



# Primary Headwater Habitat Evaluation Form

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

30

SITE NAME / LOCATION Stream 4 - Pinecrest Road, Orange, Cuyahoga County  
 SITE NUMBER \_\_\_\_\_ RIVER BASIN Chagrin Falls Drainage Area (mi<sup>2</sup>) <0.1  
 Length of Stream Reach (ft) 61 ft Lat. 41.4565 Long. -81.4852 RIVER MILE \_\_\_\_\_  
 DATE 1/13/2014 SCORER J. Mitchell & A. Allen COMMENTS Class II

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

STREAM CHANNEL  NONE / NATURAL CHANNEL  RECOVERED  COVERING  CENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pts]	2%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	13%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pts]	_____
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	35%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> <input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	40%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3pts]	_____

Total of Percentages of (A) \_\_\_\_\_ (B) \_\_\_\_\_  
 Bldr Slabs, Boulder, Cobble, Bedrock: 10%

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

**HHEI Metric Points**  
 Substrate Max = 40  
**20**  
 A + B

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

<input type="checkbox"/> >30 centimeters [20 pts]	_____	<input type="checkbox"/> >5 cm - 10 cm [15 pts]	_____
<input type="checkbox"/> >22.5 - 30 cm [30 pts]	_____	<input checked="" type="checkbox"/> <5 cm [5 pts]	_____
<input type="checkbox"/> >10 - 22.5 cm [25 pts]	_____	<input type="checkbox"/> NO WATER/MOIST CHANNEL [0 pts]	_____

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

**Pool Depth Max=30**  
**5**

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

<input type="checkbox"/> >4.0 meters (13') [30 pts]	_____	<input type="checkbox"/> >1.0 m - 1.5 m (>3'3"-4'8") [15 pts]	_____
<input type="checkbox"/> >3.0-4.0 m (>9' 7"-13') [25 pts]	_____	<input checked="" type="checkbox"/> ≤1.0 m (≤ 3'3") [5 pts]	_____
<input type="checkbox"/> >1.5-3.0 m (<9' 7"-4' 8") [20 pts]	_____		

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters) **0.4**

**Bankfull Width Max=30**  
**5**

This information must also be completed.

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

RIPARIAN WIDTH		(FLOODPLAIN QUALITY)			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide > 10 m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5 - 10 m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow < 5 m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water, (Ephemeral)

COMMENTS: Heavy precipitation and snowfall prior to performance of evaluation

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> > 3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input checked="" type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
---	---	---	--	--

**Location / Stream Name:** Stream 4 - Pincrest Road, Orange, Cuyahoga County

**Additional Stream Information (This Information Must Also Be Completed):**

QHEI PERFORMED? Yes  No  QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S): \_\_\_\_\_

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

CWH Name: Willey Creek-SRW Distance from Evaluated Stream 1.5

EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

- 
- 
- 

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

USGS Quad Name: Chagrin Falls NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order: \_\_\_\_\_

County: Cuyahoga Township/City: Beachwood

**MISCELLANEOUS**

Base Flow Conditions? (Y/N) N Date of Last Precipitation: 13-Jan-14 Quantity: \_\_\_\_\_

Photograph Information: See Attached

Elevated Turbidity? (Y/N): N Canopy (% open): 0% open

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

Field Measures: Temp (C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH(S.U.) \_\_\_\_\_ Conductivity(pmhos/cm) \_\_\_\_\_

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

Additional comments/description pollution impacts: Recent snow melt and raining at time of survey

**BIOTIC EVALUATION**

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

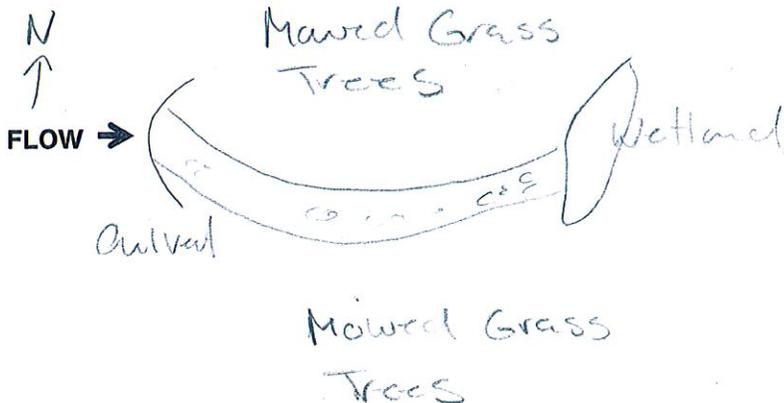
Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

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

Comments Regarding Biology: \_\_\_\_\_

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

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





# Primary Headwater Habitat Evaluation Form

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

53

SITE NAME / LOCATION Stream 5 - Pinecrest Road, Orange, Cuyahoga County  
 SITE NUMBER \_\_\_\_\_ RIVER BASIN Chagrin Falls Drainage Area (mi<sup>2</sup>) <0.1  
 Length of Stream Reach (ft) 200 ft Lat. 41.4517 Long. -81.4855 RIVER MILE \_\_\_\_\_  
 DATE 1/13/2014 SCORER J. Mitchell & A. Allen COMMENTS Modified Class II

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

STREAM CHANNEL  NONE / NATURAL CHANNEL  RECOVERED  COVERING  CENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	2%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pts]	10%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	3%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pts]	3%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	50%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	7%
<input type="checkbox"/> <input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3pts]	_____

Total of Percentages of (A) \_\_\_\_\_ (B) \_\_\_\_\_  
 Bldr Slabs, Boulder, Cobble, Bedrock: 5%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **15** TOTAL NUMBER OF SUBSTRATE TYPES: **8**

---

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

<input type="checkbox"/> >30 centimeters [20 pts]	_____	<input type="checkbox"/> >5 cm - 10 cm [15 pts]	_____
<input type="checkbox"/> >22.5 - 30 cm [30 pts]	_____	<input type="checkbox"/> <5 cm [5 pts]	_____
<input checked="" type="checkbox"/> >10 - 22.5 cm [25 pts]	_____	<input type="checkbox"/> NO WATER/MOIST CHANNEL [0 pts]	_____

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters) **14**

**Pool Depth Max=30**  
**25**

---

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

<input type="checkbox"/> >4.0 meters (13') [30 pts]	_____	<input type="checkbox"/> >1.0 m - 1.5 m (>3'3"-4'8") [15 pts]	_____
<input type="checkbox"/> >3.0-4.0 m (>9' 7"-13') [25 pts]	_____	<input checked="" type="checkbox"/> ≤1.0 m (≤ 3'3") [5 pts]	_____
<input type="checkbox"/> >1.5-3.0 m (<9' 7"-4' 8") [20 pts]	_____		

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters) **0.9**

**Bankfull Width Max=30**  
**5**

This information must also be completed.

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

RIPARIAN WIDTH		(FLOODPLAIN QUALITY)			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS: \_\_\_\_\_

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

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

COMMENTS: Heavy precipitation and snowfall prior to performance of evaluation

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

None  1.0  2.0  3.0  
 0.5  1.5  2.5  > 3

STREAM GRADIENT ESTIMATE

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

Location / Stream Name: Stream 5 - Pincrest Road, Orange, Cuyahoga County

**Additional Stream Information (This Information Must Also Be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S): \_\_\_\_\_

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: Willey Creek-SRW Distance from Evaluated Stream 1.5  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quad Name: Chagrin Falls NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order: \_\_\_\_\_  
County: Cuyahoga Township/City: Beachwood

**MISCELLANEOUS**

Base Flow Conditions? (Y/N) N Date of Last Precipitation: 13-Jan-14 Quantity: \_\_\_\_\_

Photograph Information: See Attached

Elevated Turbidity? (Y/N): N Canopy (% open): 0% open

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

Field Measures: Temp (C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH(S.U.) \_\_\_\_\_ Conductivity(pmhos/cm) \_\_\_\_\_

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

Additional comments/description pollution impacts: Recent snow melt and raining at time of survey

**BIOTIC EVALUATION**

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

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

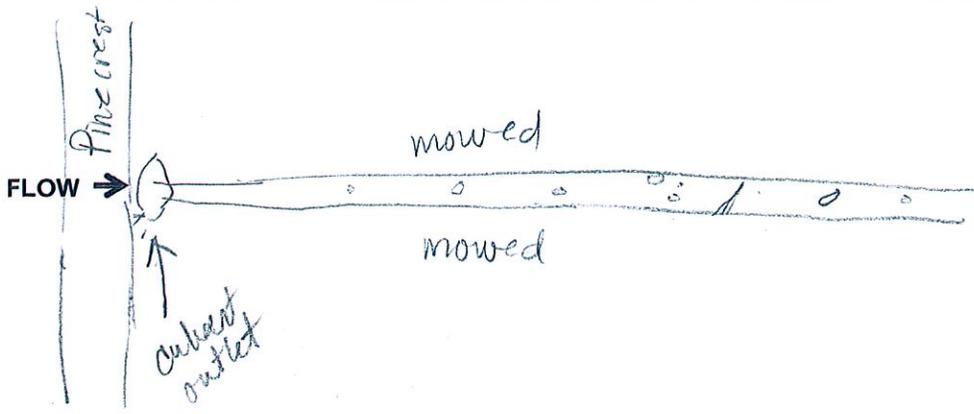
Frogs/Tadpoles Observed? \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher?(Y/N) \_\_\_\_\_

Comments Regarding Biology: \_\_\_\_\_

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

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

N  
↑





# Primary Headwater Habitat Evaluation Form

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

34

SITE NAME / LOCATION Stream 6 - Pinecrest Road, Orange, Cuyahoga County  
 SITE NUMBER \_\_\_\_\_ RIVER BASIN Chagrin Falls Drainage Area (mi<sup>2</sup>) <0.1  
 Length of Stream Reach (ft) 200 ft Lat. 41.4535 Long. -81.4873 RIVER MILE \_\_\_\_\_  
 DATE 1/13/2014 SCORER J. Mitchell & A. Allen COMMENTS Modified Class II

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

STREAM CHANNEL  NONE / NATURAL CHANNEL  RECOVERED  COVERING  CENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pts]	10%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> <input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	30%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3pts]	_____

Total of Percentages of (A) \_\_\_\_\_ (B) \_\_\_\_\_  
 Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **9** TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**  
 Substrate Max = 40  
**14**  
 A + B

---

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

<input type="checkbox"/> >30 centimeters [20 pts]	_____	<input checked="" type="checkbox"/> >5 cm - 10 cm [15 pts]	_____
<input type="checkbox"/> >22.5 - 30 cm [30 pts]	_____	<input type="checkbox"/> <5 cm [5 pts]	_____
<input type="checkbox"/> >10 - 22.5 cm [25 pts]	_____	<input type="checkbox"/> NO WATER/MOIST CHANNEL [0 pts]	_____

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters) **9**

**Pool Depth Max=30**  
**15**

---

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

<input type="checkbox"/> >4.0 meters (13') [30 pts]	_____	<input type="checkbox"/> >1.0 m - 1.5 m (>3'3"-4'8") [15 pts]	_____
<input type="checkbox"/> >3.0-4.0 m (>9' 7"-13') [25 pts]	_____	<input checked="" type="checkbox"/> ≤1.0 m (≤ 3'3") [5 pts]	_____
<input type="checkbox"/> >1.5-3.0 m (<9' 7"-4' 8") [20 pts]	_____		

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters) **0.8**

**Bankfull Width Max=30**  
**5**

This information must also be completed.

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

RIPARIAN WIDTH		(FLOODPLAIN QUALITY)			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS: \_\_\_\_\_

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

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

COMMENTS: Heavy precipitation and snowfall prior to performance of evaluation

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

None  1.0  2.0  3.0  
 0.5  1.5  2.5  > 3

STREAM GRADIENT ESTIMATE

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

Location / Stream Name: Stream 6 - Pincrest Road, Orange, Cuyahoga County

**Additional Stream Information (This Information Must Also Be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S):** \_\_\_\_\_

<input type="checkbox"/> WWH Name: _____	Distance from Evaluated Stream _____
<input checked="" type="checkbox"/> CWH Name: Willey Creek-SRW	Distance from Evaluated Stream 1.5
<input type="checkbox"/> EWH Name: _____	Distance from Evaluated Stream _____

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

USGS Quad Name: Chagrin Falls NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order: \_\_\_\_\_  
County: Cuyahoga Township/City: Beachwood

**MISCELLANEOUS**

Base Flow Conditions? (Y/N) N Date of Last Precipitation: 13-Jan-14 Quantity: \_\_\_\_\_

Photograph Information: See Attached

Elevated Turbidity? (Y/N): N Canopy (% open): 0% open

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

Field Measures: Temp (C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH(S.U.) \_\_\_\_\_ Conductivity(pmhos/cm) \_\_\_\_\_

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

Additional comments/description pollution impacts: Recent snow melt and raining at time of survey

**BIOTIC EVALUATION**

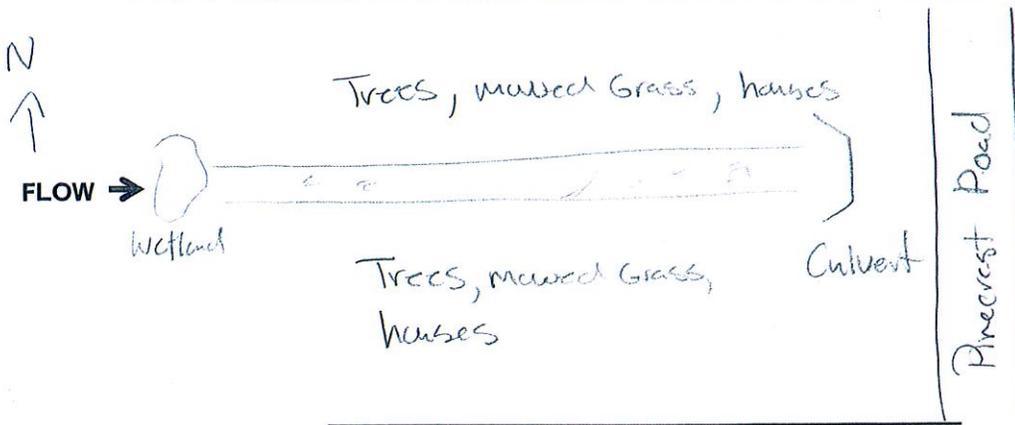
Performed? (Y/N) N (If yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID Number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
Frogs/Tadpoles Observed? \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher?(Y/N) \_\_\_\_\_

Comments Regarding Biology: \_\_\_\_\_

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

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





# Primary Headwater Habitat Evaluation Form

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

14

SITE NAME / LOCATION Stream 7 - Pinecrest Road, Orange, Cuyahoga County  
 SITE NUMBER \_\_\_\_\_ RIVER BASIN Chagrin Falls Drainage Area (mi<sup>2</sup>) <0.1  
 Length of Stream Reach (ft) 61 ft Lat. 41.4535 Long. -81.4873 RIVER MILE \_\_\_\_\_  
 DATE 8/21/2014 SCORER J. Mitchell & A. Allen COMMENTS Class I

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

STREAM CHANNEL  NONE / NATURAL CHANNEL  RECOVERED  COVERING  CENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pts]	5%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	_____	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pts]	20%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	65%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3pts]	_____

Total of Percentages of (A) \_\_\_\_\_ (B) \_\_\_\_\_  
 Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **0** TOTAL NUMBER OF SUBSTRATE TYPES: **4**

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

<input type="checkbox"/> >30 centimeters [20 pts]	_____	<input type="checkbox"/> >5 cm - 10 cm [15 pts]	_____
<input type="checkbox"/> >22.5 - 30 cm [30 pts]	_____	<input checked="" type="checkbox"/> <5 cm [5 pts]	_____
<input type="checkbox"/> >10 - 22.5 cm [25 pts]	_____	<input type="checkbox"/> NO WATER/MOIST CHANNEL [0 pts]	_____

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters) **3**

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

<input type="checkbox"/> >4.0 meters (13') [30 pts]	_____	<input type="checkbox"/> >1.0 m - 1.5 m (>3'3"-4'8") [15 pts]	_____
<input type="checkbox"/> >3.0-4.0 m (>9' 7"-13') [25 pts]	_____	<input checked="" type="checkbox"/> ≤1.0 m (≤ 3'3") [5 pts]	_____
<input type="checkbox"/> >1.5-3.0 m (<9' 7"-4' 8") [20 pts]	_____		

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters) **0.7**

HHEI Metric Points  
Substrate Max = 40  
**4**  
A + B

Pool Depth Max=30  
**5**

Bankfull Width Max=30  
**5**

This information must also be completed.

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

RIPARIAN WIDTH		(FLOODPLAIN QUALITY)			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS: \_\_\_\_\_

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

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

COMMENTS: Heavy precipitation during evaluation

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

None  1.0  2.0  3.0  
 0.5  1.5  2.5  > 3

STREAM GRADIENT ESTIMATE

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

**Location / Stream Name:** Stream 7 - Pinecrest Road, Orange, Cuyahoga County

**Additional Stream Information (This Information Must Also Be Completed):**

QHEI PERFORMED? Yes  No  QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)  
DOWNSTREAM DESIGNATED USE(S): \_\_\_\_\_  
WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
CWH Name: Willey Creek-SRW Distance from Evaluated Stream 1.5  
EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.**  
USGS Quad Name: Chagrin Falls NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order: \_\_\_\_\_  
County: Cuyahoga Township/City: Beachwood

**MISCELLANEOUS**

Base Flow Conditions? (Y/N) N Date of Last Precipitation: 21-Aug-14 Quantity: 0.8  
Photograph Information: See Attached  
Elevated Turbidity? (Y/N): N Canopy (% open): 0% open  
Were samples collected for water chemistry?(Y/N) N (Note lab sample no. or id. and attach results) Lab No.: \_\_\_\_\_  
Field Measures: Temp (C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH(S.U.) \_\_\_\_\_ Conductivity(pmhos/cm) \_\_\_\_\_  
Is the sampling reach representative of the stream (Y/N)? Y If not, please explain: \_\_\_\_\_  
Additional comments/description pollution impacts: Recent snow melt and raining at time of survey

**BIOTIC EVALUATION**

Performed? (Y/N) N (If yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID Number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
Frogs/Tadpoles Observed? \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
Comments Regarding Biology: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**  
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location.

