00
CD-00-032	WWH	Delaware	Kingston	Delaware Map 22	Olive Green	40.30360	-82.84840	05/17/00
CD-00-033	WWH	Delaware	Berlin	Delaware Map 27	Kilbourne	40.26838	-82.99650	05/19/00
CD-00-034	WWH	Delaware	Delaware	Delaware Map 27	Delaware	40.28157	-83.03650	05/19/00
CD-00-043	WWH	Union	Leesburg	Union Map 20	Magnetic Springs	40.35940	-83.33860	05/18/00
CD-00-044	WWH	Delaware	Orange	Delaware Map 47	Galena	40.15890	-82.99410	05/17/00
CD-00-045	WWH	Union	Washington	Union Map 2	York Center	40.48094	-83.40336	05/18/00
CD-00-047	EWH	Delaware	Genoa	Delaware Map 48	Galena	40.18150	-82.92600	05/17/00
CD-00-048	WWH	Union	Liberty	Union Map 13	East Liberty	40.37442	-83.52589	05/18/00
CD-00-049	WWH	Union	Liberty	Union Map 19	Peoria	40.33480	-83.44810	05/18/00
NE-99-001	WWH	Summit	Twinsburg	Summit Map 2	Twinsburg	41.30908	-81.45307	06/24/99
NE-99-002	WWH	Summit	Twinsburg	Summit Map 2	Twinsburg	41.30884	-81.45078	06/24/99
NE-99-003	WWH	Summit	Twinsburg	Summit Map 2	Twinsburg	41.34192	-81.48117	02/18/99
NE-99-004	WWH	Portage	Aurora	Portage Map 7	Aurora	41.28222	-81.36497	03/25/99
NE-99-005	WWH	Portage	Streetsboro	Portage Map 19	Kent	41.23733	-81.34547	03/25/99
NE-99-006	WWH	Summit	Hudson	Summit map 13	Hudson	41.21489	-81.43039	04/21/99
NE-99-007	WWH	Summit	Hudson	Summit Map 13	Hudson	41.21375	-81.43122	04/21/99
NE-99-008	UN	Summit	Boston	Summit Map 8	Richfield	41.25739	-81.57761	05/05/99

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Receiving Stream Use	County	Township	Soil Map	USGS Topo	Latitude	Longitude	Date
NE-99-010	CWH	Geauga	Munson	Geauga Map 20	Chardon	41.55328	-81.23708	05/12/99
NE-99-011	UN	Summit	Boston	Summit Map 8	Northfield	41.25836	-81.57931	05/18/99
NE-99-012	WWH	Summit	Akron	Summit Map 15	Peninsula	41.16731	-81.56381	07/14/99
NE-99-013	WWH	Summit	Peninsula	Summit Map 8	Peninsula	41.23817	-81.54886	07/30/99
NE-99-014	WWH	Summit	Boston	Summit Map 8	Peninsula	41.22183	-81.53694	07/30/99
NE-99-015	WWH	Summit	Boston	Summit Map 8	Peninsula	41.22278	-81.53753	07/30/99
NE-99-016	WWH	Summit	Boston	Summit Map 8	Peninsula	41.21933	-81.53406	07/30/99
NE-99-017	WWH	Summit	Boston	Summit Map 8	Peninsula	41.21942	-81.53228	07/30/99
NE-99-019	UN	Summit	Boston	Summit Map 8	Northfield	41.25833	-81.56928	08/10/99
NE-99-020	UN	Summit	Boston	Summit Map 8	Northfield	41.25825	-81.57158	08/10/99
NE-99-021	UN	Summit	Boston	Summit Map 8	Northfield	41.25717	-81.57511	08/10/99
NE-99-022	UN	Summit	Boston	Summit Map 8	Northfield	41.26064	-81.59525	08/10/99
NE-99-023	UN	Summit	Boston	Summit Map 8	Northfield	41.25994	-81.56686	08/11/99
NE-99-024	UN	Summit	Boston	Summit Map 8	Northfield	41.25589	-81.57689	08/11/99
NE-99-025	UN	Summit	Boston	Summit Map 8	Northfield	41.26036	-81.56594	08/11/99
NE-99-028	WWH	Summit	Boston	Summit Map 8	Peninsula	41.22647	-81.58863	08/19/99
NE-99-029	WWH	Summit	Boston	Summit Map 8	Northfield	41.25485	-81.53707	08/19/99
NE-99-030	WWH	Summit	Boston	Summit Map 8	Peninsula	41.23283	-81.58532	08/19/99
NE-99-031	WWH	Summit	Boston	Summit Map 8	Peninsula	41.23348	-81.58947	08/19/99
NE-99-032	WWH	Summit	Boston	Summit Map 8	Peninsula	41.22765	-81.58427	08/19/99
NE-99-033	WWH	Summit	Peninsula	Summit Map 8	Peninsula	41.24295	-81.56230	08/19/99
NE-99-034	WWH	Summit	Peninsula	Summit Map 8	Peninsula	41.24285	-81.56227	08/19/99
NE-99-035	WWH	Summit	Boston	Summit Map 8	Northfield	41.25397	-81.51978	08/19/99
NE-99-036	WWH	Summit	Boston	Summit Map 8	Peninsula	41.22344	-81.59056	08/19/99
NE-99-037	WWH	Summit	Peninsula	Summit Map 8	Peninsula	41.24488	-81.57968	08/19/99
NE-99-038	WWH	Summit	Peninsula	Summit Map 8	Peninsula	41.24587	-81.55623	08/19/99
NE-99-039	WWH	Summit	Peninsula	Summit Map 8	Peninsula	41.24625	-81.55818	08/19/99
NE-99-040	WWH	Summit	Peninsula	Summit Map 8	Peninsula	41.23743	-81.55459	10/25/99
NE-99-041	WWH	Summit	Boston	Summit Map 8	Northfield	41.25387	-81.55627	10/25/99
NE-99-042	WWH	Summit	Boston	Summit Map 8	Northfield	41.25336	-81.51908	10/25/99
NE-99-043	WWH	Summit	Boston	Summit Map 8	Peninsula	41.23487	-81.59067	10/25/99
NE-99-044	WWH	Summit	Boston	Summit Map 8	Northfield	41.26092	-81.56010	10/25/99
NE-99-045	WWH	Summit	Peninsula	Summit Map 8	Peninsula	41.23068	-81.55548	10/25/99
NE-99-046	WWH	Summit	Peninsula	Summit Map 8	Peninsula	41.23343	-81.56137	10/25/99
NE-99-048	WWH	Lorain	Wellington	Lorain pg 54	Wellington	41.15815	-82.20573	10/29/99
NE-99-049	WWH	Lorain	Huntington	Lorain pg 58	Sullivan	41.12280	-82.21740	10/29/99
NE-99-050	WWH	Lake	Mentor	Lake Map 20	Mentor	41.65859	-81.35244	11/04/99
NE-99-051	WWH	Holmes	Paint	Holmes Map 25	Wilmot	40.65682	-81.65829	11/08/99

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Receiving Stream Use	County	Township	Soil Map	USGS Topo	Latitude	Longitude	Date
NE-00-001	WWH	Medina	Spencer	Medina Map 36	Sullivan	41.06809	-82.16205	06/08/00
NE-00-002	CWH	Geauga	Hambden	Geauga Map 15	Chardon	41.59461	-81.16705	08/17/00
NE-00-003	MWH	Medina	Lafayette	Medina Map 32	Westfield Center	41.07504	-81.94528	06/16/00
NE-00-004	EWH	Geauga	Bainbridge	Geauga Map 43	South Russell	41.41409	-81.34422	06/09/00
NE-00-005	MWH	Medina	Guilford	Medina Map 48	Seville	41.00275	-81.78702	06/16/00
NE-00-006	WWH	Medina	Chatham	Medina Map 30	Lodi	41.01628	-82.12047	08/07/00
NE-00-008	EWH	Geauga	Bainbridge	Geauga Map 43	South Russell	41.40369	-81.31868	06/09/00
NE-00-010	WWH	Geauga	Thompson	Geauga Map 1	Thompson	41.71443	-81.02929	08/15/00
NE-00-011	EWH	Geauga	Bainbridge	Geauga Map 42	South Russell	41.40501	-81.35937	06/09/00
NE-00-013	EWH	Geauga	Russell	Geauga Map 30	South Russell	41.47857	-81.37332	07/27/00
NE-00-014	WWH	Geauga	Troy	Geauga Map 40	Burton	41.42623	-81.14370	06/09/00
NE-00-016	WWH	Geauga	Parkman	Geauga Map 48	Middlefield	41.40201	-81.08168	06/09/00
NE-00-018	WWH	Geauga	Thompson	Geauga Map 2	Thompson	41.68733	-81.09338	08/15/00
NE-00-020	WWH	Geauga	Middlefield	Geauga Map 41	Middlefield	41.44168	-81.06363	06/09/00
NE-00-021	WWH	Geauga	Hambden	Geauga Map 16	Chardon	41.57563	-81.13572	09/28/00
NE-00-022	CWH	Geauga	Chardon	Geauga Map 18	Mentor	41.63240	-81.28520	08/17/00
NE-00-023	WWH	Medina	Spencer	Medina Map 29	Lodi	41.08764	-82.12337	06/08/00
NE-00-024	WWH	Geauga	Huntsburg	Geauga Map 23	East Claridon	41.54028	-81.05197	07/27/00
NE-00-025	WWH	Geauga	Claridon	Geauga Map 21	Chardon	41.53737	-81.16035	07/27/00
NE-00-026	WWH	Medina	Liverpool	Medina Map 1	West View	41.26230	-81.93540	08/08/00
NE-00-027	WWH	Medina	Chatham	Medina Map 31	Lodi	41.07679	-82.00081	06/08/00
NE-00-028	WWH	Medina	Homer	Medina Map 43	Sullivan	41.01824	-82.12645	06/08/00
NE-00-029	WWH	Geauga	Burton	Geauga Map 33	Burton	41.48015	-81.17764	07/27/00
NE-00-031	UN	Medina	Liverpool	Medina Map 5	West View	41.27327	-81.95476	08/08/00
NE-00-033	MWH	Medina	Montville	Medina Map 33	Seville	41.08899	-81.86422	06/16/00
NE-00-036	WWH	Geauga	Bainbrudge	Geauga Map 36	Chagrin Falls	41.41927	-81.38057	09/28/00
NE-00-038	WWH	Medina	Liverpool	Medina Map 1	West View	41.27472	-81.95574	08/08/00
NE-00-039	WWH	Geauga	Auburn	Geauga Map 49	Aurora	41.36762	-81.28976	06/09/00
NE-00-045	WWH	Geauga	Thompson	Geauga Map 1	Thompson	41.70375	-81.04152	08/15/00
NE-00-051	CWH	Geauga	Russell	Geauga Map 31	South Russell	41.45745	-81.32928	04/12/00
NW-00-002	WWH	Fulton	Amboy	Fulton Map 15	Assumption	41.67643	-83.99730	07/13/00
NW-00-004	WWH	Fulton	Amboy	Fulton Map 15	Assumption	41.66097	-83.99682	07/13/00
NW-00-005	WWH	Fulton	German	Fulton Map 51	Wauseon	41.51636	-84.24828	07/12/00
NW-00-007	WWH	Fulton	Fulton	Fulton Map 31	Swanton	41.61775	-83.97217	07/13/00
NW-00-008	WWH	Fulton	Franklin	Fulton Map 17	Alvordton	41.63011	-84.38252	07/12/00
NW-00-009	WWH	Wood	Washington	Wood Map 19	Bowling Green North	41.45343	-83.74586	07/13/00
NW-00-011	WWH	Fulton	Pike	Fulton Map 37	Wauseon	41.58579	-84.13452	07/12/00
NW-00-012	WWH	Fulton	Fulton	Fulton Map 24	Assumption	41.64559	-83.93599	07/13/00

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Receiving Stream Use	County	Township	Soil Map	USGS Topo	Latitude	Longitude	Date
NW-00-015	WWH	Wood	Montgomery	Wood Map 80	Bradner	41.29344	-83.42836	07/14/00
NW-00-017	WWH	Wood	Montgomery	Wood Map 78	Bradner	41.33711	-83.45605	07/14/00
NW-00-019	WWH	Wood	Milton	Wood Map 61	Weston	41.29934	-83.87051	07/13/00
NW-00-020	WWH	Fulton	Franklin	Fulton Map 33	Archbold	41.59121	-84.35878	07/12/00
NW-00-021	WWH	Fulton	German	Fulton Map 41	Archbold	41.57210	-84.37124	07/12/00
NW-00-022	WWH	Fulton	Pike	Fulton Map 38	Delta	41.59532	-84.03340	07/13/00
NW-00-023	WWH	Wood	Jackson	Wood Map 35	Grand Rapids	41.42018	-83.84689	07/13/00
NW-00-025	WWH	Wood	Troy	Wood Map 32	Pemberville	41.46460	-83.44250	07/14/00
NW-00-027	WWH	Wood	Montgomery	Wood Map 82	Bradner	41.26777	-83.42903	07/14/00
NW-00-029	WWH	Wood	Henry	Wood Map 90	North Baltimore	41.24079	-83.65983	07/13/00
NW-00-033	WWH	Fulton	Fulton	Fulton Map 23	Assumption	41.62919	-83.95488	07/13/00
NW-00-035	WWH	Wood	Perry	Wood Map 106	Fostoria	41.17902	-83.47362	07/14/00
NW-00-036	WWH	Fulton	Clinton	Fulton Map 52	Wauseon	41.54219	-84.15344	07/12/00
NW-00-037	WWH	Wood	Troy	Wood Map 34	Pemberville	41.44655	-83.45382	07/14/00
SE-99-001	EWH	Adams	Franklin		Jaybird	38.96667	-83.36000	07/14/99
SE-99-002	EWH	Hocking	Perry		Laurelville	39.44700	-82.71339	07/28/99
SE-99-003	EWH	Hocking	Salt Creek		Laurelville	39.46333	-82.68628	08/03/99
SE-99-004	WWH	Hocking	Benton	Hocking Map 40	South Bloomingville	39.45078	-82.58310	08/10/99
SE-99-005	WWH	Hocking	Benton	Hocking Map 40	South Bloomingville	39.45389	-82.57361	08/10/99
SE-99-006	EWH	Noble	Sharon	Noble Map 32	Caldwell South	39.72472	-81.58750	10/07/99
SE-99-007	WWH	Brown	Eagle		Sugar Tree Ridge	39.00778	-83.67806	08/20/99
SE-99-008	WWH	Athens	Athens		Athens	39.29833	-82.10361	10/07/99
SE-00-001	EWH	Hocking	Salt Creek	Hocking Map 53	Ratcliffburg	39.36532	-82.65598	07/05/00
SE-00-002	MWH	Hocking	Marion	Hocking Map 53	Breman	39.62788	-82.40777	06/29/00
SE-00-003	EWH	Hocking	Laurel	Hocking Map 22	S.Bloomingville	39.49993	-82.58890	06/28/00
SE-00-004	WWH	Hocking	Perry	Hocking Map 11	Clearport	39.88710	-82.72417	07/05/00
SE-00-005	LWWH	Athens	Bern	Athens Map 20	Chesterhill	39.41485	-81.86128	07/07/00
SE-00-006	WWH	Hocking	Green	Hocking Map 16	Gore	39.55873	-82.36810	06/29/00
SE-00-007	WWH	Athens	Alexander	Athens Map 68	Shade	39.21330	-82.08085	07/13/00
SE-00-008	EWH	Athens	Ames	Athens Map 10	Jacksonville	39.43333	-82.03944	07/07/00
SE-00-009	WWH	Hocking	Falls	Hocking Map 25	Logan	39.53587	-82.39107	06/29/00
SE-00-010	EWH	Hocking	Perry	Hocking Map 21	Laurelville	39.49683	-82.66557	06/29/00
SE-00-011	WWH	Athens	Ames	Athens Map 17	Jacksonville	39.40389	-82.03667	07/20/00
SE-00-013	LRW	Athens	York	Athens Map 8	Nelsonville	39.44477	-82.20465	07/07/00
SE-00-014	WWH	Athens	Lodi	Athens Map 46	Athens	39.27392	-81.97693	07/20/00
SE-00-015	WWH	Hocking	Green	Hocking Map 26	Gore	39.51428	-82.28622	06/29/00
SE-00-016	WWH	Hocking	Washington	Hocking Map 49	New Plymouth	39.39226	-82.42178	07/05/00
SE-00-017	LRW	Hocking	Starr	Hocking Map 51	Union Furnace	39.40365	-82.33753	07/05/00

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Receiving Stream Use	County	Township	Soil Map	USGS Topo	Latitude	Longitude	Date
SE-00-018	EWH	Athens	Bern	Athens Map 26	Amesville	39.39320	-81.91922	07/07/00
SE-00-019	WWH	Athens	Athens	Athens Map 30	The Plains	39.36838	-82.16842	07/07/00
SE-00-021	WWH	Hocking	Good Hope	Hocking Map 14	Rock Bridge	39.55760	-82.54633	06/29/00
SE-00-023	WWH	Athens	Canaan	Athens Map 54	Stewart	39.29325	-81.97692	07/18/00
SE-00-024	WWH	Athens	Troy	Athens Map 56	Coolville	39.24502	-81.80412	07/13/00
SE-00-025	WWH	Hocking	Perry	Hocking Map 21	Clearport	39.51503	-82.67846	06/29/00
SE-00-027	EWH	Athens	Alexander	Athens Map 59	Albany	39.23433	-82.16967	07/13/00
SE-00-028	WWH	Athens	Carthage	Athens Map 71	Alfred	39.20047	-81.90032	07/13/00
SE-00-029	WWH	Hocking	Falls	Hocking Map 24	Logan	39.50925	-82.44578	06/28/00
SE-00-030	WWH	Hocking	Laurel	Hocking Map 31	S. Bloomingville	39.46195	-82.58181	06/28/00
SE-00-033	LRW	Hocking	Starr	Hocking Map 51	Union Furnace	39.39842	-82.31778	06/29/00
SE-00-034	WWH	Hocking	Benton	Hocking Map 40	S. Bloomingville	39.43877	-82.31695	06/28/00
SE-00-035	EWH	Hocking	Perry	Hocking Map 30	Laurelville	39.48950	-82.65705	06/29/00
SE-00-036	WWH	Athens	Dover	Athens Map 24	Jacksonville	39.38582	-82.08683	07/07/00
SE-00-037	WWH	Athens	Alexander	Athens Map 68	Shade	39.22142	-82.10508	07/13/00
SE-00-038	UN	Athens	Troy	Athens Map 65	Lubeck	39.23865	-81.73990	07/13/00
SE-00-039	UN	Athens	Trimble	Athens Map 24	Corning	39.52840	-82.07295	07/07/00
SE-00-040	WWH	Hocking	Falls	Hocking Map 16	Logan	39.55287	-82.40860	06/29/00
SE-00-041	EWH	Athens	Lodi	Athens Map 54	Stewart	39.25415	-81.96637	08/03/00
SE-00-043	WWH	Hocking	Good Hope	Hocking Map 6	Rock Bridge	39.57868	-82.56327	07/05/00
SE-00-045	WWH	Athens	York	Athens Map 14	Nelsonville	39.42345	-82.24995	07/20/00
SE-00-046	LRW	Hocking	Green	Hocking Map 26	Gore	39.52240	-82.30092	06/29/00
SE-00-047	WWH	Hocking	Starr	Hocking Map 50	New Plymouth	39.39648	-82.37899	07/05/00
SE-00-049	WWH	Athens	Dover	Athens Map 16	Nelsonville	39.43365	-82.13170	08/03/00
SE-00-050	EWH	Athens	lodi	Athens Map 61	Shade	39.24496	-82.00292	08/03/00
SW-99-001	EWH	Montgome	Englewood	Montgomery Map 10	Trotwood	39.87377	-84.29507	09/23/99
SW-99-002	EWH	Warren	Wayne	Warren Map 5	New Burlington	39.54856	-89.98496	10/14/99
SW-00-001	WWH	Warren	Massie	Warren Map 13	Oregonia	39.46222	-84.07190	07/20/00
SW-00-003	WWH	Butler	Madison	Butler Map 15	Middletown	39.53294	-84.47236	08/21/00
SW-00-004	EWH	Warren	Harlan	Warren Map 21	Pleasant Plain	39.36234	-84.05809	07/20/00
SW-00-005	WWH	Warren	Deerfield	Warren Map 26	Mason	39.31856	-84.34561	08/03/00
SW-00-007	WWH	Butler	Union	Butler Map 69	Glendale	39.30363	-84.41149	08/15/00
SW-00-008	CWH	Butler	Liberty	Butler Map 40	Trenton	39.42106	-84.38374	09/29/00
SW-00-009	EWH	Butler	Milford	Butler Map 6	West Elkton	39.55130	-84.60162	08/09/00
SW-00-010	WWH	Butler	Morgan	Butler Map 49	Reily	39.37613	-84.80714	08/16/00
SW-00-011	EWH	Butler	Milford	Butler Map 21	Hamilton	39.48342	-84.60754	09/29/00
SW-00-013	WWH	Warren	Turtle Creek	Warren Map 12	Lebanon	39.46220	-84.15000	07/20/00
SW-00-014	WWH	Warren	Wayne	Warren Map 4	Springboro	39.54677	-84.13644	09/29/00

Appendix Table I. Ohio EPA PHWH Evaluation Sites, 1999-2000

District/Site Number	Receiving Stream Use	County	Township	Soil Map	USGS Topo	Latitude	Longitude	Date
SW-00-015	WWH	Butler	Ross	Butler Map 58	Shandon	39.34701	-84.64016	08/18/00
SW-00-016	WWH	Butler	Oxford	Butler Map 3	College Corner	39.55995	-84.80789	08/09/00
SW-00-017	WWH	Butler	Hanover	Butler Map 27	Millville	39.47098	-84.69189	08/18/00
SW-00-018	WWH	Butler	Reily	Butler Map 43	Millville	39.40564	-84.74351	08/16/00
SW-00-019	WWH	Butler	Fairfield	Butler Map 66	Greenhills	39.30920	-84.56219	09/12/00
SW-00-020	WWH	Butler	Oxford	Butler Map 4	Oxford	39.54728	-84.73960	08/09/00
SW-00-021	EWH	Warren	Washington	Warren Map 21	Oregonia	39.37644	-84.05215	07/20/00
SW-00-022	EWH	Butler	Madison	Butler Map 23	Middletown	39.55670	-84.58020	08/18/00
SW-00-024	WWH	Butler	Ross	Butler Map 51	Millville	39.46850	-84.05215	08/16/00
SW-00-025	WWH	Butler	Libery	Butler Map 25	Monroe	39.38263	-84.34560	08/03/00
SW-00-026	WWH	Butler	Reily	Butler Map 26	Reily	39.45947	-84.77832	09/12/00
SW-00-029	WWH	Butler	Hamilton	Butler Map 52	Greenhills	39.37412	-84.61228	08/22/00
SW-00-036	WWH	Warren	Harlan	Warren Map 28	South Lebanon	39.30579	-84.13021	08/03/00
SW-00-038	EWH	Butler	Milford	Butler Map 6	West Elkton	39.53861	-84.60278	08/10/00
SW-00-039	WWH	Butler	Morgan	Butler Map 48	Shandon	39.37345	-84.70328	08/16/00
SW-00-041	WWH	Warren	Franklin	Warren Map 2	Franklin	39.55548	-84.30098	08/02/00
SW-00-045	WWH	Warren	Harlan	Warren Map 25	Pleasant Plain	39.32088	-84.07138	08/03/00
SW-00-046	WWH	Warren	Franklin	Warren Map 6	Franklin	39.53151	-84.25914	08/07/00
SW-00-047	WWH	Butler	Hanover	Butler Map 36	Millville	39.44498	-84.63732	08/18/00
SW-00-049	WWH	Butler	Milford	Butler Map 6	Oxford	39.54838	-84.67480	08/09/00
SW-00-050	EWH	Butler	Wayne	Butler Map 6	West Elkton	39.55625	-84.57855	08/21/00
SW-00-052	EWH	Preble	Lanier	Map 47 & 48	West Alexandria	39.70815	-84.52653	08/24/00
SW-00-053	WWH	Greene	Jamestown	Map 36	Jamestown	39.65222	-83.73228	08/24/00

Appendix Table II a. Substrate Characteristics: Qualitative

District/Site Number	Substrate 1	Substrate 2	Substrate Other	Total Substrate Types	Substrate Evaluation Type
CD-99-001	Bedrock	Gravel	C,S,D	5	Pebble Count
CD-99-003	Gravel	Silt	D,S,C	5	Pebble Count
CD-00-004	Cobble	Gravel	B,S,ST,W,H	7	Visual Estimation
CD-00-005	Clay Hardpan	Clay Hardpan	G	2	Visual Estimation
CD-00-006	Sand	Muck		2	
CD-00-009	Sand	Muck	G,C	4	Visual Estimation
CD-00-010	Clay Hardpan	Clay Hardpan	G	3	Visual Estimation
CD-00-013	Clay Hardpan	Muck	G,S,ST,W	6	Visual Estimation
CD-00-014	Sand	Muck	H	3	Visual Estimation
CD-00-016	Bedrock	Gravel	B,C,S,W	6	Visual Estimation
CD-00-018	Clay Hardpan	Muck	S	3	Visual Estimation
CD-00-019	Muck	Cobble	G,S	4	Visual Estimation
CD-00-020	Clay Hardpan	Clay Hardpan	S,G	3	Visual Estimation
CD-00-021	Clay Hardpan	Clay Hardpan	W	2	Visual Estimation
CD-00-022	Clay Hardpan	Clay Hardpan	A	2	Visual Estimation
CD-00-023	Gravel	Clay Hardpan	C,S,W	5	Visual Estimation
CD-00-025	Clay Hardpan	Artificial	W	3	Visual Estimation
CD-00-026	Bedrock	Gravel	ST,W,B,S	6	Visual Estimation
CD-00-027	Sand	Clay Hardpan		2	
CD-00-028	Cobble	Gravel	B,S,W	5	Visual Estimation
CD-00-030	Clay Hardpan	Clay Hardpan		1	
CD-00-032	Clay Hardpan	Muck	S	3	Visual Estimation
CD-00-033	Clay Hardpan	Clay Hardpan	W,M	3	Visual Estimation
CD-00-034	Clay Hardpan	Muck		2	
CD-00-043	Clay Hardpan	Clay Hardpan	W	2	Visual Estimation
CD-00-044	Sand	Muck	B,W,D,H	6	Visual Estimation
CD-00-045	Clay Hardpan	Clay Hardpan	W,C,G,S	5	Visual Estimation
CD-00-047	Clay Hardpan	Clay Hardpan	W,A	3	Visual Estimation
CD-00-048	Clay Hardpan	Clay Hardpan		1	
CD-00-049	Clay Hardpan	Sand	M	3	Visual Estimation
NE-99-001	Cobble	Gravel	B,S,D	5	Pebble Count
NE-99-002	Gravel	Fine Detritus	S,C,W	5	Pebble Count
NE-99-003	Cobble	Gravel	B,ST,W	5	Pebble Count
NE-99-004	Silt	Fine Detritus	G	3	Pebble Count
NE-99-005	Cobble	Gravel	B,S	4	Pebble Count
NE-99-006	Gravel	Sand	C,ST,D	5	Pebble Count
NE-99-007	Gravel	Sand	ST,D	4	Pebble Count
NE-99-008	Gravel	Cobble	B,S	4	Pebble Count
NE-99-010	Cobble	Gravel	B,S,BD,D	6	Pebble Count
NE-99-011	Cobble	Gravel	Boulder	3	Pebble Count

Appendix Table II a. Substrate Characteristics: Qualitative

District/Site Number	Substrate 1	Substrate 2	Substrate Other	Total Substrate Types	Substrate Evaluation Type
NE-99-012	Sand	Gravel	S,C,D,ST	6	Pebble Count
NE-99-013	Cobble	Sand	B,G,D,A	6	
NE-99-014	Sand	Fine Detritus		2	
NE-99-015	Sand	Gravel	C,D	4	
NE-99-016	Sand	Fine Detritus	B,C,G,Bd	6	
NE-99-017	Sand	Fine Detritus	M,G	4	
NE-99-019	Silt	Gravel		2	
NE-99-020	Gravel	Sand	Boulder	3	
NE-99-021	Boulder	Cobble	ST,G	4	
NE-99-022	Cobble	Gravel	ST	3	
NE-99-023	Muck	Fine Detritus	ST,G	4	
NE-99-024	Cobble	Gravel	BS,B,S	5	
NE-99-025	Silt	Bedrock	BS,S	4	
NE-99-028	Sand	Sand	M,ST,G,D	5	
NE-99-029	Cobble	Gravel	B,S	4	
NE-99-030	Silt	Gravel		2	
NE-99-031	Sand	Fine Detritus	ST	3	
NE-99-032	Cobble	Fine Detritus	B,G,S	5	
NE-99-033	Cobble	Gravel	B,ST,S,D	6	
NE-99-034	Cobble	Gravel	B,S	4	
NE-99-035	Silt	Gravel	D	3	
NE-99-036	Sand	Muck	G	3	
NE-99-037	Gravel	Sand	C,D	4	
NE-99-038	Cobble	Sand	G	3	
NE-99-039	Cobble	Gravel	S,D	4	
NE-99-040	Clay Hardpan	Sand	G,C	4	
NE-99-041	Cobble	Gravel	B,S,BD,D	6	
NE-99-042	Gravel	Fine Detritus	S	3	
NE-99-043	Clay Hardpan	Clay Hardpan	G	2	
NE-99-044	Cobble	Gravel	B,ST,S,BD	6	
NE-99-045	Clay Hardpan	Sand	B,C	4	
NE-99-046	Clay Hardpan	Clay Hardpan		1	
NE-99-048	Muck	Gravel	ST,D	4	
NE-99-049	Gravel	Clay Hardpan	S,ST,D	5	
NE-99-050	Gravel	Sand	H,C	4	
NE-99-051	Gravel	Cobble	B,S,D	5	
NE-00-001	Clay Hardpan	Woody Debris	G,S	4	Visual Estimation
NE-00-002	Clay Hardpan	Clay Hardpan	W,D,B,C	5	Visual Estimation
NE-00-003	Gravel	Silt	C,W,D	5	Visual Estimation
NE-00-004	Sand	Gravel	B,C,ST,A	6	Visual Estimation

Appendix Table II a. Substrate Characteristics: Qualitative

District/Site Number	Substrate 1	Substrate 2	Substrate Other	Total Substrate Types	Substrate Evaluation Type
NE-00-005	Cobble	Boulder	G,S,ST,W	6	Visual Estimation
NE-00-006	Muck	Muck	ST,D	3	Visual Estimation
NE-00-008	Cobble	Gravel	S,ST	4	Visual Estimation
NE-00-010	Clay Hardpan	Cobble	B,G,S,BD,M	7	Visual Estimation
NE-00-011	Gravel	Sand	ST	3	Visual Estimation
NE-00-013	Clay Hardpan	Sand	B,C,G,W	6	Visual Estimation
NE-00-014	Sand	Muck	ST	3	Visual Estimation
NE-00-016	Clay Hardpan	Clay Hardpan	G,ST,D	4	Visual Estimation
NE-00-018	Clay Hardpan	Cobble	B,G,S,M	6	Visual Estimation
NE-00-020	Clay Hardpan	Silt	D	3	Visual Estimation
NE-00-021	Clay Hardpan	Clay Hardpan		1	Visual Estimation
NE-00-022	Boulder	Gravel	BS,C,S,BD	6	Visual Estimation
NE-00-023	Silt	Cobble	G,S,W	5	Visual Estimation
NE-00-024	Clay Hardpan	Gravel	C	3	Visual Estimation
NE-00-025	Cobble	Sand	B,G,ST,W	6	Visual Estimation
NE-00-026	Sand	Sand	ST,W	3	Visual Estimation
NE-00-027	Muck	Sand	C,W,H	5	Visual Estimation
NE-00-028	Sand	Gravel	C,ST,W,D,A	7	Visual Estimation
NE-00-029	Clay Hardpan	Clay Hardpan	G,S,W	4	Visual Estimation
NE-00-031	Clay Hardpan	Clay Hardpan	G,ST	3	Visual Estimation
NE-00-033	Cobble	Muck	ST	3	Visual Estimation
NE-00-036	Cobble	Gravel	S,H,B,W	6	Visual Estimation
NE-00-038	Fine Detritus	Muck	ST	3	Visual Estimation
NE-00-039	Cobble	Gravel	S,ST,D	5	Visual Estimation
NE-00-045	Cobble	Gravel	B,S,BD,W	6	Visual Estimation
NE-00-051	Bedrock	Cobble	S,W,G, ST	6	Visual Estimation
NW-00-002	Silt	Clay Hardpan	M	3	Visual Estimation
NW-00-004	Silt	Clay Hardpan		2	Visual Estimation
NW-00-005	Clay Hardpan	Artificial		2	Visual Estimation
NW-00-007	Clay Hardpan	Muck	ST	3	Visual Estimation
NW-00-008	Clay Hardpan	Muck		2	
NW-00-009	Gravel	Sand	C,ST,W	5	Visual Estimation
NW-00-011	Clay Hardpan	Muck	G,S,A	5	Visual Estimation
NW-00-012	Clay Hardpan	Muck	S	3	Visual Estimation
NW-00-015	Clay Hardpan	Fine Detritus	M	3	Visual Estimation
NW-00-017	Muck	Muck		1	Visual Estimation
NW-00-019	Clay Hardpan	Silt	D	3	Visual Estimation
NW-00-020	Clay Hardpan	Muck	A	3	Visual Estimation
NW-00-021	Clay Hardpan	Clay Hardpan	C,S,M	4	Visual Estimation
NW-00-022	Clay Hardpan	Clay Hardpan	C,G,S,A	5	Visual Estimation

Appendix Table II a. Substrate Characteristics: Qualitative

District/Site Number	Substrate 1	Substrate 2	Substrate Other	Total Substrate Types	Substrate Evaluation Type
NW-00-023	Clay Hardpan	Sand	G,W	4	Visual Estimation
NW-00-025	Silt	Clay Hardpan	C,M	4	Visual Estimation
NW-00-027	Muck	Clay Hardpan	ST	3	Visual Estimation
NW-00-029	Muck	Clay Hardpan	W	3	Visual Estimation
NW-00-033	Clay Hardpan	Silt	G,S	4	Visual Estimation
NW-00-035	Clay Hardpan	Muck	D	3	Visual Estimation
NW-00-036	Gravel	Clay Hardpan	A	3	Visual Estimation
NW-00-037	Silt	Muck	H	3	Visual Estimation
SE-99-001	Gravel	Silt	C,BD	4	Pebble Count
SE-99-002	Gravel	Fine Detritus	BD,C,B,ST	6	Pebble Count
SE-99-003	Gravel	Gravel	C,S,D,A	6	Pebble Count
SE-99-004	Cobble	Gravel	BS,ST,S,D	6	Pebble Count
SE-99-005	Gravel	Silt	C,S,D	5	Pebble Count
SE-99-006	Bedrock	Silt	G,D,S	5	Pebble Count
SE-99-007	Cobble	Sand	H,G,B,ST	6	Pebble Count
SE-99-008	Gravel	Sand	ST,D,C	5	Pebble Count
SE-00-001	Cobble	Gravel		2	
SE-00-002	Cobble	Woody Debris		2	
SE-00-003	Bedrock	Cobble	H,ST,G,W	6	Visual Estimation
SE-00-004	Cobble	Gravel		2	
SE-00-005	Bedrock	Gravel	BS,C,S	5	Visual Estimation
SE-00-006	Gravel	Woody Debris	A	3	
SE-00-007	Silt	Silt		1	Visual Estimation
SE-00-008	Clay Hardpan	Gravel	S,C,B	5	Visual Estimation
SE-00-009	Silt	Sand	G	3	Visual Estimation
SE-00-010	Clay Hardpan	Sand	G	3	
SE-00-011	Bedrock	BS	H,ST,G,S	6	
SE-00-013	Silt	Silt		1	Visual Estimation
SE-00-014	Cobble	Gravel	BD,S,ST,D	6	Visual Estimation
SE-00-015	Gravel	Silt	M	3	
SE-00-016	Gravel	Muck		2	
SE-00-017	Silt	Silt	G, M	3	Visual Estimation
SE-00-018	Silt	Silt		1	Visual Estimation
SE-00-019	Cobble	Gravel	BD,S	4	Visual Estimation
SE-00-021	Sand	Cobble		2	
SE-00-023	Gravel	Sand	C	3	Visual Estimation
SE-00-024	Gravel	Sand		2	
SE-00-025	Gravel	Sand	ST	3	
SE-00-027	Muck	Muck		1	
SE-00-028	Gravel	Silt		2	

Appendix Table II a. Substrate Characteristics: Qualitative

District/Site Number	Substrate 1	Substrate 2	Substrate Other	Total Substrate Types	Substrate Evaluation Type
SE-00-029	Gravel	Gravel		1	
SE-00-030	BS	Boulder	G,C,S,D	6	Visual Estimation
SE-00-033	Boulder	Boulder	G	2	
SE-00-034	Gravel	Silt	M	3	
SE-00-035	Gravel	Sand	ST	3	
SE-00-036	Gravel	Sand		2	Visual Estimation
SE-00-037	Gravel	Clay Hardpan	W	3	Visual Estimation
SE-00-038	Gravel	Sand	C,ST	4	Visual Estimation
SE-00-039	Gravel	Sand	G,ST	4	Visual Estimation
SE-00-040	Sand	Silt	S,H,M	2	
SE-00-041	Silt	Cobble	S,H,M	5	Visual Estimation
SE-00-043	Cobble	Bedrock		2	
SE-00-045	Cobble	Gravel	S,W,H	5	Visual Estimation
SE-00-046	BS	Bedrock	C,ST	4	
SE-00-047	Gravel	Sand		2	
SE-00-049	Sand	Gravel	ST	3	Visual Estimation
SE-00-050	Cobble	Muck	S,G,ST,W	6	Visual Estimation
SW-99-001	Cobble	Bedrock	B,G,BS,D	6	Pebble Count
SW-99-002	Cobble	Fine Detritus	G,ST	4	Pebble Count
SW-00-001	Bedrock	Bedrock	G	3	Visual Estimation
SW-00-003	Silt	Silt		1	Visual Estimation
SW-00-004	Cobble	Boulder	BS,W,G	5	Visual Estimation
SW-00-005	Gravel	Gravel	S	3	Visual Estimation
SW-00-007	Gravel	Sand	B,C,W	5	Visual Estimation
SW-00-008	Cobble	Gravel	S	3	Visual Estimation
SW-00-009	Bedrock	Bedrock		1	Visual Estimation
SW-00-010	Cobble	Boulder	G,S,BD	5	Visual Estimation
SW-00-011	Silt	Silt		1	Visual Estimation
SW-00-013	Clay Hardpan	Clay Hardpan	G,S	3	Visual Estimation
SW-00-014	Silt	Silt	G,S	3	Visual Estimation
SW-00-015	Artificial	Artificial		1	Visual Estimation
SW-00-016	Silt	Silt		1	Visual Estimation
SW-00-017	Silt	Silt		1	
SW-00-018	Silt	Silt	C,G	3	Visual Estimation
SW-00-019	Boulder	Cobble	G,S,W	5	Visual Estimation
SW-00-020	Silt	Silt		1	Visual Estimation
SW-00-021	Cobble	Boulder	BS,G	4	Visual Estimation
SW-00-022	Silt	Silt		1	
SW-00-024	Silt	Silt		1	
SW-00-025	Gravel	Silt	C	3	Visual Estimation

Appendix Table II a. Substrate Characteristics: Qualitative

District/Site Number	Substrate 1	Substrate 2	Substrate Other	Total Substrate Types	Substrate Evaluation Type
SW-00-026	Cobble	Sand	B,G,S	5	Visual Estimation
SW-00-029	Cobble	Gravel	B,BS	4	Visual Estimation
SW-00-036	Clay Hardpan	Gravel	C,ST	4	Visual Estimation
SW-00-038	Bedrock	Silt		2	Visual Estimation
SW-00-039	Silt	Silt		1	Visual Estimation
SW-00-041	Sand	Gravel	C	3	Visual Estimation
SW-00-045	Muck	Muck		1	Visual Estimation
SW-00-046	BS	Cobble		2	Visual Estimation
SW-00-047	Silt	Silt		1	
SW-00-049	Cobble	Sand		2	
SW-00-050	Silt	Silt		1	Visual Estimation
SW-00-052	Bedrock	Bedrock	BS, B, C, G, S	6	Visual Estimation
SW-00-053	Sand	Silt	C,G	4	Visual Estimation

Key:

Bedrock	= BD	Silt	= ST
Boulder Slabs	= BS	Clay Hardpan	= H
Boulder	= B	Muck	= M
Cobble	= C	Artificial	= A
Gravel	= G	Fine Detritus	= D
Sand	= S	Woody Debris	= W

Appendix Table II b. Substrate Characteristics: Quantitative

District/Site Number	Bedrock	Boulder (>256 mm)	Cobble (65-255 mm)	Gravel (2-64 mm)	Sand (<2 mm)	Silt	Clay	Detritus	Muck	Artificial	Percent Bedrock, Boulder & Cobble
CD-99-001	36%	0%	14%	31%	5%	2%	0%	12%	0%	0%	50.0%
CD-99-003	0%	2%	7%	52%	5%	27%	0%	7%	0%	0%	9.1%
CD-00-004	0%	2%	40%	40%	10%	4%	2%	2%	0%	0%	42.0%
CD-00-005	0%	0%	0%	10%	0%	0%	90%	0%	0%	0%	0.0%
CD-00-006											
CD-00-009	0%	0%	5%	10%	40%	0%	0%	0%	45%	0%	5.0%
CD-00-010	0%	0%	0%	10%	0%	0%	90%	0%	0%	0%	0.0%
CD-00-013	0%	0%	0%	15%	5%	5%	30%	5%	40%	0%	0.0%
CD-00-014	0%	0%	0%	0%	20%	0%	15%	0%	65%	0%	0.0%
CD-00-016	30%	5%	20%	25%	0%	5%	0%	15%	0%	0%	55.0%
CD-00-018	0%	0%	0%	0%	5%	0%	85%	0%	10%	0%	0.0%
CD-00-019	0%	0%	30%	20%	10%	0%	0%	0%	30%	0%	30.0%
CD-00-020	0%	0%	0%	15%	15%	0%	70%	0%	0%	0%	0.0%
CD-00-021	0%	0%	0%	0%	0%	0%	80%	20%	0%	0%	0.0%
CD-00-022	0%	0%	0%	0%	0%	0%	90%	0%	0%	10%	0.0%
CD-00-023	0%	0%	10%	40%	15%	0%	30%	5%	0%	0%	10.0%
CD-00-025	0%	0%	0%	0%	0%	0%	85%	5%	0%	10%	0.0%
CD-00-026	30%	5%	0%	35%	20%	5%	0%	5%	0%	0%	35.0%
CD-00-027											
CD-00-028	0%	3%	30%	40%	20%	0%	0%	7%	0%	0%	33.0%
CD-00-030											
CD-00-032	0%	0%	0%	0%	0%	10%	20%	0%	70%	0%	0.0%
CD-00-033	0%	0%	0%	0%	0%	0%	70%	15%	15%	0%	0.0%
CD-00-034											
CD-00-043	0%	0%	0%	0%	0%	0%	95%	5%	0%	0%	0.0%
CD-00-044	0%	5%	0%	0%	20%	0%	15%	10%	50%	0%	5.0%
CD-00-045	0%	0%	5%	15%	15%	0%	60%	5%	0%	0%	5.0%
CD-00-047	0%	0%	0%	0%	0%	0%	90%	8%	0%	2%	0.0%
CD-00-048											
CD-00-049	0%	0%	0%	0%	0%	40%	35%	0%	15%	0%	0.0%
NE-99-001	0%	0%	23%	60%	5%	0%	0%	13%	0%	0%	22.5%
NE-99-002	0%	0%	9%	27%	36%	18%	0%	9%	0%	0%	9.1%
NE-99-003	0%	0%	37%	49%	5%	0%	0%	10%	0%	0%	36.6%
NE-99-004	0%	0%	0%	7%	0%	60%	0%	33%	0%	0%	0.0%
NE-99-005	0%	12%	41%	32%	10%	2%	0%	2%	0%	0%	53.7%
NE-99-006	0%	0%	7%	36%	31%	14%	0%	12%	0%	0%	7.1%
NE-99-007	0%	0%	2%	37%	34%	10%	0%	17%	0%	0%	2.4%
NE-99-008	0%	7%	39%	44%	7%	0%	0%	2%	0%	0%	46.3%
NE-99-010	9%	2%	39%	25%	5%	7%	5%	9%	0%	0%	50.0%
NE-99-011	3%	15%	44%	36%	0%	0%	0%	3%	0%	0%	61.5%

Appendix Table II b. Substrate Characteristics: Quantitative

District/Site Number	Bedrock	Boulder (>256 mm)	Cobble (65-255 mm)	Gravel (2-64 mm)	Sand (<2 mm)	Silt	Clay	Detritus	Muck	Artificial	Percent Bedrock, Boulder & Cobble
NE-99-012	0%	2%	16%	21%	43%	12%	0%	7%	0%	0%	17.2%
NE-99-013											
NE-99-014											
NE-99-015											
NE-99-016											
NE-99-017											
NE-99-019											
NE-99-020											
NE-99-021											
NE-99-022											
NE-99-023											
NE-99-024											
NE-99-025											
NE-99-028											
NE-99-029											
NE-99-030											
NE-99-031											
NE-99-032											
NE-99-033											
NE-99-034											
NE-99-035											
NE-99-036											
NE-99-037											
NE-99-038											
NE-99-039											
NE-99-040											
NE-99-041											
NE-99-042											
NE-99-043											
NE-99-044											
NE-99-045											
NE-99-046											
NE-99-048											
NE-99-049											
NE-99-050											
NE-99-051											
NE-00-001	0%	0%	0%	10%	5%	0%	50%	35%	0%	0%	0.0%
NE-00-002	0%	5%	5%	0%	0%	0%	60%	30%	0%	0%	10.0%
NE-00-003	0%	0%	15%	50%	0%	25%	0%	10%	0%	0%	15.0%
NE-00-004	0%	1%	10%	15%	60%	10%	0%	0%	0%	4%	11.0%

Appendix Table II b. Substrate Characteristics: Quantitative

District/Site Number	Bedrock	Boulder (>256 mm)	Cobble (65-255 mm)	Gravel (2-64 mm)	Sand (<2 mm)	Silt	Clay	Detritus	Muck	Artificial	Percent Bedrock, Boulder & Cobble
NE-00-005	0%	20%	40%	20%	10%	5%	0%	5%	0%	0%	60.0%
NE-00-006	0%	0%	0%		0%	5%	0%	5%	90%	0%	0.0%
NE-00-008	0%	0%	60%	20%	10%	10%	0%	0%	0%	0%	60.0%
NE-00-010	10%	5%	30%	5%	5%	0%	40%	0%	10%	0%	45.0%
NE-00-011	0%	0%	60%	30%	0%	10%	0%	0%	0%	0%	60.0%
NE-00-013	0%	10%	15%	15%	25%	0%	30%	5%	0%	0%	25.0%
NE-00-014	0%	0%	0%	0%	70%	5%	0%	0%	25%	0%	0.0%
NE-00-016	0%	0%	0%	5%	0%	10%	80%	5%	0%	0%	0.0%
NE-00-018	0%	5%	20%	10%	10%	0%	40%	0%	5%	0%	25.0%
NE-00-020	0%	0%	0%	0%	0%	30%	55%	15%	0%	0%	0.0%
NE-00-021	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0.0%
NE-00-022	5%	39%	20%	35%	0%	1%	0%	0%	0%	0%	64.0%
NE-00-023	0%	0%	25%	5%	10%	50%	0%	10%	0%	0%	25.0%
NE-00-024	0%	0%	10%	40%	0%	0%	50%	0%	0%	0%	10.0%
NE-00-025	0%	10%	25%	20%	30%	5%	0%	10%	0%	0%	35.0%
NE-00-026	0%	0%	0%	0%	70%	20%	0%	10%	0%	0%	0.0%
NE-00-027	0%	0%	5%	0%	0%	30%	15%	15%	35%	0%	5.0%
NE-00-028	0%	0%	10%	20%	30%	10%	0%	20%	0%	5%	10.0%
NE-00-029	0%	0%	0%	2%	3%	0%	90%	5%	0%	0%	0.0%
NE-00-031	0%	0%	0%	5%	0%	15%	80%	0%	0%	0%	0.0%
NE-00-033	0%	0%	0%	0%	0%	2%	49%	0%	49%	0%	0.0%
NE-00-036	0%	5%	40%	35%	10%	0%	7%	3%	0%	0%	45.0%
NE-00-038	0%	0%	0%	0%	0%	10%	0%	40%	40%	0%	0.0%
NE-00-039	0%	0%	20%	40%	25%	5%	0%	10%	0%	0%	20.0%
NE-00-045	20%	5%	30%	30%	5%	0%	0%	10%	0%	0%	55.0%
NE-00-051	60%	0%	20%	3%	10%	2%	0%	5%	0%	0%	80.0%
NW-00-002	0%	0%	0%	0%	0%	40%	40%	0%	20%	0%	0.0%
NW-00-004	0%	0%	0%	0%	0%	50%	50%	0%	0%	0%	0.0%
NW-00-005	0%	0%	0%	0%	0%	0%	80%	0%	20%	0%	0.0%
NW-00-007	0%	0%	0%	0%	0%	30%	35%	0%	35%	0%	0.0%
NW-00-008											
NW-00-009	0%	0%	35%	40%	30%	3%	0%	2%	0%	0%	35.0%
NW-00-011	0%	0%	0%	5%	10%	0%	50%	0%	30%	5%	0.0%
NW-00-012	0%	0%	0%	0%	10%	0%	50%	0%	40%	0%	0.0%
NW-00-015	0%	0%	0%	0%	0%	0%	60%	30%	10%	0%	0.0%
NW-00-017	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0.0%
NW-00-019	0%	0%	0%	0%	0%	35%	60%	5%	0%	0%	0.0%
NW-00-020	0%	0%	0%	0%	0%	0%	60%	0%	30%	10%	0.0%
NW-00-021	0%	0%	1%	0%	3%	0%	95%	0%	1%	0%	1.0%
NW-00-022	0%	0%	5%	5%	10%	0%	75%	0%	0%	5%	5.0%

Appendix Table II b. Substrate Characteristics: Quantitative

District/Site Number	Bedrock	Boulder (>256 mm)	Cobble (65-255 mm)	Gravel (2-64 mm)	Sand (<2 mm)	Silt	Clay	Detritus	Muck	Artificial	Percent Bedrock, Boulder & Cobble
NW-00-023	0%	0%	0%	10%	30%	0%	50%	10%	0%	0%	0.0%
NW-00-025	0%	0%	2%	0%	0%	60%	33%	0%	5%	0%	2.0%
NW-00-027	0%	0%	0%	0%	0%	10%	40%	0%	50%	0%	0.0%
NW-00-029	0%	0%	0%	0%	0%	0%	18%	2%	80%	0%	0.0%
NW-00-033	0%	0%	0%	5%	5%	30%	60%	0%	0%	0%	0.0%
NW-00-035	0%	0%	0%	0%	0%	0%	50%	10%	40%	0%	0.0%
NW-00-036	0%	0%	0%	40%	0%	0%	40%	0%	0%	20%	0.0%
NW-00-037	0%	0%	0%	0%	0%	60%	10%	0%	20%	0%	0.0%
SE-99-001	7%	0%	4%	40%	0%	43%	0%	6%	0%	0%	11.8%
SE-99-002	19%	1%	8%	47%	5%	16%	1%	3%	0%	0%	28.0%
SE-99-003	0%	2%	6%	75%	9%	5%	0%	3%	0%	0%	7.8%
SE-99-004	7%	4%	25%	44%	13%	3%	0%	4%	0%	0%	36.1%
SE-99-005	0%	0%	12%	50%	11%	19%	0%	8%	0%	0%	12.2%
SE-99-006	15%	0%	0%	18%	8%	45%	0%	15%	0%	0%	15.0%
SE-99-007	0%	2%	30%	15%	26%	4%	23%	0%	0%	0%	31.9%
SE-99-008	0%	0%	0%	57%	10%	24%	0%	10%	0%	0%	0.0%
SE-00-001											
SE-00-002											
SE-00-003	75%	2%	15%	2%	0%	4%	2%	0%	0%	0%	92.0%
SE-00-004											
SE-00-005	70%	5%	5%	10%	5%	0%	0%	0%	0%	0%	80.0%
SE-00-006											
SE-00-007						100%					
SE-00-008	0%	5%	5%	5%	30%	0%	55%	0%	0%	0%	10.0%
SE-00-009	60%	20%	0%	5%	5%	5%	5%	0%	0%	0%	80.0%
SE-00-010											
SE-00-011											
SE-00-013	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0.0%
SE-00-014	5%	0%	50%	30%	5%	5%	0%	5%	0%	0%	55.0%
SE-00-015											
SE-00-016											
SE-00-017	0%	0%	0%	96%	0%	2%	0%	0%	2%	0%	0.0%
SE-00-018	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0.0%
SE-00-019	25%	0%	65%	5%	5%	0%	0%	0%	0%	0%	90.0%
SE-00-021											
SE-00-023	0%	0%	20%	40%	40%	0%	0%	0%	0%	0%	20.0%
SE-00-024											
SE-00-025											
SE-00-027											
SE-00-028											

Appendix Table II b. Substrate Characteristics: Quantitative

District/Site Number	Bedrock	Boulder (>256 mm)	Cobble (65-255 mm)	Gravel (2-64 mm)	Sand (<2 mm)	Silt	Clay	Detritus	Muck	Artificial	Percent Bedrock, Boulder & Cobble
SE-00-029											
SE-00-030	38%	38%	10%	10%	2%	0%	0%	2%	0%	0%	86.0%
SE-00-033											
SE-00-034											
SE-00-035											
SE-00-036	0%	0%	0%	50%	50%	0%	0%	0%	0%	0%	0.0%
SE-00-037	0%	0%	0%	50%	0%	0%	25%	25%	0%	0%	0.0%
SE-00-038	0%	0%	20%	40%	30%	10%	0%	0%	0%	0%	20.0%
SE-00-039	0%	0%	75%	5%	15%	5%	0%	0%	0%	0%	75.0%
SE-00-040											
SE-00-041	0%	0%	25%	0%	5%	60%	5%	0%	5%	0%	25.0%
SE-00-043											
SE-00-045	0%	0%	40%	40%	10%	0%	5%	5%	0%	0%	40.0%
SE-00-046											
SE-00-047											
SE-00-049	0%	0%	0%	25%	65%	10%	0%	0%	0%	0%	0.0%
SE-00-050	0%	0%	40%	5%	5%	5%	0%	5%	40%	0%	40.0%
SW-99-001	85%	4%	0%	12%	0%	0%	0%	0%	0%	0%	88.5%
SW-99-002	4%	0%	42%	8%	0%	19%	0%	27%	0%	0%	46.2%
SW-00-001	79%	0%	0%	20%	1%	0%	0%	0%	0%	0%	79.0%
SW-00-003	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0.0%
SW-00-004	0%	30%	60%	0%	0%	0%	0%	10%	0%	0%	90.0%
SW-00-005	0%	0%	0%	90%	10%	0%	0%	0%	0%	0%	0.0%
SW-00-007	0%	5%	10%	50%	34%	0%	0%	1%	0%	0%	15.0%
SW-00-008	0%	0%	75%	20%	5%	0%	0%	0%	0%	0%	75.0%
SW-00-009	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100.0%
SW-00-010	5%	30%	49%	10%	5%	0%	0%	1%	0%	0%	84.0%
SW-00-011	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0.0%
SW-00-013	0%	0%	0%	20%	20%	0%	60%	0%	0%	0%	0.0%
SW-00-014	0%	0%	0%	5%	5%	90%	0%	0%	0%	0%	0.0%
SW-00-015	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0%
SW-00-016	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0.0%
SW-00-017											
SW-00-018	0%	0%	15%	10%	0%	75%	0%	0%	0%	0%	15.0%
SW-00-019	0%	30%	25%	20%	20%	0%	0%	5%	0%	0%	55.0%
SW-00-020	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0.0%
SW-00-021	0%	40%	50%	10%	0%	0%	0%	0%	0%	0%	90.0%
SW-00-022											
SW-00-024											
SW-00-025	0%	0%	10%	50%	0%	40%	0%	0%	0%	0%	10.0%

Appendix Table II b. Substrate Characteristics: Quantitative

District/Site Number	Bedrock	Boulder (>256 mm)	Cobble (65-255 mm)	Gravel (2-64 mm)	Sand (<2 mm)	Silt	Clay	Detritus	Muck	Artificial	Percent Bedrock, Boulder & Cobble
SW-00-026	0%	20%	35%	15%	25%	0%	0%	5%	0%	0%	55.0%
SW-00-029	0%	20%	40%	40%	0%	0%	0%	0%	0%	0%	60.0%
SW-00-036	0%	0%	10%	20%	0%	10%	60%	0%	0%	0%	10.0%
SW-00-038	80%	0%	0%	0%	0%	20%	0%	0%	0%	0%	80.0%
SW-00-039	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0.0%
SW-00-041	0%	0%	10%	20%	70%	0%	0%	0%	0%	0%	10.0%
SW-00-045	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0.0%
SW-00-046	0%	10%	58%	1%	0%	1%	0%	0%	0%	0%	68.0%
SW-00-047											
SW-00-049											
SW-00-050	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0.0%
SW-00-052	60%	20%	10%	5%	5%	0%	0%	0%	0%	0%	90.0%
SW-00-053	0%	0%	10%	10%	40%	40%	0%	0%	0%	0%	10.0%

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Flow Regime	Watershed Area (mi^2)	Stream Order	Gradient (% slope)	Sinuosity (bends/200 ft)	Sinuosity (k)	Bankfull Width (m)	Floodprone Width (m)
CD-99-001	Flowing	0.199	1	2.66%	3.0	1.07	5.47	8.77
CD-99-003	Dry Channel	0.040	1	1.00%	4.0	1.24	0.97	5.44
CD-00-004	Flowing	0.440	1	0.42%	2.0		3.13	
CD-00-005	Dry Channel	0.161	2	0.64%	1.5		0.46	
CD-00-006	Flowing	0.267	2	0.40%	0.5		1.00	
CD-00-009	Moist Channel-No Flow	0.118	2	0.15%	0.5		1.67	
CD-00-010	Dry Channel	0.041	1	0.80%	0.0		0.46	
CD-00-013	Flowing	1.163	2	0.08%	0.0		2.36	
CD-00-014	Flowing	0.344	1	0.34%	0.0		2.43	
CD-00-016	Flowing	0.197	2	2.66%	2.0		1.67	
CD-00-018	Flowing	0.135	2	0.78%	0.5		1.22	
CD-00-019	Flowing	1.852	2	0.15%	0.5		3.04	
CD-00-020	Dry Channel	0.306	3	0.16%	0.5		1.82	
CD-00-021	Flowing	0.102	2	1.00%	1.0		1.67	
CD-00-022	Dry Channel	0.076	1	1.90%	0.5		0.30	
CD-00-023	Flowing	0.207	2	0.79%	1.5		1.00	
CD-00-025	Dry Channel	0.016	1	2.20%	0.0		0.76	
CD-00-026	Flowing	0.133	2	0.84%	4.0		1.82	
CD-00-027	Wetted Channel - Isolated Pools	0.185	2	0.70%	1.0		0.36	
CD-00-028	Flowing	0.069	1	0.83%	2.0		2.28	
CD-00-030	Dry Channel	0.083	2	0.22%	1.0		0.12	
CD-00-032	Flowing	0.144	2	0.34%	2.5		1.00	
CD-00-033	Flowing	0.252	2	0.40%	3.0		1.16	
CD-00-034	Flowing	0.933	3	0.36%	1.0		3.65	
CD-00-043	Dry Channel	0.129	2	0.10%	0.5		0.30	
CD-00-044	Moist Channel-No Flow	0.048	2	0.45%	1.5		1.37	
CD-00-045	Flowing	0.315	2	0.68%	2.0		1.42	
CD-00-047	Dry Channel	0.037	1	1.90%	4.0		0.94	
CD-00-048	Dry Channel	0.032	1	0.15%	0.0		0.30	
CD-00-049	Flowing,W	0.063	3	0.70%	0.5		B	
NE-99-001	Flowing	0.068	1	2.20%	2.0	1.54	3.50	17.47
NE-99-002	Wetted Channel - Isolated Pools	0.030	1	4.00%	2.0	1.31	1.47	3.16
NE-99-003	Flowing	0.094	1	3.84%	2.5	1.24	2.38	3.25
NE-99-004	Dry Channel	0.296	2	0.80%	4.0	1.31	1.22	VERY WIDE
NE-99-005	Wetted Channel - Isolated Pools	0.400	2	1.40%	2.0	1.18	3.88	4.62
NE-99-006	Flowing	0.070	2	1.90%	2.0	1.19	1.29	8.38
NE-99-007	Flowing	0.148	2	0.50%	2.0	1.22	1.32	4.62
NE-99-008	Flowing	0.348	2	1.80%	3.0	1.57	3.97	7.87
NE-99-010	Flowing	0.228	2	0.78%	3.0	1.81	4.80	7.14
NE-99-011	Flowing	0.480	2	2.15%	3.0	1.16	4.36	7.52

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Flow Regime	Watershed Area (mi^2)	Stream Order	Gradient (% slope)	Sinuosity (bends/200 ft)	Sinuosity (k)	Bankfull Width (m)	Floodprone Width (m)
NE-99-012	Moist Channel-No Flow	0.080	2	2.83%	2.0	1.15	3.13	4.01
NE-99-013	Wetted Channel - Isolated Pools	0.019		5.40%	4.0		1.52	
NE-99-014	Dry Channel	0.010		0.20%	2.0		0.15	
NE-99-015	Wetted Channel - Isolated Pools	0.010		8.40%	4.0		0.46	
NE-99-016	Wetted Channel - Isolated Pools	0.010		8.40%	2.0		0.61	
NE-99-017	Wetted Channel - Isolated Pools	0.010		6.00%	2.0		0.30	
NE-99-019	Dry Channel	0.008		5.20%	2.0		2.13	
NE-99-020	Moist Channel-No Flow	0.010		12.20%	2.0		0.91	
NE-99-021	Flowing	0.259		1.40%	1.0		1.37	
NE-99-022	Dry Channel	0.060		1.90%	4.0		1.52	
NE-99-023	Flowing	0.020		16.00%	0.5		1.22	
NE-99-024	Flowing	0.480		2.50%	4.0		6.99	
NE-99-025	Flowing	0.199		5.00%	4.0		3.34	
NE-99-028	Flowing	0.297		2.00%	4.0		0.61	
NE-99-029	Wetted Channel - Isolated Pools	0.614		0.80%	2.0		4.56	
NE-99-030	Moist Channel-No Flow	0.040		0.60%	1.5		0.76	
NE-99-031	Moist Channel-No Flow	0.212		1.00%	3.0		0.61	
NE-99-032	Flowing,W	0.201		1.90%	2.5		2.74	
NE-99-033	Flowing	0.190		2.00%	2.0		3.80	
NE-99-034	Flowing	0.023		1.40%	4.0		4.26	
NE-99-035	Wetted Channel - Isolated Pools	0.005		11.80%	4.0		2.43	
NE-99-036	Flowing	0.040		5.40%	3.0		1.52	
NE-99-037	Dry Channel	0.023		6.60%	4.0		1.82	
NE-99-038	Dry Channel	0.058		3.10%	0.5		1.43	
NE-99-039	Dry Channel	0.160		5.30%	2.0		1.06	
NE-99-040	Wetted Channel - Isolated Pools	0.070		3.10%	0.5		0.82	
NE-99-041	Flowing	0.271		4.70%	2.0		3.19	
NE-99-042	Wetted Channel - Isolated Pools	0.012		5.30%	4.0		0.52	
NE-99-043	Wetted Channel - Isolated Pools	0.143		1.20%	0.0		1.61	
NE-99-044	Flowing	0.450		4.10%	0.5		3.40	
NE-99-045	Dry Channel	0.422		1.80%	4.0		3.65	
NE-99-046	Wetted Channel - Isolated Pools	0.007		3.30%	4.0		0.38	
NE-99-048	Flowing	0.709		0.80%	3.0		0.91	
NE-99-049	Wetted Channel - Isolated Pools	0.230		0.65%	4.0		2.43	
NE-99-050	Flowing	1.189		0.30%	3.0		3.19	
NE-99-051	Wetted Channel - Isolated Pools	0.050		4.73%	4.0		1.46	
NE-00-001	Flowing	0.261	3	0.69%	2.5		1.28	
NE-00-002	Dry Channel	0.180	2	2.96%	4.0		1.82	
NE-00-003	Flowing	0.161	1	0.91%	3.0		0.76	
NE-00-004	Flowing	0.304	1	0.59%	1.0		0.76	

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Flow Regime	Watershed Area (mi^2)	Stream Order	Gradient (% slope)	Sinuosity (bends/200 ft)	Sinuosity (k)	Bankfull Width (m)	Floodprone Width (m)
NE-00-005	Flowing	0.610	3	1.90%	1.0		0.30	
NE-00-006	Flowing	0.258	2	2.31%	1.5		2.89	
NE-00-008	Flowing	0.350	2	0.56%	2.0		2.43	
NE-00-010	Wetted Channel - Isolated Pools	0.546	3	0.50%	4.0		4.16	
NE-00-011	Flowing	0.053	1	2.70%	1.5		1.67	
NE-00-013	Moist Channel-No Flow	0.251	3	2.19%	3.0		3.95	
NE-00-014	Wetted Channel - Isolated Pools	0.056	1	2.80%	0.0		0.36	
NE-00-016	Moist Channel-No Flow	0.109	2	1.40%	0.0		0.91	
NE-00-018	Moist Channel-No Flow	0.163	2	1.98%	1.0		1.96	
NE-00-020	Moist Channel-No Flow	0.157	3	0.40%	0.0		1.22	
NE-00-021	Dry Channel	0.020	1	1.00%	1.0		2.04	
NE-00-022	Dry Channel	0.206	1	5.40%	4.0		3.56	
NE-00-023	Flowing	0.343	2	3.79%	1.0		2.28	
NE-00-024	Dry Channel	0.032	2	33.85%	0.5		1.09	
NE-00-025	Flowing	0.490	3	0.77%	2.5		2.86	
NE-00-026	Flowing	0.017	2	3.70%	0.5		D	
NE-00-027	Flowing	0.125	2	1.38%	4.0		1.22	
NE-00-028	Flowing	0.067	2	0.87%	1.0		0.90	
NE-00-029	Dry Channel	0.021	1	1.96%	1.0		D	
NE-00-031	Flowing	0.168	2	0.67%	0.0		1.82	
NE-00-033	Flowing	0.039	1	1.10%	0.0		0.46	
NE-00-036	Flowing	0.130	2	3.90%	2.0		2.43	
NE-00-038	Flowing	0.080	1	1.80%	0.0		2.28	
NE-00-039	Flowing	0.080	2	1.27%	1.5		2.43	
NE-00-045	Wetted Channel - Isolated Pools	0.077	1	7.20%	0.0		5.02	
NE-00-051	Flowing	0.530	1	0.50%	1.0		4.80	
NW-00-002	Flowing	0.662	1	0.70%	0.0		3.13	
NW-00-004	Flowing	0.560	1	0.04%	0.5		2.95	
NW-00-005	Flowing	1.156	2	0.80%	0.0		1.67	
NW-00-007	Flowing	0.214	1	0.20%	0.5		3.34	
NW-00-008	Wetted Channel - Isolated Pools	0.196	1	0.51%	0.0		2.28	
NW-00-009	Flowing	1.157	2	1.00%	3.0		1.92	
NW-00-011	Flowing	0.151	1	0.70%	1.0		3.10	
NW-00-012	Flowing	0.290	1	0.78%	0.5		2.01	
NW-00-015	Flowing	0.057	1	0.35%	1.0		1.52	
NW-00-017	Flowing	1.018	1	0.50%	0.0		3.26	
NW-00-019	Flowing	1.737	2	0.40%	1.0		3.68	
NW-00-020	Flowing	0.067	2	0.86%	0.0		0.61	
NW-00-021	Flowing	0.109	1	0.90%	1.0		1.70	
NW-00-022	Flowing	0.573	2	0.14%	0.5		1.00	

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Flow Regime	Watershed Area (mi^2)	Stream Order	Gradient (% slope)	Sinuosity (bends/200 ft)	Sinuosity (k)	Bankfull Width (m)	Floodprone Width (m)
NW-00-023	Dry Channel	0.077	1	0.90%	0.5		1.82	
NW-00-025	Flowing	2.782	2	0.25%	0.5		3.63	
NW-00-027	Flowing	0.864	2	0.45%	0.0		3.22	
NW-00-029	Dry Channel	0.382	2	0.46%	0.5		2.34	
NW-00-033	Flowing	0.465	2	0.35%	0.5		1.67	
NW-00-035	Flowing	0.852	2	0.30%	0.0		2.80	
NW-00-036	Flowing	0.373	1	0.28%	0.0		1.37	
NW-00-037	Flowing	1.102	1	0.35%	1.0		2.55	
SE-99-001	Flowing	0.879		0.25%	2.5	2.02	4.00	28.5
SE-99-002	Flowing	0.804	2	3.90%	4.0	1.19	3.34	7.92
SE-99-003	Flowing	0.343	2	0.41%	2.0	1.12	2.01	2.82
SE-99-004	Flowing	0.023	2	4.00%	2.5	1.11	1.85	2.13
SE-99-005	Flowing	0.218	2	1.05%	1.0	1.08	4.10	4.72
SE-99-006	Flowing	0.040	1	4.66%	1.0	1.20	1.26	1.44
SE-99-007	W,Flowing	0.530		1.97%	2.0	1.07	1.99	2.83
SE-99-008	Wetted Channel - Isolated Pools	0.040		2.50%	4.0	1.40	2.18	2.77
SE-00-001	Dry Channel	0.020	1	8.30%	4.0		1.41	
SE-00-002	Dry Channel	0.080	1	12.40%	1.0		1.21	
SE-00-003	Flowing	0.300	3	1.00%	3.0		2.12	
SE-00-004	Flowing	0.230	3	2.10%	4.0		1.78	
SE-00-005	Flowing	0.200	3	2.50%	1.5		3.30	
SE-00-006	Moist Channel-No Flow	0.040	1	9.30%	1.0		C	
SE-00-007	Dry Channel	0.012	1	4.90%	1.0		D	
SE-00-008	Wetted Channel - Isolated Pools	0.030	1	4.20%	2.5		1.43	
SE-00-009	Flowing	0.090	2	0.30%	1.5		D	
SE-00-010	Flowing	0.090	1	2.20%	0.5		0.98	
SE-00-011	Flowing	0.030	3	8.10%	2.5		1.30	
SE-00-013	Dry Channel	0.010	1	7.30%	1.5		2.06	
SE-00-014	Flowing	0.008	1	5.60%	4.0		1.57	
SE-00-015	Flowing	0.060	1	0.70%	1.5		D	
SE-00-016	Wetted Channel - Isolated Pools	0.120	1	3.10%	1.0		1.24	
SE-00-017	Flowing	0.220	2	2.10%	1.0		1.47	
SE-00-018	Dry Channel	0.012	1	4.10%	3.0		1.35	
SE-00-019	Moist Channel-No Flow	0.004	1	5.90%	3.0		2.28	
SE-00-021	Dry Channel	0.260	1	0.80%	2.0		3.71	
SE-00-023	Flowing	0.110	2	3.20%	2.0		1.66	
SE-00-024	Flowing	0.040	2	10.30%	4.0		1.14	
SE-00-025	Flowing	0.200	2	2.00%	0.0		2.01	
SE-00-027	Dry Channel	0.050	1	4.40%	2.0		1.36	
SE-00-028	Moist Channel-No Flow	0.130	3	5.90%	2.0		1.10	

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Flow Regime	Watershed Area (mi^2)	Stream Order	Gradient (% slope)	Sinuosity (bends/200 ft)	Sinuosity (k)	Bankfull Width (m)	Floodprone Width (m)
SE-00-029	Moist Channel-No Flow	0.360	1	0.80%	1.5		C	
SE-00-030	Flowing	0.020	1	3.70%	3.0		1.74	
SE-00-033	Wetted Channel - Isolated Pools	0.300	2	2.30%	0.0		3.96	
SE-00-034	Moist Channel-No Flow	0.110	1	2.00%	1.0		0.87	
SE-00-035	Flowing	0.160	2	2.20%	1.5		1.58	
SE-00-036	Moist Channel-No Flow	0.040	1	6.40%	1.0		1.74	
SE-00-037	Flowing	0.040	1	4.60%	2.0		1.60	
SE-00-038	Flowing	0.290	3	1.40%	1.0		3.58	
SE-00-039	Wetted Channel - Isolated Pools	0.070	2	10.10%	2.0		1.55	
SE-00-040	Flowing	0.350	1	2.50%	1.0		2.37	
SE-00-041	Flowing	0.125	2	1.30%	3.0		D	
SE-00-043	Wetted Channel - Isolated Pools	0.110	1	4.00%	4.0		B	
SE-00-045	Flowing	0.259	3	1.90%	3.0		2.82	
SE-00-046	Flowing	0.130	1	1.30%	2.0		B	
SE-00-047	Flowing	0.680	3	0.30%	1.0		4.04	
SE-00-049	Moist Channel-No Flow	0.886	1	3.30%	2.0		1.30	
SE-00-050	Flowing	0.228	2	0.90%	2.0		1.80	
SW-99-001	Flowing	0.200	1	6.06%	1.0	1.00	4.67	7.41
SW-99-002	Flowing	0.041	2	2.01%	1.0	1.02	1.20	4.03
SW-00-001	Wetted Channel - Isolated Pools	0.214	3	0.87%	0.5		1.09	
SW-00-003	Moist Channel-No Flow	0.039	1	3.69%	0.0		0.46	
SW-00-004	Wetted Channel - Isolated Pools	0.179	2	8.32%	4.0		2.40	
SW-00-005	Dry Channel	0.015	1	1.77%	2.0		1.22	
SW-00-007	Flowing	1.156	4	1.70%	2.0		3.16	
SW-00-008	Wetted Channel - Isolated Pools	0.370	2	2.40%	1.0		2.64	
SW-00-009	Flowing	0.080	1	3.14%	0.5		1.52	
SW-00-010	Wetted Channel - Isolated Pools	0.290	1	2.51%	1.5		3.80	
SW-00-011	Dry Channel	0.090	1	2.70%	1.0		D	
SW-00-013	Wetted Channel - Isolated Pools	0.050	1	3.14%	1.5		1.43	
SW-00-014	Flowing	0.120	1	1.80%	2.0		0.79	
SW-00-015	Dry Channel	0.061	2	16.67%	3.0		1.22	
SW-00-016	Flowing	1.239	3	0.80%	2.0		1.22	
SW-00-017	Dry Channel	0.110	1	2.45%	1.5		0.70	
SW-00-018	Wetted Channel - Isolated Pools	0.169	1	1.35%	2.0		0.96	
SW-00-019	Flowing	0.187	3	2.01%	1.0		4.10	
SW-00-020	Dry Channel	0.048	1	0.18%	0.0		C	
SW-00-021	Wetted Channel - Isolated Pools	0.220	2	3.60%	0.0		5.38	
SW-00-022	Dry Channel	0.270	2	1.80%	0.5		1.82	
SW-00-024	Dry Channel	0.008	1	0.25%	0.0		0.85	
SW-00-025	Flowing	0.775	2	1.20%	1.0		1.98	

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Flow Regime	Watershed Area (mi^2)	Stream Order	Gradient (% slope)	Sinuosity (bends/200 ft)	Sinuosity (k)	Bankfull Width (m)	Floodprone Width (m)
SW-00-026	Dry Channel	0.112	1	2.02%	1.0		2.49	
SW-00-029	Flowing	0.885	2	1.15%	1.0		5.37	
SW-00-036	Wetted Channel - Isolated Pools	0.330	3	1.09%	1.0		1.28	
SW-00-038	Flowing	0.302	2	8.36%	0.0		0.46	
SW-00-039	Dry Channel	0.018	1	2.50%	0.0		1.19	
SW-00-041	Flowing	0.764	3	1.16%	0.0		3.90	
SW-00-045	Moist Channel-No Flow	0.266	2	0.66%	0.5		3.19	
SW-00-046	Wetted Channel - Isolated Pools	1.132	2	29.60%	1.0		6.69	
SW-00-047	Dry Channel	0.049	1	0.80%	0.0		0.94	
SW-00-049	Flowing	0.005	2	1.50%	1.0		2.13	
SW-00-050	Dry Channel	0.124	2	0.90%	0.0		0.82	
SW-00-052	Flowing	1.472		2.00%	2.0		3.34	
SW-00-053	Flowing	0.676		0.75%	0.5		1.03	

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Entrenchment (Floodprone : Bankfull Ratio)	Max Bankfull Depth (m)	Maximum Pool Depth (cm)	Width:Depth Ratio	Rosgen Classification
CD-99-001	1.60	0.366	5	14.95	B1
CD-99-003	5.59	0.178	0	5.47	E4
CD-00-004			21		
CD-00-005			0		
CD-00-006			18		
CD-00-009			30		
CD-00-010			0		
CD-00-013			18		
CD-00-014			7		
CD-00-016			30		
CD-00-018			26		
CD-00-019			40		
CD-00-020			0		
CD-00-021			50		
CD-00-022			0		
CD-00-023			15		
CD-00-025			0		
CD-00-026			30		
CD-00-027			12		
CD-00-028			15		
CD-00-030			0		
CD-00-032			18		
CD-00-033			30		
CD-00-034					
CD-00-043			0		
CD-00-044			6		
CD-00-045			15		
CD-00-047			0		
CD-00-048			0		
CD-00-049			3		
NE-99-001	5.00	0.622	15.5	5.62	C3
NE-99-002	2.14	0.381	20.3	3.87	???
NE-99-003	1.37	0.183	19.1	13.01	C3
NE-99-004	>>2.2	0.427	17.8	2.85	E6/E5
NE-99-005	1.19	0.305	22.9	12.71	F3
NE-99-006	6.49	0.108	22.9	11.96	DA4??
NE-99-007	3.51	0.406	43.2	3.24	DA4??
NE-99-008	1.98	0.457	20.3	8.68	B3c??
NE-99-010	1.49	0.232	20.3	20.70	B2c or B3c
NE-99-011	1.73	0.406	20	10.73	B3 or B4

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Entrenchment (Floodprone : Bankfull Ratio)	Max Bankfull Depth (m)	Maximum Pool Depth (cm)	Width:Depth Ratio	Rosgen Classification
NE-99-012	1.28	0.306	0	10.23	F5b
NE-99-013					
NE-99-014			0		
NE-99-015					
NE-99-016					
NE-99-017					
NE-99-019			0		
NE-99-020			0		
NE-99-021			8		
NE-99-022			0		
NE-99-023					
NE-99-024					
NE-99-025					
NE-99-028					
NE-99-029					
NE-99-030			0		
NE-99-031			0		
NE-99-032					
NE-99-033					
NE-99-034					
NE-99-035					
NE-99-036					
NE-99-037			0		
NE-99-038			0		
NE-99-039			0		
NE-99-040					
NE-99-041					
NE-99-042					
NE-99-043					
NE-99-044					
NE-99-045			0		
NE-99-046					
NE-99-048					
NE-99-049					
NE-99-050					
NE-99-051					
NE-00-001			20		
NE-00-002			0		
NE-00-003			7		
NE-00-004			42		

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Entrenchment (Floodprone : Bankfull Ratio)	Max Bankfull Depth (m)	Maximum Pool Depth (cm)	Width:Depth Ratio	Rosgen Classification
NE-00-005			15		
NE-00-006			35		
NE-00-008			25		
NE-00-010			12		
NE-00-011			15		
NE-00-013			25		
NE-00-014			10		
NE-00-016			25		
NE-00-018			2		
NE-00-020			20		
NE-00-021			0		
NE-00-022			0		
NE-00-023			30		
NE-00-024			0		
NE-00-025			24		
NE-00-026			6		
NE-00-027			36		
NE-00-028			5		
NE-00-029			0		
NE-00-031			40		
NE-00-033			4		
NE-00-036			2		
NE-00-038			30		
NE-00-039			15		
NE-00-045			4		
NE-00-051			28		
NW-00-002			24		
NW-00-004			21		
NW-00-005			30		
NW-00-007			15		
NW-00-008			10		
NW-00-009			37		
NW-00-011			37		
NW-00-012			15		
NW-00-015			11		
NW-00-017			30		
NW-00-019			24		
NW-00-020			20		
NW-00-021			30		
NW-00-022			25		

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Entrenchment (Floodprone : Bankfull Ratio)	Max Bankfull Depth (m)	Maximum Pool Depth (cm)	Width:Depth Ratio	Rosgen Classification
NW-00-023			0		
NW-00-025			49		
NW-00-027			25		
NW-00-029			0		
NW-00-033			21		
NW-00-035			25		
NW-00-036			20		
NW-00-037			30		
SE-99-001	7.13	0.28	30	14.28	C4
SE-99-002	2.37	0.375	60	8.92	E4b?
SE-99-003	1.41	0.4	10	5.02	???
SE-99-004	1.15	0.213	6	8.71	B3a?
SE-99-005	1.15	0.089	15	46.11	B4c?
SE-99-006	1.15	0.219	2.5	5.73	A6?
SE-99-007	1.42	0.155	11.7	12.85	B3
SE-99-008	1.27	0.259	0	8.43	G4
SE-00-001			0		
SE-00-002			0		
SE-00-003			20		
SE-00-004			20		
SE-00-005			11		
SE-00-006			0		
SE-00-007			0		
SE-00-008			10		
SE-00-009			10		
SE-00-010			10		
SE-00-011			45		
SE-00-013			0		
SE-00-014			4		
SE-00-015			10		
SE-00-016			5		
SE-00-017			10		
SE-00-018			0		
SE-00-019			6		
SE-00-021			0		
SE-00-023			15		
SE-00-024			15		
SE-00-025			25		
SE-00-027			0		
SE-00-028			10		

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Entrenchment (Floodprone : Bankfull Ratio)	Max Bankfull Depth (m)	Maximum Pool Depth (cm)	Width:Depth Ratio	Rosgen Classification
SE-00-029			0		
SE-00-030			15		
SE-00-033			4		
SE-00-034			12		
SE-00-035			10		
SE-00-036			2		
SE-00-037			20		
SE-00-038			45		
SE-00-039			15		
SE-00-040			15		
SE-00-041			30		
SE-00-043			5		
SE-00-045			27		
SE-00-046			12		
SE-00-047			46		
SE-00-049			0		
SE-00-050			41		
SW-99-001	1.59	0.443	9.7	10.54	B1a???
SW-99-002	3.36	0.241	10.2	4.98	???
SW-00-001			57		
SW-00-003			8		
SW-00-004			10		
SW-00-005			0		
SW-00-007			19		
SW-00-008			30		
SW-00-009			5		
SW-00-010			13		
SW-00-011			0		
SW-00-013			8		
SW-00-014			5		
SW-00-015			0		
SW-00-016			13		
SW-00-017			0		
SW-00-018			6		
SW-00-019			35		
SW-00-020			0		
SW-00-021			15		
SW-00-022			0		
SW-00-024			0		
SW-00-025			20		

Appendix Table III. Channel Morphology and Watershed Characteristics

District/Site Number	Entrenchment (Floodprone : Bankfull Ratio)	Max Bankfull Depth (m)	Maximum Pool Depth (cm)	Width:Depth Ratio	Rosgen Classification
SW-00-026			0		
SW-00-029			23		
SW-00-036			20		
SW-00-038			10		
SW-00-039			0		
SW-00-041			23		
SW-00-045			33		
SW-00-046			10		
SW-00-047			0		
SW-00-049			15		
SW-00-050			0		
SW-00-052			11		
SW-00-053			10		

Appendix Table IV. PHWH Stream Water Chemistry Data

District/Site Number	Temperature (°C)	pH	DO	Conductivity (µmhos/cm)	Specific Conductance (µmhos/cm)
CD-99-001	16.5				
CD-99-003					
CD-00-004	17.52	7.89	11.86	428	500
CD-00-005					
CD-00-006	15.24	7.3	6.87	1326	1629
CD-00-009	14.76	7.54	10.95	4800	5844
CD-00-010					
CD-00-013	19.99	8.22	13.66	443	490
CD-00-014	15.58	7.36	5.47	711	867
CD-00-016	18.35	7.56	5.53	556	637
CD-00-018	14.62	7.95	15.51	619	772
CD-00-019	17.65	8.23	15.94	508	591
CD-00-020					
CD-00-021	18	6.96	7.55		
CD-00-022					
CD-00-023	12.21	7.92	11	474	628
CD-00-025					
CD-00-026	17.23	7.47	9.25	221	259
CD-00-027	18.8	7.17	4.96	480	545
CD-00-028	13.04	7.37	4.7	649	842
CD-00-030					
CD-00-032	12.85	7.31	4.79	858	1117
CD-00-033	15.83	7.14	8.41	376	456
CD-00-034	14.21	7.12	8.11	380	478
CD-00-043					
CD-00-044	16.82	7.03	5.99	630	746
CD-00-045	16.34	7.47	10.5	362	433
CD-00-047					
CD-00-048					
CD-00-049	14.48	7.95	5.29	810	1013
NE-99-001	14.93	7.78	9.35	1415	
NE-99-002	19.63	7.37	1.67	1102	
NE-99-003	7.6	8.43	14.2	883	
NE-99-004					
NE-99-005					
NE-99-006	9.6	8.36	16.03	581	
NE-99-007	8.4	7.85	12.46	547	
NE-99-008	15.6	7.59	9.1	396	
NE-99-010	12.29	7.72	8.53	250	
NE-99-011	15.83	8.04	9.24	996	
NE-99-012					
NE-99-013					
NE-99-014					
NE-99-015					
NE-99-016					
NE-99-017					
NE-99-019					
NE-99-020					
NE-99-021					
NE-99-022					
NE-99-023					
NE-99-024					
NE-99-025					
NE-99-028					
NE-99-029					
NE-99-030					

Appendix Table IV. PHWH Stream Water Chemistry Data

District/Site Number	Temperature (°C)	pH	DO	Conductivity (µmhos/cm)	Specific Conductance (µmhos/cm)
NE-99-031					
NE-99-032					
NE-99-033					
NE-99-034					
NE-99-035					
NE-99-036					
NE-99-037					
NE-99-038					
NE-99-039					
NE-99-040					
NE-99-041					
NE-99-042					
NE-99-043					
NE-99-044					
NE-99-045					
NE-99-046					
NE-99-048					
NE-99-049					
NE-99-050					
NE-99-051					
NE-00-001	18.63	7.52	7.88	483	549
NE-00-002					
NE-00-003	19.59	7.74	4.6		
NE-00-004	19.78	7.47	6.37		
NE-00-005	18.13	7.49	8.11		
NE-00-006	23.36	7.58	7.59	332	343
NE-00-008	24.93	8.67	17.79	943	944
NE-00-010	20.54	7.04	5.78	717	783
NE-00-011	13.59	7.5	10.51	261	333
NE-00-013					
NE-00-014	14.9	6.35	8.1	102	126
NE-00-016	19.47	6.93	4.43	403	450
NE-00-018	21.7	7.35	4.21	2150	2294
NE-00-020	17.72	6.55	1.24	253	294
NE-00-021					
NE-00-022					
NE-00-023	19.85	7.46	7.29	347	385
NE-00-024					
NE-00-025	14.95	7.53	8.35	300	371
NE-00-026	19.12	7.54	0.001	814	917
NE-00-027	17.39	7.42	8.22	470	550
NE-00-028	15.82	7.64	9.12	220	267
NE-00-029					
NE-00-031	22.15	6.96	0.001	258	273
NE-00-033	19.55	7.28	4.88	430	
NE-00-036	12	7.35	12.93	368	489
NE-00-038	20.14	6.85	0.001	813	896
NE-00-039	16.99	7.11	9.76	273	322
NE-00-045	18.32	7.54	2.8	404	463
NE-00-051	5.63	8.05	12.68	124	
NW-00-002	15.98	7.44	5.2	686	828
NW-00-004	17.45	7.96	7.92	503	587
NW-00-005	23.4	8.1	13.4	684	705
NW-00-007	19.86	7.28	8.38	573	635
NW-00-008	18.31	7.71	9.29	528	605
NW-00-009	19.86	7.28	8.38	573	635

Appendix Table IV. PHWH Stream Water Chemistry Data

District/Site Number	Temperature (°C)	pH	DO	Conductivity (µmhos/cm)	Specific Conductance (µmhos/cm)
NW-00-011	19.05	7.79	12.83	1387	1564
NW-00-012	17.65	7.35	8.1	539	626
NW-00-015	20.27	7.53	9.51		365
NW-00-017	24.72	7.79	1.22		856
NW-00-019	27.14	7.65	8.35	554	532
NW-00-020	19.03	8.4	16.02	634	715
NW-00-021	22.7	8.02	18.63	564	590
NW-00-022	15.36	7.76	7.69	1071	1311
NW-00-023					
NW-00-025	21.49	8.1	11.51		507
NW-00-027	17.81	7.26	3.3		546
NW-00-029					
NW-00-033	17.57	7.37	7.2	697	812
NW-00-035	20.14	7.38	4.47		613
NW-00-036	21.58	7.74	7.29	854	913
NW-00-037	24.45	8.37	9.34	605	611
SE-99-001	24.5	6.58	4.83	610	
SE-99-002	21	7.88	6.08	424	
SE-99-003	18.74	6.8	6.75	304	
SE-99-004	17.67	6.24	5.8	643	
SE-99-005	15.3	6.82	10.2	120	
SE-99-006	11	7.8			
SE-99-007					
SE-99-008	10.3			280	
SE-00-001					
SE-00-002					
SE-00-003	17.53	8.01	7	166	193
SE-00-004	20.05	6.72	6.98	278	307
SE-00-005	20.29	8.09	5.32	566	622
SE-00-006					
SE-00-007					
SE-00-008	18.5	7.14	3	220	251
SE-00-009	20.3	8	5.18	645	708
SE-00-010	20.3	7.82	3.2	619	680
SE-00-011	20.2	7.84	6.28	572	629
SE-00-013					
SE-00-014	18.2	7.95	7.6	430	500
SE-00-015	19.65	8.14	6.46	344	383
SE-00-016	20.54	6.65	3.72	172	188
SE-00-017	19.02	4.63	4.63	1475	1664
SE-00-018					
SE-00-019					
SE-00-021					
SE-00-023					
SE-00-024	17.66	7.26	4.69	293	340
SE-00-025	18.86	7.85	6.74	520	589
SE-00-027					
SE-00-028					
SE-00-029					
SE-00-030	16.52	7.81	6.97	427	509
SE-00-033	22.3	6.97	3.61	433	456
SE-00-034					
SE-00-035	18.9	7.69	7.21	281	318
SE-00-036					
SE-00-037	21.3	7.65	9.92	297	319
SE-00-038	19.44	7.34	7.98	382	427

Appendix Table IV. PHWH Stream Water Chemistry Data

District/Site Number	Temperature (°C)	pH	DO	Conductivity (µmhos/cm)	Specific Conductance (µmhos/cm)
SE-00-039	17.25	7.59	2.98	450	528
SE-00-040	17.95	7.8	6.6	816	942
SE-00-041					
SE-00-043	19.91	7.38	5.85	558	618
SE-00-045	17.16	7.79	7	245	288
SE-00-046	18.67	7.92	6.46	500	568
SE-00-047	20.06	6.34	5.3	261	288
SE-00-049					
SE-00-050					
SW-99-001	12	7.61	8.4	550	
SW-99-002	11.2	7.49	6		
SW-00-001	17.9	6.79	4.2		
SW-00-003	20	7.61	3.8		
SW-00-004					
SW-00-005					
SW-00-007	17.2	8.17	7.2		
SW-00-008	17.5	7.88	6.4		
SW-00-009	25.1	7.56	9.6		
SW-00-010	21.4	7.25	2.2		
SW-00-011					
SW-00-013	20	7.8	8.4		
SW-00-014					
SW-00-015					
SW-00-016	22.7	7.46	9.8		
SW-00-017					
SW-00-018					
SW-00-019	19.88	7.74	7.67	674	747
SW-00-020					
SW-00-021	18.5	7.33	5.4		
SW-00-022					
SW-00-024					
SW-00-025	28.8	7.88	6.4		
SW-00-026					
SW-00-029	22	8.46	8.6		
SW-00-036	21.3	7.57	2.6		
SW-00-038	20.9	7.77	6.4		
SW-00-039					
SW-00-041	20.8	8.13	7.2		
SW-00-045	22.8	7.4	3.2		
SW-00-046	21	7.29	4.2		
SW-00-047					
SW-00-049	22.7	7.73	7.7		
SW-00-050					
SW-00-052	22.6	8.51	11.2		
SW-00-053	18.2	7.89	10.2		

Appendix Table V. Riparian Width and Floodplain Land Use

District/Site Number	Canopy % Open	Left Riparian Width	Right Riparian Width	Left Floodplain Land Use	Right Floodplain Land Use	Development Pressure
CD-99-001	20	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	2
CD-99-003		Moderate	Wide	Mature Forest or Wetland	Mature Forest or Wetland	4
CD-00-004	15	Wide	Wide	Mixed Forest and Shrub	Mixed Forest and Shrub	4
CD-00-005	100	None	None	Residential, Park, or New Field	Residential, Park, or New Field	3
CD-00-006	100	Narrow	None	Row Crop or Open Pasture	Row Crop or Open Pasture	2
CD-00-009	100	None	None	Residential, Park, or New Field	Residential, Park, or New Field	0
CD-00-010	100	None	None	Residential, Park, or New Field	Row Crop or Open Pasture	3
CD-00-013	60	Narrow	Narrow	Row Crop or Open Pasture	Row Crop or Open Pasture	1
CD-00-014	60	Moderate	Narrow	Mixed forest and Fenced Pasture	Mixed Forest and Rowcrop	2
CD-00-016	40	Wide	Moderate	Mature Forest or Wetland	Mixed Forest and Rowcrop	3
CD-00-018	95	Narrow	Narrow	Immature Forest or Old Field	Residential, Park, or New Field	4
CD-00-019	100	None	None	Row Crop or Open Pasture	Immature Forest or Old Field	0
CD-00-020	85	Wide/None	Wide/None	Mixed Shrub and Rowcrop	Mixed Shrub and Rowcrop	2
CD-00-021	45	Moderate	Narrow	Mixed Forest and Residential	Row Crop or Open Pasture	3
CD-00-022	99	None	None	Row Crop or Open Pasture	Residential, Park, or New Field	0
CD-00-023	80	Narrow	Narrow	Mature Forest or Wetland	Residential, Park, or New Field	1
CD-00-025	100	None	None	Row Crop or Open Pasture	Row Crop or Open Pasture	4
CD-00-026	50	Wide	Wide	Immature Forest or Old Field	Immature Forest or Old Field	3
CD-00-027	100	None	Moderate	Row Crop or Open Pasture	Immature Forest or Old Field	2
CD-00-028	10	Moderate	Wide	Mixed Forest and Rowcrop	Mature Forest or Wetland	2
CD-00-030	95	None	Narrow	Mixed Shrub and Rowcrop	Residential, Park, or New Field	2
CD-00-032	95	Narrow	Narrow	Mixed Shrub and Rowcrop	Mixed Shrub and Rowcrop	3
CD-00-033	30	Narrow	Wide	Mixed Shrub and Rowcrop	Immature Forest or Old Field	3
CD-00-034	100	None	None	Residential, Park, or New Field	Row Crop or Open Pasture	2
CD-00-043	90	None	None	Row Crop or Open Pasture	Row Crop or Open Pasture	2
CD-00-044	80	Narrow	Narrow	Row Crop or Open Pasture	Row Crop or Open Pasture	4
CD-00-045	50	Wide	Moderate	Immature Forest or Old Field	Mixed Shrub and Rowcrop	
CD-00-047	40	Moderate	Moderate	Mixed Shrub and Rowcrop	Mixed Shrub and Rowcrop	3
CD-00-048	100	None	None	Row Crop or Open Pasture	Row Crop or Open Pasture	2
CD-00-049	100	None	None	Row Crop or Open Pasture	Immature Forest or Old Field	2
NE-99-001		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	4
NE-99-002		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	4
NE-99-003		Wide	Moderate	Mature Forest or Wetland	Mature Forest or Wetland	2
NE-99-004		Wide	Wide	Immature Forest or Old Field	Immature Forest or Old Field	
NE-99-005		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	3
NE-99-006		Wide	Narrow	Mature Forest or Wetland	Mature Forest or Wetland	3
NE-99-007		Wide	None	Immature Forest or Old Field	Mature Forest or Wetland	3
NE-99-008		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	1
NE-99-010		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	2
NE-99-011		Moderate	Wide	Mature Forest or Wetland	Mature Forest or Wetland	2

Appendix Table V. Riparian Width and Floodplain Land Use

District/Site Number	Canopy % Open	Left Riparian Width	Right Riparian Width	Left Floodplain Land Use	Right Floodplain Land Use	Development Pressure
NE-99-012		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	4
NE-99-013		Moderate	Narrow	Row Crop or Open Pasture	Row Crop or Open Pasture	
NE-99-014		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-015		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-016		Moderate	Narrow	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-017		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-019		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-020		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-021		Narrow	Narrow	Immature Forest or Old Field	Immature Forest or Old Field	
NE-99-022		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-023		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-024		Moderate	Moderate	Mature Forest or Wetland	Immature Forest or Old Field	
NE-99-025		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-028		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-029		Narrow	Wide	Mature Forest or Wetland	Urban or Industrial	
NE-99-030		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-031		Moderate	Narrow	Immature Forest or Old Field	Immature Forest or Old Field	
NE-99-032		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-033		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-034		Wide	Narrow	Mature Forest or Wetland	Row Crop or Open Pasture	
NE-99-035		Wide	Moderate	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-036		Moderate	Narrow	Row Crop or Open Pasture	Mature Forest or Wetland	
NE-99-037		Narrow	Narrow	Row Crop or Open Pasture	Immature Forest or Old Field	
NE-99-038		None	None	Row Crop or Open Pasture	Row Crop or Open Pasture	
NE-99-039		None	Narrow	Row Crop or Open Pasture	Row Crop or Open Pasture	
NE-99-040		None	None	Immature Forest or Old Field	Immature Forest or Old Field	
NE-99-041		Wide	Wide	Immature Forest or Old Field	Mature Forest or Wetland	
NE-99-042		Wide	Wide	Immature Forest or Old Field	Immature Forest or Old Field	
NE-99-043		None	None	Immature Forest or Old Field	Immature Forest or Old Field	
NE-99-044		Narrow	Narrow	Immature Forest or Old Field	Urban or Industrial	
NE-99-045		Wide	Wide	Immature Forest or Old Field	Mature Forest or Wetland	
NE-99-046		Wide	Wide	Immature Forest or Old Field	Mixed Forest and Shrub	
NE-99-048		Moderate	Wide	Immature Forest or Old Field	Row Crop or Open Pasture	
NE-99-049		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-99-050		Wide	Moderate	Immature Forest or Old Field	Mature Forest or Wetland	
NE-99-051		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
NE-00-001	60	Moderate	Wide	Immature Forest or Old Field	Row Crop or Open Pasture	1
NE-00-002	40	Moderate	Moderate	Row Crop or Open Pasture	Row Crop or Open Pasture	
NE-00-003	0	Wide	Wide	Mature Forest or Wetland	Mixed Forest and Rowcrop	1
NE-00-004	80	Narrow	None	Urban or Industrial	Urban or Industrial	4

Appendix Table V. Riparian Width and Floodplain Land Use

District/Site Number	Canopy % Open	Left Riparian Width	Right Riparian Width	Left Floodplain Land Use	Right Floodplain Land Use	Development Pressure
NE-00-005	0	Moderate	Moderate	Immature Forest or Old Field	Immature Forest or Old Field	1
NE-00-006	95	Moderate	Wide	Row Crop or Open Pasture	Mature Forest or Wetland	1
NE-00-008	0	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	3
NE-00-010	50	Narrow	None	Row Crop or Open Pasture	Row Crop or Open Pasture	3
NE-00-011	0	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	1
NE-00-013	15	Moderate	Wide	Mixed Forest and Rowcrop	Mature Forest or Wetland	3
NE-00-014	50	Moderate	Narrow	Immature Forest or Old Field	Immature Forest or Old Field	3
NE-00-016	100	None	None	Immature Forest or Old Field	Immature Forest or Old Field	3
NE-00-018	60	Moderate	Narrow/None	Immature Forest or Old Field	Row Crop or Open Pasture	3
NE-00-020	100	None	None	Mixed Shrub and Rowcrop	Mixed Shrub and Rowcrop	3
NE-00-021	15	None	None	Row Crop or Open Pasture	Row Crop or Open Pasture	5
NE-00-022	10	Narrow	Moderate	Row Crop or Open Pasture	Row Crop or Open Pasture	3
NE-00-023	50	Narrow	Narrow	Row Crop or Open Pasture	Row Crop or Open Pasture	2
NE-00-024	25	Wide	Wide	Immature Forest or Old Field	Immature Forest or Old Field	3
NE-00-025	20	Wide	Wide	Mixed Forest and Shrub	Mixed Forest and Shrub	3
NE-00-026	30	Wide	Narrow	Mature Forest or Wetland	Mixed Forest and Shrub	1
NE-00-027	40	Wide	Wide	Mixed Forest and Shrub	Mixed Forest and Shrub	2
NE-00-028	50	Narrow	Narrow	Immature Forest or Old Field	Immature Forest or Old Field	1
NE-00-029	10	Wide	Wide	Immature Forest or Old Field	Immature Forest or Old Field	3
NE-00-031	95	Moderate	Moderate	Residential, Park, or New Field	Fenced Pasture	0
NE-00-033	100	None	None	Row Crop or Open Pasture	Row Crop or Open Pasture	3
NE-00-036	5	Wide/Moderate	Moderate	Mixed Forest and Rowcrop	Mature Forest or Wetland	1
NE-00-038	80	Wide	Narrow	Mixed Forest and Shrub	Mixed Forest and Shrub	0
NE-00-039	0	Moderate	Wide	Mature Forest or Wetland	Mature Forest or Wetland	2
NE-00-045	5	Wide/None	Wide/None	Mixed Forest and Rowcrop	Mixed Forest and Rowcrop	1
NE-00-051	10	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	1
NW-00-002	100	None	None	Residential, Park, or New Field	Residential, Park, or New Field	0
NW-00-004	95	None	None	Mixed Shrub and Residential	Residential, Park, or New Field	0
NW-00-005	100	None	None	Residential, Park, or New Field	Residential, Park, or New Field	0
NW-00-007	100	None	None	Residential, Park, or New Field	Residential, Park, or New Field	0
NW-00-008	100	Narrow	None	Mixed Shrub, Rowcrop and Residential	Residential, Park, or New Field	0
NW-00-009	30	None	Wide	Row Crop or Open Pasture	Immature Forest or Old Field	2
NW-00-011	100	None	None	Residential, Park, or New Field	Residential, Park, or New Field	1
NW-00-012	100	None	None	Residential, Park, or New Field	Residential, Park, or New Field	1
NW-00-015	80	None	Narrow	Residential, Park, or New Field	Row Crop or Open Pasture	1
NW-00-017	100	None	None	Residential, Park, or New Field	Residential, Park, or New Field	0
NW-00-019	60	Moderate	Narrow	Residential, Park, or New Field	Residential, Park, or New Field	0
NW-00-020	98	None	Narrow	Row Crop or Open Pasture	Immature Forest or Old Field	1
NW-00-021	100	None	None	Row Crop or Open Pasture	Mixed Residential and Rowcrop	0
NW-00-022	80	None	Narrow	Mixed Shrub and Residential	Mixed Shrub and Residential	0

Appendix Table V. Riparian Width and Floodplain Land Use

District/Site Number	Canopy % Open	Left Riparian Width	Right Riparian Width	Left Floodplain Land Use	Right Floodplain Land Use	Development Pressure
NW-00-023	0	Narrow	Moderate	Immature Forest or Old Field	Residential, Park, or New Field	1
NW-00-025	95	Narrow	None	Residential, Park, or New Field	Residential, Park, or New Field	2
NW-00-027	99	None	None	Residential, Park, or New Field	Residential, Park, or New Field	2
NW-00-029	0	Narrow	Narrow	Residential, Park, or New Field	Residential, Park, or New Field	1
NW-00-033	100	None	None	Residential, Park, or New Field	Immature Forest or Old Field	2
NW-00-035	100	None	None	Residential, Park, or New Field	Residential, Park, or New Field	0
NW-00-036	100	None	None	Row Crop or Open Pasture	Row Crop or Open Pasture	4
NW-00-037	100	None	None	Row Crop or Open Pasture	Row Crop or Open Pasture	3
SE-99-001		Moderate	Moderate	Mixed Forest and Shrub	Immature Forest or Old Field	
SE-99-002		Narrow	Moderate	Mature Forest or Wetland	Immature Forest or Old Field	
SE-99-003		Narrow	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
SE-99-004		Wide	Wide	Immature Forest or Old Field	Mature Forest or Wetland	
SE-99-005		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
SE-99-006		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
SE-99-007		Moderate	Moderate	Immature Forest or Old Field	Immature Forest or Old Field	
SE-99-008		Wide	Wide	Row Crop or Open Pasture	Mature Forest or Wetland	
SE-00-001	40	Moderate	Narrow	Mixed Forest and Rowcrop	Row Crop or Open Pasture	2
SE-00-002	5	Wide	Wide	Fenced Pasture	Fenced Pasture	0
SE-00-003	90	Moderate	Wide	Immature Forest or Old Field	Immature Forest or Old Field	2
SE-00-004	80	Narrow	None	Row Crop or Open Pasture	Fenced Pasture	0
SE-00-005	25	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	0
SE-00-006	10	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	0
SE-00-007	60	Narrow	Narrow	Mixed Fenced Pasture Conservation Tillage	Mixed Fenced Pasture Conservation Tillage	2
SE-00-008	5	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	0
SE-00-009	60	Narrow	None	Row Crop or Open Pasture	Row Crop or Open Pasture	2,3
SE-00-010	95	None	Narrow	Row Crop or Open Pasture	Row Crop or Open Pasture	1
SE-00-011	90	Narrow	Wide	Immature Forest or Old Field	Mature Forest or Wetland	0
SE-00-013	0	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	1
SE-00-014	3	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	0
SE-00-015	100	None	Narrow	Row Crop or Open Pasture	Fenced Pasture	0
SE-00-016	95	Narrow	Wide	Row Crop or Open Pasture	Mature Forest or Wetland	2
SE-00-017	95	None/Narrow	None	Mixed Forest and Rowcrop	Mixed Forest and Rowcrop	2
SE-00-018	5	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	0
SE-00-019	5	Wide	Narrow	Row Crop or Open Pasture	Row Crop or Open Pasture	0
SE-00-021	10	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	0
SE-00-023	20	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	2
SE-00-024	0	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	0
SE-00-025	95	None/Narrow	None	Fenced Pasture	Fenced Pasture	1
SE-00-027	100	None	None	Fenced Pasture	Fenced Pasture	2
SE-00-028	90	None	Narrow	Fenced Pasture	Fenced Pasture	2

Appendix Table V. Riparian Width and Floodplain Land Use

District/Site Number	Canopy % Open	Left Riparian Width	Right Riparian Width	Left Floodplain Land Use	Right Floodplain Land Use	Development Pressure
SE-00-029	90	Narrow	Narrow	Immature Forest or Old Field	Immature Forest or Old Field	0
SE-00-030	10	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	0
SE-00-033	100	None	None	Mixed Residential and Mining	Mixed Residential and Mining	0
SE-00-034	100	None/Narrow	None	Residential, Park, or New Field	Mixed Shrub and Residential	0,1
SE-00-035	20	Moderate	Narrow	Immature Forest or Old Field	Road	0
SE-00-036	5	Moderate	Moderate	Row Crop or Open Pasture	Row Crop or Open Pasture	2
SE-00-037	5	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	0
SE-00-038	70	Moderate/Narrow	Moderate/Narrow	Mixed Shrub and Rowcrop	Mixed Shrub and Rowcrop	2
SE-00-039	15	Moderate	Moderate	Mixed Shrub and Rowcrop	Mixed Shrub and Rowcrop	2
SE-00-040	90	Moderate/Narrow	Moderate/Narrow	Row Crop or Open Pasture	Row Crop or Open Pasture	1
SE-00-041	10	Narrow	Narrow	Mixed Forest and Shrub	Mixed Forest and Shrub	0
SE-00-043	10	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	1
SE-00-045	15	Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	1
SE-00-046	30	Wide/Moderate	Moderate/Narrow	Mature Forest or Wetland	Row Crop or Open Pasture	1
SE-00-047	70	Narrow	Narrow	Immature Forest or Old Field	Immature Forest or Old Field	1
SE-00-049	20	Wide	Wide	Mixed Forest and Shrub	Mixed Forest and Shrub	
SE-00-050	30	Narrow	Narrow	Mixed Forest and Shrub	Mixed Forest and Shrub	2
SW-99-001		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
SW-99-002		Wide	Wide	Mature Forest or Wetland	Mature Forest or Wetland	
SW-00-001	90	Narrow	Narrow	Row Crop or Open Pasture	Row Crop or Open Pasture	0
SW-00-003	100	None	None	Row Crop or Open Pasture	Row Crop or Open Pasture	2
SW-00-004	5	Wide	Wide	Immature Forest or Old Field	Immature Forest or Old Field	0
SW-00-005	5	Wide	Narrow	Immature Forest or Old Field	Row Crop or Open Pasture	3
SW-00-007	25	Wide	Wide	Fenced Pasture	Fenced Pasture	3
SW-00-008	25	Moderate	Moderate	Immature Forest or Old Field	Immature Forest or Old Field	2
SW-00-009	100	None	None	Fenced Pasture	Road	0
SW-00-010	25	Wide	Wide	Immature Forest or Old Field	Immature Forest or Old Field	0
SW-00-011	100	Narrow	Narrow	Fenced Pasture	Fenced Pasture	0
SW-00-013	0	Wide	Wide	Residential, Park, or New Field	Residential, Park, or New Field	0
SW-00-014	80	Narrow	Narrow	Residential, Park, or New Field	Row Crop or Open Pasture	3
SW-00-015	50	None	None	Fenced Pasture	Fenced Pasture	0
SW-00-016	100	None	None	Fenced Pasture	Fenced Pasture	0
SW-00-017	100	None	None	Fenced Pasture	Fenced Pasture	0
SW-00-018	100	None	None	Fenced Pasture	Fenced Pasture	0
SW-00-019	70	Moderate	Wide	Mixed Shrub and Rowcrop	Immature Forest or Old Field	3
SW-00-020	20	Narrow	Narrow	Residential, Park, or New Field	Residential, Park, or New Field	0
SW-00-021	25	Wide	Wide	Row Crop or Open Pasture	Row Crop or Open Pasture	1
SW-00-022	0	Moderate	Moderate	Immature Forest or Old Field	Immature Forest or Old Field	0
SW-00-024	100	None	None	Urban or Industrial	Residential, Park, or New Field	0
SW-00-025	100	None	None	Row Crop or Open Pasture	Row Crop or Open Pasture	3

Appendix Table V. Riparian Width and Floodplain Land Use

District/Site Number	Canopy % Open	Left Riparian Width	Right Riparian Width	Left Floodplain Land Use	Right Floodplain Land Use	Development Pressure
SW-00-026	25	Wide	Moderate	Immature Forest or Old Field	Mixed Shrub and Rowcrop	0
SW-00-029	75	Moderate	Wide	Fenced Pasture	Immature Forest or Old Field	0
SW-00-036	40	None	Wide	Row Crop or Open Pasture	Immature Forest or Old Field	1
SW-00-038	80	Narrow	Narrow	Fenced Pasture	Fenced Pasture	0
SW-00-039	100	Narrow	Narrow	Row Crop or Open Pasture	Row Crop or Open Pasture	0
SW-00-041	30	Narrow	Narrow	Urban or Industrial	Urban or Industrial	4
SW-00-045	100	Narrow	Narrow	Fenced Pasture	Fenced Pasture	0
SW-00-046	10	Wide	Wide	Immature Forest or Old Field	Immature Forest or Old Field	0
SW-00-047	25	Moderate	Moderate	Row Crop or Open Pasture	Row Crop or Open Pasture	0
SW-00-049	20	Narrow	Narrow	Immature Forest or Old Field	Immature Forest or Old Field	0
SW-00-050	100	None	None	Residential, Park, or New Field	Residential, Park, or New Field	0
SW-00-052	70	Wide	Wide	Immature Forest or Old Field	Immature Forest or Old Field	
SW-00-053	100	Narrow	Narrow	Residential, Park, or New Field	Residential, Park, or New Field	

Riparian Width:	
Wide	>10m
Moderate	5-10m
Narrow	<5 m
None	No riparian

Development Pressure:	
None (woodlot, agriculture, Park, etc)	= 0
Slight (<5% urban development)	= 1
Moderate (5 - <20% urban development)	= 2
High (20-50% urban development)	= 3
Extreme (>50% urban development)	= 4

Appendix Table VI a. PHWH QHEI Data: Metric Scoring

District/Site Number	Cover Metric (20 Max)	Channel Metric (20 Max)	Riparian Metric (10 Max)	Pool Metric (12 max)	Riffle/Run Metric (8 Max)	Gradient Metric (10 Max)	QHEI Score
CD-99-001	2.0	13.5	8.5	0.0	3.5	4	47.5
CD-99-003	2.0	15.0	8.5	3.0	2.0	4	41.5
CD-00-004	8.0	14.5	7.5	5.0	2.0	10	64.0
CD-00-005	1.0	6.0	3.0	-2.0	0.0	8	25.0
CD-00-006	9.0	4.0	4.0	3.0	-1.0	10	33.0
CD-00-009	2.0	4.0	3.0	0.0	-1.0	6	20.0
CD-00-010	1.0	5.0	2.5	-2.0	0.0	4	19.5
CD-00-013	6.0	4.0	5.0	3.0	0.0	4	27.0
CD-00-014	6.0	6.5	5.0	-2.0	0.0	10	33.5
CD-00-016	11.0	17.0	5.0	5.0	2.5	4	57.5
CD-00-018	3.0	6.5	4.0	5.0	1.0	4	29.5
CD-00-019	2.0	9.0	4.5	5.0	4.0	6	37.5
CD-00-020	2.0	4.0	6.0	-2.0	0.0	6	25.0
CD-00-021	4.0	6.0	5.0	-2.0	0.0	4	25.0
CD-00-022	1.0	9.0	3.5	-2.0	0.0	4	25.5
CD-00-023	5.0	9.0	5.0	4.0	1.0	4	43.0
CD-00-025	1.0	5.0	4.0	-2.0	0.0	4	17.0
CD-00-026	15.0	17.0	6.0	6.0	1.5	4	63.0
CD-00-027	4.0	7.0	4.0	4.0	0.0	8	34.0
CD-00-028	6.0	14.5	8.0	2.0	1.0	4	54.5
CD-00-030	1.0	4.5	3.5	-2.0	0.0	8	25.0
CD-00-032	5.0	7.5	6.0	2.0	0.0	10	36.5
CD-00-033	7.0	12.5	6.5	3.0	2.0	10	49.5
CD-00-034	8.0	6.5	3.0	1.0	0.0	10	34.5
CD-00-043	1.0	6.0	4.0	-2.0	0.0	6	24.0
CD-00-044	5.0	10.0	5.0	2.0	-1.0	10	37.0
CD-00-045	8.0	9.0	7.0	1.0	1.5	8	44.5
CD-00-047	8.0	10.5	5.0	-2.0	0.0	4	35.5
CD-00-048	1.0	5.0	3.0	-2.0	0.0	6	22.0
CD-00-049	3.0	7.0	3.0	1.0	0.0	8	28.0
NE-99-001	9.0	16.0	9.5	4.0	4.0	4	65.0
NE-99-002	6.0	12.5	8.5	4.0	1.5	4	50.5
NE-99-003	10.0	14.0	9.0	6.0	2.0	4	61.5
NE-99-004	6.0	14.0	9.0	4.0	3.0	4	51.0
NE-99-005	6.0	14.5	6.5	4.0	0.5	4	51.5
NE-99-006	8.0	14.0	9.0	4.0	1.0	4	55.5
NE-99-007	8.0	10.0	7.0	2.0	1.0	10	54.0

Appendix Table VI a. PHWH QHEI Data: Metric Scoring

District/Site Number	Cover Metric (20 Max)	Channel Metric (20 Max)	Riparian Metric (10 Max)	Pool Metric (12 max)	Riffle/Run Metric (8 Max)	Gradient Metric (10 Max)	QHEI Score
NE-99-008	11.0	15.0	8.5	4.0	1.5	4	61.5
NE-99-010	10.0	16.0	9.5	4.0	4.0	4	65.0
NE-99-011	12.0	15.0	7.0	5.0	2.0	4	62.5
NE-99-012	6.0	12.0	8.5	0.0	0.0	4	43.0
NE-99-013							
NE-99-014							
NE-99-015							
NE-99-016							
NE-99-017							
NE-99-019							
NE-99-020							
NE-99-021							
NE-99-022							
NE-99-023							
NE-99-024							
NE-99-025							
NE-99-028							
NE-99-029							
NE-99-030							
NE-99-031							
NE-99-032							
NE-99-033							
NE-99-034							
NE-99-035							
NE-99-036							
NE-99-037							
NE-99-038							
NE-99-039							
NE-99-040							
NE-99-041							
NE-99-042							
NE-99-043							
NE-99-044							
NE-99-045							
NE-99-046							
NE-99-048							
NE-99-049							

Appendix Table VI a. PHWH QHEI Data: Metric Scoring

District/Site Number	Cover Metric (20 Max)	Channel Metric (20 Max)	Riparian Metric (10 Max)	Pool Metric (12 max)	Riffle/Run Metric (8 Max)	Gradient Metric (10 Max)	QHEI Score
NE-99-050							
NE-99-051							
NE-00-001	10.0	13.0	7.0	4.0	0.0	8	47.5
NE-00-002	2.0	5.5	6.0	-1.0	0.0	4	25.5
NE-00-003	4.0	12.0	5.0	3.0	0.0	4	38.0
NE-00-004	4.0	7.0	4.0	4.0	0.0	8	42.0
NE-00-005							
NE-00-006	2.0	16.5	5.0	4.0	0.0	4	35.5
NE-00-008	8.0	12.0	7.0	4.0	0.0	10	55.0
NE-00-010	11.0	14.0	4.5	1.0	0.0	10	55.0
NE-00-011	5.0	11.0	7.0	4.0	0.0	4	47.0
NE-00-013	0.0	13.0	6.0	-2.0	0.0	4	33.0
NE-00-014	2.0	4.0	6.0	-1.0	0.0	4	25.0
NE-00-016	2.0	4.0	5.0	-2.0	0.0	4	19.5
NE-00-018	6.0	12.0	6.5	2.0	0.0	4	43.5
NE-00-020	5.0	4.0	2.0	0.0	0.0	10	28.5
NE-00-021	1.0	12.0	3.5	-1.0	0.0	4	29.5
NE-00-022	4.0	6.0	3.0	-2.0	0.0	4	34.0
NE-00-023	5.0	7.0	5.0	2.0	0.0	4	34.0
NE-00-024	2.0	11.0	8.5	-2.0	0.0	4	34.5
NE-00-025	13.0	17.5	9.0	5.0	2.5	4	66.5
NE-00-026	1.0	10.0	7.5	2.0	0.0	4	33.5
NE-00-027	9.0	12.0	9.0	4.0	0.0	4	41.0
NE-00-028	8.0	8.0	4.0	4.0	0.0	2	41.0
NE-00-029	0.0	2.0	10.0	-2.0	0.0	4	23.0
NE-00-031	1.0	4.0	3.5	2.0	0.0	8	24.5
NE-00-033	8.0	4.0	4.0	1.0	0.0	4	26.0
NE-00-036	12.0	14.0	9.0	3.0	0.0	4	60.0
NE-00-038	8.0	8.0	9.5	2.0	0.0	4	36.5
NE-00-039	5.0	13.0	8.5	4.0	0.0	4	53.5
NE-00-045	7.0	7.0	9.0	0.0	0.0	4	43.0
NE-00-051	8.0	13.0	10.0	5.0	0.0	4	56.5
NW-00-002	3.0	5.0	3.0	3.0	0.0	8	25.5
NW-00-004	5.0	5.0	3.0	5.0	-1.0	4	24.5
NW-00-005	4.0	5.0	3.0	3.0	0.0	4	19.0
NW-00-007	6.0	4.0	3.0	2.0	0.0	8	23.0
NW-00-008	1.0	4.0	4.0	3.0	0.0	10	26.0

Appendix Table VI a. PHWH QHEI Data: Metric Scoring

District/Site Number	Cover Metric (20 Max)	Channel Metric (20 Max)	Riparian Metric (10 Max)	Pool Metric (12 max)	Riffle/Run Metric (8 Max)	Gradient Metric (10 Max)	QHEI Score
NW-00-009	12.0	16.0	7.0	6.0	2.0	4	63.0
NW-00-011	3.0	6.0	3.0	4.0	0.0	8	32.0
NW-00-012	5.0	5.0	3.0	2.0	0.0	4	22.0
NW-00-015	4.0	7.0	4.5	2.0	0.0	10	30.5
NW-00-017	2.0	6.0	3.0	3.0	0.0	10	25.0
NW-00-019	11.0	6.5	4.5	4.0	0.0	10	38.0
NW-00-020	2.0	5.0	4.5	3.0	0.0	4	21.0
NW-00-021	1.0	7.0	3.5	3.0	0.0	4	24.5
NW-00-022	3.0	5.0	3.5	4.0	0.5	8	31.5
NW-00-023	9.0	9.0	6.5	-2.0	0.0	4	36.5
NW-00-025	5.0	6.0	3.0	4.0	0.0	8	28.0
NW-00-027	3.0	6.0	3.0	3.0	0.0	10	26.0
NW-00-029	9.0	6.0	4.0	-2.0	0.0	10	34.0
NW-00-033	6.0	5.0	3.5	3.0	0.0	10	30.5
NW-00-035	2.0	5.0	2.5	4.0	0.0	10	26.5
NW-00-036	3.0	5.0	4.0	2.0	1.5	8	35.5
NW-00-037	3.0	6.0	4.0	3.0	0.0	10	26.0
SE-99-001	9.0	16.0	7.5	5.0	2.0	8	55.0
SE-99-002	14.0	17.5	7.0	5.0	2.0	4	58.5
SE-99-003	8.0	12.5	8.0	3.0	2.0	10	57.5
SE-99-004	12.0	14.0	9.0	3.0	2.5	4	61.0
SE-99-005	7.0	13.5	10.0	4.0	3.0	4	55.0
SE-99-006	2.0	12.0	9.0	0.0	0.0	4	32.0
SE-99-007	11.0	17.0	7.0	3.0	2.0	4	54.0
SE-99-008	4.0	13.5	8.5	0.0	0.0	4	44.5
SE-00-001							
SE-00-002							
SE-00-003	11.0	16.0	7.0	3.0	7.0	4	63.5
SE-00-004	4.0	10.5	3.5	4.0	0.0	4	40.5
SE-00-005	3.0	14.0	8.5	1.0	0.0	4	46.5
SE-00-006							
SE-00-007							
SE-00-008	1.0	14.0	10.0	0.0	0.0	4	42.0
SE-00-009							
SE-00-010	4.0	6.5	3.5	1.0	0.0	4	29.0
SE-00-011	11.0	18.0	8.0	6.0	3.5	4	67.0
SE-00-013							

Appendix Table VI a. PHWH QHEI Data: Metric Scoring

District/Site Number	Cover Metric (20 Max)	Channel Metric (20 Max)	Riparian Metric (10 Max)	Pool Metric (12 max)	Riffle/Run Metric (8 Max)	Gradient Metric (10 Max)	QHEI Score
SE-00-014	5.0	16.0	10.0	2.0	0.0	4	54.5
SE-00-015							
SE-00-016	3.0	5.0	5.5	2.0	0.0	4	24.5
SE-00-017	2.0	8.0	5.0	0.0	0.0	4	24.0
SE-00-018							
SE-00-019							
SE-00-021	10.0	16.0	9.0	0.0	0.0	4	53.0
SE-00-023	5.0	15.0	10.0	2.0	0.0	4	49.0
SE-00-024	6.0	14.0	10.0	2.0	0.0	4	49.0
SE-00-025	4.0	6.0	2.5	3.0	2.0	4	32.5
SE-00-027							
SE-00-028	4.0	10.0	4.5	0.0	0.0	4	28.5
SE-00-029							
SE-00-030	14.0	17.5	10.0	6.0	4.0	4	74.0
SE-00-033	4.0	9.0	3.0	-3.0	0.0	4	30.0
SE-00-034	4.0	9.0	2.0	-1.0	-1.0	4	19.0
SE-00-035	9.0	9.0	6.5	2.0	-1.0	4	39.5
SE-00-036							
SE-00-037	4.0	13.5	10.0	0.0	0.0	4	40.5
SE-00-038	5.0	13.5	6.5	6.0	3.5	4	50.0
SE-00-039	6.0	13.0	7.5	1.0	0.0	4	42.5
SE-00-040	10.0	12.0	7.0	1.0	0.0	4	39.5
SE-00-041	8.0	13.5	7.0	2.0	0.0	4	42.0
SE-00-043	10.0	13.0	10.0	2.0	0.0	4	52.0
SE-00-045	10.0	17.0	10.0	3.0	0.0	4	61.0
SE-00-046	9.0	16.0	8.0	2.0	3.0	4	58.5
SE-00-047	5.0	8.0	7.0	5.0	2.0	10	50.0
SE-00-049							
SE-00-050	8.0	14.0	7.0	4.0	0.0	4	47.0
SW-99-001	6.0	12.0	9.0	4.0	3.5	4	55.5
SW-99-002	8.0	12.0	10.0	2.0	3.5	4	49.5
SW-00-001	5.0	10.0	4.5	3.0	0.0	4	39.5
SW-00-003	1.0	6.0	3.0	-1.0	0.0	4	15.0
SW-00-004	16.0	19.0	10.0	-1.0	0.0	4	63.0
SW-00-005	16.0	8.0	6.5	-2.0	0.0	6	49.5
SW-00-007	17.0	17.0	6.5	4.0	0.0	4	65.5
SW-00-008	14.0	11.0	8.0	1.0	0.0	4	56.0

Appendix Table VI a. PHWH QHEI Data: Metric Scoring

District/Site Number	Cover Metric (20 Max)	Channel Metric (20 Max)	Riparian Metric (10 Max)	Pool Metric (12 max)	Riffle/Run Metric (8 Max)	Gradient Metric (10 Max)	QHEI Score
SW-00-009	4.0	13.0	5.0	4.0	0.0	4	40.0
SW-00-010	17.0	18.0	9.0	1.0	0.0	4	71.0
SW-00-011	1.0	5.0	1.0	-2.0	0.0	4	10.0
SW-00-013	15.0	13.0	6.5	1.0	0.0	4	44.5
SW-00-014	9.0	9.0	3.5	2.0	0.0	4	32.5
SW-00-015	4.0	9.0	4.0	-2.0	0.0	4	19.0
SW-00-016	2.0	7.0	1.0	3.0	0.0	4	18.0
SW-00-017	1.0	5.0	3.0	-2.0	0.0	4	14.5
SW-00-018	2.0	11.0	3.0	-2.0	0.0	4	23.0
SW-00-019	16.0	13.0	7.0	-2.0	0.0	4	58.0
SW-00-020	9.0	6.0	3.0	-2.0	0.0	6	23.0
SW-00-021	12.0	15.0	8.0	0.0	0.0	4	57.0
SW-00-022	14.0	10.0	8.0	-2.0	0.0	10	41.0
SW-00-024	0.5	2.5	3.5	-2.0	0.0	8	15.0
SW-00-025	2.0	11.0	3.0	4.0	0.0	4	39.0
SW-00-026	9.0	10.5	8.0	0.0	0.0	4	48.5
SW-00-029	15.0	18.0	7.0	4.0	4.0	4	70.0
SW-00-036	7.0	14.0	6.5	2.0	0.0	4	34.5
SW-00-038	9.0	14.0	5.0	1.0	0.0	4	41.0
SW-00-039	12.0	8.0	5.0	-2.0	0.0	4	27.5
SW-00-041	11.0	13.0	4.0	3.0	0.0	4	50.5
SW-00-045	3.0	12.0	6.0	2.0	0.0	8	31.0
SW-00-046	17.0	19.0	8.0	1.0	0.0	4	68.0
SW-00-047	13.0	9.0	6.0	-2.0	0.0	4	35.0
SW-00-049	8.0	11.0	6.0	3.0	0.0	6	46.0
SW-00-050	1.0	9.0	2.0	-1.0	0.0	4	16.0
SW-00-052	13.0	19.0	7.0	4.0	0.0	4	66.0
SW-00-053	2.0	13.0	2.0	2.0	0.0	4	36.0

Appendix Table VI b. PHWH QHEI Data: Attributes Evaluation

District/Site Number	QHEI Score	WWH Attributes	High Influence MWH Attributes	Moderate Influence MWH Attributes	High Influence:WWH Ratio	Moderate Influence:WWH Ratio
CD-99-001	47.5	5	2	3	0.50	1.00
CD-99-003	41.5	2	3	6	1.33	3.33
CD-00-004	64.0	6	2	3	0.43	0.86
CD-00-005	25.0	1	4	6	2.50	5.50
CD-00-006	33.0	1	4	8	2.50	6.50
CD-00-009	20.0	0	5	8	6.00	14.00
CD-00-010	19.5	1	4	6	2.50	5.50
CD-00-013	27.0	0	5	6	6.00	12.00
CD-00-014	33.5	1	4	8	2.50	6.50
CD-00-016	57.5	7	1	2	0.25	0.50
CD-00-018	29.5	1	4	7	2.50	6.00
CD-00-019	37.5	2	4	7	1.67	4.00
CD-00-020	25.0	1	4	6	2.50	5.50
CD-00-021	25.0	1	4	7	2.50	6.00
CD-00-022	25.5	3	3	6	1.00	2.50
CD-00-023	43.0	3	3	6	1.00	2.50
CD-00-025	17.0	2	4	7	1.67	4.00
CD-00-026	63.0	8	1	3	0.22	0.56
CD-00-027	34.0	1	4	6	2.50	5.50
CD-00-028	54.5	4	2	3	0.60	1.20
CD-00-030	25.0	2	4	6	1.67	3.67
CD-00-032	36.5	1	4	7	2.50	6.00
CD-00-033	49.5	4	2	5	0.60	1.60
CD-00-034	34.5	2	3	7	1.33	3.67
CD-00-043	24.0	1	3	7	2.00	5.50
CD-00-044	37.0	1	4	7	2.50	6.00
CD-00-045	44.5	5	3	4	0.67	1.33
CD-00-047	35.5	5	2	7	0.50	1.67
CD-00-048	22.0	1	4	7	2.50	6.00
CD-00-049	28.0	1	4	8	2.50	6.50
NE-99-001	65.0	7	2	2	0.38	0.63
NE-99-002	50.5	3	3	6	1.00	2.50
NE-99-003	61.5	6	1	5	0.29	1.00
NE-99-004	51.0	4	2	2	0.60	1.00
NE-99-005	51.5	3	3	5	1.00	2.25
NE-99-006	55.5	4	2	4	0.60	1.40
NE-99-007	54.0	2	3	5	1.33	3.00
NE-99-008	61.5	6	1	4	0.29	0.86
NE-99-010	65.0	7	1	4	0.25	0.75
NE-99-011	62.5	6	1	4	0.29	0.86
NE-99-012	43.0	3.0	2	5	0.75	2.00
NE-99-013						
NE-99-014						
NE-99-015						
NE-99-016						
NE-99-017						
NE-99-019						
NE-99-020						
NE-99-021						
NE-99-022						
NE-99-023						
NE-99-024						
NE-99-025						
NE-99-028						

Appendix Table VI b. PHWH QHEI Data: Attributes Evaluation

District/Site Number	QHEI Score	WWH Attributes	High Influence MWH Attributes	Moderate Influence MWH Attributes	High Influence:WWH Ratio	Moderate Influence:WWH Ratio
NE-99-029						
NE-99-030						
NE-99-031						
NE-99-032						
NE-99-033						
NE-99-034						
NE-99-035						
NE-99-036						
NE-99-037						
NE-99-038						
NE-99-039						
NE-99-040						
NE-99-041						
NE-99-042						
NE-99-043						
NE-99-044						
NE-99-045						
NE-99-046						
NE-99-048						
NE-99-049						
NE-99-050						
NE-99-051						
NE-00-001	47.5	3	2	5	0.75	2.00
NE-00-002	25.5	2	4	5	1.67	3.33
NE-00-003	38.0	3	3	6	1.00	2.50
NE-00-004	42.0	2	3	7	1.33	3.67
NE-00-005						
NE-00-006	35.5	3	4	4	1.25	2.25
NE-00-008	55.0	4	2	5	0.60	1.60
NE-00-010	55.0	5	1	4	0.33	1.00
NE-00-011	47.0	2	3	7	1.33	3.67
NE-00-013	33.0	2	1	6	0.67	2.67
NE-00-014	25.0	1	5	6	3.00	6.00
NE-00-016	19.5	1	5	7	3.00	6.50
NE-00-018	43.5	2	3	7	1.33	3.67
NE-00-020	28.5	1	5	7	3.00	6.50
NE-00-021	29.5	3	3	6	1.00	2.50
NE-00-022	34.0	3	2	4	0.75	1.75
NE-00-023	34.0	1	4	7	2.50	6.00
NE-00-024	34.5	2	3	7	1.33	3.67
NE-00-025	66.5	8	0	4	0.11	0.56
NE-00-026	33.5	1	4	5	2.50	5.00
NE-00-027	41.0	3	2	6	0.75	2.25
NE-00-028	41.0	3	3	6	1.00	2.50
NE-00-029	23.0	1	2	5	1.50	4.00
NE-00-031	24.5	0	5	6	6.00	12.00
NE-00-033	26.0	2	4	7	1.67	4.00
NE-00-036	60.0	5	1	3	0.33	0.83
NE-00-038	36.5	2	2	4	1.00	2.33
NE-00-039	53.5	3	3	5	1.00	2.25
NE-00-045	43.0	2	3	6	1.33	3.33
NE-00-051	56.5	4	3	4	0.80	1.00
NW-00-002	25.5	0	5	7	6.00	13.00
NW-00-004	24.5	0	5	6	6.00	12.00

Appendix Table VI b. PHWH QHEI Data: Attributes Evaluation

District/Site Number	QHEI Score	WWH Attributes	High Influence MWH Attributes	Moderate Influence MWH Attributes	High Influence:WWH Ratio	Moderate Influence:WWH Ratio
NW-00-005	19.0	0	4	7	5.00	12.00
NW-00-007	23.0	0	5	6	6.00	12.00
NW-00-008	26.0	0	5	7	6.00	13.00
NW-00-009	63.0	8	0	2	0.11	0.33
NW-00-011	32.0	1	5	6	3.00	6.00
NW-00-012	22.0	0	5	7	6.00	13.00
NW-00-015	30.5	0	5	6	6.00	12.00
NW-00-017	25.0	0	5	7	6.00	13.00
NW-00-019	38.0	2	3	6	1.33	3.33
NW-00-020	21.0	0	5	7	6.00	13.00
NW-00-021	24.5	0	4	7	5.00	12.00
NW-00-022	31.5	1	4	7	2.50	6.00
NW-00-023	36.5	3	2	6	0.75	2.25
NW-00-025	28.0	1	4	7	2.50	6.00
NW-00-027	26.0	0	5	7	6.00	13.00
NW-00-029	34.0	3	3	7	1.00	2.75
NW-00-033	30.5	0	5	6	6.00	12.00
NW-00-035	26.5	0	4	7	5.00	12.00
NW-00-036	35.5	3	4	5	1.25	2.50
NW-00-037	26.0	0	5	7	6.00	13.00
SE-99-001	55.0	7	3	6	0.50	1.25
SE-99-002	58.5	6	0	4	0.14	0.71
SE-99-003	57.5	5	3	5	0.67	1.50
SE-99-004	61.0	6	1	4	0.29	0.86
SE-99-005	55.0	1	0	3	0.50	2.00
SE-99-006	32.0	1	4	7	2.50	6.00
SE-99-007	54.0	4	2	4	0.60	1.40
SE-99-008	44.5	4	2	5	0.60	1.60
SE-00-001						
SE-00-002						
SE-00-003	63.5	7	1	2	0.25	0.50
SE-00-004	40.5	3	2	6	0.75	2.25
SE-00-005	46.5	4	3	5	0.80	1.80
SE-00-006						
SE-00-007						
SE-00-008	42.0	4	2	5	0.60	1.60
SE-00-009						
SE-00-010	29.0	1	3	9	2.00	6.50
SE-00-011	67.0	7	0	1	0.13	0.25
SE-00-013						
SE-00-014	54.5	4	2	4	0.60	1.40
SE-00-015						
SE-00-016	24.5	1	5	7	3.00	6.50
SE-00-017	24.0	1	4	8	2.50	6.50
SE-00-018						
SE-00-019						
SE-00-021	53.0	6	1	2	0.29	0.57
SE-00-023	49.0	4	2	4	0.60	1.40
SE-00-024	49.0	4	2	3	0.60	1.20
SE-00-025	32.5	2	2	9	1.00	4.00
SE-00-027						
SE-00-028	28.5	2	3	8	1.33	4.00
SE-00-029						
SE-00-030	74.0	9	0	1	0.10	0.20

Appendix Table VI b. PHWH QHEI Data: Attributes Evaluation

District/Site Number	QHEI Score	WWH Attributes	High Influence MWH Attributes	Moderate Influence MWH Attributes	High Influence:WWH Ratio	Moderate Influence:WWH Ratio
SE-00-033	30.0	1	4	8	2.50	6.50
SE-00-034	19.0	0	4	10	5.00	15.00
SE-00-035	39.5	2	2	8	1.00	3.67
SE-00-036						
SE-00-037	40.5	4	2	6	0.60	1.80
SE-00-038	50.0	4	2	6	0.60	1.80
SE-00-039	42.5	2	3	6	1.33	3.33
SE-00-040	39.5	4	2	7	0.60	2.00
SE-00-041	42.0	3	3	5	1.00	2.25
SE-00-043	52.0	5	1	3	0.33	0.83
SE-00-045	61.0	6	2	3	0.43	0.86
SE-00-046	58.5	6	1	2	0.29	0.57
SE-00-047	50.0	3	3	5	1.00	2.25
SE-00-049						
SE-00-050	47.0	4	2	5	0.60	1.60
SW-99-001	55.5	5	3	3	0.67	1.17
SW-99-002	49.5	4	3	5	0.80	1.80
SW-00-001	39.5	3	3	6	1.00	2.50
SW-00-003	15.0	0	5	8	6.00	14.00
SW-00-004	63.0	6	3	1	3.00	0.29
SW-00-005	49.5	4	1	5	0.40	1.40
SW-00-007	65.5	6	2	3	0.43	0.86
SW-00-008	56.0	4	2	4	0.60	1.40
SW-00-009	40.0	1	3	6	2.00	5.00
SW-00-010	71.0	7	1	2	0.25	0.50
SW-00-011	10.0	0	5	8	6.00	1.40
SW-00-013	44.5	4	2	4	0.60	1.40
SW-00-014	32.5	3	2	5	0.75	2.00
SW-00-015	19.0	1	3	5	2.00	4.50
SW-00-016	18.0	0	4	8	5.00	13.00
SW-00-017	14.5	1	3	6	2.00	5.00
SW-00-018	23.0	3	3	5	1.00	2.25
SW-00-019	58.0	5	1	4	0.33	1.00
SW-00-020	23.0	1	3	9	2.00	6.50
SW-00-021	57.0	4	2	3	0.60	1.20
SW-00-022	41.0	2	3	7	1.33	3.67
SW-00-024	15.0	0	5	8	6.00	14.00
SW-00-025	39.0	3	2	5	0.75	2.00
SW-00-026	48.5	4	2	5	0.60	1.60
SW-00-029	70.0	6	2	2	0.43	0.71
SW-00-036	34.5	2	3	5	1.33	3.00
SW-00-038	41.0	3	2	7	0.75	2.50
SW-00-039	27.5	1	3	9	2.00	6.50
SW-00-041	50.5	4	3	3	0.80	1.40
SW-00-045	31.0	1	4	8	2.50	6.50
SW-00-046	68.0	7	1	2	0.25	0.50
SW-00-047	35.0	3	3	6	1.00	2.50
SW-00-049	46.0	3	3	6	1.00	2.50
SW-00-050	16.0	1	4	8	2.50	6.50
SW-00-052	66.0	5	1	2	0.33	0.67
SW-00-053	36.0	4	2	5	0.60	1.60