Subwatershed	Areas of Concern & Opportunity Proposed Projects		GIS/GPS Waypoint(s)	Priority Ranking
	erosion and sedimention from Beadnell Drive (dirt/gravel road)	Improvements to road to reduce volume of water coming down.	BSCT1E4	М
	homeowner enchroachment, mulch pile in stream	education program: brochures, news articles, watershed newsletter, and enforcement	BSCT3E2	L
	bank erosion	stream bank stabilization	BSCT3W3	М
	road washout at trailer park	stream bank fencing, riparian plantings	BSCT1W1	L
	dump site along stream	Enforce local ordinances and environmental regulations in order to remove debris from stream channel	BSCT1W4	М
	landslide on powerline and heavy sedimentation in stream bleow	slope stabilization, stream channel restoration	BSCT1W7	Н
	small landslide causing sedimentation and debris jams	slope stabilization, stream channel restoration	BSC87-90	L
	manmade dam	remove dam, restore channel	BSC92	L
	several ATV crossings	Stabilize crossing with waterbars and rock to reduce sediment load to the stream	BSC83	L
reek	floodplain wetland/sinuous channel	possible mitigation wetland construction area	BSC78	М
ey C	island in middle of stream conflicting trib, and a 6' high bank erosion just d.s.		BSC74	М
Big Sewickley Creek	on-stream wetland and pond	maintain buffer areas around this floodplain/wetland area	BSC76	Н
Sen	bank erosion/debris jam	stream bank stabilization	BSC68	М
Big	small 25'x25' wetlands	maintain buffer areas around this floodplain/wetland area	BSC61	L
	no notable sewage pipes but lots of brown/black algae	localized sampling to determine cause of algae	BSC58	М
	dam with water fowl sign from PA Game Commission	maintain buffer areas around this floodplain/wetland area	BSC58	М
	sediment build up in middle of stream, channel too wide.	natural stream channel restoration	BSC45	М
	sediment build up with backwater pools and debris jam at sanitary crossing. Sanitary line installation has caused stream	natural stream channel restoration	BSC48	Н
	large floodplain wetland 1000'x400'	maintain buffer areas around this floodplain/wetland area	BSC52	М
	Blue Heron Rookery	Conservation easement to protect this area.	BSC38	Н

		Enforce local ordinances and		
	auto parts, plastics, and flood debris along stream banks	environmental regulations in order to remove debris from stream channel and flood plain.	BSC31	М
	channel is too wide and straightened in many places	natural channel restoration	BSC20	М
	servere bank erosion 6' high by 100' long	stream bank stabilization	BSC11-12	Н
	small 1 acre wetland	maintain buffer areas around this floodplain/wetland area	BSC 8	М
٠.	sereve erosion caused by I-79 runoff	good sight for a regional stormwater basin on-stream below	EFBSC30-31	н
Fort	unstable banks through residential area	homeowner watershed education and small bank protection project	EFBSC25	М
East Fork	bank erosion and sand bar	natural channel restoration/ bank stabilization	EFBSC19	L
"	beaver dam found in small wetland	maintain buffer areas around this floodplain/wetland area	EFBSC20	L
	severe erosion	stream bank stabilization	NFT5W2	L
<b>×</b>	Erosion and culvert not large enough to handle flows	replace culvert with larger pipe and repair streambank	NFT5W7	Н
North Fork	severe erosion	check soil types to find explanation for erosion/stream bank stabilization	NFT2W7-8	М
No	possible coke oven on hillside	historical preservation	NFT4W2	L
	wetland area 400'X500'	maintain buffer areas around this floodplain/wetland area	NFBSC20	М
	a few small 1/2 acre wetland areas	maintain buffer areas around this floodplain/wetland area	RR15	М
Rippling Run	Sechlers Lake area	maintain buffer areas around this floodplain/wetland area	RR9	н
Cooney Hollow	Debris Jam	remove jam and work to maintain riparian areas.	CH2	Н



# **Big Sewickley Creek Biological Assessment**

July 24 & 25, 2008

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## Big Sewickley Creek Biological Assessment

## **Macroinvertebrate and Fish Sampling**

#### Macroinvertebrate:

Macroinvertebrate surveys were conducted following the benthic macroinvertebrate protocol for single habitat streams, as described in EPA's Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers. A sample area consisted of a 100 meter stream reach at sites previously selected by Blazosky & Associates. Two kicks were taken at each sample area using a kick net (500 micron screen). A single kick consisted of substrate disruption in front of the collection net (one square meter) for 60 seconds. Following sample collection, all specimens and sediment were transferred from the examined collection net into sample bottles and preserved with 95% alcohol. Preserved samples were delivered to the laboratory for processing and identification. Laboratory procedures followed EPA protocols. Samples were taken at nine sites within the Big Sewickley Creek watershed, site names, and descriptions are included in the individual analysis section (Page 5-20). A watershed map highlighting sample sites included with this document (Page 4). Macroinvertebrate samples were carefully examined and organisms were separated from the debris in the laboratory. The identified organisms were transferred to collection bottles and preserved with 70% alcohol. Organisms were identified to the family taxonomic level under a dissecting microscope. Quality control procedures included a qualified staff member sorting through a sub-section of the sample to check for missed organisms.

#### Fish:

Fish surveys were conducted following the electrofishing protocol for single habitat streams described in *EPA's Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers*. A Smith-Root LR-24 Electrofisher electrofishing unit was implemented to temporarily immobilize the fish for the purpose of identification. The sample area consisted of a 200 meter stream reach at sites previously selected by Blazosky & Associates. Following sample collection, fish were identified at the end of the reach or if there was no longer any room available in the bucket to continue the collection of specimens, which ever procedure was most appropriate. Specimens were identified by Mr. Gary Smith, Southwest Regional Habitat Biologist for the Pennsylvania Fish and Boat Commission. Surveys were conducted at three sites within the Big Sewickley Creek watershed, site names and descriptions are included in the individual analysis section. A watershed map highlighting sample sites follows on page four. Only one preserved sample was collected, Site 6:NFT2W1, as representatives of the southern red-belly dace (*Phoxinus erythrogaster*).

### Sample Period:

Water chemistry analysis, macroinvertebrate collection, and fish surveys were conducted over two days, July 24 and 25, 2008. Follow-up sampling should occur during a similar time of year, as to reproduce the most accurate sample that reflects a similar sample set.

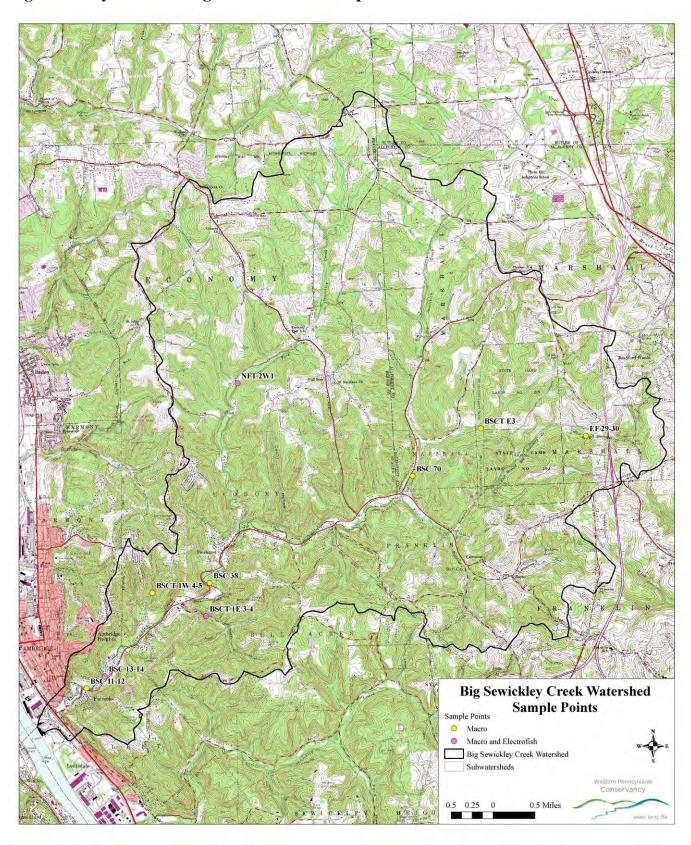
#### **Data Analysis**

In addition to sampling the macroinvertebrates and conducting a fish survey, Western Pennsylvania Conservancy (WPC) also performed water chemistry analysis at all sampled sites. All water quality information can be found in Figure 26 (Page 21).

The following metrics were used to analyze the macroinvertebrate data for this study: (1) total number of taxa, (2) number of EPT taxa, (3) percent EPT, (4) percent Diptera, (5) Shannon Diversity Index (H), and (6) pollution tolerance index (PTI). Total number of taxa indicates the number of families present in the sample, and number of EPT taxa indicates the number of families of mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera) present in the sample. Percent EPT to percent Diptera ratio compares the number of mayflies, stoneflies, and caddisflies to the number of true flies (Diptera). Diptera organisms are generally more tolerant of pollution than EPT organisms. An abundance of Diptera organisms indicates poorer water quality. Diversity indices are mathematical measures of species diversity in a community. The Shannon Diversity Index provides information about species richness and also takes into account the relative abundances of different species. The higher the index value, the more diverse the community. The Pollution Tolerance Index (PTI) is based on the concept of indicator organisms and tolerance levels. Indicator organisms are those organisms sensitive to water quality changes and their presence or absence indicates the condition of the water in which they live. Pollution-intolerant organisms include mayflies, stoneflies, caddisflies, riffle beetles, and water pennies. Pollution-tolerant organisms include tubifex worms, midges, pouch snails, and leeches. Figure 31 includes all of the macroinvertebrate analysis and is located on page 25.

The Fish Index of Biotic Integrity (FIBI), is an index that measures the health of a stream based on multiple attributes of the resident fish assemblage. Each site was sampled and the score is based on its deviation from reference conditions and classified as "poor," "fair," "good," or "excellent." The FIBI calculates data relating to; (1) Total number of species found, (2) Number of benthic insectivorous species, (3) Number of salmonidae and centrachidae, (4) Proportion of pollution intolerant species, (5) Proportion of pollution tolerant species, (6) Proportion of generalists, (7) Proportion of insectivorous cyprinids, (8) Number of piscivorous species, (9) Number of individuals in the sample, and (10) Proportion of species with disease, excluding blackspot. The total FIBI analysis is included on in Figure 30 (Page 24). Section two of the FIBI, identifies benthic insectivores, meaning those fish species that are located in the lowest part of the water column and feed exclusively on aquatic insects. Section three refers to the amount of fish species found at the sampled site, such as; trout, salmon, sunfish, bass, and crappies. Section four identifies the percentage of pollution intolerant individuals such as; lamprey, cutlip minnows, southern redbelly dace, hognose suckers, trout, sculpin, and walleye. Section five identifies the percentage of pollution tolerant individuals such as; the american eel, fathead minnows, pickerels, muskellunge, pike, killifish, bluegill, and sunfish. Section six, refers to the percentage of fish species that feed on whatever may be available such as, algae and insects. Section seven identifies those fish that can survive in multiple habitats or will consume multiple food sources. These generalists species include; chubs, shiners, minnows, and daces. Section eight of the FIBI metric aids in calculating the percentage of fish species that primarily feed on other types of fish. And lastly, section ten takes into account the percentage of fish species that had a disease or disfigurement other than blackspot, which is actually a parasitism caused by a turbellarian flatworms.

# Big Sewickley Creek Biological Assessment Map



Site 1: BSC 11-12 GPS: N 40.58128 W 80.21394

Site 1 is located a few blocks south of the Leet Township building and is adjacent to a recreational park. This site was only sampled for macroinvertebrates. The stream is approximately twenty feet in width and the substrate is primarily composed of gravel and sand.

Figure 1 exhibits the water chemistry analysis for this site. Site 1 had one of the four highest pH levels at 8.20 and all other measurable levels were relatively average. The water chemistry analysis summary can be found in Figure 26 (Page 21).



Figure 2 outlines the summary of the biotic metric; the analysis of the macroinvertebrates sampled. The Shannon Diversity Index (H) resulted in a score of 1.58649. Shannon Diversity indicated that this site had an average rank, meaning that this site had an average richness and relative abundance of macroinvertebrate species. The Pollution Tolerance Index (PTI) resulted in an "excellent" ranking.

Figure 1

Big Sewickley Creek Watershed: Site Specific Water Quality Data

Ph	TDS (ppm)	DO (mg/L)	Conductivity (uS)	Temp (F)	Turbidity (Fau)	Phos (Mg/L)	Nitra (Mg/L)
8.20	420	6.92	650	70.9	7	1.07	0.8

Figure 2

Big Sewickley Creek Watershed Assessment: Macroinvertebrate Analysis

Dig Sewickiey Creek Watersneu Assessment. Wacromvertebrate Anary				
Richness	13			
Evenness (E)	0.6.185			
Shannon Diversity (H)	1.58649			
Hilsenhoff (B)	4.83			
Hilsenhoff Rank	Good			
% Ephemeroptera	10.77			
% Plecoptera	0			
% Trichoptera	35			
% EPT	45			
% Chironomidae	39			
# Intolerant Taxa(0,1,2)	0			
PTI	26			
PTI Rank	Excellent			

**Site 2:** BSC 13-14 GPS: N 40.58500 W 80.21097





Site 2 is located a few blocks south of the Leet Township building off of Neely Street, bordered by a residential area. This site was sampled for macroinvertebrates and a fish survey was also conducted. The stream is approximately twenty feet in width and the substrate is composed of cobble, gravel, sand, and some exposed bedrock.

Figure 3 (Page7) exhibits the water chemistry analysis. This site resulted in the highest phosphate level. Otherwise, the site ranked relatively average compared to other sites. The water chemistry analysis summary can be found in Figure 26 (Page 21).

The following Figures; 4 (Page 7), 5 and 6 (Page 8) outline summaries of biotic metrics, the analysis of the macroinvertebrates, abundance and the proportion of fish species sampled, and the Fish Index of Biotic Integrity (FIBI).

Figure 4 (Page 7) lists the metrics that the macroinvertebrates were measured against. The Shannon Diversity Index (H) resulted in a score of 1.45596 Shannon Diversity indicated that this site had an average rank, meaning that this site had an average richness and relative abundance of macroinvertebrate species. The Pollution Tolerance Index (PTI) resulted in a "fair" ranking.

Site 2 is the first site where a fish survey was conducted. The data from the survey resulted in the highest count of species, 14 of the 20 species, found at the three sites. This site also resulted in the largest amount of individuals identified (491 of the 766). Thus, Site 2 composed 64% of the total individuals identified in the watershed. Six of the 14 species identified at Site 2 contained five or fewer individuals collected in the sample. This group consisted of 42.8% of all species found on site and 2.8% of all individuals on site. Eight of the 14 species collected included eight or greater individuals collected at Site 2. This group consisted of 57.1% of the species sampled on site and 97.4% of the individuals sampled at Site 2. Figure 5 (Page7) reflects the fish species and their abundance at this site.

It is important to note that some of the fish species were relatively atypical for the watershed. One of these atypical species is the rainbow trout (*Oncorhynchus mykiss*), which its presence would signify a spring stocked hatchery fish. Additionally, four other species that were surveyed in very low quantities and were atypical for this watershed were the; freshwater drum (*Aplodinotus grunniens*), golden redhorse (*Moxostoma erythrurum*), shorthead redhorse (*Moxostoma macrolepidotum*) and the walleye (*Sander vitreus*). The previously listed four species most likely migrated upstream from the nearby Ohio River.

Species that were predominately found at this site Included the central stoneroller (*Campostoma anomalum*) Illustration 1, which composed 40.3% of the individuals found at the site and 198 individuals. The second species was the rainbow darter (*Etheostoma caeruleum*), Illustration 2, which composed 54.17% of the sample and included 68 individuals.

Species composition and abundance is directly impacted by the variation and availability of habitat found at the sample site. The riffle zone found at this location was nearly balanced with the pool zone. The pool zone was also equally divided into a more shallow and a deeper section. This provided habitat niches for the variety of species surveyed. These sites were notably residential and lacked a riparian buffer, but did have tree canopy cover.

This site's FIBI (Fish Index of Biotic Integrity) resulted in a score of 42, which ranks the site as "good." Figure 6 showing this data is listed at the Site 2 summary (Page 8).

Illustration 1 Central Stoneroller (Campostoma anomalum)

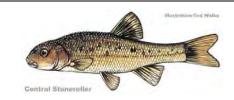


Illustration 2 Rainbow Darter (Etheostoma caeruleum)



Figure 3

Big Sewickley Creek Watershed: Site Specific Water Quality Data

Ph	TDS (ppm)	DO (mg/L)	Conductivity (uS)	Temp (F)	Turbidity (Fau)	Phos (Mg/L)	Nitra (Mg/L)
8.10	410	8.02	630	70.0	8	1.37	2.2

Figure 4

Richness	11
Evenness (E)	0.6072
Shannon Diversity (H)	1.45596
Hilsenhoff (B)	4.64
Hilsenhoff Rank	Good
% Ephemeroptera	16.66
% Plecoptera	0
% Trichoptera	48
% EPT	65
% Chironomidae	25
# Intolerant Taxa(0,1,2)	1
PTI	12
PTI Rank	Fair

Figure 5

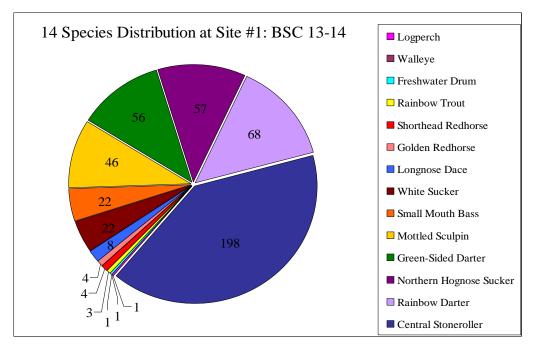


Figure 6

Fish Index of Bio	Fish Index of Biotic Integrity (FIBI) for Big Sewickley Creek: BSC 13-14				
	Species Richness & Composition				
1	Total number of species found	5			
2	Number of benthic insectivorous species	5			
3	Number of trout and sunfish species	1			
4	Number of intolerant species	5			
5	Proportion of tolerant individuals	4.48%			
	Trophic Composition				
6	Proportion of generalists	4.48%			
7	Proportion of insectivorous cyprinids	41.95%			
8	Proportion as trout or piscivores	5.49%			
	Fish Abundance & Condition				
9	Number of individuals in the sample	491			
10	Proportion with disease (excluding blackspot)	0			
	Pollution Tolerance Index Results	42 Good			

Site 3: BSCT1W 4-5 GPS: N 40.59972 W 80.20001

Site 3 is located near a State Game Lands, parallel to a gravel road, and located at a lower elevation from a sewage treatment facility. This site was only sampled for macroinvertebrates. The stream is approximately six feet in width and the substrate is composed of gravel and silt.

Figure 7 exhibits the water chemistry analysis. This site had one of the four highest pH levels at 8.20 and the highest turbidity level. However, this site



also had the lowest recorded water temperature at 65.6 degrees Fahrenheit.

It must also be noted that this site was one of three sites with the lowest reading of nitrates. The water chemistry analysis summary can be found in Figure 26 (Page 21).

Figure 8 lists the metrics that the macroinvertebrates were measured against. The Shannon Diversity Index (H) resulted in a score of 0.41605. This site scored the lowest on the Shannon Diversity Index, showing this site had the lowest richness and relative abundance of macroinvertebrate species. Pollution Tolerance Index (PTI) resulted in a "poor" ranking.

Figure 7

Big Sewickley Creek Watershed: Site Specific Water Quality Data

Ph	TDS (ppm)	DO (mg/L)	Conductivity (uS)	Temp (F)	Turbidity (Fau)	Phos (Mg/L)	Nitra (Mg/L)
8.20	460	8.40	720	65.6	31	0.15	0.0

Figure 8

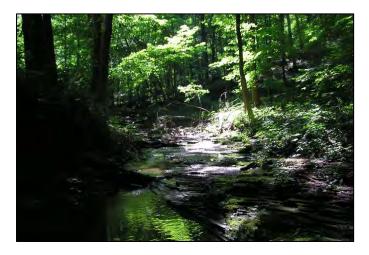
Big Sewicklev Creek Watershed Assessment: Macroinvertebrate Analysis

Big Sewiemey ereen watersmea rissessiment.	1:2001 0111 ; 01 0001 000 121101.j 2
Richness	11
Evenness (E)	0.1735
Shannon Diversity (H)	0.41605
Hilsenhoff (B)	4.00
Hilsenhoff Rank	Very Good
% Ephemeroptera	2.00
% Plecoptera	0
% Trichoptera	2
% EPT	4
% Chironomidae	1
# Intolerant Taxa(0,1,2)	0
PTI	10
PTI Rank	Poor

Site 4: BSCT1E 3-4 GPS: N 40.59332 W 80.18881

Site 4 is located on Turkeyfoot Road through the intersection at Wine Concrete Products. The site is composed of a narrow stream with few pools and steep banks. This site was sampled for macroinvertebrates and the where the second fish survey was conducted. The stream is approximately four feet in width and the substrate is composed of cobble and gravel.

Figure 9 (Page11) exhibits the water chemistry analysis. This site demonstrated one of the four highest pH



levels at 8.20. Conversely, this site also resulted in one of the four lowest readings of turbidity. The water chemistry analysis summary can be found in Figure 26 (Page 21).

The following Figures; 10 (Page 11) and 11 and 12 (Page 12) outline summaries of biotic metrics; the analysis of the macroinvertebrates, abundance, and the proportion of fish species sampled, and the Fish Index of Biotic Integrity (FIBI).

Figure 10 (Page 11) lists the metrics that the macroinvertebrates were measured against. The Shannon Diversity Index (H) resulted in a score of 1.45037. Shannon Diversity indicated that this site had an average rank, meaning that this site had an average richness and relative abundance of macroinvertebrate species. Pollution Tolerance Index (PTI) resulted in a "good" ranking.

The second fish survey conducted at Site 4 resulted in the lowest amount of species found, two of the 20species identified within the watershed. Site 4 resulted in only 10% of total species assemblage found in the watershed. Also, The smallest quantities of individuals were surveyed at this site, which resulted in only 12% of the total sample (92 of the 766).

The only two species that were surveyed at this site were the blacknose dace (*Rhinichthys atratulus*), Illustration 3, and the creek chub (*Semotilus atromaculatus*), Illustration 4.

These species were found in nearly equal quantities; creek chub (52.17% of the sample and 48 individuals) and the blacknose dace (47.82% of the sample and 44 individuals). Figure 11 (Page 12) reflects the fish species and their abundance at this site.

This site's habitat was relatively even with shallow riffles, with the exception of two small pools. This site was adjacent to a dirt and gravel road and within a forested area and had ample tree canopy cover.

This site's FIBI (Fish Index of Biotic Integrity) resulted in a score of 28, which ranks the site as "poor." The table showing this data, Figure 12, can be found on (Page 11).





Illustration 4 Creek Chub (Semotilus atromaculatus)



Figure 9

Big Sewickley Creek Watershed: Site Specific Water Quality Data

Ph	TDS (ppm)	DO (mg/L)	Conductivity (uS)	Temp (F)	Turbidity (Fau)	Phos (Mg/L)	Nitra (Mg/L)
8.20	500	8.01	760	67.8	0	0.25	0.1

Figure 10
Big Sewickley Creek Watershed Assessment: Macroinvertebrate Analysis

_ ·	
Richness	13
Evenness (E)	0.5655
Shannon Diversity (H)	1.45037
Hilsenhoff (B)	4.28
Hilsenhoff Rank	Very Good
% Ephemeroptera	3.65
% Plecoptera	2
% Trichoptera	5
% EPT	11
% Chironomidae	17
# Intolerant Taxa(0,1,2)	1
PTI	18
PTI Rank	Good

Figure 11

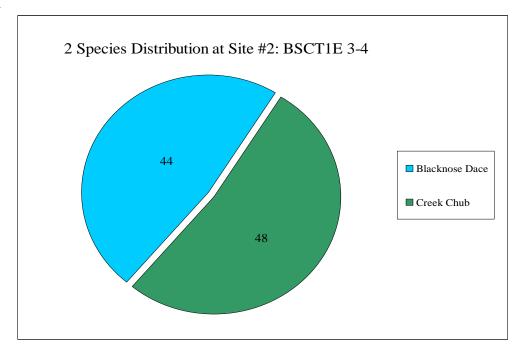


Figure 12

Fish Index of	Fish Index of Biotic Integrity (FIBI) for Big Sewickley Creek: BS CT1E 3-4				
	Species Richness & Composition				
1	Total number of species found	1			
2	Number of benthic insectivorous species	1			
3	Number of trout and sunfish species	1			
4	Number of intolerant species	1			
5	Proportion of tolerant individuals	0%			
	Trophic Composition				
6	Proportion of generalists	0%			
7	Proportion of insectivorous cyprinids	52.17%			
8	Proportion as trout or piscivores	0%			
	Fish Abundance & Condition				
9	Number of individuals in the sample	92			
10	Proportion with disease (excluding blackspot)	0			
	Pollution Tolerance Index Results	28 Poor			

Site 5: BSC 38 GPS: N 40.60052 W 80.18775





Site 5 is located upstream of Hanson and a sewage treatment facility. This site was only sampled for macroinvertebrates. The stream is approximately 35 feet in width and the substrate is composed of cobbles, boulders, and gravel.

Figure 13 (Page 14) exhibits the water chemistry analysis. This site had one of the four highest pH levels at 8.20. Conversely, this site demonstrated the highest dissolved oxygen, one of the four lowest turbidity readings, and one of the three lowest nitrate readings. The water chemistry analysis summary can be found in Figure 26 (Page 21).

Figure 14 (Page 14) lists the metrics that the macroinvertebrates were measured against. The Shannon Diversity Index (H) resulted in a score of 0.41605. Shannon Diversity indicated that this site had an average rank, meaning that this site had an average richness and relative abundance of macroinvertebrate species. Pollution Tolerance Index (PTI) resulted in a "fair" ranking. Figure 14 lists details the macroinvertebrate assessment (Page 14).

Figure 13

Big Sewickley Creek Watershed: Site Specific Water Quality Data

Ph	TDS (ppm)	DO (mg/L)	Conductivity (uS)	Temp (F)	Turbidity (Fau)	Phos (Mg/L)	Nitra (Mg/L)
8.20	410	9.04	630	71.4	0	0.38	0.0

Figure 14

Richness	12
Evenness (E)	0.7
Shannon Diversity (H)	0.41605
Hilsenhoff (B)	4.083
Hilsenhoff Rank	Very Good
% Ephemeroptera	6.00
% Plecoptera	2
% Trichoptera	56
% EPT	64
% Chironomidae	25
# Intolerant Taxa(0,1,2)	3
PTI	15
PTI Rank	Fair

**Site 6**: NFT2W1 GPS: N 40.63084 W 80.12098





Site 6 is located off the Hoeing Road, through an open grassy field which is adjacent to a home. The stream is narrow and well vegetated. This site was sampled for macroinvertebrates and the third and final fish survey was conducted. The stream is approximately six and a half feet in width and the substrate is composed of gravel and cobble.

Figure 15 (Page16) exhibits the water chemistry analysis. This site demonstrated one of the two lowest pH levels at 7.80, one of the two lowest total dissolved solids (TDS) levels at 320ppm, and did not register any phosphates or nitrates. However, this site also had the lowest dissolved oxygen and the highest water temperature at 74.5 degrees Fahrenheit. Site 6 possessed the best water quality readings overall, of the nine sampled sites in the Big Sewickley Watershed assessment. The water chemistry analysis summary can be found in Figure 26 (Page 21).

The following Figures; 16 (Page 16), 17 and 18(Page 17) outline summaries of biotic metrics; the analysis of the macroinvertebrates, abundance and the proportion of fish species sampled, and the Fish Index of Biotic Integrity (FIBI).

Figure 16 (Page16) lists the metrics that the macroinvertebrates were measured against. The Shannon Diversity Index (H) resulted in a score of 2.07291. This site scored the highest on the Shannon Diversity Index, showing this site had the highest richness and relative abundance of macroinvertebrates. Pollution Tolerance Index (PTI) resulted in a "good" ranking.

The data from the Site 6 survey resulted in the neither the highest nor the lowest count of species for the three fish survey sites. This site yielded 11 of the 20 species found in the watershed. Site 6 composed 23.89% of total sampled individuals (183 of the 766). Five of the 14 species identified included five or less individuals collected in the sample, 25% of the total species found, and 1.8% of all the individuals surveyed. Six of the 14 species identified comprised six or greater individuals collected, 22% of all of the species sampled, and 22% of all the individuals surveyed. Figure 17 on (Page 17) reflects the fish species and their abundance at this site.

It is important to note that one atypical fish species, the southern redbelly dace (*Phoxinus erythrogaster*), was identified at this site, Illustration 5. This is an atypical sampling since this species is found in low levels of abundance throughout the state. The southern redbelly dace is a temperate freshwater fish found in spring-fed headwater creeks. Southern redbelly daces are found throughout North America, but are found in isolated communities in Pennsylvania, see Chart 1. Current records show southern redbelly daces occurring in three Pennsylvania counties.

This species is listed as threatened, through the Pennsylvania Natural Heritage Index and is considered "Critically Imperiled" on a national level. A sample specimen was collected by Mr. Gary Smith as a representative species.

The species that were predominately found at this site were the creek chub (*Semotilus atromaculatus*), see Illustration 4 (Page 10), which composed 22.9% of the individuals found at the site and 42 individuals. The second species was the mottled sculpin (*Cottus bairdi*), Illustration 5. Mottled sculpins composed 51.36% of the sample and contained individuals and generated 74.3% of the total sample.

The habitat at this site was composed primarily riffle zones and a few pools. This site had a well defined riparian vegetated buffer next to an open grassy field adjacent to a home. However, this site was located downstream of a housing development. This site's FIBI (Fish Index of Biotic Integrity) resulted in a score of 35, which ranks the site as "fair." The Figure showing this data can be found on page 16.

Pennsylvania Natural Hertage Program Data: August, 2007

Current Records (1980 onward) Historic Records (pre-1980)

Illustration 5 Southern Redbelly Dace (*Phoxinus erythrogaster*) *Photo: WPC Field Survey* 



Illustration 6 Mottled Sculpin (Cottus bairdi)



Figure 15

Big Sewickley Creek Watershed: Site Specific Water Quality Data

Ph	TDS (ppm)	DO (mg/L)	Conductivity (uS)	Temp (F)	Turbidity (Fau)	Phos (Mg/L)	Nitra (Mg/L)
7.80	320	6.82	480	74.5	16	0	0.0

Figure 16

big be wienieg ereck watershed rissessment. Water our vertebrate rinary				
Richness	17			
Evenness (E)	0.7316			
Shannon Diversity (H)	2.07291			
Hilsenhoff (B)	3.73			
Hilsenhoff Rank	Very Good			
% Ephemeroptera	18.00			
% Plecoptera	23			
% Trichoptera	19			
% EPT	60			
% Chironomidae	27			
# Intolerant Taxa(0,1,2)	4			
PTI	18			
PTI Rank	Good			

Figure 17

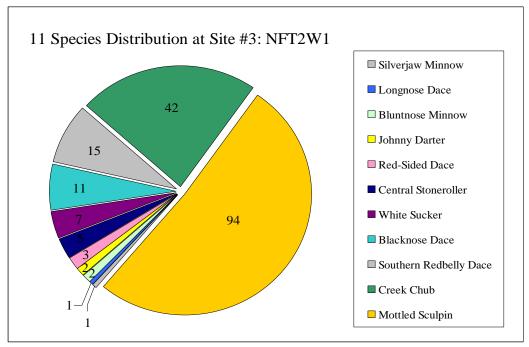


Figure 18

Fish Index of Biotic Integrity (FIBI) for Big Sewickley Creek: NFT2W 1							
	Species Richness & Composition						
1	Total number of species found	3					
2	Number of benthic insectivorous species	5					
3	Number of trout and sunfish species	1					
4	4 Number of intolerant species						
5	Proportion of tolerant individuals	3.82%					
	Trophic Composition						
6	Proportion of generalists	3.82%					
7	Proportion of insectivorous cyprinids	24.59%					
8	Proportion as trout or piscivores	0%					
	Fish Abundance & Condition						
9	Number of individuals in the sample	183					
10	Proportion with disease (excluding blackspot)	0					
	Pollution Tolerance Index Results	35 Fair					

**Site 7:** BSCT3E3 GPS: N 40.62559 W 80.10851

Site 7 is located north off Markman Park Road and was accessed through trails within a State Game Land. This site was only sampled for macroinvertebrates. The stream is approximately ten feet in width and the substrate is composed of silt and gravel.

Figure 19 exhibits the water chemistry analysis. This site had the lowest level of conductivity and one of the four lowest levels of turbidity. The water chemistry analysis summary can be found in Figure 26 (Page 21).



Figure 20 lists the metrics that the macroinvertebrates were measured against. The Shannon Diversity Index (H) resulted in a score of 1.92131. Shannon Diversity indicated that this site had an average rank, meaning that this site had an average richness and relative abundance of macroinvertebrate species. Pollution Tolerance Index (PTI) resulted in a "fair" ranking.

Figure 19

Big Sewickley Creek Watershed: Site Specific Water Quality Data

Ph	TDS (ppm)	DO (mg/L)	Conductivity (uS)	Temp (F)	Turbidity (Fau)	Phos (Mg/L)	Nitra (Mg/L)
8.00	400	8.10	610	66.4	0	0.04	0.9

Figure 20

Dig Sevicine, etech viaceishea lissessiment viacei on vertestate iliai,					
Richness	20				
Evenness (E)	0.6414				
Shannon Diversity (H)	1.92131				
Hilsenhoff (B)	5.00				
Hilsenhoff Rank	Good				
% Ephemeroptera	1.33				
% Plecoptera	1				
% Trichoptera	7				
% EPT	9				
% Chironomidae	18				
# Intolerant Taxa(0,1,2)	3				
PTI	17				
PTI Rank	Fair				

**Site 8:** EF 29-30 GPS: N 40.62559 W 80.10851





Site 8 is located adjacent to a State Game Land's access area and is parallel to Interstate 79. This site was only sampled for macroinvertebrates. The stream is approximately eight feet in width and the substrate is composed of cobble, gravel, and silt.

Figure 21 exhibits the water chemistry analysis. This site had one of the two lowest pH levels of 7.80. Conversely, this site also has the highest levels of; total dissolved solids, conductivity, and nitrates. The water chemistry analysis summary can be found in Figure 26 (Page 21).

Figure 22 lists the metrics that the macroinvertebrates were measured against. The Shannon Diversity Index (H) resulted in a score of 1.14577. Shannon Diversity indicated that this site had an average rank, meaning that this site had an average richness and relative abundance of macroinvertebrate species. Pollution Tolerance Index (PTI) resulted in a ranking of "fair."

Figure 21

Big Sewickley Creek Watershed: Site Specific Water Quality Data

Ph	TDS (ppm)	DO (mg/L)	Conductivity (uS)	Temp (F)	Turbidity (Fau)	Phos (Mg/L)	Nitra (Mg/L)
7.80	690	7.95	1090	71.0	7	0.12	3.3

Figure 22

Richness	14
Evenness (E)	0.4342
Shannon Diversity (H)	1.14577
Hilsenhoff (B)	5.56
Hilsenhoff Rank	Fair
% Ephemeroptera	2
% Plecoptera	0
% Trichoptera	15
% EPT	17
% Chironomidae	71
# Intolerant Taxa(0,1,2)	1
PTI	17
PTI Rank	Fair

**Site 9**: BSC 70 GPS: N 40.63406 W 80.18188





Site 9 is located prior to the bridge on Warrendale-Bayne Road, through an open weedy field. The stream consisted of mostly riffles and some pools, adjacent to a few residences. This site was only sampled for macroinvertebrates. The stream is approximately eight feet in width and the substrate is composed of gravel and silt.

Figure 23 exhibits the water chemistry analysis. This site had one of the two lowest recorded levels for total dissolved solids (TDS) and one of the four lowest turbidity levels. The water chemistry analysis summary can be found in Figure 26 (Page 21).

Figure 24 lists the metrics that the macroinvertebrates were measured against. The Shannon Diversity Index (H) resulted in a score of 1.57764. Shannon Diversity indicated that this site had an average rank, meaning that this site had an average richness and relative abundance of macroinvertebrate species. Pollution Tolerance Index (PTI) resulted in a "fair" ranking.

Figure 23

Big Sewickley Creek Watershed: Site Specific Water Quality Data

Ph	TDS (ppm)	DO (mg/L)	Conductivity (uS)	Temp (F)	Turbidity (Fau)	Phos (Mg/L)	Nitra (Mg/L)
7.90	320	8.26	490	67.4	0	0.03	1.7

Figure 24

Richness	10
Evenness (E)	0.6852
Shannon Diversity (H)	1.57764
Hilsenhoff (B)	5.41
Hilsenhoff Rank	Good
% Ephemeroptera	0.66
% Plecoptera	0
% Trichoptera	26
% EPT	27
% Chironomidae	45
# Intolerant Taxa(0,1,2)	1
PTI	11
PTI Rank	Fair

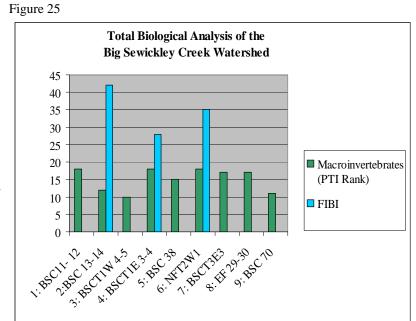
## **Big Sewickley Creek Biological Assessment**

#### **Conclusion**

The review of all biological assessment metrics showed the following ranking of the sites; 6, 4, 1, 7, 8, 2, 5, 9, and 3. The adjacent chart outlines the preceding ranking.

Macroinvertebrate sampling conducted at all nine sites within the Big Sewickley watershed resulted in an average Pollution Tolerance Index (PTI) rank of 15.11, which ranks the sites sampled within the watershed as a "fair."

The electrofishing survey of three, of the nine sites, within the Big Sewickley watershed resulted in the identification of 20 separate species of fish, with 766 individuals being sampled. Overall, the



Fish Index of Biotic Integrity (FIBI) score is a 39, which ranks the watershed as a "good." Figure 30 lists all FIBI data pertaining to the three sample sites (Page 24).

The water chemistry analysis showed a somewhat similar ranking as the biological assessment ranking as; Site 6, 5, 9, 7, 3, 4, 1, 2, and 8.

Figure 26

Big S	Big Sewickley Creek Watershed Assessment: Water Chemistry Analysis								
Site #	Site ID	Ph	TDS (ppm)	DO (mg/L)	Conduct (uS)	Temp (F)	Turbidity (Fau)	Phos (Mg/L)	Nitra (Mg/L)
1	BSC11- 12	8.2	420	6.92	650	70.9	7	1.07	0.8
2	BSC 13-14	8.1	410	8.02	630	70.0	8	1.37	2.2
3	BSCT1W 4-5	8.2	460	8.4	720	65.6	31	0.15	0
4	BSCT1E 3-4	8.2	500	8.01	760	67.8	0	0.25	0.1
5	BSC 38	8.2	410	9.04	630	71.4	0	0.38	0
6	NFT2W1	7.8	320	6.82	480	74.5	16	0.00	0
7	BSCT3E3	8.0	400	8.1	610	66.4	0	0.04	0.9
8	EF 29-30	7.8	690	7.95	1090	71.0	7	0.12	3.3
9	BSC 70	7.9	320	8.26	490	67.4	0	0.03	1.7

All three metrics of assessment resulted in the highest ranking within the watershed for Site 6 NFT2W1. This may be due to the heavily vegetated riparian buffer and a reduced residential impact. The other sites may have ranked lower to due to; reduced riparian buffers, roadway runoff, stormwater management issues, or residential impacts.

Figure 27

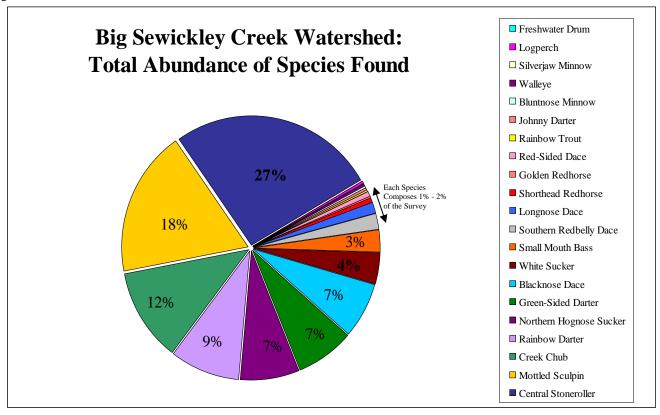


Figure 28

Big Sewickley Watershed: Majority (87%) of Fish Species Surveyed

Fish Species	Percentage Composition
Central Stoneroller (Catostomus anomalum)	27%
Mottled Sculpin (Cottus bairdi)	18%
Creek Chub (Semotilus atromaculatus)	12%
Rainbow Darter (Etheostoma caeruleum)	9%
Blacknose Dace (Rhinichthys atratulus)	7%
Green-Sided Darter (Etheostoma blennioides)	7%
Northern Hognose Sucker (Hypentelium nigicans)	7%

Figure 29

Total Fish Species Surveyed at 3 Sites in Big Sewickley Creek Watershed

Species Surveyed	Scientific Name	Total Found
Blacknose Dace	Rhinichthys atratulus	55
Bluntnose Minnow	Pimephales notatus	2
Central Stoneroller	Campostoma anomalum	203
Creek Chub	Semotilus atromaculatus	90
Freshwater Drum	Aplodinotus grunniens	1
Golden Redhorse	Moxostoma erythrurum	4
Green-Sided Darter	Etheostoma blennioides	56
Johnny Darter	Etheostoma nigrum	2
Logperch	Percina caprodes	1
Longnose Dace	Rhinichthys cataractae	9
Mottled Sculpin	Cottus bairdi	140
Northern Hognose Sucker	Hypentelium nigricans	57
Rainbow Darter	Etheostoma caeruleum	68
Rainbow Trout	Oncorhynchus mykiss	3
Red-Sided Dace	Clintostomus elongatus	3
Shorthead Redhorse	Moxostoma macrolepidotum	4
Silverjaw Minnow	Ericymba buccata	1
Small Mouth Bass	Micropterus dolomieui	22
Southern Redbelly Dace	Phoxinus erythrogaster	15
Walleye	Sander vitreus	1
White Sucker	Catostomus commersoni	29
Total Individuals Ide	766	

Figure 30 **FIBI Data: Individual Sites & Big Sewickley Creek Total Data** 

1 1D1 Data: Marviadar Sites & Dig Sewickie,	cy ereek rottin Buttu				
	Site 1 BSC13-14	Site2 BSCT 1E 3-4	Site 3 NFT 2W1	BS WS Total	
Species Richness & Composition					
Total number of species found	5	1	3	5	
Number of benthic insectivorous species	5	1	5	5	
Number of trout and sunfish species	1	1	1	1	
Number of intolerant species	5	1	5	5	
Proportion of tolerant individuals	5	5	5	5	
<b>Trophic Composition</b>					
Proportion of generalists	5	5	5	5	
Proportion of insectivorous cyprinids	3	5	3	0	
Proportion as trout or piscivores	3	1	1	3	
Fish Abundance & Condition					
Number of individuals in the sample	5	3	3	5	
Proportion with disease (excluding blackspot)	5	5	5	5	
IBI Score	42	28	35	39	
	Good	Poor	Fair	Good	

# Condition Categories for FIBI Classifications

Excellent	45-50	Comparable to the best situations with minimal human disturbance; all regionally
		expected species for the habitat and the stream size; most intolerant forms are present
		and there is a balanced trophic structure
Good	37-44	Species richness below expectation, especially due to the loss of some tolerant species;
		some species present with less than optimal abundances or size distributions; trophic
		structure show some signs of stress (increasing frequency of generalists and tolerant species
Fair	29-36	Signs of additional deterioration include fewer species, loss of most tolerant species,
		highly skewed trophic structure (high frequency of generalists and tolerant species);
		older age classes of trout and/or top carnivores may be rare
Poor	10-28	Low species richness, dominated by generalists and tolerant species, few (if any) trout or
		top carnivores, individuals may show signs of disease or parasites and the site may
		have an overall low abundance of fish.

Figure 31

Big Sewickley Creek Watershed Assessment: Macroinvertebrate Analysis								
Site ID	Richness	Evenness (E)	Shannon Diversity (H)	% EPT	PTI	PTI Rank		
BSC11- 12	12	0.6221	1.5459	46	26	Excellent		
BSC 13-14	10	0.6141	1.4141	66	12	Fair		
BSCT1W 4-5	9	0.1626	0.3572	4	10	Poor		
BSCT1E 3-4	12	0.5766	1.4328	11	18	Good		
BSC 38	12	0.7000	1.7396	64	15	Fair		
NFT2W1	15	0.7536	2.0408	61	18	Good		
BSCT3E3	17	0.6164	1.7463	12	17	Fair		
EF 29-30	13	0.4395	1.1271	17	17	Fair		
BSC 70	10	0.6852	1.5776	27	11	Poor		

Figure 32

Big Sewickley Creek Watershed Assessment: Site Locations and Descriptions

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### **References**

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- New Jersey Department of Environmental Protection. 2008. Fish IBI Repot 2006 Sampling Round 2, Year 2 of 5, Volume 1 of 2. New Jersey. January 2008.
- Vile, John. 1989. Biological Criteria for the Protection of Aquatic Life:

  Volume III: Standardized Biological Field Sampling and Laboratory Methods for
  Assessing Fish and Macroinvertebrate Communities. State of Ohio Environmental
  Protection Agency. Ohio. September 20, 1989.

# BIG SEWICKLEY CREEK WATERSHED ASSESSMENT, RESTORATION AND PROTECTION PLAN

#### Attachment D Bacteria Sampling

				Fiel		Lab Test Results 2		
Sample ID	Sample Date	Sample Time	рН	Conductivity (µS/cm)	Temperature (°C)	Dissolved Oxygen	Salinity	Bacteria
BSC01F	6/12/2008	10:30	7.73	550	22.11	7.17	0.26	580
BSC02F	6/12/2008	10:55	7.70	531	22.56	6.80	0.26	3,600
BSC03F	6/12/2008	11:09	7.70	525	19.39	7.70	0.26	63
BSC04F	6/12/2008	11:25	7.64	470	23.47	6.98	0.23	4,200
BSC05F	6/12/2008	11:35	7.51	462	21.14	7.07	0.22	320
BSC06F	6/12/2008	11:45	7.40	587	20.73	8.50	0.28	350
BSC07F	6/12/2008	12:00	7.65	517	21.10	9.20	0.25	622
BSC08F	6/12/2008	12:10	7.55	635	19.50	6.70	0.31	56,000
NF01F	6/12/2008	13:55	7.67	477	23.10	7.98	0.23	108
CH01F	6/12/2008	13:45	7.57	507	20.20	8.02	0.25	36
BSC09F	6/12/2008	13:30	7.51	622	20.10	8.72	0.30	72
EF01F	6/12/2008	13:25	7.55	475	21.10	9.41	0.23	440

August 2010

				Fiel	Lab Test Results 2			
Sample ID	Sample Date	Sample Time	рН	Conductivity (µS/cm)	Temperature (°C)	Dissolved Oxygen	Salinity	Bacteria
NF01AF	6/18/2008	12:00	7.37	553	23.24	4.71	NR	1,216
NF02F	6/18/2008	12:05	7.57	167	21.48	4.80	NR	240
NF03F	6/18/2008	12:10	7.30	372	20.74	4.87	NR	540
NF04F	6/18/2008	12:20	7.27	394	20.46	4.32	NR	63
NF05F	6/18/2008	12:25	7.47	613	16.53	5.44	NR	34,000
BSCT2F	6/18/2008	12:45	7.58	571	15.98	5.67	NR	240
BSC88F	6/18/2008	13:15	7.60	336	15.32	5.74	NR	490
BSC82F	6/18/2008	13:25	7.21	318	17.95	4.96	NR	400
EF01AF	6/18/2008	13:35	7.46	382	17.93	5.19	NR	380
EF28F	6/18/2008	13:45	7.26	608	17.42	5.34	NR	1,153
EF07F	6/18/2008	13:55	7.35	537	15.68	5.43	NR	540
RR01F	6/18/2008	14:00	7.37	557	16.73	5.01	NR	320
RR11F	6/18/2008	14:05	7.39	640	16.49	5.04	NR	2,200
BSC02F	1/6/2009	10:23	8.30	692	0.30		298.00	189
BSC04F	1/6/2009	10:35	8.16	699	0.40		297.00	198
BSC08F	1/6/2009	10:45	8.40	825	0.90		357.00	72
SHAF1F	1/6/2009	10:54	8.26	804	1.60		352.00	560
RR11F	1/6/2009	11:45	8.17	953	0.60		417.00	76,000
NF05F	1/6/2009	12:00	8.52	903	0.60		386.00	99

<sup>\*</sup> Total

<sup>1</sup> measured in mg/L

<sup>2</sup> measured in CFU/100 mL

Fecal Coliform Bacteria samples analyzed by Environmental Service Laboratories, Inc. of Indiana, PA

ND = Non Detect; TNTC = Too Numerous To Count

# **Big Sewickley Creek Watershed Visual Assessment**

<b>Evaluator</b>	s' Name	s	Date:							
Sub-Wate	ub-Watershed Stream Section Name									
Stream Na	ame			Refer	ence Section	on				
Weather (	Conditio	ns To	oday		Past	2-5 Days				
		el Width: feet								
			L	AND USE WITHIN	DRAINAGI	E (%):				
Grazing Pa	asture			Grassy Field			Row Cro	ps		
Forest				Residential			Industria	ıl		
Commerci	al			Abandoned Mine	Lands		Other			
				SUBSTRA	NTE (%):	<u> </u>				
Boulder			Cobble	Gravel		Silt		Mud		
	DESCR	IBE .	THE LAND U	SE OF THE AREA	THAT THE	STREAM	FLOWS T	HROUG	<del>1</del> :	
				ODO DOINTO	/ DUOTOO					
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Floodplai	n wetlan	ds:	Yes / No I	lf so, approximate	size: Leng	th / W	/idth	_ feet		
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Notes:		20,1	.5 (							
110162.										

Stream Section Name:	
Date:	

Parameter	Score	Exp	lanation of Score Given
Channel condition	Ocorc		OIVCII
Riparian zone			
Bank stability			
Water appearance			
Nutrient enrichment			
Fish barriers			
In-stream fish cover			
Embeddedness			
Invertebrate habitat			
Canopy Cover			
AMD (if applicable) Sewage			
(if applicable)  Manure presence (if applicable)			
TOTAL SCORE (Add all scores and divide by number of scores given)		< 6.0 6.1 – 7.4 7.5 – 8.9 > 9.0	

Big	Sewickley	Creek	Visual	<b>Assessment</b>
-----	-----------	-------	--------	-------------------

Stream Section	Name:	
	Date:	

# **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channel Condition							
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess <i>aggradation</i> ; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.					
10 9 8	7 6 5 4	3 2	1					

**aggradation**: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

	Riparian Zone								
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or	Natural vegetation less than a third of the active channel width on each side.  Or					
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.					
10 9	8 7 6	5 4	3 2	1					

**Keys:** Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability							
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).				
10 9 8	7 6 5 4	3 2	1				

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name:	
Date:	

		Water	Appearanc	e	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	1.5 to 3 ft; slightly gre	ble at depth	most of the visible to visible to oil ft; slow so appear procks or objects of heavy grageen fill Moderat	rable cloudiness time; objects of depth 0.5 to 1.5 sections may be a-green; bottom submerged covered with reen or oliverm.  Or e odor of a or rotten eggs.	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.  Or  Strong odor of chemicals, oil, sewage, other pollutants.
10 9 8	7 6	5 4	3	2	1

**Keys:** Remember to look at the water, not the substrate. **Dip a clear glass jar in water and observe the clarity.** 

Nutrient Enrichment							
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.				
10 9 8	7 6 5 4	3 2	1				

**Keys:** Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

Fish Barriers									
No barriers.		with			Drop struculverts, diversion drop) wit reach.	dams or s (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	)	8	7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

	Instream Fish Cover								
>7 cover type available	es	6 to 7 availa	cover table	ypes	4 to 5 co	• •	2 to 3 cov available	er types	None to 1 cover type available
10	9	8	7	6	5	4	3	2	1

**Cover types**: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

## **Big Sewickley Creek Visual Assessment**

Stream Section	Name:	
	Date:	

	Embeddedness								
Gravel or cobble particles are <200 embedded.	6 par	vel or co ticles are 6 embed	20 to	particles are 30 to particles are >40% embedded.					
10 9	8	7	6	5	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

Insect/invertebrate Habitat								
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.					
10 9 8	7 6 5 4	3 2	1					

**Cover types:** Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_\_

Canopy Cover  Key: This pertains to waterways where channel is 50 feet wide or less.  Coldwater fishery						
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach.  Or  >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.			
10 9 8	7 6 5 4	3 2	1			

Abandoned Mine Drainage (if applicable)						
(Intentionally blank)	Evidence of iron staining. Or Noticeable iron precipitate	Iron precipitate muddy orange appearance.	visible,	Heavy iron precipitate, noticeable kill zone.  Or  White/bluish-white precipitate visible, rotten egg smell.		
	5 4	3	2	1		

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sewickley	/ Creek V	/isual	<b>Assessment</b>
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Stream Section Name:	
Date:	

Sewage (if applicable)							
(Intentionally blank)	Visible pipe with effluent, heavy odor.						
			And  Questionable pipe and black stream substrate.				
	5	4	3 2	1			

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)							
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or				
			Untreated human waste discharge pipes present.				
	5 4	3 2	1				

### **NOTES**

**Big Sewickley Creek Watershed Visual Assessment** SA | CB Date: 06 | 29 | 07 Evaluators' Names Sub-Watershed UNT to BSC Stream Section Name BSCT1E1Stream Name \_\_\_\_ Reference Section Weather Conditions Today partly suny, ~75°F Past 2-5 Days scattered T-storms Active Channel Width: \_\_\_\_ feet LAND USE WITHIN DRAINAGE (%): Grazing Pasture Grassy Field Row Crops Residential Industrial Forest Commercial Abandoned Mine Lands Other SUBSTRATE (%): Gravel Silt Boulder Cobble Mud DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH: **GPS POINTS / PHOTOS:** Description Waypoint | Photo Cond. into of BSC Rd. and Turtay Foot Rd. 770 BSCT1E1 7.58 stream piped under entrace / parking lot for Somitaley Capt. T1 = 2 T1E3 hice shot wistrem in T1E4 sedmi from Beadwell Drive 5. W. outlet plac sticking out too far. 7.54 T1E5 770 8-9 T1E6 road X-Ing under Sevin Rd. @ int. w/ Turkey fast Rd. 7.59 of trib. from Bell Acres Nature Trail 660 T1E7 7.64 small trib. flowly in from the south. 810 " 1, the north 700 T1 E8 7.61 \* erosion from storm outlet Invasive plants present: Yes / No ☐ Japanese Knotweed ☐ Garlic mustard ☐ Purple loosestrife ☐ Other Trash / Litter: Yes / No \_\_\_\_\_ Floodplain wetlands: Yes / No If so, approximate size: Length / Width feet Flooded areas: Yes / No (Wetland or other) Notes:

Stream Section Name: Date:

	0	Explanation of Score
Parameter	Score	Given
Channel condition	8	Some culverts
Riparian zone	9	By Road but few houses
Bank stability	10	Lots of regetation
Water appearance	10	Clear
Nutrient enrichment	10	Little to no algare
Fish barriers	5	Culverts above channel Impedes fish passage Overhead vege but not
In-stream fish cover	6	overhead vege but not many pools or large rocks
Embeddedness	10	
Invertebrate habitat	\$	
Canopy Cover	10	
AMD (if applicable)	N/A	·
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	86/10	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

**Stream Section Name:** 

BSCTIE1-8

Date:

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	el Condition	
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 (8)	7 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or	Natural vegetation less than a third of the active channel width on each side.  Or	
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.	
10 (9)	8 7 6	5 4	3 2	1	

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	<u> </u>
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
<i>(</i> 10 <i>)</i> 9 8	7 6 5 4	3 2	1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: BSC17E1 - 8
Date: 4129/07

		Wate	r Appearai	nce	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally objects visib 1.5 to 3 ft; m slightly gree sheen on wa	ole at depth nay have n color; no	most of visible ft; slow appear rocks objects heavy green	Or	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
			1	ate odor of nia or rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 / 9 8	7 6	5 4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

					Nu	trient	<u>Enrichmen</u>	nt	
reac	ar water alon ch; diverse ad munity little wth present	quatic plant <b>algal</b>	gree enti alga	ly clear enish w re reacl al grow strates.	ater ald n; mode th on s	ng <b>erate</b>	entire read	water along ch; abundant wth, especially rmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10/	9	8	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

				<b></b> .		<b>Fish</b>	Barriers	****		
No barriers.		witho			div dro	lverts /ersio	ructures, , dams or ns (<1ft thin the	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	7	6		5)	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover						
>7 cover types available	6 to 7 cover types available.	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available		
10 9	8 (6)	5 4	3 2	1		

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble riffles, undercut (banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: 65CTET

Embeddedness						
Gravel or cobble particles are <20% embedded.	Gravel or cobble particles are 20 to 30% embedded.	Gravel or cobble particles are 30 to 40% embedded.	Gravel or cobble particles are >40% embedded.	Completely embedded.		
(10) 9	8 7 6	5 4	3 2	1		

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

			Insec	t/invertel	orate Habi	itat	
At least 5 types available. Habi stage to allow colonization (w and logs not fre fallen).	tat is at a full insect oody debris	3 to 4 typ Some pot exists, su trees, whi habitat, b entered th	ential ha ch as ove ch will pr ut have n	bitat erhanging ovide ot yet	The subst disturbed, removed I velocities	es of habitat. trate is often , covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10 9	(8)	7 6	5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble boulders, coarse gravel, other:

Key: Th	s pertains to waterwa	anopy Cover ys where channel is 5 oldwater fishery	0 feet wide or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in rea Or >75% in reach, but upstream 2 to 3 miles shaded.		reach shaded.
10) 9 8	7 6 5	4 3	2 1

	Abando	oned Mine D	rainage (if ap	plicable)	
(Intentionally blank)		f iron staining. Or iron precipitate	Iron precipit muddy orar appearance	ige	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

# Big Sewickley Creek Visual Assessment Stream Section Name: Date:

	Sewage (if	applicable)	
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.	Visible pipe with effluent, heavy odor.
•		And	
		Questionable pipe and black stream substrate.	
	5 4	3 2	1

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)						
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or			
			Untreated human waste discharge pipes present.			
	5 4	3 2	1			

### **NOTES**

## Big Sewickley Creek Watershed Visual Assessment

Evaluators' Names_	KS ISA				_ Date:5	5-1-08	
Sub-Watershed <u>Tri</u>	6 to BSC	·	Stream Sec	tion Name			
Stream Name $\underline{\mathcal{B}_{ia}}$	Saniella.	Avent.	_ Ottourn ood Reference S	ection	-		
Weather Conditions T						Pai	
		a ran	1 2002 8	Past 2-5 Days	S (4) (4)	-ει <u>(</u>	<u> </u>
Active Channel Width	: <u>6-7</u> feet						
	<u>l</u>	AND USE W	ITHIN DRAIN	IAGE (%):			
Grazing Pasture		Grassy Fiel	d	5	Row Crops		
Forest	95	Residential	L 4 1 2		Industrial		
Commercial		1	Mine Lands		Other		
Daviday /A	Calabla	SUE 40 Gra	STRATE (%)		1 / 2		
Boulder / 0				Silt	FLOWS THRO	Mud	10
			AKEA INAI I	I TE SI KEAW	FLOWS THRU	JUGH:	
Through 9	ame land	<i>)</i>					
					77-V		
	v	GPS PC	INTS / PHOT	OS:			
	scription					рН	Cond.
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	nd of dal	1, - 14 K	fork				
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2 1	View Looking	upstram	before 1st	Spill	37: (37((6))		
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mucaliza ulante usaass	te Van / Na'	d'Innance	a Knotwood =	I Garlia musta	rd (T. Durala la	aaaatrifa F	<b>3</b> (0than
nvasive plants presen		Javanes	e vuoimeea F	J Gairic Musta	ru 🗀 Purpie 100		
Гrash / Litter: Yes / Ño							ant car
Floodplain wetlands: 🗅	Yes / No If	so, approxii	mate size: Le	ength / V	Vidthfee	et	
Flooded areas: Yes / N							
Notes: -to , L	1 00 000	ade as	It. onl.	. In . 11	ica Van	rod D	n afare
Notes: TRIB Through	in garaxa	rus just	The Sta	er Their	13 00 2611	wa r	24 4 34 10 A
har &	area at	the road	( mil.		V		

Stream Section Name:	
Date:	-

Parameter	Score	Expla	anation of Score Given
Channel condition	9		
Riparian zone	10		
Bank stability	q		
Water appearance	10		
Nutrient enrichment	10		·
Fish barriers	9		
In-stream fish cover	9		
Embeddedness	9		
Invertebrate habitat	В		
Canopy Cover	10		
AMD (if applicable)	NA		
Sewage (if applicable)	of transport		
Manure presence (if applicable)	NA		
TOTAL SCORE (Add all scores and divide by number of scores given)	9.3	6.1 – 7.4 = 7.5 – 8.9 =	= POOR : FAIR : GOOD = EXCELLENT

Big Sev	wickley	Creek	Visual	<b>Assessment</b>
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Stream Section Na	ame:		
Da	ate:	•	

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	I Condition	
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 (9) 8	7 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		-	Ripar	ian Zoı	ne		
Natural Vegetation extends at least two active channel widths on each side.	Natural vege extends one channel widt each side. Or	active	Natural vego extends half active chans width on each side.	of the nel	extends a the active		Natural vegetation less than a third of the active channel width on each side.  Or
	If less than one width, covers entire flood plain.				Filtering function moderately compromised.		Lack of regeneration. Or Filtering function severely compromised.
<i>(</i> 10 <i>)</i> 9	8 7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Banl	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 (9/ 8	7 6 5 4	3 2	1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream	Section	Name:	
		Date:	

		Wa	iter Ap	pearance		
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasional objects vis 1.5 to 3 ft; slightly great sheen on v	ible at de may hav en color;	epth e ; no oil	rocks or subrobjects cover heavy green green film.	objects oth 0.5 to 1.5 ons may green; bottom merged red with or olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
				ammonia or r		Strong odor of chemicals, oil, sewage, other pollutants.
10 9 8	7 6	5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

		Nut	trient l	Enrichmen	t	
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear greenish we entire reach algal grow substrates.	ater alo n; mode th on s	ng erate	entire reac	vater along h; abundant vth, especially mer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
(10) 9 8	7 6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

				Fish	Barriers			
No barriers.	with			Drop struculverts, diversion drop) with reach.	dams or is (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 (9)	8	7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover										
>7 cover type available	>7 cover types 6 to 7 cover types available available		4 to 5 cover types available		2 to 3 covavailable		None to 1 cover type available			
10 /	(9)	8	7	6	5	4	3	2	1	

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Big Sewickley	Creek Visu	ıal Assessment
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Stream Section Name:		
Date:		

				Embed	ddedness			
Gravel or cobble particles are <20% embedded.	partic	el or co les are embed	20 to	Gravel o particles 40% eml	are 30 to	Gravel of particles embedde	are >40%	Completely embedded.
10 / 9 )	8	7	6	5	4	3	2	1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insec	t∕invertel	orate Habi	itat	
availabl stage to coloniza	5 types or e. Habitat allow full ation (woo s not fresh	is at a insect dy debris	Some exists trees, habita	e poter s, such , which at, but	of hab ntial hal as ove will pr have n stream	oitat erhanging ovide ot yet	The subst disturbed, removed to velocities	es of habitat. trate is often , covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9	(8)	7	6	5	4	3	2	1

**Cover types:** Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

-		Key: Th	is per	tains to	water	ways <b>w</b> h	y Cover ere channel i er fishery	s 50 feet wid	de or less.
shaded	generally	ream 2 to	>75	% in re tream 2	ded in r Or ach, bu to 3 m		20 to 50%	shaded.	<20% of water surface in reach shaded.
10//	9	8	7	6	5	4	3	2	1

	Aband	oned Mine D	rainage (if ap <sub>l</sub>	olicable)	
(Intentionally blank)		f iron staining. Or iron precipitate	Iron precipit muddy oran appearance	ge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten
	5	4	3	2	egg smell.

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sewickley	Creek	Visual	<b>Assessment</b>
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Stream	<b>Section</b>	Name:	
		Date:	

Sewage (if applicable)						
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.	Visible pipe with effluent, heavy odor.			
		And				
	•	Questionable pipe and black stream substrate.				
	5 4	3 2	1			

Mark discharge(s) on map and/or with GPS unit.

	Manure Presen	ce (if applicable)	
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or
•			Untreated human waste discharge pipes present.

## **NOTES**

### Big Sewickley Creek Watershed Visual Assessment

	₁¹ Nam	es (S) SA				_ Date: ˌ	<u> </u>	<u>13-08</u>	
ีนม-Wat	orchod	r	Stream Se	ction	n Name	<u>.                                    </u>			
Stream N	vame Ri	ght this to	Reference S	Secti	on				
Veather	Conditio	ons Today		Pas	t 2-5 Davs				
		Vidth: <u>/-3</u> feet		1 40	· - · Duy			· ·	
CLIVE C	ilallilet v	viatii. / / / leet							
			LAND USE WITHIN DRAIL	NAG	E (%):				
Fra <b>zing</b> F	Pasture		Grassy Field			Row C			
orest		90	Residential Abandoned Mine Lands		10	Indust	rial		
ommerc	iai		SUBSTRATE (%)	١.		Other			
3oulder	30	Cobble	25 Gravel 30	· ·	Silt	/0		/lud	5
Jourgei			USE OF THE AREA THAT	THE					<u> </u>
	- DESCI	MDL IIIL LAND	OUL OF THE AREA THAT	11111	OINEAIN	LOW		00,11.	
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	_								
			GPS POINTS / PHOT	OS:					
aypoint	4	Description						рН	Cond.
<u> 14                                   </u>	1,2		mp med Rd. Ext INT			·		7.85	370
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sh / Litt odplain oded ar	er: Yes wetland eas: Ye	/ No s No (Wetland	☑ Japanese Knotweed ☐  If so, approximate size: Le  or other)		·			sestrife 🗀	Other
(	Glar	Stream,	no algai						

Stream Section Nam	e;
Date	•

Parameter	Score	Explanation of Score Given
Channel condition	9	
Riparian zone	10	
Bank stability	10	
Water appearance	9.	
Nutrient enrichment	9	
Fish barriers	8	
In-stream fish cover	9	·
Embeddedness	q	
Invertebrate habitat	9	
Canopy Cover	/0	
AMD (if applicable)	NA	•
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	9.2	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Big Sewickle	y Creek Visual	Assessment
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Stream Section Name:	
Date:	

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition							
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.				
10 (9) 8	7 6 5 4	3 2	1				

aggradation. The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Z	one	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.	Natural vegetation extends half of the active channel width on each		Natural vegetation less than a third of the active channel width on each side.
	Or	side.	Or	Or
	If less than one width, covers entire flood plain.	·	Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
(10) 9	8 7 6	5 4	3 2	11

**Keys:** Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability							
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).				
10 / 9 8	7 6 5 4	3 2	1				

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name:	
Date:	

	Wat	ter Appearanc	e	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy objects visible at dep 1.5 to 3 ft; may have slightly green color; sheen on water surfa	oth most of visible to no oil ace. appear procks or objects o	rable cloudiness time; objects o depth 0.5 to 1.5 sections may bea-green; bottom submerged covered with een or olive- n. Or	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
		Moderate ammonia	e odor of a or rotten eggs.	Or Strong odor of chemicals, oil, sewage, other pollutants.
10 (9) 8	7 6 5	4 3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment								
	iverse	_	gree enti alga	ly clear enish wa re reach al grow strates.	ater alo า; mod th on s	ng erate	entire rea	water along ch; abundant wth, especially rmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	(9)	8	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

Fish Barriers								
No barriers.	Seasonal water withdrawals inhibit movement within the reach.	Drop structures, culverts, dams or diversions (<1ft drop) within the reach.	Drop structures, culverts, dams or diversions (>1ft drop) within 1 mile of reach.	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.				
10 9	(8) 7 6	5 4	3 2	1				

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover							
>7 cover types 6 to 7 cover types 4 to 5 cover types 2 to 3 cover types None to 1 cover type available available available							
10 (9), 8 7 6 5 4 3 2 1							1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Big Sewickley	y Creek Visual	Assessment
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Stream	Section	Name:	
		Date:	

Embeddedness Embeddedness							
Gravel or cobble particles are <20% embedded.	Gravel or cobble particles are 20 to 30% embedded.	Gravel or cobble particles are 30 to 40% embedded.	Gravel or cobble particles are >40% embedded.	Completely embedded.			
10 (9)	8 7 6	5 4	3 2	1			

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insec	t/invertel	orate Habit	tat		
available stage to	. Hab allow ion (v	s of habitat itat is at a full insect voody debris eshly	Som exist trees habit	e pote s, sucl s, whic tat, but	s of hab ntial ha h as ove h will pr have n strean	bitat erhanging ovide ot yet	The substr disturbed, removed b	es of habitat. rate is often covered, or by high stream and scour or by deposition.	None to 1 ty habitat.	/pe of
10 (	9	8	7	6	5	4	3	2		1

**Cover types:** Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

		Key: T	nis pei	tains to	o water	ways <b>w</b> h	y Cover nere channel i ter fishery	s 50 feet wid	de or less.
sha	% of water su ded and upst iles generally ded.	ream 2 to	>75 ups	% in re	ded in r Or ach, bu to 3 m		20 to 50%	shaded.	<20% of water surface in reach shaded.
10)	9	8	7	6	5	4	3	2	1

	Aband	oned Mine Di	rainage (if a <sub>l</sub>	pplicable)	
(Intentionally blank)	,	f iron staining. Or iron precipitate.	muddy ora	•	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Bia	Sewickley	Creek	Visual	<b>Assessment</b>

Stream Section Name:	
Date:	

Sewage (if applicable)							
(Intentionally blank)	Noticeable odor, excess plant growth and slltation.	Noticeable odor, excess plant growth.  And	Visible pipe with effluent, heavy odor.				
		Questionable pipe and black stream substrate.	·				
	5 4	3 2	1				

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)						
(Intentionally blank)	Evidence of access to rip		stream or v	I manure in waste storage ocated on the	Extensive amount of manure on banks or in stream.  Or	
					Untreated human waste discharge pipes present.	
	5	4	3	2	1	

# **NOTES**

### **Big Sewickley Creek Watershed Visual Assessment**

O I. 18/-4-	rs ivaines	165/50 Note: 1-10-10	3.CC 100	O4 ::	04:		_ Date:	5-13	00
Sub-Wate	ersned he	At trib to 6	)	Strea	m Section	Name			
		•							
		s Today			Pas	t 2-5 Days			
Active Ch	annel Wid	dth: $3.5$ feet							
			LAND USE	WITHIN	DRAINAG	E (%):			<u> </u>
Grazing P	asture		Grassy Fi	eld			Row Cro	ops	
Forest			Residentia				Industria	al	
Commerc	ial		Abandone				Other	·	
				JBSTRA	TE <u>(%):</u>				
Boulder		Cobble		ravel		Silt	l	Mud	
		BE THE LAND							
BY	CONWAY	-WALLPOSE	BO MPPE	7 SEC.1	10th LUDI	NOTO	OHORN' 1	18 RK	Stob
		C MADER 1	Anti-Myc.	<u>Lawey</u>	SECTIO	14 G083	· 1418 01	16 H (01	( (1)
	4.1 W)(	W.HH							
	T		GPS F	OINTS	PHOTOS	·			<del></del>
	Photo	Description	Sal Na	έ). Δ	1 001/11/2	11.00 (*1.11) P	I da wiki	pH	C
W1/1/8 .	1, 2 (91	CHANGE F	1711 PM .	<u> </u>	KONKING	MAZILE	<u> </u>	1 100111 7	69 4
1370	1 3 1	AND/NETS	110 666000	· <u>.1.&gt; /</u>	VICE ASSEC	<u>のひしょ</u>	100 1100	7 7.4	14
(¥, 2', 1, 1'	- 29	UNDER C	W 21		SCOLORIO	1 / 4 1 4	1 C N 3 ACA	1, 4	7 1 1 1
	† – †	13.47 (24.78" (2	, (, , , , , , , , , , , , , , , , , ,	1 -					
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Stream	ream Section	Name:				
		Date:				

Parameter	Score	Explanation of Score Given
Channel condition	6	
Riparian zone	7	
Bank stability	7	
Water appearance	8	·
Nutrient enrichment	8	
Fish barriers	6	;·
In-stream fish cover	1	·
Embeddedness	8	
Invertebrate habitat	8	
Canopy Cover	9	
AMD (if applicable)	N	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	13/10:2 7.3	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Big Sewickley	Creek	Visual	<b>Assessment</b>
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Stream S	ection	Name:	<del></del>
		Date:	

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	el Condition	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	7 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or	Natural vegetation less than a third of the active channel width on each side.  Or
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
10 9	8 (7) 6	5 4	3 2	1

**Keys:** Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	17) 6 5 4	3 2	<b>1</b>

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Big Sewickley Cr	eek Visual	Assessment
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Stream	Section	Name:	
		Date:	

		Water A	pearance	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally objects visible 1.5 to 3 ft; ma slightly green sheen on wat	e at depth ay have color; no oil	Considerable cloud most of time; object visible to depth 0.5 ft; slow sections ma appear pea-green; rocks or submerged objects covered with heavy green or olive green film.  Or  Moderate odor of ammonia or rotten of	appearance most of the time; objects visible to depth <0.5 ft; slow move water may be brightgreen; other obvious water pollutants; floating algal mats, surface scusheen or heavy coat of foam on surface.  Or
			animonia or foccif o	oil, sewage, other pollutants.
10 9 (8)	7 6	5 4	3	2 1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

						Nut	rient	Enrichmen	t	
reach comm	water along ; diverse aq nunity little a th present.	uatic p algal		gree entir alga	nish wa e reach	or sligh ater alo n; <b>mode</b> t <b>h</b> on sl	ng erate	entire read	water along ch; abundant wth, especially rmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	(8	/)	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fish	Barriers			
No barriers.		with			Drop structured culverts, diversion drop) with reach.	dams or ns (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

					Instream	Fish Cov	ver		
>7 cover t	ypes		7 cove	types	4 to 5 co available	ver types	2 to 3 co available	ver types	None to 1 cover type available
10	9	8	<b>(7)</b>	/ 6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream	Section	Name:	Will de la constant d
		Date:	

					Embed	ldedness				
Gravel or particles embedde	are <20%	partic	el or co cles are embed	20 to	Gravel or particles 40% emb	are 30 to	Gravel or particles embedde	are >40%	Completely embedded.	
10_	9	<b>(8</b> )	7	6	5	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insec	t/invertel	orate Hab	itat	
availab stage to coloniz	t 5 types of le. Habitat o allow full ation (wood s not fresh	is at a insect dy debris	Som exist trees habit	e pote s, suc s, whic tat, but	s of hat ntial ha h as ov h will p t have r e strear	ibitat erhanging rovide not yet	The subs disturbed removed velocities	es of habitat. strate is often I, covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9	8	7	6	5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

		Key: Th	is per	tains to	o water	ways <b>wh</b>	y Cover ere channel is er fishery	s 50 feet wid	de or less.
>75% o shaded 3 miles shaded.	and up genera	stream 2 to	>75	% in re ream 2	ded in r Or ach, bu to 3 m		20 to 50% s	shaded.	<20% of water surface in reach shaded.
10	(9)/	8	7	6	5_	4	3	2	1

Abandoned Mine Drainage (if applicable)							
(Intentionally blank)	Evidence of Noticeable in	iron staining. Or on precipitate.	Iron pre muddy o appeara	•	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.		
	5	4	3	2	1		

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sev	vickley	Creek	Visual	<b>Assessment</b>
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Stream	Section	Name:	
		Date:	

	Sewage	(if applicable)	
(Intentionally blank)	Noticeable odor, exces plant growth and siltati		Visible pipe with effluent, heavy odor.
		And	
		Questionable pipe and black stream substrate.	
	5 4	3 2	1

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)							
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or				
			Untreated human waste discharge pipes present.				
	5 4	3 2	1				

### **NOTES**

**Big Sewickley Creek Watershed Visual Assessment** Date: 5-/3-08 Sub-Watershed <u>Economy</u> Stream Section Name

Stream Name <u>hft hib off BSC</u> Reference Section

Weather Conditions Today 70'S Sunny Past 2-5 Days 40'S Rain Active Channel Width:  $2 - \frac{1}{2}$  feet LAND USE WITHIN DRAINAGE (%): **Grazing Pasture** Grassy Field Row Crops 50 50 Forest Residential Industrial Commercial Abandoned Mine Lands Other SUBSTRATE (%): Boulder 15 Cobble 15 Gravel 75 Silt 3 Mud DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH: HEADWATERS START AT ZEHNDER RD. (DRY), FLOWS TROVGHI DEEP FORESTED VALLEY UNTIL SHAFFER RD. INT THEN FLOWS THROUGH SMALL FORESTED SECTION BY ROAD, LAST 1/2 MILE THROUGH HOMEOWNERS FRONT YARDS **GPS POINTS / PHOTOS:** Waypoint Photo Description Ha Cond. Start look Vistram then Astream SCTOWI 1,2 8.05 470 Concrete retaining wall (Sanitary swer mancover on Frade) Hatton Lave - bank erosion, pic of Stream through h.o. W 2 W 3\_ Gront yard Turn I into woody section, some bank erosion Culvert under land section Culvert under mad Wb Headwarters, Dry, housing plan not trailer court

Invasive plants present: Yes / No	mustard ☐ Purple loos	estrife C	Other
Floodplain wetlands: Yes / If so, approximate size: Length _	/ Widthfeet		
Flooded areas: Yes (No (Wetland or other)			
Notes: Stram is very clear, little sitt/mu	d/No augus	L Pre	sent

<b>Stream Section Name:</b>	
Date:	

Parameter	Score	Explanation of Score Given
Channel condition	7	
Riparian zone	< .	
Bank stability	8.	
Water appearance	10.	
Nutrient enrichment	/0	·
Fish barriers	6	
In-stream fish cover	9	
Embeddedness	9	
Invertebrate habitat	9	
Canopy Cover	9	
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	Bolio 8.le	< 6.0 = POOR 6.1 - 7.4 = FAIR (7.5 - 8.9 = GOOD) > 9.0 = EXCELLENT

Big Sewickley Cree	ek Visual	Assessment
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Stream Section Name:	<u> </u>
Date:	

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition							
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.				
10 9 (8)	7 6 5 4	3 2	1				

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.	Natural vegetation extends half of the active channel width on each	Natural vegetation extends a third of the active channel width on each side.	Natural vegetation less than a third of the active channel width on each side.
	Or	side.	Or ·	Or
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
10 9	(8) 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability								
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope fallures apparent).					
10 9 (8)	7 6 5 4	3 2	11					

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream	Section	Name:	
		Date:	

	Wa	iter Ap	pearance		·
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloud objects visible at de 1.5 to 3 ft; may hav slightly green color; sheen on water sur	epth e no oil	Considerable cloudiness most of time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with heavy green or olivegreen film.		Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
			Moderate or	dor of	. Or
			ammonia or	rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 ) 9 8	7 6 5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

Nutrient Enrichment							
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.				
(10) 9 8	7 6 5 4	3 2	111				

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

	 				Fish	Barriers			
No barriers.	witho	onal wa Irawals ement w 1.	inhibit		Drop struculverts, diversion drop) wit reach.	dams or s (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	 8	7	( 6	)	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover								
>7 cover types available	1	7 cover lable	types	4 to 5 co		2 to 3 co available	ver types	None to 1 cover type available
10 (9)	8	7	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Big S	Sewickley	Creek	Visual	Assessment
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Stream Section Name:	
Date:	

Embeddedness							
Gravel or cobble particles are <20% embedded.	Gravel or cobble particles are 20 to 30% embedded.	Gravel or cobble particles are 30 to 40% embedded.	Gravel or cobble particles are >40% embedded.	Completely embedded.			
10 (9)	8 7 6	5 4	3 2	1			

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

Insect/invertebrate Habitat							
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.				
10 (9) 8	7 6 5 4	3 2	1				

**Cover types:** Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

Key: T	nis pertains t	o water	ways wh	y Cover ere channel er fishery	is 50 feet wid	de or less.		
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% sha >75% in re upstream 2 shaded.	Or ach, bu	t .		20 to 50% shaded. <20% of water surface reach shaded.			
10 (9) 8	7 6	5	4	_ 3	2	1		

Abandoned Mine Drainage (if applicable)								
(Intentionally blank)		iron staining. Or ron precipitate.	Iron precipi muddy orai appearance	nge	Heavy iron precipitate, noticeable kill zone.  Or  White/bluish-white precipitate visible, rotten egg smell.			
	5	4	3	2	1			

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big	Sewickley	Creek	Visual	<b>Assessment</b>

Stream Section Name:	
Date:	

Sewage (if applicable)						
(Intentionally blank)		odor, excess h and siltation.	plant growth	odor, excess i. nd	Visible pipe with effluent heavy odor.	
			Questionabl black stream			
	5	4	3	2	1	

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)							
(Intentionally blank)		Evidence of livestock access to riparian zone.		al manure in waste storage located on the n.	Extensive amount of manure on banks or in stream.  Or		
	-				Untreated human waste discharge pipes present.		
	5	4	3	2	1		

### **NOTES**

# Big Sewickley Creek Watershed Visual Assessment

Evaluat	ors' Names		kor/cb	)		Date: 06	21/07				
			g			BSCT 2W1					
Stream	Name	UNT to B	SCRe	ference Sect	lon						
Weathe	Weather Conditions Today mostly sumy, breek of Past 2-5 Days Scattered rain showers										
			Land use with	in drainage (	(%):						
Grazing	Pasture	C	Grassy Field C	enetary	20	Row Crops					
Forest Comme	roiol	70	Residential Abandoned Min	a Lande	10	Industrial Other					
Comme	Glai				<u> </u>	Ottlei					
Boulde	Substrate (%):  Boulder Cobble 40 Gravel 50 Silt 10 Mud										
—————	<del></del>		70   Glavei	50	Siit [	10 Muc	<u> </u>				
	hannel Width:				# 1 <b>#</b> 15 17 1						
				e: Length	/ Width _	(feet or me	ters)				
	areas? (Weti	-					<del></del>				
	Conduc				· · · · · · · · · · · · · · · · · · ·	·					
1			AREA THAT TH		LOWS TH	ROUGH:					
Type of f	orest, farmland	, residential, ai	nd/or commercia	i: - (- • • - i	Paren li	. auti the	EA .				
170	nest on hills	aps, stee	p, two-kd.	s lopes ,	1 04 44 > ((b)	e cutting three	VI 1				
		·					<del></del>				
	ı		<del></del>	aypoints							
	Latitude Longitude Photo # s Description										
`Ctowt	<u> Latitude</u>	Longitude	Photo # S	<del> </del>	De	escription					
Start End	Latitude	Longitude	Photo # S		De	escription					
End	Latitude	Longitude	Photo # \$		De	escription					
				all trib. In			60				
End Other	1 36	Tongitude  To ptyc )  (mail trib.	cting of sm		k. (ett= =	1.59 (cod. = 3)	60)				
End Other みらくてつい	1 36	" & pipe >	K-ling & sm		k. (ett= =	1.59 (cod. = 3)	60)				
End Other みらくてつい	1 36	" & pipe >	K-ling & sm		k. (ett= =	1.59 (cod. = 3)	60)				
End Other みらくてつい	1 36	" & pipe >	ting is sm	(ptt = 7.74/	k. (ett= =	1.59 (cod. = 3)	co)				
End Other みらくてつい	1 36	" & pipe >	ting is sm		k. (ett= =	1.59 (cod. = 3)	60)				
End Other BSCT2W T2W 2	1 36	10 pipe >	ting is sm	(ptt = 7.74/	k. (ett= =	1.59 (cod. = 3)	60)				
End Other BSCT2W T2W 2	1 36	10 pipe >	ting is sm	(ptt = 7.74/	k. (ett= =	1.59 (cod. = 3)	GD)				
End Other BSCT2W T2W 2	1 36	10 pipe >	ting is sm	(ptt = 7.74/	k. (ett= =	1.59 (cod. = 3)	60)				
End Other BSCT2W T2W 2	1 36	10 pipe >	ting is sm	(ptt = 7.74/	k. (ett= =	1.59 (cod. = 3)	60)				
End Other BSCT2W T2W 2	1 36	10 pipe >	From west	graphs	k. (ett= =	1.59 (cod. = 3)	60)				
End Other BSCT2W T2W 2	1 36	10 pipe >	ting is sm	graphs	k. (ett= =	1.59 (cod. = 3)					
End Other BSCT2W T2W2 Photo #	1 36	To pipe > mall trib.  Description	From west	graphs arges	k. (ett= =	1.59/cmd.=30					
End Other BSCT2W T2W2 Photo #	1 36	To pipe > mall trib.  Description	From west	graphs arges	k. (ett= =	1.59/cmd.=30	60)				
End Other BSCT2W T2W2 Photo#	1 36	Description	Photos	graphs arges Waypoint	c. (ptt = 5)	Photo #					
End Other BSCT2W T2W2 Photo#	1 36	Description	Photos	graphs arges Waypoint	c. (ptt = 5)	1.59/cmd.=30					
End Other BSCT2W T2W2 Photo#	olants present	Description	Photos	graphs arges Waypoint	c. (ptt = 5)	Photo #					

Stream Section Name:  $BSCT2W1 \rightarrow 2$ Date: O6/21/07

Parameter	Score	Explanation of Score Given
Channel condition	8	
Riparian zone	3	would be 10, but larer section of channel run. then a few yards.
Bank stability	<b>3</b>	
Water appearance	9	
Nutrient enrichment	9	
Fish barriers	5	culvert @ Taw1 (not necessary, old
In-stream fish cover	5	<i>J.</i> . ,
Embeddedness	6	
Invertebrate habitat	Ð	
Canopy Cover	9	
AMD (if applicable)	□ N/A	
Sewage (if applicable)	□ <sup>~/A</sup>	
Manure presence (if applicable)	□ N/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	7.3	< 6.0 = POO 6.1 - 7.4 = FA 7.5 - 8.9 = GOC > 9.0 = EXCELLEI

Stream Section Name: Date:

T2W1 72

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition								
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	0	Evidence of channel alter with significate of channel and Any dikes of set back to paccess to an flood plain.	eration, but ant recovery and banks. I levies are provide	the reach and/or cha Excess ag braided ch	annel; <50% of with riprap annelization. Igradation; annel. Dikes or trict flood plain	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.		
10 9 (	8	7 6	5 4	3	2	1		

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or If less than one width, covers entire flood plain.	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or Filtering function moderately compromised.	Natural vegetation less than a third of the active channel width on each side. Or Lack of regeneration. Or Filtering function severely compromised.
10 9.	(8) 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability								
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	ele pla ero bar is p tha	vation of in; less oding sunks in operated	y stable of active than 33 rface a utside I d by ro d to the tion.	e flood 3% of rea of cends ots	banks may typically and occurs 1 y less freque bends are	ently); outs actively er ing vegeta ank, some es falling ir nually, som	ut oding 5, or ide oding tion nto	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	7	/_6_	5	4	3		2	<u> </u>

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name:  $72 \omega 1 + 2$ Date: 06/21/07

		Wa	ater Ar	pearance	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasional objects visi 1.5 to 3 ft; i slightly gred sheen on w	bie at dan may hav en color	epth /e ; no oil	Considerable cloudiness most of time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; botton rocks or submerged objects covered with heavy green or olivegreen film.  Or  Moderate odor of	green; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface. Or
	:			ammonia or rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 ((9)) 8	7 6	5	4	3 2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

Nutrient Enrichment							
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.				
10 ((9)) 8	7 6 5 4	3 2	. 1 .				

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

Fish Barriers										
No barrie	with mov	Seasonal water withdrawals inhibit movement within the reach.			structures, rts, dams or sions (<1ft within the	Drop structures, culverts, dams or diversions (>1ft drop) within 1 mile of reach.		Drop structures, culverts, dams or diversions (>1ft drop) within the reach.		
10	9	8	7	6	( 5	) 4	3	2	1	

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover											
>7 cover types available		6 to 7 cover types available			,	4 to s ayail	ocover types	2 to 3 cover types available		None to 1 cover type available	
10	9	8	7	6		5	) 4	3	2	1	

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, liffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:

Stream Section Name:  $\frac{72W1-72}{\sigma(1/0)}$ 

	Embeddedness										
Gravel or of particles ar embedded	'e <20%	parti	el or cobb cles are 20 embedde	to	,	Gravel or particles a 40% emb	are 30 to	Gravel of particles embedde	are >40%	Completely embedded.	
10	9	8	7	6		5	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insec	t∕inverte	brate Hab	itat	
availab stage to coloniz	t 5 types of le. Habita o allow ful ation (woo s not fres	t is at a I insect ody debris	Som exist trees habi	ie pote ts, suc s, whic tat, but	s of hab intial ha h as ove h will pr t have n e stream	bitat erhanging ovide ot yet	The subsidisturbed removed velocities	es of habitat. strate is often I, covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9	8	7	6	5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble boulders, coarse gravel, other:

Key: T	his pertains to waterways	opy Cover where channel is 50 feet w water fishery	ride or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poshaded.		<20% of water surface in reach shaded.
10 (9) 8	7 6 5 4	3 2	1

	Abandoned Mine Dra	ainage (if applicable)	
(Intentionally blank)	Evidence of iron staining. Or Noticeable iron precipitate.	Iron precipitate visible, muddy orange appearance.	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotter egg smell.
	5 4	3 2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

<b>Big Sewickley Creek Visual Assess</b>
--

Stream Section Name:  $T2\omega 1 + 2$ Date: 06 | 21 | 67

Sewage (if applicable)							
(Intentionally blank)	Noticeable odor, plant growth and		Noticeable odor, of plant growth.  And	excess	Visible pipe with effluent, heavy odor.		
·			Questionable pipe black stream subs				
,	5	4	3	2	1		

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)								
(Intentionally blank)	Evidence of live access to riparia		stream or	al manure in waste storage ocated on the	Extensive amount of manure on banks or in stream.  Or			
					Untreated human waste discharge pipes present.			
	5	4	3	2	1			

# **NOTES**

Name: BSCT1W1 - 8

OB SOD ENT

American Control of the Control of t	Big Sewickiey Creek watersned visual Assessment								
Evaluate	ors' Names		CB/ITS			Date:	06/21/	07	
Sub-Wa	Evaluators' Names $CB/ICS$ Date: $O6/2I/O7$ Sub-Watershed $BSC$ Stream Section Name $BSCT1W1 \rightarrow 8$								
Stream	Stream Name <u>UNT 1 W to BSC</u> Reference Section								
	Weather Conditions Today 5uny, ~ 80°F Past 2-5 Days rain tresday might								
	Land use within drainage (%):								
Grazing	Pasture	<u> </u>	Grassy Field	<del></del>		Row Crops	·		
Forest		L	Residential		30	Industrial	1	1 94	
Commer	cial		Abandoned Min	e Lands		Other Pow	ir Line/sa	n. 15	
				rate (%):					
Boulde	r l	Cobble	Gravel		Silt		Mud	<del></del>	
Active C	hannel Width:	2 meters							
Floodpla	in wetlands:	Yes (No A	pproximate siz	e: Length	_/Width_	(feet o	r meters)		
Flooded	areas? (Wells	and or other)	, 					<del></del>	
рН	Conduct	tivity							
			AREA THAT TH	E STREAM F	LOWS THE	ROUGH:		<del></del>	
T 5 5	sunct formiond	regidential on	dlar aammaraia	}-				1. 1 1	
She	ep, wooded	stopes re	sidutial co	, top of h	ill and	at botten	n ct wa	tensted.	
Tro	iler park r	ear confluen	ce of unt	and Big Se	wickly a	Creek.	4		
								*********	
				aypoints		······································			
	Latitude	Longitude	Photo # s		De	escription			
Start End						···			
	SCT1W1		1-2	rad ward	rout a	trailer par	k into s	trear	
CTIW			4	int. ef a	Shems	left by	not PH	= 7,10	
_w3			6	int. of s	Pours	7	Cons	1:440	
13W4		· 	7	pred road a	and loose	right bran	ch pH3	7.51	
1,25	iah P (as)	11 -1 -460		e along stream		-	Lond :	310	
1000			- road X-In		Con . 420	<u> </u>			
noto#.		Description	1 1 1000	grapiis	<del></del>				
1		runoff fram	0/6-, nond c	law cuto	pared rua	d.	<del></del>		
79.11		heavy sedi		rent backs					
1.10									
1.17		an Advertis	e -> heavy	codinatation	is other	- helmi			
1013		Cawin ser		arges 🦳			lino.	·····	
	0000 10 000	Type ev	5100.	Waypoint		Photo #			
ive p	lants present?	Japanese	Knotweed ☐ G	arlic mustard (	J Purple loc	osestrife 🛚	Other	·	
/ Li	tter?	Yer-	dumping 1	between 5	trem ch	and are	road	@ w.p	
							T11	, ,	
							∨ مثل. }	~ ,	

# **Big Sewickley Creek Watershed Visual Assessment**

Evaluat	ors' Names		CB/ITS			Date:	06/21/	07	
	Sub-Watershed <u>BSC</u> Stream Section Name $BSCT1w1 \rightarrow 8$								
Stream Name WT 1 W to BSC Reference Section									
			Land use with	nin drainage (	%):				
Grazing	Pasture		Grassy Field			Row Crops	s		
Forest		65	Residential	a Landa	20	Industrial	. 11:56		
Commer	ciai		Abandoned Mir	le Lanus		Other Ya	uer Line/sa Li	n. 15	
				rate (%):	0.34		<u> </u>		
Boulde		Cobble	∫ Gravel		Silt		Mud		
Floodpla	Active Channel Width: 2 meters  Floodplain wetlands: Yes No Approximate size: Length / Width (feet or meters)  Flooded areas? (Wetland or other)								
рН	Conduct	tivity					•	Ŧ	
Type of f  ∫ }-e	DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH:  Type of forest, farmland, residential, and/or commercial:  Steep, would slopes, residential on top of hill and at bottom of watersted.  Trailer park year confluence of unit and Big Sewickley Creek.								
			GPS W	aypoints				•	
	Latitude	Longitude	Photo # s		D	escription			
Start			<del></del>			· · ·			
End Other	SCT1W1		1-2	I mark de sets al		1. 1. 2.	de inte e	tra	
BSGTIW			1- n	int of		reft b			
71w3			6	Cross pipe	6m	7	Cons	1=440	
71W4		,	7	pared road	and loose	lright bra	uch pH =	7.51	
				le alug stream	<u>M. Yill</u>		Lond 5	= 310	
TIW5			em road X-12		cond: 92	· ) ·			
TIW 6 Photo #.		<u>ਸ ੇ 7.6° / ⊘ਖ਼</u> Description	र्थक् <b>)</b> Photo	grapns					
			~ p/6 rond	duen anto	pared ro	ad :			
<u>3</u> 5			m, and under	1 1					
8-10		- , - ,	on powerliv						
Propose A sur-Ph			,	11 (1)	· .	17.			
<u>T1W7</u>			ne -> heavy						
T1W8	wark area	Type ev	rosion.	arges <i>→</i> t Waypoint	Economy E	Photo #	<del> </del>		
Size		Type		vvaypomi			<u> </u>		
lnvasive ր	plants present?	Japanese	e Knotweed 🗖 G	arlic mustard (	⊐ Purple lo	osestrife [	1 Other		
Trash / L	itter?v	Yes-	dunping	between 5	trem c	harrel ar	d road	Q W.P.	
		, -, -	' ' '				T10		

Big Sewickley Creek Visual Assessment Stream Section Name: B5CT1w1→8
Date: \_\_\_\_\_\_\_\_\_8

Parameter	Score	Explanation of Score Given
Channel condition	6	
Riparian zone	3	
Bank stability	田	
Water appearance	1	cloudy/turbed from springs picking up silt from landslide site.
Nutrient enrichment	9	
Fish barriers	5	
In-stream fish cover	4	
Embeddedness	3	clay/silt freshly deposited from siter in upper watersted.
Invertebrate habitat	甲	
Canopy Cover	1	
AMD (if applicable)	Alu 🗖	
Sewage (if applicable)	□ "/A	
Manure presence (if applicable)	□ N/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	5.3	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name: \_\(\int \subseteq \C \subseteq \)

ate:

71W 1 -> 8 06/21/07

### Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Chan	nel Condition ,	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recover of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	7 (6) 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian 2	Zone	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or If less than one width, covers entire flood plain.	Natural vegetation extends half of the active channel width on each side.		Natural vegetation less than a third of the active channel width on each side. Or Lack of regeneration. Or Filtering function severely
10 9.	$\begin{pmatrix} 8 \end{pmatrix}$ 7 6	5 4	$\frac{}{}$	compromised.

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

						Bank	Stability	у		
elevation plain; 3 eroding banks in protecte	are stable on of activ 3% or mo surface a n outside ed by root to the bas n.	e flood re of rea of bends is s that	elev plai erod ban is pl	ation on; less ding suks in or	y stable; of active than 33% rface are utside be d by root I to the b ion.	flood % of ea of ends s	banks m typically occurs 1 less freq bends ar (overhan at top of mature tr stream a	ely unstable; ay be low, bu are high (floo year out of 5 uently); outside actively eronging vegetations bank, some rees falling intually, some lures apparen	t low ding sor sor inside act out on veg bar tree and	stable; banks may be w, but typically are high; me straight reaches and ide edges of bends are dively eroding as well as tside bends (overhanging getation at top of bare nk, numerous mature es falling into stream hually, numerous slope ures apparent).
10	9	8	7	<u>6</u>	5	(4	3	2		1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name:  $TLW1 \rightarrow 8$ Date: 6/21/07

					W	<u>/ater A</u>	ppearanc	e	<u> </u>
colored depth 3 slightly sheen noticea	lear, or cle d; objects 3 to 6 ft (le colored); on surface able film or rged objec	ss if no oil e; no า	obje 1.5 t sligh	asional ects visil to 3 ft; r etly gree en on w	ble at on the place of the plac	depth ave or; no of	most of t visible to ft; slow s appear p rocks or objects c heavy gre green film	Or	Very turbld or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.  Or  Strong odor of chemicals, oil, sewage, other pollutants.
10	9	8	7	6	5	4	3	2	((1))

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment									
	; dive	rse a little	· · · · <del>-</del>	gree entir alga	ly clear enish wa e reach I grow strates.	ater ald n; mod	ong erate	entire read	water along ch; abundant wth, especially rmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10		9	8	7	. 6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

						F	ish Barriers			
No barriers	5.	with			(	culve	o structures, erts, dams or rsions (<1ft ) within the k.	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	7	6	7	(5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover									
>7 cover types		6 to	7 cover able	types	4 to 5 cov		2 to 3 co available	ver types	None to 1 cover type available
10	9	8	7	6	5	(4))	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanding vegeration, boulders/cobble, offiles undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: T1W1 > Date: 6/21/0

		Embeddedness		
Gravel or cobble particles are <20% embedded.	Gravel or cobble particles are 20 to 30% embedded.	Gravel or cobble particles are 30 to 40% embedded.	Gravel or cobble particles are >40% embedded.	Completely embedded.
10 9	8 7 6	5 4	$\left( \begin{array}{c} 3 \end{array} \right) $ 2	1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insect	Vinve	ertek	rate Habi	itat	
availab stage to coloniz	t 5 types of le. Habita o allow ful ation (woo gs not fres	t is at a I insect ody debris	Som exist trees habi	e pote s, suc s, which tat, bu	es of hab ential hab ch as ove ch will pro it have no e stream	oitat erhanç ovide ot yet		The subst disturbed, removed to velocities	es of habitat. trate is often , covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9	8 .	7	6	5	(4	)	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

Canopy Cover  Key: This pertains to waterways where channel is 50 feet wide or less.  Coldwater fishery										
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded. <20% of water surfireach shaded.								
10 (9/8	7 6 5 4	3 2	1							

	Abando	oned Mine Dr	ainage (	if applic	able)	
(Intentionally blank)		firon staining. Or iron precipitate.	,	ecipitate v v orange rance.	visible,	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3		2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name:  $71 \times 1 = 8$ Date: 6/21/67

	Sewage (if	applicable)	
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.  And	Visible pipe with effluent, heavy odor.
		Questionable pipe and black stream substrate.	
	. 5 4	3 2	1

Mark discharge(s) on map and/or with GPS unit.

	Manure Prese	nce (if applicable)	
(intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or
			Untreated human waste discharge pipes present.
	5 4	3 2	1

### **NOTES**

**Big Sewickley Creek Watershed Visual Assessment** Evaluators' Names KS/SA Date: 7-24-07 Sub-Watershed \_\_\_\_\_ Stream Section Name BSC 86-97 Reference Section \_\_\_\_\_\_\_ Past 2-5 Days \_\_\_\_\_ Same Stream Name 900 Weather Conditions Today \_\_\_ Active Channel Width: 20 feet LAND USE WITHIN DRAINAGE (%): Grassy Field **Grazing Pasture** Row Crops Residential Forest Industrial Commercial Abandoned Mine Lands Other SUBSTRATE (%): Cobble Gravel Silt Boulder Mud DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH: **GPS POINTS / PHOTOS:** Photo Description Waypoint | Нα Cond. BSL86 Theorem Tob (W3) lebis jon Debis Tams 7.22 450 Mamore Dom Driveway Crossing/culucit BSC95 Throng Trib W (not 10 d on topo) BSC99 Invasive plants present: Yes / No Dapanese Knotweed Garlic mustard Purple loosestrife Other Trash / Litter: Yes / No. 2 Floodplain wetlands: Yes / No If so, approximate size: Length \_\_\_\_ / Width \_\_\_\_ feet

Flooded areas: Yes (No) (Wetland or other)

Notes: Some backwater Channels

Stream	Section	Name:	
		Date:	

Parameter	Score	Explanation of Score Given
Channel condition	8	one homeowner had own "dam"
Riparian zone	10	
Bank stability	9	
Water appearance	9	Pools looked "bluish"
Nutrient enrichment	9	
Fish barriers	6	I dam / pretty Shallow through
In-stream fish cover	8	
Embeddedness	8	
Invertebrate habitat	9	
Canopy Cover	10	Lots trees!
AMD (if applicable)		
Sewage (if applicable)		
Manure presence (if applicable)		
TOTAL SCORE (Add all scores and divide by number of scores given)	8.4	< 6.0 = POOR 6.1 – 7.4 = FAIR 7.5 – 8.9 = GOOD > 9.0 = EXCELLENT

Big Sewickley	y Creek Visual	Assessment
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Stream Section I	Name:	65C	
	Date:	7-26-07	

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition									
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.						
10 9 (8)	7 6 5 4	3 2	1						

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

	Riparian Zone										
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.	Natural vegetation extends half of the active channel width on each		Natural vegetation less than a third of the active channel width on each side.							
	Or	side.	Or	Or							
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.							
(10/) 9	8 7 6	5 4	3 2	1							

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank Stability									
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; elevation of active plain; less than 33% eroding surface are banks in outside be is protected by root that extend to the billow elevation.	flood % of ea of ends s	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).						
10 (9) 8	7 6 5	4	3 2	1						

(eys: All outside bends in streams erode; even the most stable streams may have 50% of its banks bare and roding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable anks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream	Section	Name:	
		Date:	

		Water A	ppearance			
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally objects visibl 1.5 to 3 ft; m slightly greer sheen on wa	le at depth ay have 1 color; no ol	most of time visible to de ft; slow sect appear pearocks or sub objects cove heavy greer green film.	opth 0.5 to 1.5 ions may -green; bottom omerged ered with	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.	
			Moderate of	dor of	Or	
			ammonia or	rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.	
10 (9) 8	7 6	5 4	3	2	1	

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment									
Clear water along entire reach; diverse aquatic plant community little algal growth present.  Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.						entire rea	n water along ach; <b>abundant</b> owth, especially armer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.		
10 /	9	8	7	6	5	4	3	2	1	

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

	·		Fish E	3arriers			
No barriers.	Seasonal water withdrawals inh movement with reach.	ibit	Drop stru culverts, diversion drop) with reach.	dams or s (<1ft	Drop stru culverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	8 7	6 /	5	4	3	2	1

Keys: You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would impede fish passage.

Instream Fish Cover										
>7 cover types 6 to 7 cover types 4 to 5 cover types available available		• •	2 to 3 co available		None to 1 cover type available					
10	9		3)	7	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream	Section	Name:	
		Date:	

					Embe	ddedness				
Gravel or particles embedde	are <20%	par	avel or co ticles are % embed	e 20 to		or cobble are 30 to bedded.	Gravel of particles embedde	are >40%	Completely embedded.	
10	9 ,	8),	7	6	5	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

				Insec	t/invertel	rate Habi	tat	
At least 5 types of had available. Habitat is stage to allow full installed colonization (woody and logs not freshly fallen).	at a ect	Some exists trees, habita	e poter s, such , which at, but	of hab ntial ha as ove will pr have n stream	bitat erhanging ovide ot yet	The substi disturbed, removed b	s of habitat. rate is often covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10 /9.)	8	7	6	5	4	3	2	1

**Cover types:** Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_\_

		Key: Th	is per	tains to		ways wh	y Cover ere channel er fishery	is 50 feet wid	de or tess.
shaded	generally	ream 2 to	>75	% in realiream 2	ded in r Or ach, bu to 3 m		20 to 50%	shaded.	<20% of water surface in reach shaded.
10)	9	8	7	6	5	4	3	2	1

	Abandoned	l Mine Draina	ge (if applicab	le)	
(Intentionally blank)	Evidence of iron Or Noticeable iron p	m	on precipitate visi uddy orange opearance.	ble,	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream	Section	Name:	
		Date:	

Sewage (if applicable)										
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.	Visible pipe with effluent, heavy odor.							
		And								
		Questionable pipe and black stream substrate.								
	5 4	3 2	1							

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)									
(Intentionally blank)	Evidence of livesto access to riparian	zone. stree	asional manure in am or waste storage cture located on the I plain.	Extensive amount of manure on banks or in stream.  Or					
		ě		Untreated human waste discharge pipes present					
	5 4	4 3	2	1					

# **NOTES**

# Big Sewickley Creek Watershed Visual Assessment

Evaluato							Date: <u>07/24/07</u>					
				B S C Stream Section Name Reference Section					-			
Stream N												
Weather	Conditio	ns T	oday	Yarty	Sway "	<u>}                                    </u>	t 2-5 Days	500	Herd	show	NES-	
Active Ch	nannel V	Vidth:	: <u>^</u> feet	•			·					
				LAND L	ISE WITHIN	DRAINAG	E (%):				<u></u>	
Grazing P	asture			Grass	y Field		J.	Row Cr	ops	·		
Forest			80	Reside			15	Industri	al			
Commerc	ial			Abanc	doned Mine L		<u></u>	Other				
		. "7			SUBSTRAT			\u_		rock		
Boulder			Cobble   THE LAND U	<u> </u>	Gravel	10	Silt/M			ge <u> </u>	70	
		1		GF	PS POINTS /	PHOTOS:				r		
Waypoint @ / /			scription			15 1. 1	-15 AIA			рН	Cond.	
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)tes: 🦛 🚶	ncart	4	gae un	subst	trate;	jumped	buck	along s	tren	٠, j.	otd.	
~~~ <b>~</b>	ATV	trai	ls crossing	stre	em in C	3) place	r alog	His.	of	Spag	Rd b	

Parameter	Score	Explanation of Score Given
Channel condition	8	
Riparian zone	8	
Bank stability	8	Gabian wall @ howe w/ ATVs
Water appearance	9	
Nutrient enrichment	6	heavy algae on bedrock substate
Fish barriers	8	
In-stream fish cover	5	bedrock
Embeddedness	8	
Invertebrate habitat	7	
Canopy Cover	9	
AMD (if applicable)	r/A	
Sewage (if applicable)	N/A	
Manure presence (if applicable)	P/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	7.6	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:

Date:

BSC 83 7 85

**Scoring Descriptions** 

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition											
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.								
10 9 (8)	7 6 5 4	3 2	1								

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

			-	Ri	oarian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side.	ext cha	tural vege tends one annel wid ch side. Or	active			extends the active	regetation a third of e channel each side. Or	Natural vegetation less than a third of the active channel width on each side.  Or
·	wic	ess than o lth, cover od plain.			-	Filtering moderate comprom	ely	Lack of regeneration. Or Filtering function severely compromised.
10 9	(8)	7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 (8)	7 6 5 4	3 2	1

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: \_

7/24/07

	Wa	ater Ap	pearance	·
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloud objects visible at d 1.5 to 3 ft; may hav slightly green color sheen on water su	epth /e ; no oil	Considerable cloudiness most of time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with heavy green or olivegreen film.	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
			Moderate odor of ammonia or rotten eggs.	Or Strong odor of chemicals, oil, sewage, other pollutants.
10 (9) 8	7 6 5	4	3 2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment									
reach;	water along diverse ad unity little h present.	uatic plant algal	gree entir alga	nish v e read	r or sligh vater alou ch; mode wth on st	ng e <b>rate</b>	algal grow	vater along h; abundant vth, especially mer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.	
10	9	8	7	6	5	4	3	2	1	

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					<u>Fish</u>	Barriers			
No barriers.	v n	/ithd	ment v	ater inhibit within the	Drop str culverts, diversion drop) wi reach.	, dams or ns (<1ft	Drop struculverts, diversion drop) wit reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	8	and the same	7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

	Instream Fish Cover										
>7 cover types available	3	6 to	7 cover able	types	- 1	to to		ver types	2 to 3 co available		None to 1 cover type available
10	9	8	7	6		5	<u> </u>	. 4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: \_

B5C 83 7 85

Embeddedness								
Gravel or cobble particles are <20% embedded.	Gravel or cobble particles are 20 to 30% embedded.	Gravel or cobble particles are 30 to 40% embedded.	Gravel or cobble particles are >40% embedded.	Completely embedded.				
10 9 /	8/ 7 6	5 4	3 2	1				

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

	Insect/invertebrate Habitat								
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.						
10 9 8	7 6 5 4	3 2	1						

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

	-	Key: Th	is per	tains to	water	ways <mark>w</mark> h	y Cover ere channel er fishery	is 50 feet wi	de or less.
shaded	generally	ream 2 to	>75° upst	> 50% shaded in reach.  Or  >75% in reach, but upstream 2 to 3 miles poorly shaded.				shaded.	<20% of water surface in reach shaded.
10	(9)	8	7	6	5	4	3	2	1

	Abandoned Mine Drainage (if applicable)									
(Intentionally blank)		firon staining. Or iron precipitate.	Iron precipit muddy oran appearance	ge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.					
	5	4	3	2	1					

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big	Sewickley	Creek	Visual	<b>Assessment</b>
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Stream Section Name: BSC 83 Date: 7/24/

Sewage (if applicable)										
(Intentionally blank)	Noticeable odor, e plant growth and s		ceable odor, excess it growth. And	Visible pipe with effluent, heavy odor.						
			stionable pipe and k stream substrate.							
	5	4 3	2	1						

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)										
(Intentionally blank)	Evidence of livestock access to riparian zone.	stream or	al manure in waste storage located on the	Extensive amount of manure on banks or in stream.  Or						
·				Untreated human waste discharge pipes present.						
	5 4	3	2	1						

### **NOTES**

Big Sewickley Creek Watershed Visual Assessment

Evaluator	s' Name	s	K5, CB	·		Date: _	07/2	4/07
Sub-Wate	rshed	Bsc	Stream Se	ection	Name	BSC	83	25
Céra ana Ne	.m.	as C	Reference	Section	on			·
otteam we		Today Ma	-Hy sway, ~77°F	Past	2-5 Davs	500	itered 5h	ant of
weather	onaitio.	ilis Touay	114 0 33 7 1		·			
Active Ch	annei vv	idth: ^ <del></del> feet	·					
			ND USE WITHIN DRA	NAGI		r <u> </u>		
Grazing Pa	asture		Brassy Field		5	Row Cr		
Forest		30	Residential Abandoned Mine Lands		13	Other	aı	
Commercia	al		SUBSTRATE (%			<u> </u>	Bedrock	
Boulder	-	Cobble	Gravel 10		Silt/M			70
Boulder	DESCR		OF THE AREA THAT					
	PESCK							
		· · · · · · · · · · · · · · · · · · ·						
			GPS POINTS / PHO	TOS:			На	Cond.
Waypoint		Description			-i an	<del>.</del>	μΠ	Cond.
84	23	Bridge on	road - sedime Spany Rd e	<u>~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ </u>	Prechi			
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83	Эİ.	15" CPP 5.W	· pipe - ATV X	<u>- 145</u>	on cha	~e		
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			and the state of t					
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,	<del></del>							
		-						
	<u> </u>						·	
			NOTE:					
	<u> </u>	· .	- Andrew					
				. = ^	47	ad CI Dura	ala laggas <del>i</del> ri	fo 🗖 Other
		The state of the s	☐ Japanese Knotweed	{∐Ga	ariic mustai	ra 🗀 Pur	pie ioosesui	
Trash / Lit	ter: Yes	/(No.)	<u> </u>					*
Floodplain	wetlan	ds:(Yes) No If s	o, approximate size:	Lengt	th/ W	idth	feet	
		es / No (Wetland or o	other)					
			abstrate; ju	emped	l buck	along	strem,	just d.s.
->	ATV	trails crossing	storm in (3)	plac	er aleg	His	of s	ing Rd. brie

Big Sewickley Creek Visual Assessment

Stream Section Name: BS € 83 → 85

Date: 7/24/07

Parameter	Score	Explanation of Score Given
Channel condition	8	
Riparian zone	8	
Bank stability	8	Gabian wall @ howe w/ ATVs
Water appearance	9	
Nutrient enrichment	6	heavy algae on bedrockt substate
Fish barriers	8	
In-stream fish cover	5	bedrock
Embeddedness	8	
Invertebrate habitat	7	
Canopy Cover	9	
AMD (if applicable)	~/A	
Sewage (if applicable)	n/A	
Manure presence (if applicable)	ь/a	
TOTAL SCORE (Add all scores and divide by number of scores given)	7.6	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

					С	hanne	el Conditio	n	
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	<b>1</b> 0	•	char with of ch Any set b	signific nannel a dikes c nack to	f past eration, eant rec and bar or levies provide n adequ	overy iks. are	the reach vand/or cha Excess ag braided cha	annel; <50% of with riprap nnelization. gradation; annel. Dikes or trict flood plain	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 (	8		7	6	5	4	3	2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

				Rí	parian Zoı	ne		
Natural Vegetation extends at least two active channel widths on each side.	exte char	iral veg nds one nnel wid n side.	active			extends the activ	egetation a third of channel each side.	Natural vegetation less than a third of the active channel width on each side.
	Or If less than one width, covers entire flood plain.				- :	Filtering moderate compron	ely	Or Lack of regeneration. Or Filtering function severely compromised.
10 9	8 /	7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	7 6 5 4	3 2	1

Keys: All outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: \_

BSC 83 7 85 7/24/07

		Water A	ppearance		-
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally objects visib 1.5 to 3 ft; m slightly gree sheen on wa	ole at depth nay have n color; no o	I ft; slow section appear pea- rocks or sub- objects coven heavy green green film.	; objects oth 0.5 to 1.5 ons may green; bottom merged red with	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
			Moderate od		Or
			ammonia or	rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 (9) 8	7 6	5 4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment											
reach;	water along diverse ac unity little h present.	uatic plant algal	greer entire	nish v reac grov	r or sligl vater alc ch; mod vth on s	ong erate	entire read	water along ch; abundant wth, especially rmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.			
10	9	8	7	6	5	4	3	2	1			

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

	Fish Barriers											
No barrier	<b>s.</b>	with	_		Drop struculverts, diversion drop) with reach.	dams or is (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.			
10	9	8	7	6	5	4	3	2	1			

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover										
						to 5 Vaile	cover types ble	2 to 3 cov available		None to 1 cover type available
10	9	8	7	6		5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, tiffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: \_

B5C 83 7 85 7/24/07

	Embeddedness										
Gravel or of particles ar embedded	e <20%	parti	el or co cles are embed	20 to	Gravel o particles 40% eml	are 30 to	Gravel of particles embedde	are >40%	Completely embedded.		
10	9 (	8/	7	6	5	4	3	2	1		

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

	Insect/inverteb	orate Habitat	
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.
10 9 8	7 6 5 4	3 2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble boulders, coarse gravel, other: \_\_\_\_\_

Key:	Γhis pertains	o waterways	opy Cover where channe water fishery	l is 50 feet wid	de or less.
>75% of water surface shaded and upstream 2 3 miles generally well shaded.	o   >75% in r	aded in reach. Or each, but 2 to 3 miles po		% shaded.	<20% of water surface in reach shaded.
10 (9) 8	7 6	5 4	3	2	1 .

	Abando	oned Mine Dr	ainage (if ap	olicable)	
(Intentionally blank)		f iron staining. Or iron precipitate.	Iron precipit muddy oran appearance	ge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name: B5C 83 9 85 Date: 7/24/07

	Sewage (if applicable)								
(Intentionally blank)	Noticeable of plant growth	•	plant grow	odor, excess th. And	Visible pipe with effluent, heavy odor.				
				ble pipe and m substrate.					
	5	4	3	2	1				

Mark discharge(s) on map and/or with GPS unit.

	Manure Presence (if applicable)								
(Intentionally blank)	Evidence of livestock access to riparian zone	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or						
·			Untreated human waste discharge pipes present.						
	5 4	3 2	1						

### **NOTES**

Big Sewickley Creek Watershed Visual Assessment

Evaluator	s' Names_	····	RK.	KS, CB	-	_Date:	07/24	107
				Stream Sectio				
Stream Na	ame	85C		Reference Sec	tion			
				~ ? <del>? ? F</del> Pa				MIT
		h: ^feet			•			
			LAND USE	WITHIN DRAINAG	ЭЕ (%):			
Grazing Pa	asture		Grassy Fi		10	Row Cro	<u> </u>	
Forest		80	Residenti		10	Industria	ı <u>l</u>	
Commercia	<u>al</u>			ed Mine Lands		Other	8	
	T			JBSTRATE (%):	011/2		Bedrock	
Boulder		Cobble		ravel 10	Silt/m	<u> </u>	WHO	40
	DESCRIBE	THE LAND U	ISE OF THE	AREA THAT THE	STREAM	-LOWS T	HROUGH:	
	· · · · · · · · · · · · · · · · · · ·		<del></del>	*	<del></del>			
	<u> </u>				<del></del>		<del>u.</del>	· .
			GPS F	POINTS / PHOTOS	•			
Waypoint	Photo De	escription			-	Ev-vag.	рН	Cond.
7			My Fra	a off alde	France Vo	· d .	7.5	
Ŧa	8	Tura - co	tta pipe	(12"0) and	smal c	lrain m		
	9		· · · · ·		from 1/2	e road		
,000 pt	- 6-10			View dawns	3 4	. 6		
	;	arolninge	in mid		driver Ownfl.		7	<u> </u>
T. C	_ 13	Gh		c erosion				
	- 14	SINUO		m section i				
7-6	. 15	on the				aknon		
		<b>6</b>				k Rd.	·	
	M X	bad bank	erision	betw. road		Had	× ( 1	<del> </del>
					Z hig	4)~15	o'long.	<del></del>
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	·				·· <u>·</u> ·	· · · · · · · · · · · · · · · · · · ·		-
		***************************************			_			-
						<del></del>		<del>                                     </del>
				And the second section 1				
Trash / Litte	er: Yes (No			se Knotweed □ Ga				☐ Other
riooapiain v 	wetiands:	TESTINO IT	so, approx	imate size: Lengt	<u>*/</u> / VVI0	лит <u>очч</u> " , "	1661 1661	
Flooded are	eas:(Yes)/ N	No (Wetland o	r other) <u>F</u>	im pond above	Marken	· Yak K	.d. Upstre	
Notes: ್ವ	jection	with b	edroom	m pond above swbstnite	hae so	ur b	ak em	sim

Stream Section Name:  $\frac{65C 7(\rightarrow 76)}{7(24/07)}$ 

Parameter	Score	Explanation of Score Given
Channel condition	6	
Riparian zone	8	
Bank stability	6	
Water appearance	8	
Nutrient enrichment	8	
Fish barriers	1	On-streen pand @ Markenen Park Rd.
In-stream fish cover	7	
Embeddedness	8	
Invertebrate habitat	7	
Canopy Cover	e constitue de la constitue de	
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	N/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	6.6	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

BSC 7( -> 76

Date: \_\_\_\_\_\_7

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

					C	hanne	el Conditio	n	
structu eviden Cutting	Il channel; no Ires, dikes. N ce of down- g or excessive cutting.	0	char with of ch Any set b	nel alt signific annel dikes ack to	of past ceration cant rec and ba or levies provide an adeq	overy nks. s are	the reach and/or cha Excess <i>ag</i> braided ch	annel; <50% of with riprap annelization. gradation; annel. Dikes or trict flood plain	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10	9	8	7	6	5	4	3	2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

				Rip	arian Zoı	ne		
Natural Vegetation extends at least two active channel widths on each side.	ext cha	tural vege ends one annel widt ch side. Or	active			extends the activ	vegetation a third of re channel each side. Or	Natural vegetation less than a third of the active channel width on each side.  Or
	If less than one width, covers entire flood plain.				Filtering moderat compror	•	Lack of regeneration. Or Filtering function severely compromised.	
10 9	8	7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	7 6 5 4	3 2	1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: \_\_\_\_\_\_\_65
Date:

	Water	Appearance		
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no sheen on water surfact	visible to depth (	jects 0.5 to 1.5 may en; bottom ged with	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
		Moderate odor o	of	Or
production of the state of the		ammonia or rotte	en eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 9 (8)	7 6 5 4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

					Nut	trient E	nrichme	nt	
reach;	vater along diverse aq unity little a n present.	uatic plan algal	t gree entii alga	ly clear enish wa e reach al grow strates.	ater alo n; <mark>mod</mark> e	ng e <b>rate</b>	entire rea	n water along ach; <b>abundant</b> owth, especially armer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	(8/	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fish	Barriers				
No barriers	•	with			Drop struculverts, diversion drop) with reach.	dams or s (<1ft	Drop struculverts, diversion drop) with reach.	dams or	culver diversi	structures, is, dams or ons (>1ft within the
10	9	8	7	6	5	4	3	2		(1)

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

	Instream Fish Cover								
>7 cover available	types		7 cover	types	4 to 5 co		2 to 3 co		None to 1 cover type available
10	9	8	7	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, (iffles) undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: 650 7/376
Date: 7/24/07

				Embed	dedness				
Gravel or cobble particles are <20% embedded.	par	avel or co ticles are % embed	20 to	Gravel of particles 40% eml	are 30 to	Gravel of particles embedde	are >40%	Completely embedded.	
10 9	(8)	7	6	5	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insec	t/invertel	orate Hab	itat	
availabl stage to coloniza	t 5 types of le. Habita o allow ful ation (woo s not fres	t is at a I insect ody debris	Son exis tree hab	ne pote its, suci s, whic itat, bu	s of hab ntial ha h as ove h will pr t have n e stream	bitat erhanging ovide ot yet	The substitution disturbed removed velocities	pes of habitat. strate is often d, covered, or by high stream s and scour or by t deposition.	None to 1 type of habitat.
10	9	8 · (	7/	6	5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

		Key: Th	is per	tains to	water	ways wh	/ Cover ere channel er fishery	is 50 feet wid	de or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well			> 50% shaded in reach. Or				20 to 50%	shaded.	<20% of water surface in reach shaded.
shaded.		tream 2	ach, bu to 3 m	t iles poorly	<b>,</b>				
10	9	8	7	6	5	4	3	2	1

	Abandoned Mine Dra	ainage (if applicable)	
(Intentionally blank)	Evidence of iron staining. Or Noticeable iron precipitate.	Iron precipitate visible, muddy orange appearance.	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5 4	3 2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name: BSC 7/ 3 70
Date: 7/24/07

	Sewage (if applicable)							
(Intentionally blank)	Noticeable odo plant growth ar	•	Noticeable o plant growth Ar	•	Visible pipe with effluent, heavy odor.			
_			Questionable black stream					
	5	4	3	2	1			

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)								
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or					
·			Untreated human waste discharge pipes present					
	5 4	3 2	1					

# **NOTES**

Big Sewickley Creek Watershed Visual Assessment

Evaluators' Names	R	K KT C	. B		Date:	7./21/	1,7
Sub-Matershed	Big Swideley Creek Stream Section Name BSC 66 > 5					and the	<u></u>
	,						<u> </u>
	tream NameBSCReference Section Veather Conditions TodaySway ~ 77 F Past 2-5 DaysScaffaed shower 75						
		i mard 1 1 1 1	_r Pasi	t 2-5 Days	<u> </u>	tam nu	- tav
Active Channel Wid	ith: 🐣 👸 feet						ŧ
	<u> </u>	AND USE WITHIN	DRAINAG	E (%):			
Grazing Pasture		Grassy Field	*	10	Row Cro	ps	
Forest	70	Residential		20	Industria		
Commercial		Abandoned Mine			Other	<u> </u>	
5 11	O-14 la la	SUBSTRA		0:14/.	<i>a</i>	Bedrack	
Boulder 10		Gravel		Silt/Au		TO LIGHT	20
		SE OF THE AREA	THAT THE	SIREAMI	-LOWS II	HROUGH:	
Hrea along	Warrada -	· Buyre Rd.	-				
	<del></del>						
		GPS POINTS	/ PHOTOS:				
Waypoint Photo I	Description					рН	Cond.
66 1 11	albridge we	in, debris	ig Sew. C	r. Rd.		7.64	630
67 2-3	book cros	im, debris	jen rece	intly re	:moved_	· -	
68   4	10ig Octor	is jan		F			
69 5-6	AP/ drainage	day, deb	VIT JUM	1010 = 0			
	1. N. WINGE	dan, deb	10 bridge	Vario - P	17 of 50	· Cia	
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					<u> </u>		
		1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19	<del></del>			· · · · · · · · · · · · · · · · · · ·	<del>-</del>
							1
Invasive plants pres	ent: Yes (No	☐ Japanese Kno	tweed 🗖 Ga	arlic mustar	d 🗆 Purple	e loosestrife	☐ Other
Trash / Litter: Yes /	On the second	none			·		
Floodplain wetlands	.component	f so, approximate	size: Lengt	h /\//	idth	feet	
<u>-</u>	Mary College	•					
Flooded areas: Yes	/ NO (VVedand o	r other)					
Notes:	Notes:						

Date:

7/24/07

**Explanation of Score** Score Given **Parameter** Channel condition Riparian zone Bank stability 8 Water appearance 8 algae on rocker in substate Nutrient enrichment man-made dans on-stream Fish barriers 5 In-stream fish cover 8 Embeddedness Invertebrate habitat Canopy Cover **AMD** N/A (if applicable) Sewage N/A (if applicable) Manure presence N/A(if applicable) TOTAL SCORE < 6.0 = POOR 6.1 - 7.4= FAIR (Add all scores and divide by 7.5 - 8.9= GOOD number of scores given) = EXCELLENT > 9.0

Stream Section Name: \_

Date:

3/24/22

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	l Condition	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate fleod plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	(7) 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or	Natural vegetation less than a third of the active channel width on each side.  Or
· · · · · · · · · · · · · · · · · · ·	If less than one width, covers entire flood plain.	·	Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
10 (9)	8 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 (8)	7 6 5 4	3 2	1

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name:

BJC 66-70 7/24/07

		Water Ap	Water Appearance							
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally objects visib 1.5 to 3 ft; m slightly greer sheen on wa	le at depth ay have n color; no oil	rocks or subi objects cove heavy green green film.	cobjects oth 0.5 to 1.5 ons may green; bottom merged red with	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.					
			Moderate od	or of	Or					
			ammonia or i	rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.					
10 9 (8)	7 6	5 4	3	2	1					

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment								
reach; commu	vater along diverse aq ınity little a ı present.	uatic plant a <b>lgal</b>	gree entir alga	nish w e reac	or sligh ater alc h; mod th on s	ong erate	entire rea	water along sch; abundant wth, especially armer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	8	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fis	sh Barriers			
No barrie	ers.	with	_		culver divers	structures, rts, dams or sions (<1ft within the	Drop stru culverts, o diversions drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	7	6	5	) 4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

	Instream Fish Cover								
>7 cover typ available	es	T .	7 cove ilable	r types	4 to 5 cov available	er types	2 to 3 co available		None to 1 cover type available
10	9	8	7	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: Date:

7/24/07

	Embeddedness								
Gravel or co particles are embedded.		parti	vel or co cles are embed	20 to	Gravel or particles 40% emb	are 30 to	Gravel o particles embedde	are >40%	Completely embedded.
10	9 (	8	7	6	5	4	3	2	1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

	Insect/invertebrate Habitat							
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.					
10 (9/8	7 6 5 4	3 2	1					

Cover types: Fine woody debris, submerged logs, leaf packs, under cut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

Key: Th	Canopy Cover  Key: This pertains to waterways where channel is 50 feet wide or less.  Coldwater fishery								
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.						
10 (9) 8	7 6 5 4	3 2	1 .						

	Abando	ned Mine Dr	ainage (if ap	plicable)	
(Intentionally blank)	Evidence of i	ron staining. Or on precipitate.	Iron precipit muddy oran appearance	ge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name: BSC 66 - 70
Date: 7/34/07

Sewage (if applicable)						
(Intentionally blank)	Noticeable of plant growth	odor, excess and siltation.	Noticeable of plant growth.	_	Visible pipe with effluent, heavy odor.	
			Questionable black stream			
	5	4	3	2	1	

Mark discharge(s) on map and/or with GPS unit.

	Manure Presen	ce (if applicable)	
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or
•			Untreated human waste discharge pipes present
	5 4	3 2	1

## **NOTES**

# Big Sewickley Creek Watershed Visual Assessment

Evaluators' Names	KSISA			Date:	7-13-	07	
Sub-Watershed	1	Stream Se	ction Name	BSC 61	- BSC	65	
Stream Name 3550	tream Name <u>PSC</u> Reference Section						
Weather Conditions T	oday <u>88 'S</u>	Dry Sunny	Past 2-5 Day	s Samo	<u></u>	<del></del>	
Active Channel Width	4						
	l	LAND USE WITHIN DRAIL	NAGE (%):				
Grazing Pasture		Grassy Field	20	Row Cro			
Forest	60	Residential Abandoned Mine Lands	10	Industria	1	<del> </del>	
Commercial 2.0	/0	SUBSTRATE (%)		Other	— <del></del>	<u> </u>	
Fxdrock 20 Boulder 10	Cobble	20 Gravel 20	Silt	120	Mud	10	
<u> </u>		SE OF THE AREA THAT		<u> </u>	<u> </u>	1.7.0	
		GPS POINTS / PHOT	OS:				
Waypoint Photo Des	scription				рН	Cond.	
BSC61 1960 5		Hand		والمال المستحدد المستحدد المستحدد المستحدد			
	raca Bork	/ Incoming trib		st/north	up alva	<u>d</u>	
100 P		en bank Teluid house			753	5 640	
B5664 #10	Dan / Reall	y Clardy Water			100	) 600	
	Incoming to	ib (Box Bol) Buld	section - 17	any count	4		
					<u></u>		
						· · · · · · · · · · · · · · · · · · ·	
	_ <del></del>						
		<del></del>				<del></del>	
					<u> </u>		
					<del></del>		
Invasive plants present	t:(Yes) No		J Garlic musta	ard 🗆 Purple	loosestrife	: ☐ Other	
Trash / Litter: Yes / No	)						
Floodplain wetlands: র্ণ	es No If	so, approximate size: Le	ength <u>25</u> 7V	Vidth 25	feet		
-	manage and a second	•	•				
looded areas: Yes /(No)(Wetland or other)							

Stream Section Name: <u>BSC 61-65</u>
Date:

Parameter	Score	Explanation of Score Given
Channel condition	7	
Riparian zone	9	
Bank stability	7	
Water appearance	7	·
Nutrient enrichment	7	
Fish barriers	5	·
In-stream fish cover	8	
Embeddedness	7	
Invertebrate habitat	8	
Canopy Cover	\$	·
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	73/10	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Dig oculoriog of och visual moscosmen	Big	Sewickley	Creek	Visual	Assessmen
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Stream Section Name: BSC 61-65
Date:

### Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channel Condition												
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.										
10 9 8	(7) 6 5 4	3 2	1										

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

	Riparian Zone												
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or	Natural vegetation less than a third of the active channel width on each side.  Or									
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.									
10 (9)	8 7 6	5 4	3 2	1									

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank Stability											
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).									
10 9 8	7 6 5 4	3 2	<u> </u>									

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name:	BSC 61-65
Date:	

		Water Ap	pearance		<u> </u>
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally clo objects visible at 1.5 to 3 ft; may it slightly green co sheen on water	t depth nave lor; no oil	Considerable most of time; visible to dep ft; slow section appear pea-grocks or subnobjects cover heavy green green film.  Moderate odd ammonia or reference film.	objects th 0.5 to 1.5 ons may reen; bottom nerged ed with or olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.  Or  Strong odor of chemicals, oil, sewage, other pollutants.
10 9 8 /	7 6 5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment													
reach; commu	water along diverse ac unity little n present.	quatic plant algal	gre enti alg	rly clear enish wa re reach al grow strates.	ater alo n; mode	ng erate	entire re	sh water ale each; <b>abu</b> r <b>rowth</b> , esp varmer mo	ndant ecially	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.				
10 9 8				6	5	4	3_		2	1				

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

	Fish Barriers												
No barriers	•	with	ement v	ater inhibit vithin the		•	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.				
10	9	8	7	6	(5)	4	3	2	1				

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover												
>7 cover types available		6 to avail	7 cover able	types	1	4 to 5 cover types available		ver types	None to 1 cover type available			
10 9 (8) 7 6					5	44	3	2	1			

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name:	BSC 61-65
Date:	

	Embeddedness												
							Completely embedded.						
10	9	8	(7)	6	5	4	3	2 .	1				

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

	Insect/invertebrate Habitat												
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.										
10 9 8	7 6 5 4	1											

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

Canopy Cover Key: This pertains to waterways where channel is 50 feet wide or less. Coldwater fishery								
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.					
10 9 (8)	7 6 5 4	3 2	11					

Abandoned Mine Drainage (if applicable)						
(Intentionally blank)	Evidence of i	ron staining. Or on precipitate.	Iron precip muddy ora appearanc	-	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.	
	5	4	3	2	1	

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sewickley Creek Visual Assessment
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Stream	Section	Name:	BSC	61-65
	•	Date:		

		Sewage (if	applicable)	)	, ,
(Intentionally blank)	Noticeable od plant growth a	•	plant grow	e odor, excess th. And	Visible pipe with effluent, heavy odor.
				ble pipe and am substrate.	
	5	4	3	2	1

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)							
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or				
			Untreated human waste discharge pipes present.				
	5 4	3 2	1				

## **NOTES**

Big Sewickley Creek Watershed Visual Assessment

Evaluators' Names_	KS/SA			·	Date: _	7/1	3/07	7
Sub-Watershed	·	<u> </u>	Stream Sect	ion Name 👲	3sc 5-	}	BSC.	60
Stream Name BS			 Reference Se			<del></del>		
Weather Conditions	Today 801:	s . Da	_ 1 . Sunny f	ast 2-5 Day	s Sar	ne		
Active Channel Widt	_	<del></del>			<u> </u>			
	L	AND USE	WITHIN DRAIN	AGE (%):				
Grazing Pasture		Grassy Fig		20	Row Cı			
Forest		Residentia		10	Industri	al		
Commercial	10	<del></del>	d Mine Lands		Other	<del></del>	1	
BEDROCK 20			BSTRATE (%):		T 7.6		<del> </del>	
Boulder 30 /0			ravel 30	Silt	10		ud [	10
DESCRIBE	THE LAND US	E OF THE	AREA THAT TI	HE STREAM	FLOWS	THROU	JGH:	
	<del></del>		•	<del></del>				
		GPS P	OINTS / PHOTO	 )S:	<del></del>			
Waypoint Photo De	escription						Hq	Cond.
<b>B</b> 5453	Start point	ldobis	lian					
	Under and a	hert	<del></del>				20	500
BSCSS #1	Pobos Jan	1. 22	1 000 1000	lb.	<del></del>			<u> </u>
BSC56 #2 BSC57	Thromp Till	ion morn	Past/sou	1 Start de	h-0 /	- A		<del> </del>
BX58 184	Den vater			,	10000	13C17		<del> </del>
B5659 164 B5659 115	Theonia his		2) Westyn	orth PA	Garry			
35660	Ford point				on mus	non		·
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					<del></del>			<u></u>
Invasive plants preser Trash / Litter: Yes / No Floodplain wetlands: Flooded areas: Yes / (	Yes /(No) If s	so, approx		gth/ W	/idth		estrife [	 10
Notes:								

Big Sewickley Creek Visual Assessment Stream Section Name: <u>650 53 60</u> Date:

Parameter	Score	Explanation of Score Given
Channel condition	8	
Riparian zone	9	
Bank stability	8	
Water appearance	9	
Nutrient enrichment	5	No notable sewage/pipes but lots of brown/black algre
Fish barriers	5	
In-stream fish cover	q	
Embeddedness	7	
Invertebrate habitat	9	
Canopy Cover	8	
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	7.7	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name: \_

BSC-53-60

### Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition							
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.				
10 9 (8)	7 6 5 4	3 2	1				

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	channel width on	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or	Natural vegetation less than a third of the active channel width on each side.  Or
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
10 (9)	8 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability						
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).			
10 9 (8)	7 6 5 4	3 2	<u> </u>			

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: <u>BSC 53-60</u>
Date:

		V	/ater A	ppearanc	е	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasion objects vi 1.5 to 3 fi slightly gi sheen on	isible at o ; may ha reen colo	depth ave or; no oil	most of ti visible to ft; slow so appear por rocks or so objects co	able cloudiness time; objects depth 0.5 to 1.5 ections may ea-green; bottom submerged overed with een or oliven.	Very turbld or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
5				Moderate ammonia	odor of or rotten eggs.	Or Strong odor of chemicals, oil, sewage, other pollutants.
10 (9) 8	7 6	5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment						
Clear water along entire reach; diverse aquatic pla community little algal growth present.	int gre enti alg	enish w re reac	or slig ater ald h; mod th on s	ong <b>erate</b>	entire rea	water along ach; abundant owth, especially armer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10 9 8	7	7 6 (5) 4		3	2	1	

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

	Fish Barriers										
No barrie	ers.	with	ement v	ater inhibit vithin the	di dr	ilve vei	o structures, erts, dams or rsions (<1ft ) within the ti.	ct di dr	rop struc ilverts, d versions op) withi ach.	lams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	7	6		5	) 4		3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

	Instream Fish Cover										
>7 cover typ	es	- 1		7 cover able	types	4 to 5 co available	7.	2 to 3 co available	7.	None to available	1 cover type
10	(9)		8	7	6	5	4	3	2		1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffies, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: <u>BSC 53-60</u>
Date:

	Embeddedness									
Gravel or of particles at embedded	'e <20%	parti	el or col cles are embedd	20 to	Gravel of particles 40% emb	are 30 to	Gravel of particles embedde	are >40%	Completely embedded.	
10	9	8	(1)	6	5	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

Insect/invertebrate Habitat						
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.			
10 (9) 8	7 6 5 4	3 2	1			

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

Canopy Cover  Key: This pertains to waterways where channel is 50 feet wide or less.  Coldwater fishery								
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.					
10 9 /8)	7 6 5 4	3 2	1					

	Abandoned Mine Drainage (if applicable)						
(Intentionally blank)	Evidence of iron staining.  Or  Noticeable iron precipitate.	Iron precipitate visib muddy orange appearance.		Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.			
·	5 4	3	2	1			

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big	Sewickley	/ Creek	Visual	<b>Assessment</b>

Stream Section Name:	<u>BSC</u>	53-60
Date:		

	Sewage (if applicable)						
(Intentionally blank)	Noticeable ode plant growth a		plant grow	odor, excess th. And	Visible pipe w heavy odor.	ith effluent,	
				ble pipe and m substrate.			
	5	4	3	2	1		

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)						
(intentionally blank)	Evidence of li access to ripa		stream or	al manure in waste storage ocated on the n.	Extensive amount of manure on banks or in stream.  Or	
					Untreated human waste discharge pipes present.	
	5	4	3	2	1	

## **NOTES**

**Big Sewickley Creek Watershed Visual Assessment** Evaluators' Names SA/CB Date: 07/03/07 Sub-Watershed BSC Stream Section Name BSC 43  $\rightarrow$  5  $\rightarrow$ Reference Section \_\_\_\_\_ Weather Conditions Today Sunny ~ 80°F Past 2-5 Days MOSHY Sumy Active Channel Width: 15 feet LAND USE WITHIN DRAINAGE (%): Grazing Pasture Grassy Field **Row Crops** Residential Forest Industrial Commercial Abandoned Mine Lands Other (reads) 5 SUBSTRATE (%): Bedruk Silt/Aud 35 5 Cobble 25 Gravel 30 Boulder DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH: Few Small commercial extablishab, then mortly private here surrended by forested slopes. **GPS POINTS / PHOTOS:** Waypoint Photo Description Нq Cond. Start point @ Gaydor Lang bridge 43 trib. from wort @ int. of BSC Rd. and shaffer Rd. sedinat build-up in middle of stream Chem Dry - black plastic pipes confluence with North Fonk' 8.21 580 (above caft.) BSC main stem 650 Sodn. build up of backingto pools and debris jan @ saritary X-ing. back exercion with deep hole shot up @ Sycamore /stry. seep dur hillside from bless have. trib carrie in by hour - heavy sedimentation Debris jak flood plan wetler / end print. very little Trash / Litter: (Yes) No\_\_\_ Floodplain wetlands (Yes) No If so, approximate size: Length 1,000 / Width 400 feet Flooded areas: Yes / No (Wetland or other) Santary line installation has coured stream charges / damage. Notes:

Parameter	Score	Explanation of Score Given
Channel condition	5	
Riparian zone	7	
Bank stability	5	
Water appearance	7	
Nutrient enrichment	6-	
Fish barriers	G	
In-stream fish cover	8	
Embeddedness	7	
Invertebrate habitat	E	
Canopy Cover	8	
AMD (if applicable)	N/A	
Sewage (if applicable)	5	
Manure presence (if applicable)	~/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	6.55	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:

Date:

BSC 43 7 52 7/3/07

### Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Cl	hanne	I Condition	on	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, with significant record of channel and ban Any dikes or levies set back to provide access to an adequation of the control of the contr	overy nks. are	the reach and/or cha Excess ag braided ch	annel; <50% of with riprap annelization. agradation; annel. Dikes or trict flood plain	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	7 6 (5)	4	3	2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

			Ripa	rian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side.			Natural ve extends ha active cha width on e side.	alf of the nnel	extends the active	regetation a third of channel each side. Or	Natural vegetation less than a third of the active channel width on each side.  Or
	If less that width, co flood plai	vers entire			Filtering to moderate comprom	ely	Lack of regeneration. Or Filtering function severely compromised.
10 9.	8 (7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	· · · · · · · · · · · · · · · · · · ·
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable, banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	7 6 (5) 4	3 2	1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name:

BSC 43 9 5 2 7/3/07

	-				V	ater A	ppearanc	е	
colored depth 3 slightly sheen conticeal	ear, or cle ; objects to 6 ft (le colored); on surface ble film or ged objec	ss if no oil e; no n	obj 1.5 slig	casional ects visil to 3 ft; r htly gree een on w	ble at on the place of the plac	depth ive ir; no oil	most of ti visible to ft; slow so appear por rocks or so objects co heavy gre green film	Or	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
							Moderate ammonia	odor of or rotten eggs.	Or Strong odor of chemicals, oil, sewage, other pollutants.
10	9	8	7 )	6	5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

					Nut	rient l	Enrichme	ent	
Clear wat reach; div communit growth p	erse aq y little a	uatic plant algal	green entire	ish v read grov	r or sligh vater alo ch; mode vth on st	ng era <b>te</b>	entire re algal gr	h water along ach; abundant owth, especially armer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	8	7 (	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					 Fish	Barriers			
No barriers.		with	sonal wa drawals ement w h.	inhibit	Drop stro culverts, diversior drop) wit reach.	dams or is (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	7	(6)	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

				Instream	Fish Cov	er		
>7 cover types available	1	to 7 cover ailable	types	4 to 5 co available		2 to 3 co available	<i>,</i> .	None to 1 cover type available
10 9	(8	7	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: \_\_

Date:

BSC 43 + 52

					Embe	ddedness			
Gravel o particles embedde	are <20%	Grave particl 30% 6	les are	e 20 to	1	or cobble are 30 to bedded.	Gravel or particles embedde	are >40%	Completely embedded.
10	9	8	(7)	6	5	4	3	2	1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock, If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insec	t/invertel	o <u>rate Hab</u>	oitat	
availab stage to coloniza	le. Habita o allow fu	ll insect ody debris	Son exis tree habi	ne pote ts, sucl s, whic tat, but	s of hat ntial ha n as ov h will pi have r strean	bitat erhanging rovide not yet	The substitution disturbed removed velocities	pes of habitat. Strate is often I, covered, or by high stream and scour or by t deposition.	None to 1 type of habitat.
10	9	(8)	7	6	5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, doarse gravel, other:

	Key: T	his perl	tains to	water	Canopy ways who Coldwate	ere channel	is 50 feet wid	de or less.
>75% of water shaded and ups 3 miles general shaded.	stream 2 to	>759		Or ach, bu		20 to 50%	shaded.	<20% of water surface in reach shaded.
10 9	(8)	7	6	5	4	3	2	1

, , , , , , , , , , , , , , , , , , , ,	Abando	oned Mine Dr	ainage (if ap	oplicable)	<u> </u>
(Intentionally blank)		iron staining. Or ron precipitate.	Iron precip muddy ora appearanc	~	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name:  $85 \cdot 43 - 52$ Date: 7/3/67

		Sewage (if	applicable)	)	
(Intentionally blank)		e odor, excess vth and siltation.	plant grow	e odor, excess ⁄th. And	Visible pipe with effluent heavy odor.
				ible pipe and am substrate.	
	5	4	3	2	1

Mark discharge(s) on map and/or with GPS unit.

	Manure Presence (if applicable)											
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manu stream or waste structure located flood plain.	storage	Extensive amount of manure on banks or in stream.  Or								
				Untreated human waste discharge pipes present.								
	5 4	3	2	1								

### **NOTES**

wildlife: blue horars, bird w/ nert in bank, fish, cray fish

Evaluato		_	ewickley							, I	57
			BSC								
			Bsc					* .	•		
			oday								
			: feet	OUNKY	1	Ι	t 2-0 Days	·			
ACTIVE OF	ranner vv	ium.	1661								
			<u> </u>	LAND U	SE WITHIN	I DRAINAG	E (%):				
Grazing P	asture		<b>y=1</b> ∠2)	<del>+</del>	y Field	<u>-</u>		Row Cro			
Forest Commerci			70	Reside	ential Ioned Mine	Londo	15	Industria Other	<u> </u>		15
<u> volumerci</u>	aı	J		Abanu	SUBSTRA		<u> </u>	Other		<u>_</u>	<u></u>
Boulder	IP.	5	Cobble	25	Gravel	(70).	Silt/mi	120		dnet	50
<u>Douido:</u>			THE LAND U	<del>* *</del>		THAT THE	<del></del>	<u> </u>	<u> </u>	L	50
***************************************	BLOOK		·	<u> </u>		111741 1116	OTTEAN	1 20110 1	111101	, , , , , , , , , , , , , , , , , , ,	
			<u> </u>		-						
k lot	of al	161	on rocks	*							
				GF	S POINTS	/ PHOTOS:					
/aypoint	Photo		scription							рН	Cond.
34		٧	just upstream of bridge @ Wine Concrete office Hanson - Sewickly Creek plant 7								
<u> 35 - </u>	3	-11	shot upst	CIMAN C	ala H		erty.	······································		7.54	670
36		5 5	sewage tr	rest res	t plant	aren/b	uck dis	chare vo	int		
	6-7	BI	we haron u	ıalkin	a worth	am		· 1			
37		_ <i>Se</i> .	wase plant Herm Roo	artes	f structu	re > con-	t see en	d of pipe	2		
38	9-11		term Roo.	Kery	- Crap,	dead fi	sh stri	~ 5~~11		- Ca	2000 C
39	13	·+-	private har	stabi	Jani,	arcen bre	ATIC PIL	er comin	5 047	7.07	92000
40	4.37		4" 0 gra	en plas	tic pipe	- Sewage	. ?			4.7	
	14	V	iew danh	5 tream	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	,					
41	15		white disc	hoge	out of	Streambo	15/15		<del></del>	7.54	1110
,	16-17	1	K. Hulman	N/ ore	ge Fish						· ·
	-										<u> </u>
								***************************************	-		
rash / Lit Ioodplain	ter: Yes wetland	) No Is: Y	t: Yes / No  Ver  /es / No If o (Wetland o	y lit	le proximate		h / V			estrife C	<b>J</b> Other
					•		*				

Kerin Com Holman Caught orange fish

Stream Section Name: BSC 34

Parameter	Score	Explanation of Score Given
Channel condition	8	
Riparian zone	8	
Bank stability	8	
Water appearance	7	·
Nutrient enrichment	5	
Fish barriers	6	
In-stream fish cover	8	
Embeddedness	6	
Invertebrate habitat	8	
Canopy Cover	8	·
AMD (if applicable)	P/A	
Sewage (if applicable)	4	·
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	6,91	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:  $\beta s \in 34 \rightarrow 42$ Date: 7/3/07

### Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channel Condition												
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.										
10 9 (8)	7 6 5 4	3 2	1										

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

				Ri	parian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side.	exten chan each	nel wid side. Or s than o	active th on			extends the activ width or	•	Natural vegetation less than a third of the active channel width on each side. Or Lack of regeneration. Or Filtering function severely
			·			]		compromised.
10 9	8	7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 (8)	7 6 5 4	3 2	1

Keys: All outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: \_

BSC34 → 42 7/3/07

	Water Ap	pearance	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no oil sheen on water surface.	Considerable cloudiness most of time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with heavy green or olivegreen film.	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
		Moderate odor of	Or
		ammonia or rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 9 8 (	7/654	3 2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment												
reach; c	vater along diverse ad inity little n present.	uatic plant algal	gree entir alga	ly clear enish wa e reach Il growt strates.	ater alo ; mode th on s	ng erate	entire re	h water along ach; abundant owth, especially armer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.				
10	9	8	7	6	(5)	4	3	2	1				

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

	 			Fish	Barriers			
No barriers.	witho	ement v	ater inhibit within the	Drop structured culverts, diversion drop) will reach.	dams or ns (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	8	7	(6)	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

	Instream Fish Cover												
>7 cover types available			7 cover lable	types		4 to 5 cover types available		ver types	None to 1 cover type available				
10	9	(8)	7	6	5	4	3	2	1				
		-			-				Δ\				

Cover types: Logs/large woody debris, deep rools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name:

	Embeddedness												
Gravel or or particles a embedded	re <20%	partic	el or cob les are 2 embedd	20 to	Gravel or particles 40% emb	are 30 to	Gravel or particles embedde	are >40%	Completely embedded.				
10	9	8	7	6	5	4	3	2	1				

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

	Insect/invertebrate Habitat												
availab stage to coloniza	5 types of le. Habitat o allow full ation (wood s not fresh	is at a insect dy debri	Some exists trees habit	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet				pes of habitat, strate is often d, covered, or d by high stream s and scour or by at deposition.	None to 1 type of habitat.				
10	9	(8)	7	6	_ 5_	_ 4	3	2	1				
Cover ty	over types: Fine woody debris, submerged logs, leaf packs, undercut banks, cooble, boulders, coarse												

gravel, other:

Canopy Cover  Key: This pertains to waterways where channel is 50 feet wide or less.  Coldwater fishery									
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.			>759 upst	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.				20 to 50% shaded. <20% of water streach shaded.	
10 9		8 /	7	6	5	4	3	<b>2</b>	11

Abandoned Mine Drainage (if applicable)									
(Intentionally blank)		iron staining. Or on precipitate.	Iron precipit muddy oran appearance	ige	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.				
	5	4	3	2	1				

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sewickley Creek Visual Assessmen	Big	Sewickley	Creek	Visual	Assessment
--------------------------------------	-----	-----------	-------	--------	------------

Stream Section Name: \_ Date:

black stream substrate.

34 942

Sewage (if applicable)								
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.	Visible pipe with effluent, heavy odor.					
•		And						
		Questionable pipe and						

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)									
(Intentionally blank)	Evidence of livest access to riparian		stream or v	Il manure in waste storage ocated on the	Extensive amount of manure on banks or in stream.  Or				
					Untreated human waste discharge pipes present				
	5	4	3	2	1				

## **NOTES**

**Big Sewickley Creek Watershed Visual Assessment** 

Evaluators	' Names		5A/CB		_ Date:	06/29/	07			
Sub-Waters	shed	BSC Stream Section Name BSC 27 - 33								
Stream Nai	ream Name BSC Reference Section									
Weather Co	ondition	s Today	overcent -75°F Pas	t 2-5 Days	500H	end T-s	turns-			
Weather Conditions Today <u>overcost</u> , ~75°F Past 2-5 Days <u>scattered T-storms</u> Active Channel Width: 32+5 feet										
LAND USE WITHIN DRAINAGE (%):										
Grazing Pasture Grassy Field Row Crops Forest 60 Residential Industrial 30										
Forest	<del></del>	30								
Commercia	<u> </u>		Abandoned Mine Lands		Other (		10			
Parilla.	<del></del>	0.551.	SUBSTRATE (%):	074	10	Bedruk	11 (1			
Boulder	DECODI		30   Gravel   15	Silt	[0]	MATE .	454			
			JSE OF THE AREA THAT THE	STREAM	FLOWS TH	ROUGH:				
	alug I	org sewickly	Crick Rd.							
		<u> </u>								
GPS POINTS / PHOTOS:										
Waypoint	Photo	Description				Hq	Cond.			
27			in for bridge							
28		act. channel width regression 17.23 63								
a¶	<u> </u>		w from road @ old m	mhole_		7.33	680			
30	3-4		pstream. Fin / concrete wall con	Clare Line	6 6					
31	5	tributary	from Turkey fast Rd.	@ Ed v	Nagher Au	to Salvage				
3 2	G	12" 0 0	oncrete pipe w/ trilde f	law pink	( algae)					
33	7	bridge over	- BSC by Zassicks Auto	)						
<del>                                     </del>				ide of b.	<u>ridyi sili</u>	ted - in . )				
							_			
		<u>, , , , , , , , , , , , , , , , , , , </u>		<u> </u>						
	<del></del>									
Invasive plants present: Yes / No										
Trash / Litt	en Yes	)No ant	o parts, plantic floo	ed debris						
Floodplain	wetland	s: Yes /(No')	If so, approximate size: Leng	gth/ V	Vidth	_ feet				
Flooded ar	eas: Ye	s / No (Wetland	or other)		·					
Notes:	<b>12</b>	•	v.							



Stream	Section	Name:	·
		Date:	

Parameter	Score	Explanation of Score Given
Channel condition	7	
Riparian zone	5	
Bank stability	8	
Water appearance	7	
Nutrient enrichment	5	
Fish barriers	8	
In-stream fish cover	6	
Embeddedness	6	
Invertebrate habitat	8	
Canopy Cover	9	
AMD (if applicable)	WIA GO	
Sewage (if applicable)	5	
Manure presence (if applicable)	NIA	
TOTAL SCORE (Add all scores and divide by number of scores given)	<u>(e.73</u>	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

<b>Stream Section</b>	Name:		• .	
	Date:	6	29	07

### Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition									
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive			Evidence of past channel alteration, but with significant recovery of channel and banks.				nannel; <50% of with riprap annelization. ggradation;	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization.	
lateral cutting.		set	Any dikes or levies are set back to provide		1	hannel. Dikes or strict flood plain	Dikes or levees prevent access to the flood plain.		
10 9	8	7	6	5	4	3	2	1	

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

	Riparian Zone										
Natural Vegetation extends at least two active channel widths on each side	channel width on	e extends half of the	Natural vegetation extends a third of the active channel width on each side.	Natural vegetation less than a third of the active channel width on each side.  Or							
	If less than one width, covers enti	re	Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.							
10 9	8 7 6	5 4	3 2	1							

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	C Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	7 6 5 4	3 2	1

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

	Embeddedness															
Gravel or particles embedde	are <20%	parti	el or cobb cles are 2 embedde	0 to	-	рa	arti	إرا	es ar	obble e 30 to dded.	-	Gravel of particles embedd	are >		Completely embedded.	
10	9	8	7	6			14	<i>y</i>	<i>///</i>	4		3		2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

Insect/invertebrate Habitat							
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.				
10 9 (8)	7 6 5 4	3 2	1				

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, coloble, boulders, coarse gravel, other:

<b>Key:</b> Th	Canopy ils pertains to waterways wher Coldwater	e channel is 50 feet wid	le or less.	
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	f water surface > 50% shaded in reach. 20 to 50% shaded. <20% of water surface reach shaded.			
10 (9) 8	7 6 5 4	3 2	1	

	Abandoned	l Mine Drai	nage (if ap	plicable)	
(Intentionally blank)	Evidence of iron Or Noticeable iron p		Iron precipit muddy oran appearance	ge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sewickley	/ Creek	Visual	<b>Assessment</b>
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Stream Section Name:			
Date:	61	129/07	

		Sewage (if	applicable)		
(Intentionally blank)	<b>)</b>	e odor, excess th and siltation.	plant growt	odor, excess h. And	Visible pipe with effluent heavy odor.
				ole pipe and m substrate.	
	5 /	4	3	2	1

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)						
(intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or			
·	E 4	2 2	Untreated human waste discharge pipes present.			

## **NOTES**

## **Big Sewickley Creek Watershed Visual Assessment**

Evaluate	ors' Names		CB/K	ς	·	Date: <i>0</i> (	6/11/07	
Sub-Wa	tershed	B5C	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					
Stream	Name	M < C	Re	ference Secti	on			
Weathe	r Conditions T	oday <u></u> ຽບ	uny, ~ 80	°FPas	t 2-5 Days _	rain Fr	iday p. M.	
	-		Land use with					
Grazing	Pasture		Grassy Field		` `	Row Crops		
Forest			Residential			Industrial		
Commer	cial		Abandoned Min	e Lands	<u> </u>	Other		
			Subst	rate (%):	<u> </u>		***************************************	
Boulde	r	Cobble			Silt	N	lud	
Active C	hannel Width:	meters						
Floodpla	ain wetlands:	Yes / No A	Approximate siz	e: Length	/ Width	(feet or r	meters)	
-	areas? (Wet					·	•	
	3 <u>4</u> Conduc						,	
DESCRI	BE THE LAND	USE OF THE	AREA THAT TH	IE STREAM F	LOWS THR	OUGH:	<u> </u>	
Type of f	orest, farmland	, residential, a	nd/or commercia	l:				
		,						
			GPS W	aypoints				
	Latitude	Longitude		l aypoints	Do	scription		
Start 13.			1,20989	start p		Scription	×	
End	7	00 000		1 0,101	-into			
Other	B5C18			S.W. dire	chage from	end of stu	ret	
	85C19			1 .	11 (15-1	( SPP)	· · · · · · · · · · · · · · · · · · ·	
	BSC 20		#9	dischage	from 3	Ø pipe	p4 = 7.37	
	BSC 2/		10-11	pH = 8.34	cond = 6		Card = 690	
	B8C 22			1 s.w. pipe	- 15"05	<u>c P</u>	flow = 5 gpm	
	B5C 23			S.W. Pipe	- 11 1	1		
	B8C 24		Photo	graphs 🐪	11 - 11	11		
Photo #		Description						
12		new, priv	ate bridge	under con:	<u>rtibela</u>	w Benkey	12	
		·						
Cim-		T	Disch	arges		Dhata #		
Size		Туре		Waypoint	·	Photo #		
6-8	netal	<u>sewaye</u>	plat from	BSC 25				
W 2 7	(cond) = 370	stream	frailer court	B5C 26	······································	14		
			e Knotweed 🗆 🤆		Purple lo		Other	
iiivasive	hiairra hieselli	ii wapanes	O INTOUVEGU LI	Zanio mustatu	L I WIPIE IO		Calor	
Track / 1	1440 u2	ery little						
Trash / L	.itter <i>tV</i>	ery little		<u> </u>				

Stream Section Name: \_\_ Date: \_\_

05C 17 -> 26 06/11/07

Parameter	Score	Explanation of Score Given
Channel condition	- June	too wide/straightend in sections
Riparian zone	3	, v
Bank stability	丑	
Water appearance	7	
Nutrient enrichment	desembles.	
Fish barriers	8	
In-stream fish cover	7	
Embeddedness	5	
Invertebrate habitat	7	
Canopy Cover	9	
AMD (if applicable)	□ N/A	
Sewage (if applicable)	4	
Manure presence (if applicable)	□ N/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	6.27	< 6.0 = POOR 6.1 – 7.4 = FAIR 7.5 – 8.9 = GOOD > 9.0 = EXCELLENT

**Stream Section Name:** 

BSC 17 - 26

Date:

66/11/07

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Char	nel Condition	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recove of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	7 6 5 (4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or  If less than one	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or Filtering function	Natural vegetation less than a third of the active channel width on each side. Or Lack of regeneration. Or Filtering function severely compromised.	
	width, covers entire flood plain.		moderately compromised.		
10 9	8 ( (7) / 6	5 4	3 2	1	

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability									
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).						
10 9 8 (	7 6 5 4	4 3 2 1							

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

### Big Sewickley Creek Visual Assessment Stream Section Name:

	Water	Appearance	9	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no sheen on water surface	most of ti visible to oil ft; slow se appear pe rocks or s objects co	able cloudiness me; objects depth 0.5 to 1.5 ections may ea-green; bottom submerged overed with een or olive- 1. Or	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
		Moderate	odor of	Or
		ammonia	or rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 9 8 (	7 / 6 5 4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

					Nut	rient E	Enrichme	ent		
reach; commu	water along diverse ac unity little n present.	uatic plant algal	gree entin	ly clear enish wa re reach al growl strates.	ater aloi ; <b>mode</b>	ng erate	entire re	h water along each; abundant rowth, especially varmer months.	water a severe	een, gray or brown long entire reach; algal blooms thick algal mats in
10	9	8	7	6	5	(4)	3	2		1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

				Fish	Barriers				
No barriers.	with	_		Drop struculverts, diversion drop) wit reach.	dams or s (<1ft	Drop structures, culverts, dams or diversions (>1ft drop) within 1 mile of reach.  Drop structures, culverts, dams or diversions (>1ft drop) within the reach.			
10 9	/ 8	7	6	5	4	3	2	1	

Keys: You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would impede fish passage.

Instream Fish Cover										
					r types	4 to 5 co available	7.	2 to 3 co	• •	None to 1 cover type available
10	9	8	(	7	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, (iffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_

**Stream Section Name:** 

06/11/07

	Embeddedness											
1	Gravel or cobble particles are <20% particles are 20 to embedded.  Gravel or cobble particles are 20 to embedded.  Gravel or cobble particles are 30 to particles are >40% embedded.  Gravel or cobble particles are >40% embedded.											
10	9	8	7	6		5	)	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock, If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insec	t/invertel	rate Hab	itat		
availab stage to coloniz	t 5 types of le. Habita o allow ful ation (woo is not fres	t is at a I insect ody debris	Som exist trees habit	ie pote ts, suc s, whic tat, bu	s of hatential hatential has over the will put have restricted	ibitat erhanging rovide not yet	The substitution disturbed removed velocities	pes of habitat. Strate is often I, covered, or by high stream and scour or by t deposition.	None to 1 type of habitat.	
10 .	9	8 (	7	6	5	4	3	2	1	

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

Key: Th	is pertains to		Canopy ways whe Coldwate	re channel i	s 50 feet wid	de or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shad >75% in red upstream 2 shaded.	Or ach, but	t	20 to 50% s	shaded.	<20% of water surface in reach shaded.
10 9 8	7 6	5	4	3	2	1

	Abandoned Mine Dra	ainage (if applicable)	
(Intentionally blank)	Evidence of iron staining. Or Noticeable iron precipitate.	Iron precipitate visible, muddy orange appearance.	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5 4	3 2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Sewage (if applicable)								
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.  And	Visible pipe with effluent, heavy odor.					
		Questionable pipe and black stream substrate.						
	5 (4)	3 2	1					

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)								
(Intentionally blank)	Evidence of livestor access to riparian z	zone.	Occasional m stream or wa structure loca lood plain.	ste storage	Extensive amount of manure on banks or in stream.  Or			
					Untreated human waste discharge pipes present.			
	5 4		3	2	1			

# **NOTES**

# **Big Sewickley Creek Watershed Visual Assessment**

Evaluat	ors' Names	CB/	KS			Date: $06/1$	1/07
Sub-Wa	tershed	B5C '	St	ream Section	Name	B5C10->	BSC16
Stream	Name	ВЯС	Ret	ference Secti	on		
						Mostly sunn	
			Land use with	in drainage (	%):		
Grazing	Pasture		Grassy Field			Row Crops	
Forest		25	Residential		45	Industrial	25
Commer	cial	5	Abandoned Min		Other		
			Subst	rate (%):			
Boulde	r	Cobble	3 25 Gravel	25	Silt	25 Mu	d
Floodpla Flooded	hannel Width: ain wetlands: areas? (Wetl Conduc	Yes (No) A and or other)	Approximate siz	e: Length	/ Width _	Bed (feet or me	nuk 25 eters)
1	orest, farmland	, residential, a	AREA THAT TH nd/or commercia t industria	t:	LOWS TH	ROUGH:	
			GPS W	aypoints			·
	Latitude	Longitude	Photo # s		D	escription	
Start 🖔	clo			Bridge	@ ballp	colt.	
	1016			bend	in stream	w/backwa	,ter
Other	,				0 /	~ (	10 133.4
BECU			ga datas			across from l	
BSCIL		· .	3			oslan / ~ 100	
, , , , , , , , , , , , , , , , , , ,				small trib		der road / pit=	
B5C13			4 2	4" O Concrete	pipe s.u	1. I cod	: 620
			Photo	graphs		· · · · · · · · · · · · · · · · · · ·	
Photo #		Description	le len (a) dan	.A 1	1	2 2 1 1 1	
# 2 BSC14			banks (2 bsc	dead sus	Wer /	~ 20 suction	nother
BSCIS			nete vipe (1	au flow / ol	1=7.35/	cond = 730)	
5-	- Ÿ	stream	leids	1	1	20.01	
			Disch	arges			
Size		Туре		Waypoint		Photo #	
				_			
Invasive	plants present	? 🗓 Japanes	e Knotweed □ G	Garlic mustard	☐ Purple to	posestrife  Ot	her
Trash / L	itter?	Little			·		

Stream Section Name: BSC 10 -9 16
Date: 06/11/07

Parameter	Score	Explanation of Score Given
Channel condition	7	
Riparian zone	6	
Bank stability	7	
Water appearance	7	
Nutrient enrichment	5	
Fish barriers	7	
In-stream fish cover	7	
Embeddedness	5	
Invertebrate habitat	C	
Canopy Cover	8	
AMD (if applicable)		no dischager visible
Sewage (if applicable)	5	algae on substrate
Manure presence (if applicable)		
TOTAL SCORE (Add all scores and divide by number of scores given)	6.36	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

**Stream Section Name:** 

#### Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

				C	hanne	el Conditio	on	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	0	cha with of cl Any set l	lence of nnel alter signification of the significat	eration, ant rec and bar r levies provide	overy nks. s are	the reach and/or cha Excess as braided ch	nannel; <50% of with riprap annelization. ggradation; nannel. Dikes or strict flood plain	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9	8	(7)	6	5	4	3	2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

			Ripa	rian Zor	ne			
Natural Vegetation extends at least two active channel widths on each side	channel width	ctive	Natural veg extends ha active chan width on ea side.	If of the nel	Natural vegetation extends a third of the active channel width on each side.  Or		Natural vegetation less than a third of the active channel width on each side.  Or	
	If less than one width, covers of flood plain.				Filtering f moderate comprom	ely	Lack of regeneration. Or Filtering function severely compromised.	
10 9	8 7 (	6	5	4	3	2	. 1	

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank Stability									
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).							
10 9 8	<b>(7 / 6 5 4</b>	3 2	<u> </u>							

Keys: All outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: BSC10 -

	Water Ap	pearance	•
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no oil sheen on water surface.	Considerable cloudiness most of time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with heavy green or olivegreen film.	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
		Moderate odor of	Or
		ammonia or rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 9 8 (	7 6 5 4	3 2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

Nutrient Enrichment									
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.						
10 9 8	7 6 (5) 4	3 2	1						

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fish	Barriers			
No barrie	ers.	with	ement	ater inhibit within the	Drop struculverts, diversion drop) with reach.	dams or s (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	(7/	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

	Instream Fish Cover								
>7 cover types available	1	7 covei lable√∖	types	4 to 5 co	over types	2 to 3 co	over types	None to 1 cover type available	
10 9 8 7 6 5				4	3	2	1		

Cover types: Logs/large woody debris, deep pools, overhanding vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_\_

Stream Section Name:

BSC 10 7 16

	Embeddedness										
Gravel or particles a embedde	are <20%	Gravel of particles 30% em	are 2	20 to	partic	el or co cles are embed	30 to	Gravel or particles embedde	are >40%	Completely embedded.	
10	9	8	7	6	( 5	/	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insec	t/invertel	rate Habi	tat	
availab stage t coloniz	t 5 types of le. Habita o allow ful ation (woo gs not fres	t is at a l insect ody debris	Som exis trees habi	ne pote ts, suct s, whic tat, but	s of hab ntial ha n as ove h will pr have n strean	bitat erhanging ovide ot yet	The subst disturbed, removed to velocities	es of habitat. rate is often covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9	8	7	6	5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

-		Key: Th	nis per	tains to	water	ways <b>w</b> h	y Cover ere channe er fishery	l is 50 feet wid	de or less.
>75% of shaded a 3 miles g shaded.	and upst	ream 2 to	>75		Or ach, bu		20 to 50%	% shaded.	<20% of water surface in reach shaded.
10	9	(8)	7	6	5	4	3	2	1

	Abando	ned Mine D	rainage (if ap	plicable)	
(Intentionally blank)	Evidence of i	Or	Iron precipit muddy oran appearance	ge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name: <u>BSC10 ラ</u>

Date:

	Sewage (if applicable)								
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.  And	Visible pipe with effluent, heavy odor.						
		Questionable pipe and black stream substrate.							
	5 4	3 2	1						

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)								
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or					
			Untreated human waste discharge pipes present.					
	5 4	3 2	1					

- Cody and Jake Bluming w/ Fish (Shepshead)

# **Big Sewickley Creek Watershed Visual Assessment**

Evaluators'	Names	C §	1 ks	Stream Section		_Date:	06/05	107		
Sub-Waters	hed B	in Sewichle	i Char	Stream Section	Name	$RSC1 \rightarrow$	BS C 100	9		
Stream Nam	e	11		Reference Secti	on					
Weather Co	Stream Name Reference Section Weather Conditions Today scattered rain , reference Section Past 2-5 Days rain shawers									
Land use within drainage (%):										
Grazing Past	ure		Grassy Field			Row Crop	S			
Forest		_5	Residential		10	Industrial		65		
Commercial		20	Abandoned I	Mine Lands		Other				
Substrate (%):										
Boulder	5		ų0 Gra	vel   <i> 5</i>	Silt	25	Mud	15		
Active Chan	nel Width:	23 meters		ia e	c 8					
Floodplain v	vetlands: 〈	Yes NA A	pproximate	size: Length	/ Width	(feet	or meters)	~ laare		
		and or other)						<u> </u>		
рН	Conduc	tivity								
Type of fores - Indu - Thin	DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH:  Type of forest, farmland, residential, and/or commercial:  - Industrial armed K.R. tracts durn to Chio River.  - Thin strip of forest along stream									
BSC7-	18" C	PP S.W.	dtrohige	1 85C8 = flo	uditor c	retland (	photo - HI	3		
			GPŚ	Waypoints						
<del></del>	_atitude	Longitude		S		Description				
Start BSC			1,2,	0 1		· · ·	1 1 1			
End BSC(9	<i>)</i>					rem at cr				
Other 35(2		"	6	PH 3 6.5		inder old	K.K. Tres	rieu		
B5C3				PH = 6.87						
BSC4			8			e under B	eaver St.	bridge		
B505			9	low dar	ч					
BSCG				s.w. d	ischages	(30) 2 15	"cll ad 1	- 12" CMP		
			PhPh	otographs						
Photo #		Description	^ ~ ·		1 -1 . 0					
1,23-4		Mouth of	88C @	carlliage w	Unio KI	<u>iver</u>				
7		Brantiela	Site on	east side of Filk Sunkun R.	BSC.					
8	, <u></u>			- Bears St. 1		<u> </u>				
9	[1-21ha	1 Sour Alfe	-node dan	acrost stree	n Closer	to be huil	+ by fir	- I		
	<u> </u>	1 1000 1.301		scharges Phot			1 - 1 - 10 4			
Size :		Туре		Waypoint		Photo	#			
		Fisher		rock wall		15				
		Shot 1	apstream o	F HIFTLE- pool	sequenc	es.		<u> </u>		
	er?	or both si		□ Garlic mustare	, d □ Purple	loosestrife	□ Other	<del></del> /		

Stream Section Name:  $\frac{BSC}{Date}$ :  $\frac{1 \rightarrow 9}{06 / \omega / 07}$ 

Parameter	Score	Explanation of Score Given
Channel condition	5	
Riparian zone	5	
Bank stability	7	
Water appearance	7	,
Nutrient enrichment	5	
Fish barriers	7	
In-stream fish cover	7	·
Embeddedness	7	
Invertebrate habitat	6	
Canopy Cover	8	
AMD (if applicable)	□ N/A	à .
Sewage (if applicable)	5	
Manure presence (if applicable)	□ N/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	6.27	< 6.0 = POOR 6.1 – 7.4 = FAIR 7.5 – 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:  $8501 \rightarrow 9$ Date: 06/05/07

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition									
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.						
10 9 8	7 6 (5) 4	3 2	1						

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zoı	ne	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or If less than one width, covers entire flood plain.	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or Filtering function moderately compromised.	Natural vegetation less than a third of the active channel width on each side. Or Lack of regeneration. Or Filtering function severely
10 9	8 7 6	5 4	2 2	compromised.

**Keys:** Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	· ·
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	7 6 5 4	3 2	1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name:

Date:

BSC 1 -> 9

			W	ater Ap	pearance	<b>•</b>	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	object 1.5 to slight	ts visil 3 ft; r lly gree	ly cloud ole at d nay ha en colo rater su	lepth ve r; no oil	most of tir visible to of ft; slow se appear pe rocks or so objects co	able cloudiness me; objects depth 0.5 to 1.5 ections may ea-green; bottom ubmerged overed with en or olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
					Moderate ammonia	odor of or rotten eggs.	Or Strong odor of chemicals, oil, sewage, other pollutants.
10 9 8	(7)	6	5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment											
reach; commu	vater alon diverse ad unity little n present	quatic plant algai	gree entii alga	ly clear enish w re reacl al grow strates.	ater ald h; <b>mo</b> d r <b>th</b> on s	ong <b>erate</b>	entire rea	water along ach; abundant owth, especially armer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.			
10	9	8	7	6	(5)	4	3	2	1			

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fish E	Barriers			
No barrie	rs.	witho	ement v	ater inhibit vithin the	Drop structures, considerations of the diversions of the diversion	lams or s (<1ft	Drop stru culverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	(7)	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

	Instream Fish Cover												
>7 cover t	ypes		7 cove		es	4 to 5 cov available	• •	2 to 3 co	• •	None to 1 cover type available			
10	9	8	7	$\mathcal{I}^{-}$	6	5	4	3	2	1			

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, (iffles), undercubanks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:

Stream Section Name:

BSC 1 79

Date:

	Embeddedness											
Gravel or o particles at embedded	re <20%	Grave particl 30% e	les ai	e 20 to	particles	or cobble s are 30 to bedded.	Gravel or particles embedde	are >40%	Completely embedded.			
10	9	8	7	) 6	5	4	3	2	1			

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

	Insect/invertebrate Habitat												
availabl stage to coloniza	5 types o e. Habitat allow full ation (woo s not fresh	is at a insect dy debris	Som exist trees habi	e pot s, su s, whi tat, bu	es of hat ential ha ch as ov ch will pi ut have r e strean	bitat erhanging rovide not yet	The substitution disturbed removed velocities	pes of habitat. strate is often d, covered, or by high stream s and scour or by t deposition.	None to 1 type of habitat.				
10	9	8	7	6	5	4	3	2	1				

Cover types: Fine woody debris, submerged logs, leaf packs, under cut banks, oobble, boulders, coarse gravel, other:

	Canopy Cover  Key: This pertains to waterways where channel is 50 feet wide or less.  Coldwater fishery												
>75% of water su shaded and upsto 3 miles generally shaded.	eam 2	to	>75%	in re eam 2	ded in re Or ach, but to 3 mi		20 to 50%	shaded.	<20% of water surface in reach shaded.				
10 9	(8	)	7	6	5	4	3	2	1				

	Abando	oned Mine Dr	ainage (if ap	plicable)	
(Intentionally blank)		f iron staining. Or iron precipitate.	Iron precipi muddy orar appearance	nge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name:  $8 \text{ SC } 1 \rightarrow 9$ Date: 06 / 05 / 07

	Sewage (if a	applicable)	
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.  And	Visible pipe with effluent, heavy odor.
		Questionable pipe and black stream substrate.	
	5) 4	3 2	1

Mark discharge(s) on map and/or with GPS unit.

	Manur	e Presen	ce (if appli	cable)	
(Intentionally blank)	Evidence of live access to riparia		stream o	nal manure in or waste storage located on the in.	Extensive amount of manure on banks or in stream.  Or
			-		Untreated human waste discharge pipes present.
	5	4	3	2	1

#### **NOTES**

A WCP - Wald Clars processing, company located near mouth of BSC i Ohio River

· possible stream project @ Plum St. Part

-> channel too wide. / shallow

# Big Sewickley Creek Watershed Visual Assessment

Evaluato	rs' Nam	esj	KS/SA						_Date: _	5-1	-08	
			men Holle	ow	Stre	am Sectio	on N					
Stream N	_	_//	ney Holls			rence Sec			•	······································		<del></del>
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Grazing F	asture				sy Field				Row C			
Forest	<del></del>		95	Resid				_5	Industr	ial		
Commerc	lai		l	Aband	doned Mine	<del></del>			Other		L	<del></del>
Bauldar		<del></del> -	Cobble	50	SUBSTRA Gravel	11E (%):	T	6114	-70		1	
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ash / Litte	er: ,Yes	(No.)	<del></del>							<del></del>	(	2.66x
odplain	wetland	s: Ye	s/No Ifs	so, app	roximate si	ze: Lengti	h	/ Wid	th	feet		
oded are	as: Yes	No	(Wetland or	other)								
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it	meet	s B	1.S.Crak	,	ì		,		-			

Stream Section Name:	
Date:	

Parameter	Score	Explanation of Score  Given
Channel condition	10	
Riparian zone	(0)	
Bank stability	8	·
Water appearance	9	
Nutrient enrichment	G	
Fish barriers	8	
In-stream fish cover	(	
Embeddedness	9.	
Invertebrate habitat	8	
Canopy Cover	9	
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	·
TOTAL SCORE (Add all scores and divide by number of scores given)	0, 0	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:	
Date:	

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition							
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.				
10/ 9 8	7 6 5 4	3 2	. 1				

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

•	Riparian Zone						
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.		alf of the leannel t	Natural vegeta extends a third the active cha width on each Or	d of less than a third of the active channel width		
	If less than one width, covers entir flood plain.	е	r	Filtering functi moderately compromised.	Or		
(10) 9	8 7 6	5	4	3 2	2 1		

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability							
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).				
10 9 (8)	7 6 5 4	3 2	1				

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream	Section	Name:	
		Date:	

	· · · · ·	Water Ap	pearance		
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally clo objects visible at 1.5 to 3 ft; may be slightly green co sheen on water s	t depth nave lor; no oil	Considerable most of time; of visible to depting the section appear pea-grocks or submobjects covere heavy green of green film.	objects h 0.5 to 1.5 ns may een; bottom erged ed with r olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
	•		Moderate odor	of	Or
			ammonia or ro	tten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 (9) 8	7 6 5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

Nutrient Enrichment							
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.				
10 (9) 8	7 6 5 4	3 2	1				

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

		Fish Barriers		
No barriers.	Seasonal water withdrawals inhibit movement within the reach.	Drop structures, culverts, dams or diversions (<1ft drop) within the reach.	Drop structures, culverts, dams or diversions (>1ft drop) within 1 mile of reach.	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	(8) 7 6	5 4	3 2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover									
>7 cover types available	6 to 7		types	4 to 5 cov	er types	2 to 3 co available	7 1 · .	None to 1 cover type available	
10 /,9	8	7	6	5	4	3	2	1	

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Big	Sewickley	Creek	Visual	Assessment

Stream Section Name:	
Date:	

Embeddedness							
Gravel or cobble particles are <20% embedded.	Gravel or cobble particles are 20 to 30% embedded.	Gravel or cobble particles are 30 to 40% embedded.	Gravel or cobble particles are >40% embedded.	Completely embedded.			
10 (9)	8 · 7 6	5 4	3 . 2	1			

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded:

						Insec	:t/invert	ebrate Hal	oitat	
availab stage to coloniz	t 5 types o le. Habitat o allow full ation (woo s not fresh	is at a insec dy del	a t·	Som exis trées habi	ne pote ts, suci s, whic tat, but	s of hall ntial ha h as ove h will po have r strean	ibitat erhanging rovide not yet	The subsidisturbed removed velocities	pes of habitat. strate is often d, covered, or l by high stream s and scour or by t deposition.	None to 1 type of habitat.
10	9	(8)	).	7	6	5	4	3	2	1

**Cover types:** Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

Key: Ti	<b>Canopy</b> his pertains to waterways <b>wher</b> Coldwater	e channel is 50 feet wid	le or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.
10 (9) 8	7 6 5 4	32	1 .

	Abandoned Mine Dr	ainage (if applicable)	
(Intentionally blank)	Evidence of iron staining. Or Noticeable iron precipitate.	Iron precipitate visible, muddy orange appearance.	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5 4	3 2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sewickley	Creek	Visual	Assessment
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Stream Section Name:	
Date:	

·		Sewage (if a	applicable)			
(Intentionally blank)	Noticeable od plant growth a		Noticeable of plant growth	odor, excess I.	Visible pipe wi heavy odor.	th effluent,
			Ai	nd		4
			Questionable black stream		·	, .
	5	4	3	2	1	

Mark discharge(s) on map and/or with GPS unit.

	Manure Pres	ence (if applicable)		
(Intentionally blank)	Evidence of livestock access to riparian zone	Occasional manure stream or waste sto structure located or flood plain.	orage	Extensive amount of manure on banks or in stream.  Or
				Untreated human waste discharge pipes present.
	5 4	3	2	1

# **NOTES**

Big Sewickley Creek Watershed Visual Assessment 🗸 🤈 Evaluators' Names KS SA Date: (5-7-08) Sub-Watershed Stream Name Trib to East For C Reference Section \_\_\_\_\_ Weather Conditions Today 70'S SUMMY Past 2-5 Days Same Active Channel Width: 5 feet LAND USE WITHIN DRAINAGE (%): Row Crops Grassy Field **Grazing Pasture** Residential Industrial Forest Abandoned Mine Lands Other Commercial SUBSTRATE (%): Gravel Silt Mud Cobble Boulder DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH: THROUGH GAME LANDS, A ENDS AT WEXFORD EXIT OFF PT. 79 **GPS POINTS / PHOTOS:** Cond. Waypoint | Photo Description Start TTILE 1 Culvert / Small wedlands on east side This to made give upstream
Debn's Jah, John Inh to naht End/mouth Start Pulvert under emhankment The to right going uporream Debris Jam Trib to nalt top of trib Invasive plants present: Yes / No Sapanese Knotweed Garlic mustard Purple loosestrife Dother Flooded areas: Yes/No (Wetland or other) WSmall backwaler areas weften of Notes: Lots of bown algal

Stream	Section	Name:	
		Date:	

Parameter	Score		olanation of Score Given
Channel condition	10		
Riparian zone	10		
Bank stability	9		
Water appearance	9		
Nutrient enrichment	7		
Fish barriers	9		
In-stream fish cover	9		
Embeddedness	8		
Invertebrate habitat	9		
Canopy Cover	10	·	
AMD (if applicable)	NA		
Sewage (if applicable)	NA		
Manure presence (if applicable)	NA		·
TOTAL SCORE (Add all scores and divide by number of scores given)	9.0	< 6.0 6.1 – 7.4 7.5 – 8.9 > 9.0	= POOR = FAIR = GOOD = EXCELLENT

<b>Big Sewickley</b>	Creek	Visual	<b>Assessment</b>
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Stream Section Name:	
Date:	

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

		Chann	el Conditio	n	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of channel alte with signific of channel a Any dikes o set back to access to al flood plain.	eration, but ant recovery and banks. r levies are provide	the reach vand/or cha Excess ag braided ch	nnelization.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10) / 9 8	7 6	5 4	3	2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

·			-	Rip	oarian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side.	exter chan	ral veg nds one nel wid side. Or	active			extends the activ	vegetation a third of e channel each side. Or	Natural vegetation less than a third of the active channel width on each side.  Or
	width	s than on, cover plain.	one s entire	side.		Filtering moderate compron	function ely	Lack of regeneration. Or Filtering function severely compromised.
10 / 9	8	7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

		Bank	Stability		
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately state elevation of act plain; less than eroding surface banks in outside is protected by that extend to the flow elevation.	tive flood 33% of area of e bends roots	typically ar occurs 1 ye less freque bends are (overhangi at top of bamature tree stream ann	be low, but e high (flooding ear out of 5, or ently); outside actively eroding ng vegetation	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 (9) 8	7 6	<u> 4</u>	3	2	1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream	Section	Name:	 
		Date:	

	Water Ap	pearance	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no oil sheen on water surface.	Considerable cloudiness most of time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with heavy green or olivegreen film.  Or	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.  Or
		Moderate odor of ammonia or rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 (9) 8	7 6 5 4	3 2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

Nutrient Enrichment									
reach; commu	water along diverse ac unity little h present	juatic plant algal	gree enti alga	ly clear enish wa re reach al grow strates.	ater alo n; <b>mod</b> e	ng erate	entire read	water along ch; abundant wth, especially rmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	8	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

Fish Barriers								
No barriers. Seasonal water withdrawals inhibit		Drop structures, culverts, dams or	Drop structures, culverts, dams or	Drop structures, culverts, dams or				
	movement within the reach.	diversions (<1ft drop) within the reach.	diversions (>1ft drop) within 1 mile of reach.	diversions (>1ft drop) within the reach.				
10 (9)	8 7 6	5 4	3 2	1				

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover								
>7 cover types available	6 to	7 cover able	types	4 to 5 cov available		2 to 3 co available	ver types	None to 1 cover type available
10 (9)	8	7	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream	Section	Name:	
,		Date:	

	Embeddedness								
Gravel or or particles ar embedded	e <20%	part	vel or co icles are 6 embed	20 to	Gravel o particles 40% em	are 30 to	Gravel or particles embedde	are >40%	Completely embedded.
10	9 (	8	7	6	5	4	3	2	1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

	Insect/inverteb	rate Habitat	
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.
10 (9) 8	7 6 5 4	3 2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

	<b>Key:</b> Th	is perta	ins to		Canopy ways whe Coldwate	ere channel i	s 50 feet wic	le or less.
>75% of water surf shaded and upstrea 3 miles generally w shaded.	am 2 to	>75%	in rea	ed in r Or ich, bu to 3 mi		20 to 50%	shaded.	<20% of water surface in reach shaded.
10 / 9	8	7	6	5	4	3	2	1

	Aband	oned Mine Dra	ainage (if ap	plicable)	
(Intentionally blank)		f iron staining. Or iron precipitate.	Iron precipit muddy oran appearance	ige	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sewickley Creek Vis	suai Assessment
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Stream Section Name:	
Date:	

	Sewage	(if applicable)	
(Intentionally blank)	Noticeable odor, excess plant growth and siltation		Visible pipe with effluent, heavy odor.
		And	
		Questionable pipe and black stream substrate.	·
	5 4	3 2	1

Mark discharge(s) on map and/or with GPS unit.

	Manure Presen	ce (if applicable)	
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or
			Untreated human waste discharge pipes present
	5 4	3 2	1

# **NOTES**

# **Big Sewickley Creek Watershed Visual Assessment**

Evaluators' Names	(A) () (A)		Date:	<u>5-1</u> 3-08	1
Sub-Watershed 1	in the FEBSC s	tream Section	ı Name		
Stream Name Burice	d Linbidok Park Re	eference Soci	on		
Weather Conditions T	oday Mis Cum .	- 101611616 36(I	on		
A-4's Of the land	oday 70's Sunny	Pas	t 2-5 Days <u>(∂() ′ S</u>	Mury	
Active Channel Width	: 2 feet Really Shallo	W		,	
	LAND USE WITI	HIN DRAINAG	F (%):		
Grazing Pasture	Grassy Field		Row Cro	na	
Forest	/oo Residential		Industria	•	
Commercial	Abandoned Mir	ne Lands	Other	<u> </u>	
	SUBST	RATE (%):			
Boulder 5	Cobble / O Grave		Silt /0	Mud	5
DESCRIBE	THE LAND USE OF THE ARE	A THAT THE	STREAM FLOWS TH	IBUIIGH:	
ALL FORESTE	D. HENDWATERS OF	& HOPKIN	S CHUPCH PD	(ELDINE	10
EAST FORK AT	LINBROOK PARK			7	
Maynoint Dhata Da		rs / Photos:			
Waypoint Photo Des	oription INFT/INT @ ETBSC			Hq	Cond
	ND/headwaters - Dri	,		7.60	120
		•			
\$ \$6(10) to	ib bolking of stream be	hind linbru	Karl		
. / /	0				
					-
				<del> </del> -	
					<del></del>
nvasive plants present: rash / Litter: Yes / No	ves No ,☐ Japanese Kr	notweed <b>☐</b> Gar	lic mustard  ☐ Purple		
				₩.	white be
le este de la Company	es/ No If so, approximate	size: Length	/ Width f	eet	
	(Wetland or other)			Small	<del></del>
otes: Really Sha	llow, clear, no al	gae			

Stream Section Name:	
Date:	

Parameter	Score	Explanation of Score Given
Channel condition	/ŏ	
Riparian zone	10	
Bank stability	9	
Water appearance	0	
Nutrient enrichment	9	
Fish barriers	1	y .
In-stream fish cover	O	
Embeddedness	8	
Invertebrate habitat	8	
Canopy Cover	9	
AMD (if applicable)	NA	
Sewage (if applicable)	No	
Manure presence (if applicable)	Nx	
TOTAL SCORE (Add all scores and divide by number of scores given)	84100	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD ) > 9.0 = EXCELLENT

Big Sewickley Creek Visual Assessmei	Creek Visual Assessme	Visual	Creek	Sewickley	Big
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Stream	Section	Name:	
		Date:	

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	el Condition	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive	Evidence of past channel alteration, but with significant recovery of channel and banks.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation;	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization.
lateral cutting.	Any dikes or levies are set back to provide access to an adequate flood plain.	braided channel. Dikes or levees restrict flood plain width.	Dikes or levees prevent access to the flood plain.
10/ 9 8	7 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

			Rij	oarian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side.					Natural vegetation extends a third of the active channel width on each side.  Or		Natural vegetation less than a third of the active channel width on each side.  Or
	If less that width, co flood plai	vers entire			Filtering moderate compron	ely	Lack of regeneration. Or Filtering function
(10) 9	8 7	6	5	4	3	2	severely compromised.

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability								
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope fallures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope fallures apparent).					
10 / 9 / 8	7 6 5 4	3 2	1					

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name:	
Date:	

		W	ater Ap	pearance		
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasion objects vi 1.5 to 3 ft slightly gr sheen on	sible at c ; may ha een colo	depth ive ir; no oil	most of time visible to de ft; slow sec appear pear rocks or suit objects cow heavy greet green film.	epth 0.5 to 1.5 tions may -green; bottom bmerged ered with n or olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.  Or  Strong odor of chemicals, oil, sewage, other pollutants.
10 /9 ) 8	7 6	5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient I	Enrichment	
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10 / 9 ) 8	7 6 5 4	3 2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fish	Barriers			
No barriers.		with	ement	rater s inhibit within the	Drop struculverts, diversior drop) with reach.	dams or is (<1ft	Drop stru culverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	ı	8	/7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover									
>7 cover types available	6 to	7 cover able	types	4 to 5 cover types available		2 to 3 co available	•	None to 1 cover type available	
10 / 9 /	8	7	6	5	4	3	2	1	

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:

Stream Section Name:	
Date:	

				Embed	ddedness			
Gravel or cobble particles are <20% embedded.	раг	vel or co licles are 6 embed	20 to	Gravel o particles 40% em	are 30 to	Gravel of particles embedde	are >40%	Completely embedded.
10 9	/8	7	6	5	4	3	2	11

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

				Insec	t/invertel	orate Hab	itat		
At least 5 types of available. Habitat i stage to allow full i colonization (wood and logs not freshl fallen).	s at a nsect y debris	Som exist trees habi	e pote s, suc s, whic tat, bu	s of hab intial ha h as ove h will pr t have n e strean	bitat erhanging rovide not yet	The subs disturbed removed velocities	es of habitat. strate is often I, covered, or by high stream and scour or by deposition.	None to 1 type of habitat.	
10 9	8)	7	6	5	4	3	2	1	

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

Key: Tł	is pertains to waterway	anopy Cover ys where channel Ildwater fishery	is 50 feet wid	e or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in read Or >75% in reach, but upstream 2 to 3 miles shaded.		6 shaded.	<20% of water surface in reach shaded.
10 (9) 8	7 6 5	4 3	2	1 1

	Aband	oned Mine Dra	ainage (if ap	plicable)	
(Intentionally blank)	Evidence o	of iron staining. Or iron precipitate.	Iron precipi muddy orai appearance	tate visible, nge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sewickley C	reek Visual	<b>Assessment</b>
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Stream Section Name:	
Date:	

	Se	ewage (if a	applicable)		
(Intentionally blank)	Noticeable odor		Noticeable odor, explant growth.	xcess Visible pipe with e heavy odor.	ffluent,
			And		
			Questionable pipe		
•			black stream subst	trate.	
	5	4	3	2   1	

Mark discharge(s) on map and/or with GPS unit.

	Manure P	Presence (if app	licable)	
(Intentionally blank)	Evidence of livesto access to riparian	zone. stream	onal manure in or waste storage re located on the lain.	Extensive amount of manure on banks or in stream.  Or
				Untreated human waste discharge pipes present.
	5 4	3	2	1

## **NOTES**

# Big Sewickley Creek Watershed Visual Assessment

Stream Name Weather Conditions T Active Channel Width	:feet	~ 80°F Pas	st 2-5 Days		Hy su	iny	
Grazing Pasture Forest	! Olassv !	E WITHIN DRAINAG	T				
Commercial	70 Residen	tial	2000	Row Crops	 } 		
	Abandor	ned Mine Lands	0000	Industrial Other			
Boulder	CUMINIA I SA I.	UBSTRATE (%):					
DESCRIBE T	HE LAND MOT OF	Gravel 30	Silt	40	Mud	<del>,</del>	
woods below	Dabor I-79	E AREA THAT THE	STREAM F	LOWS THR	OUGH.		
					elesso d	<del></del>	
		very top.	F the w	stephed.		15	
Vaypoint Photo Descr	GPS F	POINTS / PHOTOS:					
Λ (?) ———————————————————————————————————	ART of rew sec						
0.0	ــ اداد احجاب ۱۳۸۲ ۱۳۸۲	,			pH	Cond.	
30 7-19 W	idge and debris varted - and pipe fartible swm	Y-in across cl	nannel		<del> </del>	<del> </del>	$\dashv$
31 10-13163	Possible swM	project within	sight of	<u>d</u>		<u> </u>	1
	havel coming us	der I-79 / sev	ex everin	15010	<del> </del>		]
32 pH	t check a road		Come	' _ / /	<del> </del>	So	hos
19 CM	vace of tibs the	+ go under	20016		7.98	700	-
	vace of tibs the	Viely to Rel.	7.73 /91	W > trib. u	PN. E	m Rd.	-parameter
15		<del></del>			Francia	clen	
10 Stim	sewer covered by	y debrit cour	<u> </u>		hi-90	Cd.	
		( , , , , , , , , , , , , , , , , , , ,	g evision	dains from	, ,		
<del></del>			٠.				
							1
	3/No / Japanese	Knobyos t = -		<u> </u>	<u> </u>		. 1
sive plants present: Yes		ייייטנweed 🖂 Garlic m	lustard 🗇 🖻	urnie Jaana	strife 🖚 a	N	
sive plants present: Yes	Frun T-79			a. bic 100268	oune Li (	JIDer .	
sive plants present: Yes 1 / Litter: Yes / No  plain wetlands: Yes / No ed areas: Yes / No (We : Gual Grag for	_		<u> </u>				

Stream Section Name:  $\frac{E \, \beta \, \beta \, C \, 29 + 35}{8 / 29 / 67}$ 

Parameter	Score	Explanation of Score Given
Channel condition	3	
Riparian zone	8	
Bank stability	5	
Water appearance	7	
Nutrient enrichment	8	
Fish barriers	.1_	pipe X-ing @ w.p. 30
In-stream fish cover	4	
Embeddedness	5	
Invertebrate habitat	6	
Canopy Cover	9	
AMD (if applicable)	MA	
Sewage (if applicable)	MA	
Manure presence (if applicable)	NA	
OTAL SCORE Add all scores and divide by umber of scores given)	$\left(\begin{array}{c c} 5.6 \end{array}\right) \left(\begin{array}{c} 6\\ 7 \end{array}\right)$	6.0 POOR 0.1 – 7.4 = FAIR 7.5 – 8.9 = GOOD 9.0 = EXCELLENT

Stream Section Name:

Date:

EDBSC 21 - 35

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition										
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.							
10 9 8	7 6 5 4	(3) 2	1							

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Z	one	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.	extends half of the active channel width on each		Natural vegetation less than a third of the active channel width on each side.
	Or	side.	Or	Or
·	If less than one width, covers enti flood plain.	re	Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
10 9	(8) 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bai	k Stability
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active floor plain; less than 33% of eroding surface area of banks in outside bending protected by roots that extend to the base flow elevation.	typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding as well as outside bends (overhanging
10 9 8	7 6 (5)	3 2 1

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: \_\_

Date:

EBBSC 28 9 3)

Water Appearance Very clear, or clear but tea-Occasionally cloudy; Considerable cloudiness Very turbid or muddy colored; objects visible at objects visible at depth most of time; objects appearance most of the depth 3 to 6 ft (less if 1.5 to 3 ft; may have visible to depth 0.5 to 1.5 time; objects visible to slightly colored); no oil slightly green color; no oil ft; slow sections may depth < 0.5 ft; slow moving sheen on surface; no sheen on water surface. appear pea-green; bottom water may be brightnoticeable film on rocks or submerged green; other obvious submerged objects or objects covered with water pollutants; floating rocks. heavy green or olivealgal mats, surface scum, green film. sheen or heavy coat of foam on surface. Or Moderate odor of Or ammonia or rotten eggs. Strong odor of chemicals, oil, sewage, other pollutants. 10 3 2 1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient	Enrichment	
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10 9 (8)	7 6 5 4	3 2	4

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

		<del>, ,</del>			Fish	Barriers				
No barrier	S.	with					Drop stru culverts, diversion drop) with reach.	dams or	Drop str culverts diversio drop) wi	, dams o ns (>1ft
10	9	8	7	6	5	4	3	2	Teach.	4)

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

		<del></del>			Instream I	Fish Cov	er	
>7 cover available			7 cover lable	types	4 to 5 cove	er types	2 to 3 cover type	s None to 1 cover type available
10	9	8	7	6	5	(4)	3 2	avaliable

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:

Stream Section Name: \_\_\_\_ Date: EBBS( 28 -> 3)

					Em	beddedness	3			
Gravel or o particles ar embedded	re <20%	Gravel particle 30% en	s are	20 to	parti	rel or cobble cles are 30 to embedded,	Gravel o particles embedde	are >40%	Completely embedded.	
10	9	8	7	6	5	/ 4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insec	t/invertel	orate Habi	tat	
availab stage to coloniz	t 5 types of le. Habita o allow ful ation (woo gs not fres	t is at a I insect ody debris	Som exist trees habit	e pote s, suc , whic at, bu	s of hatential ha h as oven h will pi t have r strean	bitat erhanging ovide ot yet	The substraint disturbed, removed by velocities	es of habitat. rate is often covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9	8	7	( 6 · )	5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

		Key: T	nis pert	ains to	water	ways <mark>w</mark> h	y Cover ere channel er fishery	is 50 feet wi	de or less	3.
shaded 3 miles shaded	>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.  > 50% shaded in reach.  Or  >75% in reach, but upstream 2 to 3 miles poorly shaded.					20 to 50%	6 shaded.	1	of water surface in shaded.	
10	(9)	8	7	6	5	4	3	2		1 .

	Abando	ned Mine Dr	ainage (if ap	plicable)	
(Intentionally blank)		iron staining. Or ron precipitate.	Iron precipi muddy orai appearance	nge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name:  $\frac{\text{EBBSC } 28 \Rightarrow 35}{\text{Date:}}$ 

Sewage (if applicable)										
(Intentionally blank)	Noticeable odor plant growth an	•	Noticeable odor, excess plant growth.	Visible pipe with effluent, heavy odor.						
•			And							
			Questionable pipe and black stream substrate.							
	5	4	3 2	1						

Mark discharge(s) on map and/or with GPS unit.

	Manure	Presence	e (if applicab	le)	
(Intentionally blank)	Evidence of lives access to ripariar		Occasional m stream or was structure loca flood plain.	ste storage	Extensive amount of manure on banks or in stream.  Or
· .					Untreated human waste discharge pipes present.
	5	4	3	2	1

Big Sewickley Creek Watershed Visual Assessment Evaluators' Names SA/CB Date: OS/2S/07 Sub-Watershed Ecrit Br. BSC Stream Section Name EBBSC  $20 \rightarrow 27$ Stream Name \_\_\_\_\_\_ // Reference Section \_\_\_\_\_\_ Weather Conditions Today \_\_\_\_\_\_ Sunny, ~ 80 ° F \_\_\_ Past 2-5 Days \_\_\_\_\_ Mrstly sunny Active Channel Width: \_\_\_\_ feet LAND USE WITHIN DRAINAGE (%): Grassy Field Row Crops **Grazing Pasture** 20 Industrial 70 Residential Forest Other Abandoned Mine Lands Commercial SUBSTRATE (%): Silt Mud Gravel Cobble Boulder DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH: Grasty field / lawn areas by two printe residences, along Genelands Rd **GPS POINTS / PHOTOS:** Cond. Waypoint | Photo | Description START /HOM LANDOWNER /HOMES /Bank erosion

private bridge / plartic, white outlet (sewage?)

END / end of moved area back into woods on book sider 25 Invasive plants present: Yes / No ☐ Japanese Knotweed ☐ Garlic mustard ☐ Purple loosestrife ☐ Other Trash / Litter: Yes (No)\_ Floodplain wetlands Yes / No If so, approximate size: Length 50 / Width 50 feet Flooded areas: Yes / No (Wetland or other) Spoke w/ landower of second home. He said that the strem lenur its banker Enguently in this arm, and it seems to hoppen more often since the turnhip put in new stern sever on the roads.

Stream Section Name:  $\frac{EBBC 25 \rightarrow 27}{Date:}$ 

Parameter	Score	Explanation of Score Given
Channel condition	7	
Riparian zone	3	grass moved up to edge of stream
Bank stability	4	
Water appearance	6	
Nutrient enrichment	6	
Fish barriers	9	
In-stream fish cover	3	
Embeddedness	6	
Invertebrate habitat	5	
Canopy Cover	3	
AMD (if applicable)	N/A	
Sewage (if applicable)	5	
Manure presence (if applicable)	N/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	(5.2)	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name: \_

EBBSC 25 → 27

Date:

# **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	l Condition	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past' channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	flood plain.	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.	Natural vegetation extends half of the active channel width on each	Natural vegetation extends a third of the active channel width on each side.	Natural vegetation less than a third of the active channel width on each side.
Widths ou caon side.	Or	side.	Or	Or
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely
				compromised.
10 9	8 7 6	5 4	(3) 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

				Bank	Stability		
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	elev plaid erod ban is p that	derately vation of n; less t ding sur ks in ou rotected extend v elevati	f active han 33 face ar atside b to the on.	flood % of ea of ends ots	Moderately unstanks may be typically are higocurs 1 year of less frequently; bends are active (overhanging vat top of bank, mature trees fastream annually slope failures a	low, but gh (flooding but of 5, or ); outside vely eroding regetation some alling into y, some apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	7	6	5	(4)	3	2	

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: \_\_\_\_

EBBSC 25 → 27 8/28/07

Water Appearance Very turbid or muddy Considerable cloudiness Occasionally cloudy; Very clear, or clear but teaappearance most of the most of time; objects objects visible at depth colored; objects visible at time; objects visible to visible to depth 0.5 to 1.5 1.5 to 3 ft; may have depth 3 to 6 ft (less if depth < 0.5 ft; slow moving ft; slow sections may slightly green color; no oil slightly colored); no oil water may be brightappear pea-green; bottom sheen on water surface. sheen on surface; no green; other obvious rocks or submerged noticeable film on water pollutants; floating objects covered with submerged objects or algal mats, surface scum, heavy green or oliverocks. sheen or heavy coat of green film. foam on surface. Or Or Moderate odor of Strong odor of chemicals. ammonia or rotten eggs. oil, sewage, other pollutants. 2 3 4 10

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

:	Nutrient E	nrichment	
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10 9 8	7 (6) 5 4	3 . 2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

		-	Fish	Barriers	<u> </u>		
No barriers.		l water als inhibit nt within the	Drop struculverts, diversion drop) wit reach.	dams or is (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 (9)	8 7	6	5	4	3	2	11

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

				Instream	Fish Cov	er		
>7 cover types	L	7 cover	types	4 to 5 cov	er types	2 to 3 c	over types le	None to 1 cover type available
available	o ava	7	6	5	4	(3)	2	1
10 9	, 0	t				ニ		$\bigcirc$

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, liffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: FBBSC Date: 8/27

			Embed	ldedness			
particios are ====	Gravel or cob	20 to	Gravel or particles 40% emb	are 30 to	Gravel or particles embedde	are >40%	Completely embedded.
embedded.	30% embedd 8 7	6	5	4	3	2	1
10	<u>. </u>						برط الممام سيت التات

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

			- II	nsec	t/inverte	brate Hab	itat	
At least 5 types of h available. Habitat is stage to allow full in colonization (woody and logs not freshly	at a sect debris	trees,	potent , such a which it, but h	ial ha as ov will p ave i	bitat erhanging rovide not yet	The subs disturbed removed velocities	es of habitat. Strate is often I, covered, or by high stream and scour or by t deposition.	None to 1 type of habitat.
fallen). 10 9		7	6	5	) <del></del>	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

Key: Thi	Canopy s pertains to waterways wher Coldwater	e channel is 50 feet wid fishery	
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly	20 to 50% shaded.	<20% of water surface in reach shaded.
10 9 8	shaded. 7 6 5 4	3 2	1

	Aband	oned Mine Dra	<u>inage (if app</u>	licable)	1
(Intentionally blank)		f iron staining. Or iron precipitate.	Iron precipita muddy orang appearance.	je	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	- 5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name: EBBS( 25 → 2 }

Date: 8/28/07

		Sewage (if	applicable)		
(Intentionally blank)		e odor, excess with and siltation.	Noticeable o		Visible pipe with effluent, heavy odor.
			Ar	nd	
		•	Questionable black stream		
	(5)	4	3	2	1

Mark discharge(s) on map and/or with GPS unit.

	Manure Presence (if applicable)									
(Intentionally blank)	Evidence of livestock access to riparian zon	Occasional manure in stream or waste stora structure located on the flood plain.	ge manure on banks or in							
·			Untreated human waste discharge pipes present.							
	5 4	3 2	1							

# NOTES

Evaluators' Names	<' \( \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<b>–</b> 1		
	3 /1 / CB	_ Date:	98 / 14	1/07
Sub-Watershed <u>Ear</u>	SA CB -+ Banh B) ( Stream Section Name _	EFBSC 8	- 3 25	24
Stream Name	Reference Section Sunny ヘガート Past 2-5 Days			
<b>Weather Conditions Today</b>	Sunny ~ 75° F Past 2-5 Days	heavy va	in lart	Th.
Active Channel Width: 6-8	g feet	,		
	LAND USE WITHIN DRAINAGE (%):			· · · · · · · · · · · · · · · · · · ·
Grazing Pasture	Grassy Field	Row Crops		
Forest	90   Residential   10     Abandoned Mine Lands	Industrial Other		
Commercial	SUBSTRATE (%):	<u>.</u>	l	
Boulder 5 Cob	oble 30 Gravel 20 Silt/5		lnik	20
	LAND USE OF THE AREA THAT THE STREAM			
	, Rock 79 , Genelade Rd. , show			,
JAM Owelands	, ran / , (remelade 160), show	rig ravge ;	3 65 (J ) ( H	
	GPS POINTS / PHOTOS:			
Waypoint Photo Descript			рН	Cond.
EF8(1) prival	k bridge		1	
Conc	crete slabs strumbank stabilization	air.		
11 2 M	tal line (gas?) crossing stream in mall trib coming in from the east			580
12 3 tr	re dans debrit jan			
13 4	horse access to stream channel.			
	trees down across street in two			
15		ds above. Main strum	Clarett -	950
17	fork in tribs: (similar flaws) km	cin stem = 990	trib	5910
67	GAT liver (Mehal) crist-crossing stre CMP calcut under geneland acces			
8 8		s road (black	r fish p	estage)
7 9	wetland plant (~5' tall)	مرداد مدراد		<del>-</del>
19 41	bank erosion three im sand	w pipeline.	·	
<b>@</b> 12	shale wall			
20 🛮 13	beaver day? across from shorting	rage.		
<b>1</b> 4	frishee on stick.			
(G)	concrete cylinder wed for bal	ct hiliardia		
21   Car a	C DOU Lalu			
22 1 Calva	at coursing for Genelarly entrant - d	s. crosian.		
	fun across the road	udb :	7.69	200
Invasive plants present: Ye				
Trash / Litter: Yes / No	not much, few tirer near par	ting area In	top of	section
Floodplain wetlands: (Yes)	No If so, approximate size: Length/\	Vidth feel	( btw	16-17
Flooded areas: (Yes) No (V	Vetland or other) floud plain			
24 - end of	section/trib. from across the r	nad -		
/ who had a	July the action by	, de. ,	ا ، ،	البيم
	·V	,	A bu	Con

Stream Section Name:  $EFBSC 8 \rightarrow 29$  24
Date: 8/14/07 + 8/28

Parameter	Score	Explanation of Score Given
Channel condition	9	
Riparian zone	10	
Bank stability	9	
Water appearance	8	
Nutrient enrichment	8	·
Fish barriers	7	
In-stream fish cover	9.	
Embeddedness	8	
Invertebrate habitat	9	
Canopy Cover	10	
AMD (if applicable)	N/A	
Sewage (if applicable)	A/A	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	(7)	< 6.0 = POOR 6.1 - 7.4 = EAIR 7.5 - 8.9 = GOOD + > 9.0 = EXCELLENT

Stream Section Name:

EFBSC 8 -9 204

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channel Condition										
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.								
10 (9) 8	7 6 5 4	3 2	1								

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

				Rip	arian Zoı	ne	,	
extend active	I Vegetation Is at least two channel on each side.	Natural ve extends of channel ve each side	one active vidth on			extends the activ	regetation a third of e channel each side. Or	Natural vegetation less than a third of the active channel width on each side.  Or
		if less tha width, cov flood plair	ers entire		•	Filtering moderate compron	ely	Lack of regeneration. Or Filtering function severely compromised.
(10)	9	8 7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 (9) 8	7 6 5 4	3 2	1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: EF

			V	Vater A <sub>l</sub>	pearance		
colored depth 3 slightly sheen c noticeal	ear, or clear but tea- ; objects visible at to 6 ft (less if colored); no oil on surface; no ble film on ged objects or	objects v 1.5 to 3 slightly o	nally clou visible at ft; may h green col n water s	depth ave or; no oil	most of tim visible to d ft; slow sec	epth 0.5 to 1.5 ctions may a-green; bottom abmerged vered with en or olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.  Or
					ammonia o	or rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10	9 (8)	7 6	5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment										
reach; commu	water alon diverse a unity little h present	qua alg	tic p		gree entir alga	y clear nish wa e reach I grow strates.	ater ald n; mod	ong e <b>rate</b>	entire re	h water along each; abundant owth, especially varmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	(	8		7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

				Fish I	3arriers			
No barriers.	with	ement	ater inhibit within the	Drop struculverts, diversion drop) with reach.	dams or s (<1ft	Drop struculverts, diversion drop) wit reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	8	(7)	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

	Instream Fish Cover										
>7 cover types 6 to 7 cover types 4 to 5 cover types 2 to 3 cover types None to 1 cover types available available available									None to 1 cover type available		
10 (9) 8 7 6 5 4 3 2 1											

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, (ffles, undercil banks, thick root mats, dense macrophyte beds, isolated/packwater pools, other:\_\_\_\_\_

Stream Section Name: <u>FFBSC</u>
Date: <u>\$//4</u>

EFBSC 8-7204 8/14/07 19/28

	Embeddedness										
Gravel or cobb particles are < embedded.		par	avel or co ticles are % embed	20 to	Gravel of particles 40% emi	are 30 to	Gravel or particles embedde	are >40%	Completely embedded.		
10 9	) (	8 /	7	6	5	4	3	2	1		

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

	Insect/invertek	orate Habitat	
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.
10 (9) 8	7 6 5 4	3 2	1

Cover types: Fine wood debris, submerged logs, leaf packs, under cut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_\_

		Key: Th	nis per	tains to	o waten			is 50 feet wid	de or less.
sha 3 m	i% of water so ded and upst illes generally ded.	ream 2 to	>75	% in re ream 2	ded in r Or ach, bu to 3 m		20 to 50%	shaded.	<20% of water surface in reach shaded.
10	) 9	88	7	6	5	4	3	2	1 .

Abandoned Mine Drainage (if applicable)								
(Intentionally blank)		of iron staining. Or iron precipitate.	Iron precipil muddy oran appearance	ge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.			
	5	4	3	2	1			

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name:  $FBSC 8 \rightarrow 204$ Date:  $8/14/67 \cdot 8/28$ 

Sewage (if applicable)								
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.	Visible pipe with effluent, heavy odor.					
		And						
		Questionable pipe and black stream substrate.						
	5 4	3 2	1					

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)								
(Intentionally blank)	Evidence of livestock access to riparian zor	ne. stream or w	manure in aste storage cated on the	Extensive amount of manure on banks or in stream.  Or				
		, ,	• • .	Untreated human waste discharge pipes present.				
	5 4	3	2	1				

	_		y Cre	ek Watershed	Visual A	Assess!	ment	1 7	1210/0
Evaluators' Na	mesK	SISA				Date:	<u>1/15</u>	<u>لا لا ا</u>	124/0
Sub-Watershed Stream Section Name EAST FORK BSC Reference Section									Bros
Stream Name	EAST	FORK E	20°	Reference Se	ction	<u> </u>			<del></del>
Weather Condi	tions To	oday		P	ast 2-5 Day	s	<u></u>		
Active Channe	l Width:	20 feet							
<u> </u>			LAND	USE WITHIN DRAINA	AGE (%):				
Grazing Pasture				sy Field		Row Cr	ops		
Forest				lential		Industri	al		<u> </u>
Commercial			Aban	doned Mine Lands		Other			
				SUBSTRATE (%):					
Boulder		Cobble		Gravel	Silt		Mu	<del></del>	
DES	CRIBE 1	THE LAND	USE OF	THE AREA THAT T	HE STREAM	I FLOWS	THROUG	H:	
				<u> </u>			<u> </u>	· · · · · ·	
				-11 720-5				<del></del>	
	·	L (OY)	east c	PS POINTS / PHOTO					
EFBSC 1		art scription		101011101111011				рН	Cond.
Waypoint Pho		Dekaz M	Jee. Tose						
EFBSC 2.3		Park	YO CO.	·				<u>.</u>	
EF-BSC4(32) 132	13 7	Worner "	ibb (	Day).					_
5 /8	ાતા વ	Many S	10/b C	Day of Thee limbs	S	<u></u>			1
10 15		jb Chipl	ag Ku	144)					
<u>'\</u>		mapour	Dirag						
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								<del> </del>	
		* *							
Invasive plants	Yes / No	)		Japanese Knotweed C	. <del> </del>			estrife 	☐ Other
Floodnlain wei	tlands:	Yes / No	lf so, a	approximate size: L	ength <i>i</i>	/ Width	feet		
Flooded areas	: Yes/N	No (Wetlan	d or othe	er)	· .				
	. 10011			- <del></del>					•
Notes:									

Stream Section Name:	
Date:	

Parameter	Score	Explanation of Score Given
Channel condition	89	
Riparian zone	89	
Bank stability	8	
Water appearance	\$	
Nutrient enrichment	8	
Fish barriers	7	
In-stream fish cover	8	
Embeddedness	7	
Invertebrate habitat	9	
Canopy Cover	8	
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	8.2	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Big	Sewickley	Creek	Visual	Assessment
-----	-----------	-------	--------	------------

Stream Section Name:	
Date:	<u></u>

## Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

,		C	hann	el Conditio	n	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence channel with sign of chann Any dike set back access to flood pla	alteration ificant rec el and ba s or levies to provide an adeq	covery nks. s are	the reach v and/or cha Excess ag braided cha	nnelization.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 (9) 8	7 6	5	4	3	2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

			Rip	arian Zo	ne			
Natural Vegetation extends at least two active channel widths on each side.	Natural veg extends on channel wid each side.	e active Ith on			Natural vegetation extends a third of the active channel width on each side.  Or		Natural vegetation less than a third of the active channel width on each side.  Or	
If less than one width, covers entire flood plain.				Filtering to moderate comprom	ely	Lack of regeneration. Or Filtering function severely compromised.		
10 (9)	8 7	6	5	4	3	2	1	

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 (8)	7 6 5 4	3 2	. 1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Big Sewickley	Creek	Visual	Assessmen	t
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Stream Section Name:	
Date:	

	<del></del>	Wat	ter Ap	pearance		
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally objects visib 1.5 to 3 ft; m slightly gree sheen on wa	le at de nay have n color;	pth e no oil	most of tim visible to de ft; slow sec appear pea rocks or su objects cov heavy gree green film. Moderate o	epth 0.5 to 1.5 tions may a-green; bottom bmerged ered with n or olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.  Or  Strong odor of chemicals, oil, sewage, other pollutants.
10 9 (8)	7 6	5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

						Nu	trient	Enrichme	ent		
reach; commu	vater along diverse aq ınity little n present.	uatic algal		gree entir alga	y clear nish wa e reach I growt strates.	ater ald i; mod	ong erate	Greenisl entire re algal gre during w	ach; abu o <b>wth</b> , es	ındant pecially	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	8	)	7 6 5 4				3		2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

		,		Fish	Barriers		<u></u>	
No barriers.	with	ement	vater s inhibit within the	Drop struculverts, diversior drop) with reach.	dams or ns (<1ft	Drop struculverts, diversion drop) wit reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	8	7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover										
>7 cover types available	6 to 7 cover	rtypes	4 to 5 cov		2 to 3 co	ver types	None to 1 cover type available			
10 9	8 7	6	5	4	3	2	1			

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name:	
Date:	

			Emb	eddedness				
Gravel or cobble particles are <20% embedded.		or cobble are 20 to bedded.	particle	or cobble es are 30 to mbedded.	Gravel o particles embedde	are >40%	Completely embedded.	
10 9 /	8	7 6	5	4	2	1		

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock, If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

	Insect/invertebrate Habitat										
At least 5 typ available. Ha stage to allow colonization and logs not fallen).	bitat is at a v full insect (woody deb	Son exis ris tree hab	ne pote ts, suc s, whic itat, bu	s of hatential hatential has over the will protest the will be stream.	bitat erhanging ovide ot yet	The sub disturbe remove velocitie	ppes of habitat. Distrate is often ed, covered, or d by high stream es and scour or by nt deposition.	None to 1 type of habitat.			
10 9	8	7	6	5	4	3	2	1			

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

Key: Th	is pertains t	o water	Canopy ways whe Coldwate	re channel i	s 50 feet wid	de or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% sha >75% in re upstream shaded.	Or each, bu	ŧ	20 to 50%	shaded.	<20% of water surface in reach shaded.
10 9 8	7 6	5	3	2	1	

	Abando	oned Mine Dr	ainage (if ap	plicable)	
(Intentionally blank)		f iron staining. Or iron precipitate.	fron precipit muddy oran appearance	ıge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big	Sewickley	Creek	Visual	Assessment
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Stream Section Name:	
Date:	

	•	Sewage (if	applicable)	
(Intentionally blank)	Noticeable od plant growth a		Noticeable odor, excess plant growth.  And	Visible pipe with effluent, heavy odor.
			Questionable pipe and black stream substrate.	
	5	4	3 2	1

Mark discharge(s) on map and/or with GPS unit.

The second secon	Manure Pres	ence (if applicable)	<u>-</u>
(Intentionally blank)	Evidence of livestock access to riparian zon	Occasional manure in stream or waste storage structure located on the flood plain.	
			Untreated human waste discharge pipes present.

# **NOTES**

Big Sewickley Creek Watershed Visual Assessment Evaluators' Names  $KS^2/CB$  Date:  $O^2/O^2/O^2$ Sub-Watershed NF BSC Stream Section Name NF 46-9 56 Stream Name UNT to NFBSC Reference Section \_\_\_\_\_ Weather Conditions Today scattered light snew ~35° Past 2-5 Days rain snew Active Channel Width: ~ 4 feet LAND USE WITHIN DRAINAGE (%): Grassy Field 10 Grazing Pasture Row Crops Residential Forest 75 Industrial 15 Commercial Abandoned Mine Lands Other SUBSTRATE (%): Boulder Cobble 40 Gravel 40 Silt 20 Mud DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH: Mostly forested area with home on hillsider above the stran valley. seven line running up streen valley, the Abundant wildlife sign including deet. **GPS POINTS / PHOTOS:** Waypoint Photo Description Нg Cond. NF46 War confluence we main stem 7.65 4100 SMAN Concrete structure W/ dischare pipe neur road 1 bank existion (~301 long) D NF 42 small trib. from Hollow / willand (some banker oria) NF 48 4370 his without in floodplain on posted ground Trib. flowing in from part; open field / Jawn area Trib. carcading down hill from the west 1360 NF 49 7.49 NESO 7.59 60 small trib. flowing in from east, beside by homes swm outlet pipe (~ 18" SPP) road NEST 7.53 770 conflyence w/ tribs from west and old 18. X-in NF52 210 Severe erosion around 36" concert pipe (not lage erough for streen flow) S. W. M. outlet NF 53 s.w.M. autlet rock flow structure (o) in stream behind log house NF 54 small trib. from east 7.54 580 confluence with trib. from the north 10 NF 55 7.56 610 SWM outlet to stream (15" SPP) near X-ing under Hond NF 56 La Eis. barin at cul-de-rac in "whispering Pins"

View upstran between Eis. barins development

Fand road 1314 13

Invasive plants present: Yes No ☐ Japanese Knotweed ☐ Garlic mustard ☐ Purple loosestrife ☐ Other
Trash / Litter: Yes / No
Floodplain wetlands (Yes) No If so, approximate size: Length / Width feet
Flooded areas: Yes / No (Wetland or other) large wetland
Notes:



9

Stream Section Name: NF 46 4 56
Date: 02/07/09

Parameter	Score	Explanation of Score Given
Channel condition	8	
Riparian zone	9	
Bank stability	7	,
Water appearance	7	
Nutrient enrichment	9	
Fish barriers	8	
In-stream fish cover	7	
Embeddedness	7	
Invertebrate habitat	8	
Canopy Cover	9	
AMD (if applicable)	7/1	
Sewage (if applicable)	NA	
Manure presence (if applicable)	N/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	79 7.9	< 6.0 = POOR 6.1 – 7.4 = FAIR 7.5 – 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:

Name: NF 46 - 9Date: 02/63

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

·	Channe	el Condition	
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 (8)	7 6 5 4	3 2	. 1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or  If less than one	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or Filtering function	Natural vegetation less than a third of the active channel width on each side.  Or  Lack of regeneration.
	width, covers entire flood plain.		moderately compromised.	Or Filtering function severely compromised.
10 (9)	8 7 6	5 4	3 2	11

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability								
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).					
10 9 8 (	7 6 5 4	3 2	11					

Keys: All outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: \_\_\_\_

NF 46 9 56

		Wa	ater Ap	pearance	<del>)</del>		
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasional objects visi 1.5 to 3 ft; r slightly gree sheen on w	ble at de nay hav en color	epth e ; no oil	most of the visible to of the slow seappear per rocks or so objects co	able cloudiness me; objects depth 0.5 to 1.5 ections may ea-green; bottom ubmerged overed with en or olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be bright-green; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.	
	·			Moderate	odor of	Or	
				ammonia	or rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.	
10 9 8 (	7 / 6	5	4	3	2	1	

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment								
	verse ity littl		gree entii alga	ly clear enish wa re reach al grow strates.	ater ald i; mod	ong erate	entire rea	water along ach; abundant wth, especially armer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10 (	9	8	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

	·	Fish Barriers		
No barriers.	Seasonal water withdrawals inhibit movement within the reach.	Drop structures, culverts, dams or diversions (<1ft drop) within the reach.	Drop structures, culverts, dams or diversions (>1ft drop) within 1 mile of reach.	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	(8) 7 6	5 4	3 2	1

Keys: You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would impede fish passage.

Instream Fish Cover									
>7 cover available		6 to 7		types	4 to 5 cov available	ver types	2 to 3 co available	ver types	None to 1 cover type available
10	9	8	(7)	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanding vegeration, boulders cobble, (riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: NF 46 7 56
Date: 02/07/08

Embeddedness									
Gravel or particles a embedded	re ≺20%	Grave particl 30% e	es a	re 20 to	Gravel o particles 40% emi	are 30 to	Gravel of particles embedd	are >40%	Completely embedded.
10 9 8 (7) 6 5 4 3 2							1		

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded:

					Insec	t/inver	tebrate Ha	bitat		
At least 5 types of available. Habitat stage to allow full colonization (wood and logs not fresh fallen).	is at insec ly de	a xt	Som exist trees habit	e pote s, suc s, whic tat, but	s of hal ntial ha h as ov h will p have r strean	ibitat erhangin rovide not yet	The sub disturbe removed velocitie	pes of habitat. estrate is often ed, covered, or d by high stream es and scour or by nt deposition.	None to 1 habitat.	type of
10 9	8	<u> </u>	7	6	5	4	3	2		1

Cover types: Fine woody debris, submerged logs, leaf packs, under cut banks, cobble) boulders, coarse) gravel, other: \_\_\_\_\_

Key: Th	Canopy ( nis pertains to waterways where Coldwater	e channel is 50 feet wid	de or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.
10 (9/8	7 6 5 4	3 2	1

	Aband	loned Mine Dr	ainage (if ap	plicable)	ı
(Intentionally blank) ド(ハ		of iron staining. Or iron precipitate.	Iron precipi muddy orar appearance	nge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big :	Sewickley	Creek	Visual	Assessment
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Stream Section Name: M= 46 -9 56
Date: 02/07/08

•	Sewage (if applicable)								
(Intentionally blank)		odor, excess h and siltation.	Noticeable of plant growth.		Visible pipe with heavy odor.	effluent,			
NIA			An	ıd					
, ,			Questionable black stream						
	5	4	3	2	1				

Mark discharge(s) on map and/or with GPS unit.

	Manure Presei	nce (if applicable)	
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or
	5 4	3 2	Untreated human waste discharge pipes present.

# **NOTES**

Big Sewickley Creek Watershed Visual Assessment

Evaluato	rs' Name	95	·	Ks	1 CB			Date:	02	1/01/	08
					_ Stream Section					' /	
								-			<del></del>
					Reference Sec						
				ercarc ser	affect snow Pa	ast 2	-5 Days	Valh	1 , 3	how	
Active Ch	nannel W	/idth:	3-4 feet				-				
			<u> </u>	AND USE W	VITHIN DRAINA	GE (	%):	<u> </u>			
Grazing P	asture			Grassy Field	·- <u></u>	V	10	Row Crop			
Forest			80	Residential		V	10	Industrial			
Commerc	lal			<u> </u>	Mine Lands			Other ·			
Bauldey	<del></del>	<del>- ,</del>	Cobble	40 Gra	BSTRATE (%):		Cilt	- O - 1			
Boulder	· · · · · · · · · · · · · · · · · · ·		1711-1711		avel   <u> </u>		Silt	20		ud	
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New	5 ewag	e li	ne install	ed dun	strum valle	<u></u>	, -/	1 6770	ب ر.	44	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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Waypoint	Photo		cription	· i · · · · · · · · · · · · · · · · · ·						рН	Cond.
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4>NF 60	18		Cotte over	~? /n	hillside a	long	stre	<i>γ</i> η			
MNEGI		/	Near Ma	All of sy	hillside a tran @ X	-ing	unde	~ Main	Rock	7.80	380
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Invaciva ni	ante nre	eant	Yes (No)	□ Jananese	e Knotweed ቯ G	arlic	mustard	l □ Purple	loose	estrife (T	Other -
				- Jupanooc		- 61110			,000	-34,10	- 11101
Trash / Litt			`					111			<del></del>
Floodplain			v-		nate size: Leng						
Flooded ar	eas: (Ye	s) No	(Wetland or	other)	imrediately	90	(jaran)	to str	an 1	and s	ewar line
Notes:	~ 111	^						•	•		
~	511+	toxe	e still i	n place	all the v	JAY	down	1 Streen	. V.	Aller.	a di
dis	ا ماا	1	10			,		·	•		mond.
	rrem	ocka	/ temo	an hills	ides					¥ 7	in wir.

Stream Section Name:  $NF 57 \rightarrow Date$ : O2/07/0

Parameter	Score	Explanation of Score Given
Channel condition	8	
Riparian zone	8	
Bank stability	8	
Water appearance	8	
Nutrient enrichment	7	
Fish barriers	9	
In-stream fish cover	6	
Embeddedness	8	
Invertebrate habitat	9	
Canopy Cover	8	
AMD (if applicable)	AJU	
Sewage (if applicable)	Alu	
Manure presence (if applicable)	n/a	
TOTAL SCORE (Add all scores and divide by number of scores given)	79 = 10	< 6.0 = POOR 6.1 - 7.4 = EAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:

Date:

NF 57 761

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	el Condition	
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 (8)	7 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

			Rip	arian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side.	Natural vege extends one channel wid each side. Or If less than of width, cover- flood plain.	active th on one			extends a the active width on	e channel each side. Or function	Natural vegetation less than a third of the active channel width on each side. Or Lack of regeneration. Or Filtering function severely compromised.
10 9 (	8 / 7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 (8)	7 6 5 4	3 2	11

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: NF57761Date: 02/07/08

				W	later A	pearance	<del>)</del>		·
Very clear, or clear colored; objects vis depth 3 to 6 ft (less slightly colored); no sheen on surface; noticeable film on submerged objects rocks.	ible at if oil no	obj 1.5 slig	caslona ects visi to 3 ft; ihtly gre een on w	ible at o may ha en colo	depth ave or; no oil	Considera most of tir visible to of ft; slow se appear per rocks or s objects co heavy gre green film.	me; object depth 0.5 ections made a-green; ubmerged overed with en or olive Or odor of	ts to 1.5 ay bottom d h e-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.  Or
						ammonia	or rotten e	eggs.	Strong odor of chemicals,
			<u> </u>						oil, sewage, other pollutants.
10 9 (	8 /	7	6	5	4	3		2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

					Nu	trient	<u>Enrichmer</u>	nt	
reach; commu	vater alon diverse ad inity little i present	quatic plan algal	t gred enti alga	ly clear enish w re reacl al grow strates.	ater ald n; mod th on s	ong erate	entire rea	water along ch; abundant wth, especially rmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	8	(7)	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fish	Barriers			
No barriers.	$\sim$	with	ement v	rater inhibit within the	Drop struculverts, diversion drop) with reach.	dams or s (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 /	9 /	8	7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

			·		Instream	Fish Cov	er		
>7 cover available			7 cover lable	types	4 to 5 cov available		2 to 3 co available		None to 1 cover type available
10	9	8	7	(6)	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_

Stream Section Name: \_

NF57-961

					Embed	dedness			
Gravel or particles a embedde	are <20%	par	ivel or co ticles are 6 embedd	20 to	Gravel or particles 40% emb	are 30 to	Gravel o particles embedde	are >40%	Completely embedded.
10	9 (	8)	·7	6	5	4	3	. 2	1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded:

	Insect/invertel	orate Habitat	
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.
10 (9) 8	7 6 5 4	3 2	1

Cover types: Fine woody debris, submerged ogs, leaf packs, undercut banks, cobbe, boulders, coarse gravel, other:

		Key: T	nis per	tains to	o water	ways wh	y Cover tere channel ter fishery	is 50 feet wid	de or less.
shade	of water so d and upst s generally d.	ream 2 to	>75		Or ach, bu		20 to 50%	shaded.	<20% of water surface in reach shaded.
10	9	(8)	7	6	5	4	3	2	1

Abandoned Mine Drainage (if applicable)									
(Intentionally blank) 以(ト		firon staining. Or iron precipitate.	Iron precipita muddy oran appearance	ge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.				
	5	4	3	2	1				

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name:  $\frac{NF57 + 61}{02/07/08}$ 

	Sewage (if applicable)									
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.	Visible pipe with effluent, heavy odor.							
NA		And								
r° (r		Questionable pipe and black stream substrate.								
	5 4	3 2	1							

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)									
(Intentionally blank) いしみ	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or						
	5 A	3 2	Untreated human waste discharge pipes present.						

# **NOTES**

· ,		g Sewickley								
Evaluato	rs' Name	es	CB	/K5			_Date:	0	3/2	1/08
Sub-Wate	ershed _	NFB	5 C	Stream Se	ection	Name	NF	77	7 7	<u>z'</u>
Weather	Conditio	unt to NFI	ly sun	14 ~ 40°F	_ Past	2-5 Days	lis	Lt s	nw	~40
		/idth: feet	7 -						,	,
			ANDUG				<u> </u>			<del></del>
Crazina D	antura			SE WITHIN DRA	INAGE	: (%);	Row Cro			
Grazing P Forest	asture	80	Grassy Field  O Residential			5%	Industrial –			
Commerci	al		- Abandoned Mine Lands				Other			e e consta
				SUBSTRATE (%	<b>6):</b>		•			
Boulder	10	Cobble	30	Gravel , 물리	>	Silt	15	M	ud	15
	DESCR	IBE THE LAND U	SE OF T	HE AREA THAT	THE	STREAM	FLOWS T	HROL	JGH:	
<u></u>				<u></u>						
			CDS	POINTS / PHO	TOG					
Waypoint	Photo	Description	GF	S FOINTS / FRO	7103.			_	На	Cond.
NF 77	11	ATV trail	3 0	COUNTY VI	ish + -	of - wa	V N. u.	)	hii	T Cond.
		A 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		b-	idse	with ,	and purl	ed in	to str	em
NF 78	12	15"0 SPF	for	Course, ri br stream X-i	nj					
NT 30	13			piper to d	-			- <del></del>		<del></del>
NF 79	10	intelland as	<u>(u)</u>	pipes 10 a	<u> </u>	Wetlan		-		
									<u>.</u>	
										<u> </u>
										<u> </u>
									<del></del>	<del> </del>
							* *****			
				<u> </u>	<u></u>		<u> </u>			
		<u> </u>	<del> –</del> –							<del> </del>
	•						· · ·			
		·					<del></del>			ļ
									<del></del>	
							<del></del>			
rash / Litt Ioodplain	er: Yes wetland	sent: Yes / No (No) s: Yes No If s No (Wetland or	so, appr	oximate size: L	_ength	/ Wi	dth		estrife (	∃ Other
otes:		t ark B				,				



Stream Section Name: NF 77
Date: 03/2

Parameter	Score	Explanation of Score Given
Channel condition	5	
Riparian zone	7	
Bank stability	7	
Water appearance	7	
Nutrient enrichment	8	·
Fish barriers	6	
In-stream fish cover	4	
Embeddedness	6	
Invertebrate habitat	G	
Canopy Cover	7	
AMD (if applicable)	A/W	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	63 + 10	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

**Stream Section Name:** 

Date:

NF 77 7 79

#### Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

		Cha	nnel Condit	tion		
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of channel alte with signific of channel a Any dikes o set back to access to an flood plain.	eration, bu ant recove and banks r levies are provide	t the read and/or c Excess braided levees re	channel; <50% of th with riprap hannelization. <b>aggradation;</b> channel. Dikes or estrict flood plain	downcu >50% of riprap of Dikes or	I is actively tting or widening. If the reach with r channelization. Ievees prevent to the flood plain.
10 9 8	7 6	(5)	4 3	2		1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  • Or	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or	Natural vegetation less than a third of the active channel width on each side.  Or
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
10 9	8 (7') 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	(7) 6 5 4	3 2	1

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: NF 77 > Date: 03/24

	Water Ap	pearance	·	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no oil sheen on water surface.	Considerable cloudiness most of time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with heavy green or olivegreen film.	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.	
	·	Moderate odor of	Or	
		ammonia or rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.	
10 9 8	7) 6 5 4	3 2	1	

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

					Nu	trient	<u>Enrichmen</u>	it	
reach; comm	water along diverse aq unity little a h present.	uatic plan algal	t gree enti alga	ly clear enish ware reach al grow strates.	ater ald n; mod th on s	ong erate	entire read algal grov	water along ch; abundant wth, especially rmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	(8)	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

				Fish	Barriers			
No barriers.	with				dams or ns (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	8	7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

instream Fish Cover									
>7 cover available		6 to	7 cover able	types	4 to 5 coveravailable	er types	2 to 3 cov available		None to 1 cover type available
10	9	8	7	6	5	(4)	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: \_

NF 77 9 79 03/24/08

					Embed	ldedness			
Gravel or particles a embedde	are <20%	partic	el or cok bles are embedd	20 to	Gravel or particles 40% emb	are 30 to	Gravel of particles embedde	are >40%	Completely embedded.
10	9	8	7	6	5	4	3	. 2	1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded:

					Insec	:t/invertel	orate Hab	itat	
availat stage t coloniz	gs not fres	it is at a Il insect ody debris	3 to 4 to Some exists, trees, thabitate	pote sucl whic , bul	ntial ha n as ov h will pi . have r	ibitat erhanging rovide not yet	The subs disturbed removed velocities	es of habitat. trate is often , covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9	8	7 (	6)	5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

Key: Th	Canopy nis pertains to waterways when Coldwater	e channel is 50 feet w	ide or less.						
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.						
10 9 8 (7) 6 5 4 3 2 1									

	Aband	oned Mine D	rainage (if ap	plicable)	
(Intentionally blank)		of iron staining. Or iron precipitate	muddy ora	-	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sewickley	/ Creek	Visual	Assessment
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Stream Section Name:

Date:

NF 77 -> 79

Sewage (if applicable)

(Intentionally blank)

Noticeable odor, excess plant growth and siltation.

And

Questionable pipe and black stream substrate.

5 4 3 2 1

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)										
(Intentionally blank)		of livestock iparian zone.	stream or	nl manure in waste storage ocated on the	Extensive amount of manure on banks or in stream.					
MA					Untreated human waste discharge pipes present.					
	5	4	3	2	1					

### **NOTES**

		g Sewickley			isual A	ssessme	nt	
Evaluator	's' Name	s	CB/KS	•		Date:	3/24/	08
ub-Wate	rshed _	NFBS	<u> </u>					
		ANT to NFI				•		
		ns Today^					C /a-1.4.1	
			<del>3119 3 willy</del>	, (V) ras	st Z-5 Days		3 preso	
ctive Cn	annei v	/idth: feet						
			LAND USE WI	THIN DRAINAG	E (%):			
razing Pa	asture	10	Grassy Field		-	Row Crops		<b>*</b>
orest .		940 75		Latin	D 15	Industrial		brend.
ommerci	<u>al</u>		Abandoned I		2013-55	Other		-
	1.			STRATE (%):	0.114			
Boulder				vel 2s	Silt		Mud	10
	DESCR	IBE THE LAND L	ISE OF THE A	REA THAT THE	SIREAM	FLOWS THRO	DUGH:	
			· · · · · · · · · · · · · · · · · · ·					
		<u></u>						
			CDC DOI	NTC / DUOTOS				
	Disate	I December	GPS POI	NTS / PHOTOS	*	·		T
aypoint	Photo	Description	1. 11 2	A	1		pH 7 90	Cond.
NF 62	1.	de bris	7 (	Main roa	<u>a</u>		7.10	350
JF 64	2	strew	,	nkr e vece	at Clas	<del>.</del>		
VF 65			Tris. fro		<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>		7.81	230
F 66	3			the west.			7.56	420
	4	5 × 0 3	TICH O	w llama. H	aterfall	,		- 24.43
1567				halocks 1			8.06	150
F 68		5 ed i ment	deposits in	channel 6	) ATV F	rail X-Ing.		
F 69	<u>¥</u>		de l debr	form lan	- Los ka	/ 1 - 2 - 2 - 3		
r 6			Tron		1 1114	2 1 1 x 4 x 5 1	7.82	260
JF 70	8	Deser		intensectio	2 W/ ol	d road.	1,16,	
VF 7		Major Trib.	from He				7,58	360
UF 7 à		Spice & F	il From C	eart de	bis jak	\	7.68	180
16 3		_ trib tran	East_				7.76	
) F 7 L	q	Main st		quality ch			7,78	580
)F 75	10	old far.	rib. belan	pond. / p	end Silti	3" 111.	7.67	840
F76		End pain		under road	ارديد عال	con we new	7.81	470
1-77		ATV 1	11 / Rid	Les way	I new h	ider with		
			/ /	- Myd	Lourbed 1	nto striam	70 ma	
1-78	15	15" 0 3 PP						
F-79	13	-wetland	in area	4 lop of .				<b></b>
=		esent: Yes (No)					sestrife [	J Other
ash / Litt	ter: Yes	/No not A	uch, som	e near top a	f section	where		
			•	n <b>ate size:</b> Lengi			t	
-		s / No (Wetland o			-			
		Auth, reed		lor ik	ال ۱۱ م		17 .	
•			12 CONE	RUFU RUM	LATTE	ett er	Freit !	51111
-9	Need	to check s	oil typer	in this no	ra to c	pe who sa	nuch	erusta
			. / / . /	עט לויין		C very or	,	- · · · · · · ·

Parameter	Score	Explanation of Score Given
Channel condition	4	
Riparian zone	9	
Bank stability	3	
Water appearance	7	
Nutrient enrichment	8	
Fish barriers	3	
In-stream fish cover	7	
Embeddedness	5	
Invertebrate habitat	8	
Canopy Cover	8	
AMD (if applicable)	NIA	
Sewage (if applicable)	P/A	
Manure presence (if applicable)	~/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	62710	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:

Date:

NF 62 - 76

**Scoring Descriptions** 

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	el Condition	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	7 6 5 (4)	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or	Natural vegetation less than a third of the active channel width on each side.  Or	
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.	
10 (9)	8 7 6	5 4	3 2	1	

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	7 6 5 4	(3) 2	1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: NAME:

	Water	Appearance	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no sheen on water surface		Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
		Moderate odor of ammonia or rotten eggs.	Or Strong odor of chemicals, oil, sewage, other pollutants.
10 9 8	7 6 5 4	3 2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment											
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or sligh greenish water alor entire reach; mode algal growth on str substrates.	ng entire rate algal	nish water along reach; abundant growth, especially g warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.								
10 9 (8)	7 6 5	4 3	2	1								

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					risn	Barriers			
No barriers.		withd			Drop structures, diversion drop) with reach.	dams or os (<1ft	culver divers	structures, ts, dams or ions (>1ft within 1 mile of	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	1	8	7	6	5	4	3	) 2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

				Instream	Fish Cov	er		
>7 cover types available		7 cove	r types	4 to 5 co available		2 to 3 co available	over types	None to 1 cover type available
10 9	8	(7)	6	5	5 4		2	1

Cover types: Logs/large woody-debris, deep pools, overhanging vegetation, boulders/cobble, diffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:

Stream Section Name:  $NF GZ \rightarrow Date$ : O3/24/

Embeddedness													
Gravel or or particles ar embedded	re <20%	Gravel of particles 30% em	are 2	0 to	pa	articl	l or cob es are : embedd	30 to	Gravel particle embed	s are		Completely embedded.	
10	9	8	7	6		5)		4	3		2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3rd of the way by sediment then it is 30% embedded.

						Insec	t/invertel	orate Hab	oitat	
availal stage t coloniz	ot 5 types of ole. Habitat to allow full cation (wood gs not fresh	is at a insec dy del	a t	Son exis tree habi	ne pote ts, sucl s, whic tat, but	s of hat ntial ha n as ove h will pr have r strean	bitat erhanging ovide ot yet	The substitution disturbed removed velocities	pes of habitat. Strate is often I, covered, or by high stream s and scour or by t deposition.	None to 1 type of habitat.
10	9	(8	$\mathcal{T}$	7	6	5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cooble, boulders, coarse gravel, other: \_\_\_

Key: Th	Canopy ( is pertains to waterways <b>wher</b> Coldwater	e channel is 50 feet wid	le or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.
10 9 (/8)	7 6 5 4	3 2	1

	Abando	ned Mine D	rainage (if apı	olicable)	
(Intentionally blank)		iron staining. Or ron precipitate	Iron precipit muddy oran appearance	ge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name: \_ Date:

<i>[V]</i>	- Ca	2-9	76
(P\$=	127	108	
	03	124/0	18

	Se	wage (if a	applicable)	
(Intentionally blank)	Noticeable odor, plant growth and		Noticeable odor, exc	cess Visible pipe with effluent, heavy odor.
WA			And	
MA			Questionable pipe a	nd
			black stream substra	ate.
	5	4	3	2 1

Mark discharge(s) on map and/or with GPS unit.

	Manure P	resence (if a	ipplicable)	
(Intentionally blank)	Evidence of livesto access to riparian z	zone. stre	casional manure in am or waste storage cture located on the d plain.	Extensive amount of manure on banks or in stream.  Or
· · · · · · · · · · · · · · · · · · ·				Untreated human waste discharge pipes present.
	5 4	3	2	1

### **NOTES**

# **Big Sewickley Creek Watershed Visual Assessment**

Evaluators' Names	KS / SA		Date: <u>5-/3</u>	3-08	
Sub-Watershed	Stream Se	ection Name _			
	nb to North Fork Reference				
	Today 70'S Sunny			<u> </u>	
Active Channel Width		_1 a3t 2-0 Day	ys <u> </u>		
Active Channel Width	1: 1-5 leet				
	LAND USE WITHIN DRAI	NAGE (%):			
Grazing Pasture	Grassy Field		Row Crops		
Forest	9.5 Residential	5	Industrial		
Commercial	Abandoned Mine Lands		Other		·····
	SUBSTRATE (%				
Boulder 5	Cobble 5 Gravel 80	<u>—</u> .	<u></u>	Mud	<u>5</u>
	THE LAND USE OF THE AREA THAT				<u>_</u>
Hill forested	where it mosts NFBSC they hrough field where they 've plan	es one p	ome owner, a	joes u	<u>inder</u>
Nothig Ra 14	nibugh Field where ging we plan	ireal trees			
	GPS POINTS / PHO	TOS:			
Waypoint Photo Des	scription			Hq	Cond.
FTIWI 8 / /W	UT OF THIB & NORTH FORK			7.71	320
	Debn's Jam	<del></del>			
	Schris dan-			7.61	260
	teadwater area			7.61	1260
				<u>.</u>	
				+	<del> </del>
			· <u>······</u>		ļ
	<u> </u>	<u> </u>	·		<del> </del>
				+	
·				ļ	
		***************************************			
	(A)	<b>7</b> O-vii- vorati	and <b>a</b> Dominia in a		7 Others
Invasive plants present		J Garlic musta	ard 🗆 Purpie iooi	sestrire L	J Other .
Trash / Litter: Yes / No					<del></del> `
Floodplain wetlands:(Y	′es√ No	ength/ V	Nidth feet		
Flooded areas: Yes No	o (Wetland or other)				
Notes:	Small art	as	•		
otheam is	o (Wetland or other) - Small are very clear, no algae	-			

Stream	Section	Name:	
		Date:	

Parameter	Score	Explanation of Score Given
Channel condition	10	
Riparian zone	/0	
Bank stability	9	
Water appearance	10	
Nutrient enrichment	9	
Fish barriers	9	
In-stream fish cover	9	
Embeddedness	2	
Invertebrate habitat	9	
Canopy Cover	10	
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	MA	
TOTAL SCORE (Add all scores and divide by number of scores given)	J. 7	< 6.0 = POOR 6.1 – 7.4 = FAIR 7.5 – 8.9 = GOOD > 9.0 = EXCELLENT

Big Sewickley	/ Creek Visual	<b>Assessment</b>
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Stream Section Name:	
Date:	

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	el Condition	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	7 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

	-	Ripariar	Zone	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.	extends half of active channel width on each		Natural vegetation less than a third of the active channel width on each side.
	Or	side.	Or	Or
	If less than one width, covers ent	ire .	Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
<u>(10)</u> 9	8 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank Stability								
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).						
10 (9) 8	7 6 5 4	3	1						

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section	Name:	
	Date:	

		Watel M	pearance	·	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally objects visibl 1.5 to 3 ft; m slightly greer sheen on wa	e at depth ay have n color; no oil	most of tin visible to of ft; slow se appear pe rocks or st objects co	vered with en or olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
			Moderate odor of ammonia or rotten eggs.		Or Strong odor of chemicals,
10) 9 8	7 6	5 4	3	. 9	oil, sewage, other pollutants.

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient E	Inrichment	
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10 (9) 8	7 6 5 4	3 2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

	•	Fish Barriers		
No barriers.	Seasonal water withdrawals inhibit movement within the reach.	Drop structures, culverts, dams or diversions (<1ft drop) within the reach.	Drop structures, culverts, dams or diversions (>1ft drop) within 1 mile of reach.	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 (9)	8 7 6	5 4	3 2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

				Instream	Fish Cov	er		
>7 cover types available	6 to 7	7 cover able	types	4 to 5 co available	ver types	2 to 3 co available	7.	None to 1 cover type available
10 (9)	8	7	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name:	
Date:	

						Embe	ddedness				
Gravel or co particles are embedded.		% pa	avel orticle: % en	are	20 to	1	or cobble are 30 to bedded.		or cobble es are >40% ded.	Completely embedded.	
10	9)	8		7	6	5	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

					Insec	t/invertel	orate Hab	itat	
available stage to	e. Hab allow tion (v	es of habitat oitat is at a full insect voody debris reshly	exists trees,	poter , such which t, but	ntial ha as oven will pr have r	bitat erhanging ovide ot yet	The subs disturbed removed velocities	es of habitat. strate is often , covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9)	8	7	6	5	4	3	2	1

**Cover types:** Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

Key: Th	Canopy nis pertains to waterways <b>wher</b> Coldwater	e channel is 50 feet w	ide or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.
10) 9 8	7 6 5 4	2	1

	Aband	oned Mine Dr	ainage (if app	licable)	
(Intentionally blank)		f iron staining. Or iron precipitate.	Iron precipita muddy orang appearance.	je	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
,	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big	Sewickley	Creek	Visual	<b>Assessment</b>

Stream Section Name:	
Date:	

Sewage (if applicable)								
(Intentionally blank)		odor, excess n and siltation.	Noticeab plant gro	le odor, excess wth.	Visible pipe with effluent, heavy odor.			
				And				
				able pipe and eam substrate.				
	5	4	3	2	1			

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)									
(Intentionally blank)	Evidence of live access to ripar		stream or	Il manure in waste storage ocated on the	Extensive amount of manure on banks or in stream.  Or				
· .					Untreated human waste discharge pipes present				
	5	4	3	2	1				

# **NOTES**

Big Sewickley Creek Watershed Visual Assessment

				,							1		
Evaluato	rs' Name	s		K5/C1	<u> 3                                    </u>				_ Date		01/31	108	?
Sub-Wate	ershed _		NEBS	<u>c `</u>	Strea	am Sec	tion N	ame _		NF 4	0 -3	45-	
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Active Ci				<u> </u>								3/0	<u> </u>
ACTIVE OF	ianitoi vi	nuin <u>o</u>						··; ····					
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Grazing F	asture	-/			Field		V	10	<del></del> -	Crops		<del> </del>	
Forest	· · · · · · · · · · · · · · · · · · ·	<u> </u>		Residen			V	15	Indus	<del></del>		<del> </del>	
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Davida	<del></del>		hhio		SUBSTRA'			C:14		<del></del>	N. Land		
Boulder	70.			25 ISE OF TH				Silt	25 EL OW		Mud	10	<u></u>
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Waypoint	Photo	Descri	otion								На	Tod	ond.
NF 40	P	Int.	of Woo	idlad, f	Pleasant 1	Hill	Lou	È	Golden	Gove 6	2d-	-	711-11
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NP42	18 18	( 6)	sible.	ad gov	a breach	$\frac{\partial}{\partial x} = \frac{\partial}{\partial x}$	owhs fr	een C	V6510	n / sed	identat	<u>.1012</u>	<del></del>
NF 44	1/19	Vir	1 place	<u> </u>	A BOTTO	M	3 cma	<u> </u>			7,60	5 91	
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Γrash / Litt	er: (Yes	No_	Yav	rd waste	! , little	r fra	~ ro	ad in	terrec	tion			
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looded ar													
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lotes:									•				
ΑÑ													



Stream Section Name: NF 40 > Date: 01/31/0

Parameter	Score	Explanation of Score Given
Channel condition	6	
Riparian zone	7	
Bank stability	6	
Water appearance	6	
Nutrient enrichment	6	
Fish barriers	5	
In-stream fish cover	5	
Embeddedness	6	
Invertebrate habitat	7	
Canopy Cover	8	
AMD (if applicable)	N/A	
Sewage (if applicable)	N/A	
Manure presence (if applicable)	n/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	62÷10 6.2	< 6.0 = POOR 6.1 – 7.4 FAIR 7.5 – 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:

Date:

NF 40 - 3 4)

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

,					С	hanne	el Conditio	n	
structu eviden Cutting	al channel; ures, dikes. nce of down g or excess cutting.	No -	chanr with s of cha Any d set ba	nel a ignii inne ikes ick t s to	of past alteration, ficant rec al and bar or levies o provide an adequ	overy iks. are	the reach and/or cha Excess <i>ag</i> braided ch	annel; <50% of with riprap nnelization. gradation; annel. Dikes or trict flood plain	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10	9	8	7	6	5	4	3	2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side	channel width on	Natural vegetation extends half of the active channel width on each	Natural vegetation extends a third of the active channel width on each side.	Natural vegetation less than a third of the active channel width on each side.	
	Or	side.	Or	Or	
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.	
10 9	8 (7) 6	5 4	3 2	1	

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bai	k Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active floo plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the base flow elevation.	typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	7 (6) 5 4	3 2	1

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: NI

Name: NF 40 94)
Date: 01/31/08

	Water Ap	pearance	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no oil sheen on water surface.	Considerable cloudiness most of time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with heavy green or olivegreen film.	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
		Moderate odor of	Or
		ammonia or rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 9 8	7 (6) 5 4	3 2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

					Nu	trient l	Enrichmer	nt	
reach; commu	vater along diverse ad unity little n present.	uatic plant algal	greei	nish v e read grov	r or sligh vater alc ch; mod vth on s	ng erate	entire read	water along ch; abundant wth, especially rmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	8	7	(6)	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

						Fish Barriers			
No barriers.		with	ement v	ater inhibit vithin the	cul div	op structures, verts, dams or ersions (<1ft p) within the ch.	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	7	6	1 ( 8	5) 4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

	Instream Fish Cover										
>7 cover types 6 to 7 cover types 4 to 5 cover types 2 to 3 cover available available available								None to 1 cover type available			
10 9 8 7 6					(5	4	3	2	1		

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, underout banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name:

NF 40 7 45 01/31/08

					Embed	idedness				
Gravel or particles a embedded	re <20%	partic	el or cob cles are 2 embedd	20 to	Gravel or particles 40% emb	are 30 to	Gravel of particles embedd	are >40%	Completely embedded.	
10	9	8	7	6	5	4	3	. 2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded:

					Inse	ct/inverte	brate Ha	bitat		
availab stage t coloniz	ole. Habita o allow fu ation (woo gs not fres	ll insect ody debris	Sor exis trée hab	ne pote sts, suc es, whic pitat, bu	h will p	abitat verhanging vrovide not yet	The sub disturbe removed velocitie	pes of habitat. strate is often d, covered, or d by high stream s and scour or by t deposition.	None to 1 type of habitat.	
10	9	8	7	6	5	4	3	2	1	

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

		Key:	This	pertains	to wate	rways <b>w</b> h	y Cover nere channel ter fishery	is 50 feet wi	de or less.	
shaded 3 miles	>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.  > 50% shaded in reach.  Or  >75% in reach, but upstream 2 to 3 miles poorly shaded.							20 to 50% shaded. <20% of water surface i reach shaded.		
10	9	(8)	7	6	5	4	3	22	1 .	

-	Aband	oned Mine Dr	ainage (if ap	plicable)	
(Intentionally blank)	<u> </u>	f iron staining. Or iron precipitate.	Iron precipi muddy orar appearance	nge	Heavy iron precipitate, noticeable kill zone.  Or  White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name:  $NF 40 \rightarrow 45$ Date: Ol/31/08

•	Sewage (if applicable)										
(intentionally blank)	Noticeable odor, plant growth and		Noticeable odor, excess plant growth.	Visible pipe with effluent, heavy odor.							
·			And Questionable pipe and black stream substrate.								
	5	4	3 2	1							

Mark discharge(s) on map and/or with GPS unit.

	Manure Presence (if applicable)										
(Intentionally blank)	Evidence of live access to riparia		Occasional stream or we structure loc flood plain.	aste storage	Extensive amount of manure on banks or in stream.  Or						
· .	,				Untreated human waste discharge pipes present.						
	5	4	3	2	1						

# **NOTES**

**Big Sewickley Creek Watershed Visual Assessment** CB/K5 \_\_\_\_\_\_Date: \_\_\_//31/08 Evaluators' Names\_\_\_\_\_ Sub-Watershed NFBC Stream Section Name NFBC 32 -> Stream Name \_\_\_\_\_\_ NF BSC \_\_\_\_\_ Reference Section Weather Conditions Today over cart, ~25°F Past 2-5 Days scattered rain Ishan Active Channel Width: 4ず feet LAND USE WITHIN DRAINAGE (%): Grassy Field Grazing Pasture Row Crops 50 Residential Industrial Forest 15 Abandoned Mine Lands Commercial 20 Other SUBSTRATE (%): Boulder Cobble 40 Gravel 40 Silt 20 DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH: Buck years of residutial, lange would lot . Them Hill Ind. Ponts at too of waterhed with two love SWM baring p head watery. Arear along Streen change were cleared for sewage lines (Economy Boro) that were put in 3-4 **GPS POINTS / PHOTOS:** year ago, Waypoint | Photo Description pН Cond. 32 Start paint Confliance of tribs. / without along sewage line Tail. 1130 MAIN STEM -> 7.62 small debris jam from Firewood falling into stream 34 18" 0 SPP outlet from road draining system × Confluence with small tribe 580 36 8.08 stabilization (block walls failing) 77 877-8 "old school"bank S.W. M. Dand withet from Ind. Park 38 - svillway red rock - water in prod 10 4 11-12 huge bude rubs 13 Bigger K.W.M. pend (frozen below Tri-County Soccer facility streambout eveributlet pipe (below) 14-15 also small STP w/ discharge -> 7.70 640 residutial bank stabilization. 3.

invasive plants present: Yes / No					
Trash / Litter: (Yes) Noglar	dump bet	MIN POP 34	est pard and	5TP @	NF 39
Floodplain wetlands: Yes / No If	so, approximat	e size: Length	/ Width	_ feet	
Flooded areas: Yes / No (Wetland or	other)		·····		<del></del>
Notes:			•		

Parameter	Score	Explanation of Score Given
Channel condition	6	
Riparian zone	6	Sewer line installation
Bank stability	7	
Water appearance	7	
Nutrient enrichment	6	'Black' growth on roctor on substrate
Fish barriers	5	multiple driveway crossings near NF36
In-stream fish cover	5	
Embeddedness	8	
Invertebrate habitat	7	
Canopy Cover	8	
AMD (if applicable)	N/A	
Sewage (if applicable)	Ala	
Manure presence (if applicable)	N/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	65 ÷ 10 = 6.5	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:  $\frac{1/31/68}{15.33736}$ 

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

		С	hanne	el Conditio	n	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	channel with sign of chann Any dike set back	e of past alteration, nificant record and bares or levies to provide an adequals.	overy nks. are	the reach and/or cha Excess ag braided ch	annel; <50% of with riprap unnelization. gradation; annel. Dikes or trict flood plain	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	7 (6	5	4	3	2	. 1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

					 Rip	arian Zo	ne		
extends active cl	Vegetation at least two nannel n each side.	Natural extends channe each sid	s one a I width	active	Natural v extends h active cha width on	nalf of the annel	extends the activ	vegetation a third of e channel each side.	Natural vegetation less than a third of the active channel width on each side.
			Or		side.		}	Or	Or
		If less the width, confident flood plane.	overs				Filtering moderat compron	ely	Lack of regeneration. Or Filtering function severely compromised.
10	9	8	7	6 )	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

				Banl	<b>Stability</b>		
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	ele pla erc ba is tha	evation ain; less oding s nks in c protecte	s than 3 urface a outside ed by ro id to the	e flood 3% of area of bends oots	banks may typically a occurs 1 y less freques bends are (overhang at top of bottomature treestream and typically and typically are treestream and typically at the stream and typically are treestream and typically at the stream and typically at the typically are typically at the typicall	y unstable; y be low, but re high (flooding rear out of 5, or ently); outside actively eroding ing vegetation ank, some es falling into nually, some res apparent).	inside edges of bends are actively eroding as well as
10 9 8	7	6	5	4	3	2	1 1

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: NF

Name:  $N^{5} 32 - 39$ Date: 01/31/6

					W	ater A	ppearance	<del></del>	•
colored depth slightly sheen notices	clear, or cle d; objects 3 to 6 ft (le / colored); on surface able film o	ess if no oil e; no n	obje	casional ects visi to 3 ft; i htly gred en on w	ble at omay had en colo	depth ive r; no oil	most of till visible to ft; slow se appear pe rocks or s	able cloudiness me; objects depth 0.5 to 1.5 ections may ea-green; botto ubmerged overed with en or olive-	appearance most of the time; objects visible to depth <0.5 ft; slow moving
							Moderate ammonia	odor of or rotten eggs.	Or Strong odor of chemicals, oil, sewage, other pollutants.
10	9	8	71	6	5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

					Nu	trient	<u>Enrichmen</u>	nt	
reach;	water along diverse ac unity little h present.	uatic plant algal	gree entir alga	nish w e reac	r or slig vater alc h; mod vth on s	ong erate	entire read algal grov	water along ch; abundant wth, especially rmer months	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	8	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fi	sh Barriers			
No barriers.		with	ement v	ater inhibit vithin the	culve diver	structures, erts, dams or sions (<1ft ) within the ).	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	7	6	5	) 4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

					ln	stre	am Fish Cov	er		
>7 cover available	• •		7 cover lable	types			5 cover types aple	2 to 3 co available		None to 1 cover type available
10 .	9	8	7	6		5	/ 4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, liffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: WF 3

					Embe	ddedness			
Gravel or co particles are embedded.		pai	avel or co ticles are % embed	e 20 to		or cobble are 30 to bedded.	1	or cobble s are >40% led.	Completely embedded.
10	9	(8/	7	6	5	4	3	. 2	1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded:

					Insec	t/invertek	orate Habi	tat	
availat stage t coloniz	gs not fres	t is at a Il insect ody debris	So exi tred hat	o 4 types me pote sts, such es, which bitat, but ered the	ntial ha n as ove n will pr have n	bitat erhanging rovide ot yet	The substr disturbed, removed b	es of habitat. rate is often covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9	8 (	7	6	5	4	3	2	1

gravel, other:

	Key: Th	nis pertains	to water	ways wh	y Cover ere channel i er fishery	s 50 feet wid	de or less.
>75% of water su shaded and upstr 3 miles generally shaded.	> 50% sł >75% in upstream shaded.	Or reach, bu	20 to 50%	shaded.	<20% of water surface in reach shaded.		
10 9	(8/	7 6	5	4	3	2	1 .

	Aband	oned Mine Dra	ainage (if ap	pplicable)	
(Intentionally blank)		f iron staining. Or iron precipitate.	Iron precip muddy ora appearanc	•	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name: NF 32 - 39

Date: 01/31/08

	Sewage (if	applicable)	
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.	Visible pipe with effluent, heavy odor.
N/A		And Questionable pipe and black stream substrate.	
	5 4	3 2	1

Mark discharge(s) on map and/or with GPS unit.

	Manure	e Presen	ce (if applica	ble)	
(Intentionally blank) レ/A	Evidence of live access to riparia			manure in vaste storage cated on the	Extensive amount of manure on banks or in stream.  Or
					Untreated human waste discharge pipes present.
	5	4	3	2	1

# **NOTES**

Big Sewickley Creek Watershed Visual Assessment CB | SA Date: 10/31/07 Evaluators' Names\_\_\_\_\_ Sub-Watershed Nek For BSC Stream Section Name NFBSC 23 -> 3 Active Channel Width: ^/0 feet LAND USE WITHIN DRAINAGE (%): Grazing Pasture Grassy Field 10 Row Crops 50 Residential Industrial Forest 40 Commercial Abandoned Mine Lands Other SUBSTRATE (%): Cobble Gravel Silt Boulder Mud DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM FLOWS THROUGH: This stream section runs through forested areas that are bound by sparsely populated residutial areas with large lot sizes and a lot of green spale. **GPS POINTS / PHOTOS:** Waypoint | Photo | Description Cond. start : big pend w/ bridge to private have beavers (chewed trees and "drag path" to pond) 23 thee jain 7.88 670 trib from the left. bridge over Bradford Ponk Rd. wer int. w Summer Field Dr. cover shot downstream Invasive plants present: Yes (No) ☐ Japanese Knotweed ☐ Garlic mustard ☐ Purple loosestrife ☐ Other Trash / Litter: Yes (No Floodplain wetlands (Yes) No If so, approximate size: Length \_\_\_\_ / Width \_\_\_\_ feet Flooded areas (Yes) No (Wetland or other) ducks, deer beaver evidence, lage hawk or owl? Notes: Landauer have test stream bottom clean and others managed for conservation. \* jumped nice buck just below Bradford Park Rd.

Big Sewickley Creek Visual Assessment

Stream Section Name: NFBSC 23 → 3 |
Date: 10 | 31 | 6 7

Parameter	Score	Explanation of Score Given
Channel condition	7	
Riparian zone	9	
Bank stability	9	
Water appearance	8	
Nutrient enrichment	8	
Fish barriers	7	
In-stream fish cover	8	
Embeddedness	8	
Invertebrate habitat	9	
Canopy Cover	10	
AMD (if applicable)	NA	
Sewage (if applicable)	N/A	
Manure presence (if applicable)	N/A	
TOTAL SCORE (Add all scores and divide by number of scores given)	9.3	< 6.0 = POOR 6.1 - 7.4 = EAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Stream Section Name:

NFBS( 23 -> 3)

ate:

#### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

		C	hanne	el Conditio	n	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	chann with si of cha Any di set ba	nce of past el alteration gnificant rec nnel and ba kes or levie ck to provide s to an adeq lain.	covery nks. s are	the reach vand/or cha Excess ag braided ch	annel; <50% of with riprap nnelization. gradation; annel. Dikes or trict flood plain	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	(7)	6 5	4	3	2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Z	one	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or If less than one width, covers entire flood plain.	Natural vegetation extends half of the active channel width on each side.		Natural vegetation less than a third of the active channel width on each side. Or Lack of regeneration. Or Filtering function severely
				compromised.
10 (9)	8 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank	Stability	
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 (9/8	7 6 5 4	3 2	1

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name: NFB.

NFBSC 23 -> 3

			V	Vater A	ppearance		
colored depth s slightly sheen notices	lear, or clear but tead; objects visible at 3 to 6 ft (less if colored); no oil on surface; no able film on rged objects or	objects v 1.5 to 3 slightly g	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no oil sheen on water surface.			ble cloudiness le; objects epth 0.5 to 1.5 btions may a-green; bottom bmerged vered with en or olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
		٠.				dor of	Or
						r rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10	9 (8)	7 6	5	4	3	2	1 :

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

					Nu	trient	Enrichme	nt	
Clear wat reach; div communit growth p	erse aq y little a	uatic plar a <b>lgal</b>	t gred enti alga	rly clear enish wa re reach al grow strates.	ater ald n; mod	ong erate	entire rea	water along ich; abundant wth, especially armer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	(8)	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fish	Barriers			
No barriers.		with	ement/	water s inhibit within the	culverts		Drop struculverts, diversior drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	8	(7)	6	5	4	3	2	1

Keys: You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would impede fish passage.

	Instream Fish Cover										
>7 cover available		6 to	7 covei la <u>ble</u>	types .	4 to 5 co available	ver types	2 to 3 co available	ver types	None to 1 cover type available		
10	9	(8)	7	6	5	4	3	_2	1		

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, (ffles) undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name: NFBSC :

				Embed	dedness	· · · · · · · · · · · · · · · · · · ·			
Gravel or cobble particles are <20% embedded.	pa	avel or co rticles are % embed	20 to	Gravel o particles 40% eml	are 30 to	Gravel o particles embedde	are >40%	Completely embedded.	
10 9 (	8	/ 7	66	5	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded:

	Insect/inverteb	orate Habitat	
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.
10 (9) 8	7 6 5 4	3 2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks cobble, boulders, coarse gravel, other:

		Key: Th	is per	tains to	water	ways wh	y Cover ere channel er fishery	is 50 feet wid	de or less.
shad	6 of water si ed and upst es generally ed.	ream 2 to	>75		Or ach, bu		20 to 50%	shaded.	<20% of water surface in reach shaded.
10 /	9	8	7	6	5	4	3	2	1

	Aband	oned Mine Dr	ainage (if a	pplicable)	
(Intentionally blank)		of iron staining. Or iron precipitate.	muddy ora	_	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name:  $NFBSC 23 \rightarrow 3$  Date: 10/3(10)

	Sewage (if a	applicable)	
(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth.	Visible pipe with effluent, heavy odor.
1 .		And	
10/ A		Questionable pipe and	'
		black stream substrate.	
	5 4	3 2	1

Mark discharge(s) on map and/or with GPS unit.

	Manure Presence (if applicable)									
(Intentionally blank) N	Evidence of live access to ripari		stream or	ol manure in waste storage ocated on the	Extensive amount of manure on banks or in stream.  Or					
· • • · ·					Untreated human waste discharge pipes present.					
	5	4	3	2	1					

### **NOTES**

	g Sewickley Creek watershed w				1
Evaluators' Name	s KS/SA/CB	***	Date: 10-8-0	17 9	10/31/
Sub-Watershed _	Stream Section  ORTH FORK Reference Sect	n Name	NFBSC 15	->	22
Stream Name	NORTH FORK Reference Sect	ion			
	ns Today 70'S (LOUDY Pas	t 2-5 Days	Sunny	<u>~ s</u>	J'F a
Active Channel W			, ,		
		E (0/ ).		· · · · · · · · · · · · · · · · · · ·	
Grazing Pasture	LAND USE WITHIN DRAINAG Grassy Field	10	Row Crops	—	
Forest	70 Residential	20	Industrial	-	
Commercial	Abandoned Mine Lands		Other		
	SUBSTRATE (%):		Q1	ruk	
Boulder	Cobble 25 Gravel 20	Silt	100 15 Mar		40
DESCR	IBE THE LAND USE OF THE AREA THAT THE	STREAM	LOWS THROUG	<u></u> ЭН:	<u></u>
Sparsyl	y residential with large lot siz	er-laina	out sticp	WUO	ded
	hillsides.	<i>l</i> ~			·
	GPS POINTS / PHOTOS				
Maynoint   Photo	Description GPS POINTS / PHOTOS		- <del></del>	<u></u>	Cond
Vaypoint Photo VFBSC 15	START / TRIB ON LEFT (NEW SECT	* *	Ircc ALLAC	<u>рН</u> 7.0	Cond.
VFBSC 16 13	BROOK-/TRIB ON PIGHT	· pue 10	(ESSIGNE)	<u> 1.0</u>	6.70
PBSC17	END OF DAY/HOMEOWNER BRIDG	 ۶-E			
1	shot upstracen				
18 2	shale cliffs alon stream	· · · · · · · · · · · · · · · · · · ·			<u> </u>
20	floodplain wetland (near int. w	Cohumy - W	elvose Rd.)		
21	confluence w/ trib. fram, le			7.94	770
2.3. 3	bod bridge (2 small piper)	1			
		·			
			· .		
		<del> </del>		-	
					·
			al en en an el el e		<b>.</b> Ou
nvasive plants pr		arlıc mustar	a 🗆 Purple loose	strite [	J Other
	il No very little	· · · · · · · · · · · · · · · · · · ·			
loodplain wetlan	ds:(Yes)No If so, approximate size: Leng	th <u>400</u> 7W	idth <u>500</u> feet		
looded areas: Ye	es / No (Wetland or other)				
otes:					

Stream Section Name:  $NFBSC | 5 \rightarrow 2\lambda$ Date:  $10/8 \cdot 10/31/07$ 

Parameter	Score	Explanation of Score Given
Channel condition	8	
Riparian zone	8	
Bank stability	8	
Water appearance	8	
Nutrient enrichment	7	
Fish barriers	9	
In-stream fish cover	8	
Embeddedness	8	
Invertebrate habitat	8	
Canopy Cover	9	
AMD (if applicable)	N/A	
Sewage (if applicable)	N/A	
Manure presence (if applicable)	NIA	
TOTAL SCORE (Add all scores and divide by number of scores given)	8.1	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

**Stream Section Name:** 

NFBSC 15 + 22

D:

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	l Condition	
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 (8)	7 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like <u>down cutting</u>, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

				Rip	oarian Zo	ne		
Natural Vegetation extends at least two active channel widths on each side.	exte chai	ural vege ends one nnel wid h side. Or	active			extends the active	regetation a third of e channel each side. Or	Natural vegetation less than a third of the active channel width on each side.  Or
	If less than one width, covers entire flood plain.			Side.		function ely nised.	Or Lack of regeneration. Or Filtering function severely compromised.	
10 9	(8)	7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

					Bank	Stability			· · · · · · · · · · · · · · · · · · ·
Banks are stable; a elevation of active plain; 33% or more eroding surface are banks in outside be protected by roots extend to the base elevation.	flood of ea of ends is that -flow	elev plair erod banl is pr that	lerately ation of n; less t ling sur ks in ou otected extend elevati	f active han 33 face an itside b I by roo to the	flood % of rea of sends ots base-	banks ma typically a occurs 1 y less frequ bends are (overhang at top of b mature tre stream an	ly unstable by be low, bute high (flow by ear out of by eartively eactively eactively each by ank, some by falling by anually, solutes appare	out ooding 5, or side eroding ation e into me	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9	8 /	7	6	5	4	3		2	

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

**Stream Section Name:** 

NFBSC 15 -> 22 10/8 : 10/31/07

	V	later Ap	pearance		
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally clou objects visible at 1.5 to 3 ft; may ha slightly green cold sheen on water s	depth ave or; no oil	ft; slow section appear pea-cy rocks or substitution objects cover heavy green green film.	; objects oth 0.5 to 1.5 ons may green; bottom merged red with or olive- Or	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.  Or  Strong odor of chemicals,
					oil, sewage, other pollutants.
10 9 /8/	7 6 5	4	3	. 2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

					Nu	trient	Enrichme	nt		
reach; commu	water alon diverse ac unity little h present	quatic plant algal	gree entir alga	y clear nish wa e reach I grow strates.	ater ald ; mod	ong erate	entire rea	n water alor ach; abunc owth, espe armer mon	lant cially	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	9	8 (	7)	6	5	4	3		2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fish	Barriers			
No barriers		witho			Drop stro culverts, diversior drop) with reach.	dams or ns (<1ft	Drop struculverts, diversion drop) wit reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9/	8	7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover										
>7 cover types 6 to 7 cover types available				4 to 5 co available	ver types	2 to 3 co	ver types	None to 1 cover type available		
10 9		8	7	6	5	4	3	2	1	

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble riffles undercut banks) thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Stream Section Name:

NEBSC 15 -> 22

Date:

	Embeddedness										
Gravel or cobble particles are <20% embedded.	b pa	ravel or conticles are % embed	e 20 to	Gravel o particles 40% emi	are 30 to	Gravel of particles embedde	are >40%	Completely embedded.			
10 9	8	/ 7	6	5	4	3	2	1			

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

	Insect/invertebrate Habitat											
At least 5 ty available. H stage to allo colonization and logs no fallen).	abitat i w full i (wood	s at a nsect ly debris	Some exist trees habit	e pote s, suc , whic at, bu	s of hab ential ha h as ove h will pr t have n e strean	bitat erhanging rovide not yet	The subs disturbed removed velocities	bes of habitat.  strate is often d, covered, or by high stream s and scour or by t deposition.	None to 1 type of habitat.			
10 9	) (	8	7	6	5	. 4	3	2	1			

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

Key: Th	Canopy ( nis pertains to waterways <b>wher</b> Coldwater	e channel is 50 feet wi	de or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.
10 (9) 8	7 6 5 4	3 2	1

	Abandoned Mine D	rainage (if applicable	)
(Intentionally blank)	Evidence of iron staining. Or Noticeable iron precipitate.	Iron precipitate visibl muddy orange appearance.	e, Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5 4	3	2 1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Stream Section Name:  $\frac{NFBSC | 5-\frac{1}{2}|}{Date:} \frac{22}{10/8 i 10/31/07}$ 

Sewage (if applicable)				
(Intentionally blank)	Noticeable odor, excess plant growth and siltation		Visible pipe with effluent, heavy odor.	
$\left( \Lambda \backslash \Lambda \right)$		And		
IOTA		Questionable pipe and black stream substrate.		
	5 4	3 2	1	

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)				
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or	
			Untreated human waste discharge pipes present.	
	5 4	3 2	1	

aluators' Names KS SA  ib-Watershed Stream Section Name - Stream Name - Stream Section Name - Stream Name - Stream Section Name - Stream Name	Row Crops Industrial Other  LOWS THRO	DRy Mud	5 Cond. 530
eather Conditions Today 80°S Past 2-5 Days  citive Channel Width: 35 feet    LAND USE WITHIN DRAINAGE (%):   azing Pasture   Grassy Field   20     rest   (00   Residential   20     Immercial   Abandoned Mine Lands     SUBSTRATE (%):   Oulder   /5   Cobble   M 20   Gravel   J 0   Silt     DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM F    Outpoint   Photo   Description	Row Crops Industrial Other  // LOWS THRO	Mud   DUGH:	Cond.
eather Conditions Today 80°S Past 2-5 Days  citive Channel Width: 35 feet    LAND USE WITHIN DRAINAGE (%):   azing Pasture   Grassy Field   20     rest   (00   Residential   20     Immercial   Abandoned Mine Lands     SUBSTRATE (%):   Oulder   /5   Cobble   M 20   Gravel   J 0   Silt     DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM F    Outpoint   Photo   Description	Row Crops Industrial Other  // LOWS THRO	Mud   DUGH:	Cond.
LAND USE WITHIN DRAINAGE (%):  azing Pasture   Grassy Field   20    rest   (0) Residential   20    mmercial   Abandoned Mine Lands    SED POCK   SUBSTRATE (%):  oulder   / 5   Cobble   X0 20   Gravel   50   Silt    DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM F   BY POINTS / PHOTOS:  Appoint Photo   Description    BY O   Concrete India  BY O   First / Algae  BY O   Gravel   First / Algae  BY O   First / Algae  BY O   Gravel   First / Algae  BY O   First	Row Crops Industrial Other  // LOWS THRO	Mud   DUGH:	Cond.
LAND USE WITHIN DRAINAGE (%):  azing Pasture  rest  (0) Residential  Abandoned Mine Lands  SUBSTRATE (%):  oulder /5 Cobble 20 Gravel 50 Silt  DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM F  OFFICE OF THE AREA THAT THE STREAM F  GPS POINTS / PHOTOS:  Appoint Photo Description  GSC 01 STAFT / Algae  BSC 02 / Concrete teams  BSC 03 2/3 Bedrack Outcop / tans of fish / amund /  BSC 04 Leading daynstream wingrap Channel / bedrack  BSC 05 Debn's Jam  BSC 06 Tree down  BSC 07 Debn's Jam  BSC 08 The from across flornia Rel.  BSC 09 3 Bank Prosion near houses  BSC 10 9 END 10 HIO7  BSC 11 Mar 10 STAFT (con't) Eroded Bank / Debn's Jam  BSC 13 The on left / Bebn's Jam  BSC 14 The on left / Bebn's Jam	Industrial Other  // // LOWS THRO	pH	Cond.
azing Pasture  rest  (p) Residential  Abandoned Mine Lands  SUBSTRATE (%):  Oulder / 5 Cobble & 20 Gravel & 0 Silt  DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM F  Outpoint Photo Description  SSC 01 STAFT / Hage  BSC 02 / Concrete teams  OSC 03 2/3 Bednek Outcop / tans of fish / anund bedness of the subject of the	Industrial Other  // // LOWS THRO	pH	Cond.
Rest (0) Residential 20  Demmercial Abandoned Mine Lands  SUBSTRATE (%):  SIII  DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM F  SUBSTRATE (%):  SUBSTRATE	Industrial Other  // // LOWS THRO	pH	Cond.
Abandoned Mine Lands  SUBSTRATE (%):  Oulder / 5 Cobble & 20 Gravel & 6 Silt  DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM F  OUTPOINT PHOTOS:  OUTPOIN	Other  /O   I	pH	Cond.
SUBSTRATE (%):  oulder / 5   Cobble   10 20   Gravel   50   Silt    DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM F  GPS POINTS / PHOTOS:  Typoint   Photo   Description  BSC 01   START / Algae  BSC 02   Concrete todays  BSC 03   2/3   Bedrock Outcop / tons of fish / around k  BSC 04   Looling downs fream - wiprap Channel / bedrock    BSC 05   Debris Jam  BSC 06   Tree down  BSC 07   Tolons Jam  BSC 08   Trib from across Hornia Rel.  BSC 09   Dank erosion near houses  BSC 09   FND 10 H/07  BSC 11   May 10 START (Con't)   Froded Bank / Debris Sam  BSC 13   Inh on left / Pebris Jam  BSC 13   Inh on left / Pebris Jam  BSC 14   17   Debris Jam  BSC 15   BEBOOK   Febris Jam  BSC 16   BEBOOK   Febris Jam  BSC 17   Debris Jam  BSC 18   BEBOOK   Febris Jam  B	10   I	pH	Cond.
Oulder / 5 Cobble & 20 Gravel & Silt  DESCRIBE THE LAND USE OF THE AREA THAT THE STREAM F  GPS POINTS / PHOTOS:  Typoint Photo Description  BSC 01 STAFT / Algae  BSC 02 / Concrete Debris  BSC 03 2/3 Bedrock Outcop / tons 01 fish / around &  BSC 04 4 Leoling downstream - wrigtap channel / bxanck    BSC 05 Debris Jam  BSC 06 Tree down  BSC 06 Tree down  BSC 07 Tubris Jam  BSC 08 Trib from across floenia kd.  BSC 09 9 Bank erosion near houses  BSC 10 9 END 10 H/07  BSC 11 Debris Jam  BSC 11 Debris Jam  BSC 11 Debris Jam  BSC 12 Inh on left / Erocled Bank / Debris Jam  BSC 13 Jam Schill Debris Jam  BSC 14 Trib on left / Debris Jam  BSC 14 Trib on left / Debris Jam  The on left / Debris Jam	end King	pH	Cond.
GPS POINTS / PHOTOS:  Appoint Photo Description  BSC 01 STAFT / Algae  BSC 02 / CONCRETE TEADIS  BSC 03 2/3 BEANCK QUICKED / tons of fish / anund k  BSC 04 4 LOOLING downstream - wingrap Channel / brankk    BSC 05 5 Debnis Jam  BSC 06 Tree down  BSG 07 Debnis Jam  BSC 08 E Trib from across Hornia Rd.  BSC 08 E Trib from across Hornia Rd.  BSC 09 9 BANK Prosion war houses  BSC 10 9 END 10 H107  BSC 11 Debnis Jam  BSC 12 11 Debnis Jam  BSC 12 11 Debnis Jam  BSC 13 Trib on left / Bebnis Jam  BSC 14 17 Debnis Jam  BSC 14 18 18 18 18 18 18 18 18 18 18 18 18 18	end King	pH	Cond.
GPS POINTS / PHOTOS:  Typoint Photo Description  BSC 01 STAFT / Algae  BSC 02 / CONCRETE TODOR'S  BSC 03 2/3 BEDROCK OUTCRED / tons of fish / around between 4 Looking downstream - waprap Channel / bedrock becos 5 Debris Jam  BSC 05 B Tree down  BSG 07 Tobre Jam  BSC 08 B Trib from across Hoenia Rel.  BSC 08 B Trib from across Hoenia Rel.  BSC 09 9 END 10 H/107  BSC 11 DE DO START (CON'Y) Erocked Bank / Tochnis Jam  BSC 12 11 De Don'S Jam  BSC 13 The ON Left / Bedris Jam  BSC 14 IX DEBRIS JAM  BSC 15 IX DEBRIS JAM  BSC 16 IX DEBRIS JAM  BSC 17 IX DEBRIS JAM  BSC 18 I	nered King	рН	
Description  BSC 01  START / Algae  BSC 02 / CONCRETE TODORS  BSC 03 2/3 Bedrock Outcop / tons of fish / around k  BSC 04 4 LOOKING downstream - wingrap Channel / bxdrock    BSC 05 5 Debris Jam  BSC 06 6 Tree down  BSG 07 7 Debris Jam  BSC 08 \$ Trib from across Hoenia Rd.  BSC 08 \$ Trib from across Hoenia Rd.  BSC 09 9 Bank erosion near houses  BSC 10 9 END 10 H107.  BSC 11 \$ 10 START (Con't) Eroded Bank / Debris Jam  BSC 12 11 Debris Jam  BSC 13 Trib on left / Debris Jam  BSC 14 17 Thin s Jam  A 15 Trib ex left  The 13 Brook of 4th on right	nend king 1 lots fish		
Description  BSC 01  START / Algae  BSC 02 / CONCRETE TODORS  BSC 03 2/3 Bedrock Outcop / tons of fish / around k  BSC 04 4 LOOKING downstream - wingrap Channel / bxdrock    BSC 05 5 Debris Jam  BSC 06 6 Tree down  BSG 07 7 Debris Jam  BSC 08 \$ Trib from across Hoenia Rd.  BSC 08 \$ Trib from across Hoenia Rd.  BSC 09 9 Bank erosion near houses  BSC 10 9 END 10 H107.  BSC 11 \$ 10 START (Con't) Eroded Bank / Debris Jam  BSC 12 11 Debris Jam  BSC 13 Trib on left / Debris Jam  BSC 14 17 Thin s Jam  A 15 Trib ex left  The 13 Brook of 4th on right	pend Ting I lots fish		
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BSC 02 / CONCRETE TERDINS  BSC 03 2/3 Bedrock Outcop / tons of fish / around box of the solid property of the	perch Ally Los Cish	8.01	530
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SC/4 12 Dibn's Jain 1/5 Inb extert The 13 Brook forthis on right	- PV	7.58	540
The 13 Book on right			
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	, ————————————————————————————————————	1 .	
sive plants present: Yes (No) □ Japanese Knotweed □ Garlic mustard	☐ Purple loo	sestrife [	J Other
sh / Litter: Yes /(No)			
odplain wetlands: Yes (No) If so, approximate size: Length / Wid	lth feet	. •	
oded areas: Yes /(No)(Wetland or other)	•		
and arous. Too Arronalid of onlory			
cut out for extra flow events	o. ' fi 1	. 1/ . 1	mile

Stream Section Name:	
Date:	

Parameter	Score	Explanation of Score Given
Channel condition	9	
Riparian zone	9	
Bank stability	8	
Water appearance	9	
Nutrient enrichment	7	Algae but No scwer odors not many Nomus along Stretch
Fish barriers	9	J
In-stream fish cover	9	
Embeddedness	9	
Invertebrate habitat	9	
Canopy Cover	9	
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	01	< 6.0 = POOR 6.1 - 7.4 = EAIR 7.5 - 8.9 = GOOD 8.7 + > 9.0 = EXCELLENT

Big Sewickley	Creek	Visual	Assessment
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Stream Section Name:	
Date:	

### Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	el Condition	
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 (9) 8	7 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.	Natural vegetation less than a third of the active channel width on each side.  Or
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
10 (9)	8 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability					
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).		
10 9 (8)	7 6 5 4	3 2	. 1		

**Keys:** <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section	Name:	
	Date:	

	Water A	opearance	•
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no oil sheen on water surface.	Considerable cloudiness most of time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with heavy green or olivegreen film.  Or	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
		Moderate odor of ammonia or rotten eggs.	Or Strong odor of chemicals, oil, sewage, other pollutants.
10 (9) 8	7 6 5 4	3 2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

Nutrient Enrichment							
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.				
10 9 8	(7) 6 5 4	3 2	1				

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

		Fish Barriers		
No barriers.	Seasonal water withdrawals inhibit movement within the reach.	Drop structures, culverts, dams or diversions (<1ft drop) within the reach.	Drop structures, culverts, dams or diversions (>1ft drop) within 1 mile of reach.	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 (9)	8 7 6	5 4	3 2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover								
>7 cover types available	6 to	7 cover lable	types	4 to 5 co		2 to 3 co available	* *	None to 1 cover type available
10 (9)	8	7	6	5	4	3	2	11

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Big Sewickle	y Creek Visual	<b>Assessment</b>
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Stream Section Name	s r
Date:	

						Embed	ldedness	<u> </u>			
Gravel or con particles are embedded.			partic	el or co cles are embed	20 to	Gravel or particles 40% emb	are 30 to	Gravel of particles embedde	are >40%	Completely embedded.	
10 (	9	)	8	7	6	5	4	3	2	1	

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

Insect/invertebrate Habitat							
At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.				
10 (9) 8	7 6 5 4	3 2	1				

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

	Key: Th	is per	tains to		ways wh	y Cover ere channel i er fishery	s 50 feet wid	de or less.
>75% of water sur shaded and upstre		l% sha	ded in r	each.	20 to 50%	shaded.	<20% of water surface in reach shaded.	
3 miles generally v shaded.	upst	>75% in reach, but upstream 2 to 3 miles poorly shaded.			у			
10 (9)	8	7	6	5	4	3	2	11

	Abandoned Mine Dra	ainage (if applicable)	
(Intentionally blank)	Evidence of iron staining. Or Noticeable iron precipitate.	Iron precipitate visible, muddy orange appearance.	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5 4	3 2	11

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big	Sewickley	Creek	Visual	<b>Assessment</b>
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<b>Stream Section Nam</b>	ie:		
Date	):	•	

	S	ewage (if	applicable)			
(Intentionally blank)		1		dor, excess nd	Visible pipe with effluent heavy odor.	
			Questionable black stream			
	5	4	3	2	1	

Mark discharge(s) on map and/or with GPS unit.

	Manure Prese	nce (if applicable)	·
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	1
			Untreated human waste discharge pipes present.
	5 4	3 2	1

### **NOTES**

# Big Sewickley Creek Watershed Visual Assessment

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Grazing r Forest										<del> </del>	
Commerc	ial		<i>(V \_</i>		bandoned Mine Lands	寸		Other	<u> </u>	<u> </u>	<del></del>
				10	SUBSTRATE (%):			•	·		<del></del>
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Stream	Section	Name:	
		Date:	

Parameter	Score	Explanation of Score Given
Channel condition	8	
Riparian zone	8	
Bank stability	G.	
Water appearance	9	
Nutrient enrichment	9	
Fish barriers	8	
In-stream fish cover	(	
Embeddedness	9.	
Invertebrate habitat	8	
Canopy Cover	q	
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NR	
TOTAL SCORE (Add all scores and divide by number of scores given)	9.5	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > > 9.0 = EXCELLENT

Stream Section Name:	
Date:	

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	el Condition	
Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 (8)	7 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	1	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.	Natural vegetation less than a third of the active channel width on each side.
	Or	side.	Or	Or
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
10 9	(8) 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability							
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).				
10 (9) 8	7 6 5 4	2	1				

Keys: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream Section Name:	
Date:	

			Water .	Appearanc	e	
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	object 1.5 to slightly	slonally cl s visible a 3 ft; may y green c on water	at depth have olor; no c	most of the visible to the state of the visible to the state of the st	Or	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.  Or  Strong odor of chemicals, oil, sewage, other pollutants.
10 (9) 8	7	6 5	4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient Enrichment								
reach; c	rater alon diverse ac nity little present	quatic plan algal	t gred enti alga	ly clear enish w re reacl al grow strates.	ater ald า; mod th on s	ong lerate	entire rea	n water along ach; abundant owth, especially armer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10	(9)	8	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

		Fish Barriers		
No barriers.	Seasonal water withdrawals inhibit movement within the reach.	Drop structures, culverts, dams or diversions (<1ft drop) within the reach.	Drop structures, culverts, dams or diversions (>1ft drop) within 1 mile of reach.	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10 9	(8) 7 6	5 4	3 2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

Instream Fish Cover									
>7 cover types available		o 7 covei allable	types	4 to 5 cov available		2 to 3 co available	ver types	None to 1 cover type available	
10 9	8	) 7	6	5	44	3	2	1	

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Big	Sewickley	Creek	Visual	<b>Assessment</b>

Stream Section Name:	
Date:	

Embeddedness								
Gravel or cobble particles are <20% embedded.	Gravel or cobble particles are 20 to 30% embedded.	Gravel or cobble particles are 30 to 40% embedded.	Gravel or cobble particles are >40% embedded.	Completely embedded.				
10 (9)	8 7 6	5 4	3 2	1				

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded:

	Insect/invertebrate Habitat								
availat stage t coloniz	t 5 types of le. Habitat i o allow full i ation (wood is not freshi	s at a nsec ly de	a t	Some pexists, trées, verbabitat,	ypes of ha potential h such as ov hich will p but have the strea	abitat /erhanging provide not yet	The subs disturbed removed velocities	pes of habitat.  Strate is often  I, covered, or  by high stream  and scour or by deposition.	None to 1 type of habitat.
10	9	8	) <u> </u>	7	6 5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other:

·		Key: Th	is per	tains t	o water	Canopy ways whei Coldwater	re channel	l is 50 feet wid	de or less.
shaded an	water surface and upstream 2 to generally well > 50% shaded in reach.  Or >75% in reach, but upstream 2 to 3 miles poorly shaded.						20 to 50%	6 shaded.	<20% of water surface in reach shaded.
10 (	9)	8	7	6	5	4	3	2	1 .

Abandoned Mine Drainage (if applicable)								
(Intentionally blank)		of iron staining. Or e iron precipitate.	Iron precip muddy ora appearanc	-	Heavy iron precipitate, noticeable kill zone.  Or  White/bluish-white precipitate visible, rotten egg smell.			
	5	4	3	2	1			

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big Sewickle	y Creek Visua	l Assessment
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Stream Section Name:	
Date:	

Sewage (if applicable)								
(Intentionally blank)	Noticeable of plant growth	odor, excess and siltation.	Noticeable plant grow	e odor, excess vth. And	Visible pipe with efflu heavy odor.	ient,		
	•			able pipe and am substrate.		· ·		
	.   5	4	3	2	1			

Mark discharge(s) on map and/or with GPS unit.

Manure Presence (if applicable)								
(intentionally blank)	Evidence of access to r	f livestock Iparian zone.	stream or v	l manure in waste storage ocated on the	Extensive amount of manure on banks or in stream.  Or			
·					Untreated human waste discharge pipes present.			
	5	4	3	2	1			

### **NOTES**

## Big Sewickley Creek Watershed Visual Assessment

ACHVE OII	annel Width		LAND Ü	ISE WITHIN	I DRAINAG	E (%):		•		
Grazing Pa	asture			y Field	•		Row Cr	ops		
Forest		75	Resid	ential		25	Industri			
Commercia	al		Abanc	loned Mine	Lands		Other			
				SUBSTRA	NTE (%):		•		,	
Boulder	70	Cobble	50	Gravel	.25	Silt	10	Mu	ud	5
	DESCRIBE	THE LAND U	SE OF	THE AREA	THAT THE	STREAM !	FLOWS 1	THROU	GH:	
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	•		GF	PS POINTS	/ PHOTOS:				•	
	Photo Des	scription				-			рН	Con
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	ans hiezem	" 169 / MA	□ Jap	allese Milo	Weed D O	illo musiare	a in uibi	e ioose	Othic L	_) Otto

<b>Stream Section Name:</b>	
Date:	

Parameter	Score	Explanation of Score Given
Channel condition	9	
Riparian zone	9	
Bank stability	8	
Water appearance	9	
Nutrient enrichment	8	·
Fish barriers	8	
In-stream fish cover	8	
Embeddedness	8.	
Invertebrate habitat	8	
Canopy Cover	9	
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	8.4	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Big Sewickley Creek Visual Assessm	ıer	Ìί
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Stream Section N	lame:	 	
D	ate:	-	

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

	Channe	el Condition	
Natural channel; no structures, dikes. No evidence of down- Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levies are set back to provide access to an adequate	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
	flood plain.		
10 (9/ 8	7 6 5 4	3 2	<u> </u>

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

			Rip	ar <mark>ian Z</mark> oı	ne		
Natural Vegetation extends at least two active channel widths on each side.	Natural veget extends one channel width each side.	active	Natural ve extends hactive cha width on e	alf of the	extends the active	regetation a third of e channel each side.	Natural vegetation less than a third of the active channel width on each side.
· f	Or		side.			Or	Or
	If less than or width, covers flood plain.	_			Filtering to moderate comprom	ely	Lack of regeneration. Or Filtering function severely compromised.
10 (9)	8 7	6	5	4	3	2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank Stability								
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).						
10 9 (8)	7 6 5 4	3 2	11						

Keys: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream	Section	Name:	P	
		Date:		

	Wate	r Appearance		•
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at dept 1.5 to 3 ft; may have slightly green color; no sheen on water surface	most of time visible to de ft; slow sect appear pearocks or sub objects cove heavy greer green film.	epth 0.5 to 1.5 lions may -green; bottom omerged ered with	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
		Moderate od	dor of	Or
		ammonia or	rotten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10 /9 / 8	7 6 5	1 3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

	Nutrient E	Enrichment	
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10 9 (8)	7 6 5 4	3 2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

			- <del></del>		Fish	Barriers			
No barrie	ers.	with			Drop struculverts, diversion drop) with reach.	dams or s (<1ft	Drop struculverts, diversion drop) with reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	(8)	7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

					Instrea	m Fish Co	ver		
>7 cover available	types	- 1	to 7 cover ⁄ailable	types	4 to 5 availal	cover types ole	2 to 3 co	ver types	None to 1 cover type available
10	9	( 8	7	6	5	4	3	2_	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Big Sewickle	y Creek Visual	Assessment
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Stream	Section	Name:	 <u>.</u>	
		Date:		

				Embe	ddedness		,	
Gravel or cobble particles are <20% embedded.	pa	ravel or co articles are (% embed	e 20 to	Gravel o particles 40% em	are 30 to	Gravel of particles embedd	are >40%	Completely embedded.
10 9	8	<b>)</b> 7	6	5	4	3	. 2	1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded.

						Insec	t/inverte	brate Hab	itat	
availab stage to coloniz	t 5 types of le. Habitat o allow full ation (wood s not fresh	is at a insec ly de	a :t	Son exis tree hab	ne pote ts, suc s, whic itat, bui	s of hat ntial ha h as ove h will pi t have r e strean	bitat erhanging ovide not yet	The subsidisturbed removed velocities	es of habitat. trate is often , covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9	(8	)	7	6	5	4	3	2	1

**Cover types:** Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_

Key: T	nis pertains t	o water	ways wh	y Cover ere channel er fishery	is 50 feet wid	le or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% sha >75% in re upstream shaded.	Or each, bu	t	20 to 50%	shaded.	<20% of water surface in reach shaded.
10 (9) 8	7 6	5	4	3	2	1 .

	Aband	oned Mine D	rainage (if ap	plicable)	·
(Intentionally blank)	}	f iron staining. Or iron precipitate.	Iron precipil muddy oran appearance	ige	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big	Sewickley	Creek	Visual	Assessment
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Stream Section Name:	
Date:	

Sewage (if applicable)							
(Intentionally blank)	Noticeable of plant growth		plant growth	odor, excess n. .nd	Visible pipe with effluent, heavy odor.		
			Questionab black stream				
	5	4	3	2	1		

Mark discharge(s) on map and/or with GPS unit.

	Manure Presen	ce (if applicable)	
(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream.  Or
			Untreated human waste discharge pipes present.
	5 4	3 2	1

### **NOTES**

Big Sewickley Creek Watershed Visual Assessment

Evaluato	rs' Name	es	SISA		Strea Refere			_ Date: _	4-2	4-08	
Sub-Wate	ershed _	·			Strea	m Section	Name				
Stream N	ame	Rippin	na Ru	M	Refere	nce Secti	on				
Weather	Conditio	ns Toda	av 7	150	Sunny	Pas	t 2-5 Davs	Sai	ne		
Active Cl	nannel V	Vidth: 4	25 feet				·				
	•			LAND	USE WITHIN	DRAINAG	E (%):				
Grazing P	asture				ssy Field		10	Row C			
Forest	-1	·	60		dential		30	Industr	ial		
Commerci	aı		<u> </u>	<del></del>	ndoned Mine La			Other		<u> </u>	·
Davidor	1 /.	1 6	·		SUBSTRAT		Silt	2 4	B.8		
Boulder					│ Gravel │ FTHE AREA T			20		ud	5
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							-			<u>F</u>	<u></u>
vasive pl	ants pre	sent:ଏ	(es) No	ÒŲJ€	ipanese Knotw	eed 🗖 Gar	lic mustar	d 🗆 Purp	le loos	estrife 🗷	Other
ash / Litt	er: Yes	/ No		•							SKAKA
		_		ifen er	proximate siz	a lenath	/ \//;	dth	feet	10/1V	
oodplain						e renan	/ VVI	uii	_ וספנ (	אינע .	111 210
ooded ar	eas: Yes	s (No)(I	Wetland	or otner	)						<del></del>

Stream Section Name:	
Date:	

Parameter	Score	Explanation of Score Given
Channel condition	-7	
Riparian zone	8	
Bank stability	9	
Water appearance	9	
Nutrient enrichment	9	·
Fish barriers	8	
In-stream fish cover	8	
Embeddedness	8	
Invertebrate habitat	8	
Canopy Cover	8	
AMD (if applicable)	NA	
Sewage (if applicable)	NA	
Manure presence (if applicable)	NA	
TOTAL SCORE (Add all scores and divide by number of scores given)	82/10	< 6.0 = POOR 6.1 - 7.4 = FAIR 7.5 - 8.9 = GOOD > 9.0 = EXCELLENT

Big Sewickley Creek Visual Assessmen
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<b>Stream Section Name:</b>	
Date:	

### **Scoring Descriptions**

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition									
Natural channel; structures, dikes evidence of dow Cutting or excess lateral cutting.	. No n-	cha with of c Any set	idence of annel alte h signific channel a y dikes o back to a bess to an pd plain.	eration, ant rec and bar r levies provide	overy nks. s are	the reach and/or ch Excess a braided c	nannel; <50% of with riprap annelization. ggradation; hannel. Dikes or strict flood plain	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.	
10 9	8	7	6	5	4	3	2	1	

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

**Keys:** look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

·		Riparian Zo	ne	
Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side.  Or	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side.  Or	Natural vegetation less than a third of the active channel width on each side.  Or
	If less than one width, covers entire flood plain.		Filtering function moderately compromised.	Lack of regeneration. Or Filtering function severely compromised.
10 9	(8) 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

	Bank Stability									
Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the baseflow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).							
10 (9) 8	7 6 5 4	3 2	1							

**Keys**: <u>All</u> outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Stream	Section	Name:	
		Date:	

		Water Ap	pearance		
Very clear, or clear but tea- colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally objects visible 1.5 to 3 ft; m slightly greer sheen on wa	le at depth ay have n color; no oil	Considerable of most of time; of visible to depth ft; slow section appear pea-gre rocks or subme objects covered heavy green or green film.	objects in 0.5 to 1.5 is may een; bottom erged d with r olive-	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be brightgreen; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface.
	•		Moderate odor		Or '
			ammonia or rol	tten eggs.	Strong odor of chemicals, oil, sewage, other pollutants.
10. (9) 8	7 6	5 4	3	2	1

Keys: Remember to look at the water, not the substrate. Dip a clear glass jar in water and observe the clarity.

		Nutri	ient l	Enrichmen	t	
Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear of greenish wat entire reach; algal growth substrates.	er along moder	ate	entire read	water along ch; abundant vth, especially mer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.
10 (9) 8	7 6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

					Fish	Barriers			
No barriers		with			Drop stro culverts, diversior drop) will reach.	dams or ns (<1ft	Drop structures, diversion drop) wit reach.	dams or	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.
10	9	<b>(8)</b>	7	6	5	4	3	2	1

**Keys:** You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would **impede fish passage**.

					Instream	Fish Cov	er		
>7 cover	<i>,</i> .		7 cover lable	types	4 to 5 cov available	, ,	2 to 3 co available		None to 1 cover type available
10	9	(8)	7	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other:\_\_\_\_\_

Big Sewickle	y Creek Visual	<b>Assessment</b>
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Stream Section Name:	
Date:	

					Embe	dedness				•
Gravel or particles a embedded	are <20%	ра	avel or co rticles are % embed	20 to	Gravel o particles 40% em	are 30 to	Gravel o particles embedde	are >40%	1	oletely edded.
10	9	(8)	, <b>7</b>	6	5	4	_ 3	2		1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in riffles & runs. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3<sup>rd</sup> of the way by sediment then it is 30% embedded:

						Insec	t/invertel	orate Habi	itat	
availal stage l coloniz	ot 5 types on the state of the	t is at I insec ody de	a t	Some existe trées habit	e pote s, sucl , whic at, but	s of hab ntial ha n as ove h will pr have n strean	bitat erhanging ovide ot yet	The substantial disturbed, removed to velocities	es of habitat. trate is often covered, or by high stream and scour or by deposition.	None to 1 type of habitat.
10	9	/8	<u>)</u> .	7	6	5	4	3	2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: \_\_\_\_\_\_

Key: T	Canopy his pertains to waterways wher Coldwater	e channel is 50 feet wi	de or less.
>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.
10 9 (8)	7 6 5 4	3 2	1

	Aband	oned Mine D	rainage (if app	olicable)	
(Intentionally blank)		f iron staining. Or íron precipitate.	Iron precipit muddy oran appearance	ge	Heavy iron precipitate, noticeable kill zone. Or White/bluish-white precipitate visible, rotten egg smell.
	5	4	3	2.	1

If AMD is found, complete AMD site diagram and mark discharge point on map, and/or with GPS unit.

Big	Sewickley	/ Creek	Visual	<b>Assessment</b>
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Stream Section Name:	<del></del>	
Date:		

Sewage (if applicable)							
(Intentionally blank)	L L	Noticeable odor, excess plant growth and siltation.		odor, excess th. And	Visible pipe with effluent, heavy odor.		
				ble pipe and m_substrate.			
	5	4	3	2	1		

Mark discharge(s) on map and/or with GPS unit.

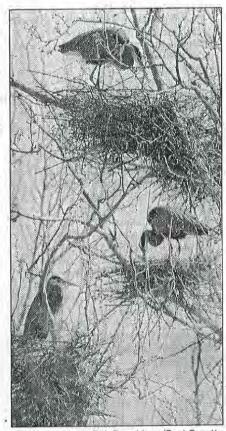
Manure Presence (if applicable)							
(Intentionally blank)	Evidence of livestocl access to riparian zo	,	aste storage	Extensive amount of manure on banks or in stream.  Or			
· .				Untreated human waste discharge pipes present			
	5 4	3	2	1			

### **NOTES**

#### Attachment H GIS Reference Summary

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Мар	Shapefiles/Layers	Source	Description
Stream Score Assessment	PAMAP Tile Index - South 2006	PAMAP Program, Bureau of Topographic and Geologic Survey, PA Department of Conservation and Natural Resources	PAMAP 10,000 feet x 10,000 feet tile index covering counties in the southern State Plane zone of Pennsylvania. This version has been updated to include additional tiles within a 5000 feet buffer of the Pennsylvania border
Areas Of Encroachment & Bank Erosion	Encroachment Locations	Pennsylvania Department of Environmental Protection	related to the Water Resources Management Water Obstructions Program. There are many sub-facility types relating to Encroachment Locations, ranging from Boat Launch Ramps to Dredging to Wetland Impact. These sub- facilities may pertain
Stormwater Management & Land Use	Erosion & Sediment Control Facilities	Pennsylvania Department of Environmental Protection	An Erosion and Sediment Control Facility is a DEP primary facility type related to the Water Pollution Control program
	PAMAP Program Land Cover for Pennsylvania, 2005	The Pennsylvania State University	State wide land cover will provide a reference for current land use status in the state; The coding is based on the Anderson Land Use/Land Cover system
Oil And Gas Wells	Encroachment Locations for Oil & Gas	Pennsylvania Department of Environmental Protection	An Encroachment Location for Oil & Gas is a DEP primary facility type related to the Oil and Gas Program. The subfacilities that fall under Oil and Gas Encroachment also exist under Encroachment Locations
Natural Areas	National Wetlands Inventory - Pennsylvania	U.S. Fish and Wildlife Service	This data set represents the extent, approximate location and type of wetlands and deepwater habitats in the conterminous United States
	State Game Lands	PA Game Commission Office of Remote Sensing for Earth Resources, Penn State	PA State Game Land Boundaries
	Floodplains of Pennsylvania NHI (Natural Heritage Inventory)	University Western Pennsylvania Conservancy	Floodplain boundaries state wide  Natural Heritage Inventories, prepared by the Western Pennsylvania Conservancy
	Trout Stocked Streams	PA Fish and Boat Commission	This layer contains flowing waters from the Pennsylvania Fish and Boat Commission Fisheries Resource Database that were stocked with trout in 2008
General (multiple maps)	Watershed Boundaries (ERRI - Small Watersheds	Environmental Resources Research Institute	Boundaries of 9,895 watersheds in Pennsylvania indicated in the Pennsylvania gazeteer of streams.
	State Roads	Pennsylvania Department of Transportation, Bureau of Planning and Research, Geographic Information Division	State-owned and maintained public roads within Pennsylvania as extracted from the PENNDOT Roadway Management System (RMS). Includes fields describing pavement type, traffic volumes and other information as detailed below
	Municipalities	Pennsylvania Department of Transportation Pennsylvania Department of	Boundaries of municipalities within Pennsylvania as delineated for the PennDOT Type 10 general highway maps.
	Counties	Transportation	Boundaries of counties within Pennsylvania
	Streams	Environmental Resources Research Institute	The connected network of streams and waterways of Pennsylvania are indicated as single lines in this coverage.

Other shape files or layers were based on waypoints taken during field surveys conducted in watershed.



Bob Donaldson/Post-Gazette

Blue Heron returned to their nests for another season in the trees above Big Sewickley Creek in Bell Acres in April 2004. Collecting old bird nests without the proper permit is illegal.

#### Craig Barras

From: suzybeezy@comcast.net

Sent: Monday, June 04, 2007 12:13 PM

To: Craig Barras

Subject: Sewickley Herald Article

Forwarding this article for inclusion with our study.

Susan Barness

-

#### Property still in danger of falling into creek

#### Adam Brandolph Staff Writer

Thursday, May 31, 2007

A broken wire fence and cracked concrete slabs are all that separates Elizabeth Zedak's home in Bell Acres from a 30-foot cliff into the Big Sewickley Creek.

Zedak, who lives in the home with her daughter Jenni and Anthony Caracci, be-lieves the creek is causing the hillside to slowly erode, sliding their home closer to the cliff.

"The creek is causing the house to move," Zedak said. "The creek is the reason my house is falling."



Last Friday, Zedak invited members of the Pennsylvania Department of Environmen-tal Protection to investigate the property.

She hopes they'll be able to offer assistance in finding a solution.

DEP officials have visited her home on many occasions over the last several years.

"They've been out here before and every single time they're here, they don't say anything except that it's my issue," she said.

State officials offered her information on stabilizing the hillside before, but Zedak says she doesn't have

money to pay for permits let alone construction costs.

"I don't have money to be fixing this problem," she said.



"It would cost almost \$4,000 just for permits. I don't have that kind of money just sitting around."

In a letter dated February 2004, Joseph Capasso of the DEP told the Zedak's that the "team again confirmed that the problem appears to be erosion of the upper embankment rather than the top or the area immediately adjacent to the stream."

Zedak doesn't believe that conclusion.

"They (the DEP) keep telling me it's my problem," she said. "It's not rain run-off that's causing this problem."

The creek does have its upsides, though.

"The creek offers so much nature here," she said.

"It's like Raccoon [Creek State] Park. With the deer and the fish all around the creek, it's so nice to be near."

But it's the fish in the creek that are partly to blame for her troubles.

Even though government officials have told her before to dump soil along the hillside, Zedak risks being fined by state fish and game officials.

"We've been told to dump dirt down the hill by some officials," she said. "If we do that, we'll get fined."

Her situation worsened after the remnants of Hurri-cane Ivan swept through the area.

"After Ivan," she said, "waters were very high. It looked like a river running through here."

Ivan relocated the creek nearly 30 feet closer to her home, she said, placing it directly at the bottom of the hill.

"When Ivan moved the creek, our problem got worse," Zedak said.

"Ivan did so much damage in a little amount of time."

State Rep. Sean Ramaley, who also visited the Zedak property last Friday, said he would like to do whatever he can to help.

"Finding a way to stabilize Mrs. Zedak's home is important," he said.

"She's obviously very worried about her property."

Though Zedak knows her life may be in danger should another leftover hurricane or heavy rainfall come through the valley, she doesn't want to move.

"This is my house," she said.

"It may not be much but it's my house. I love it."