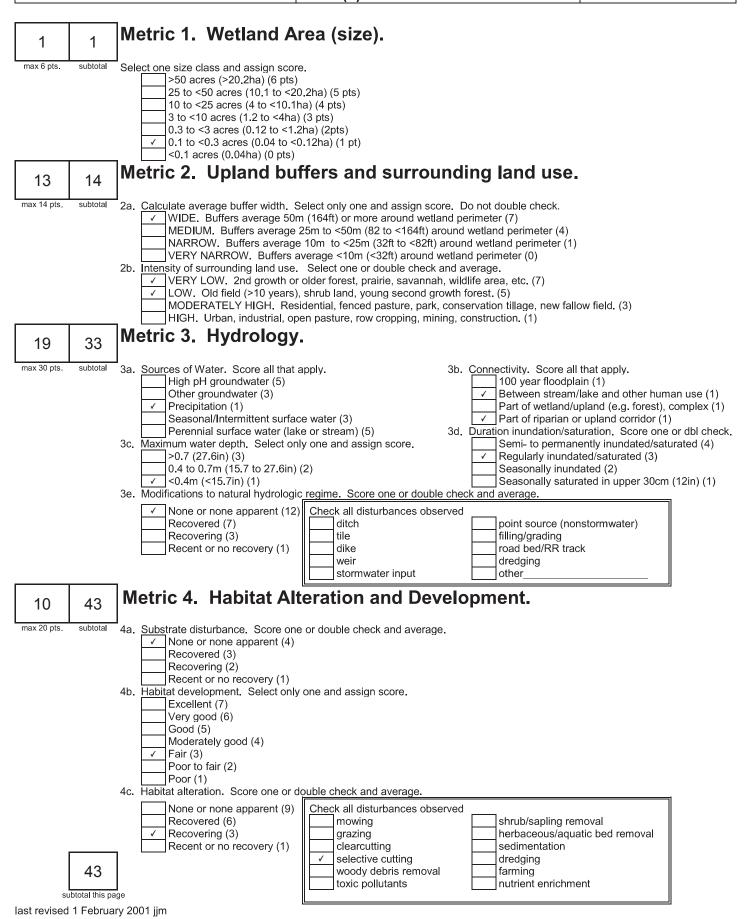
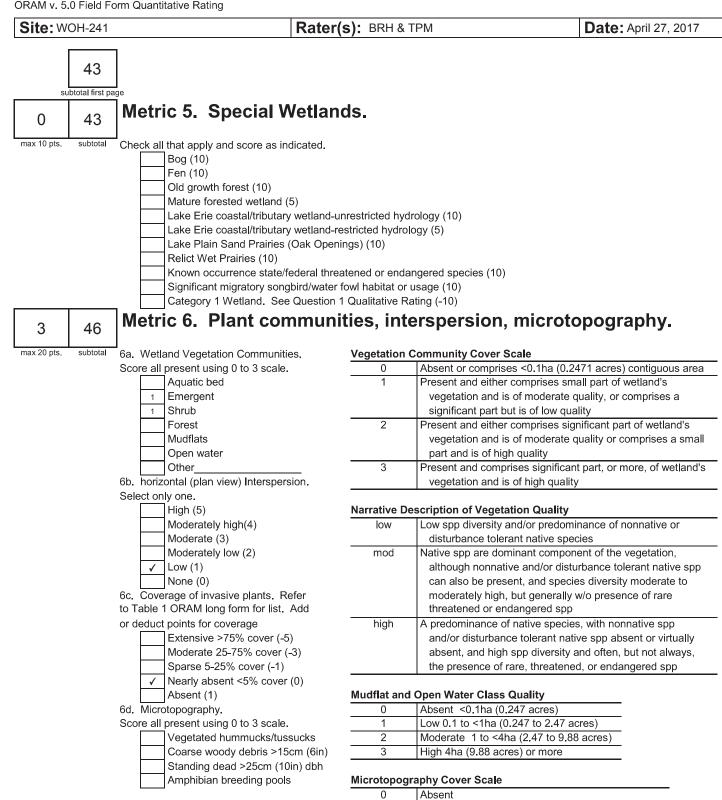


0	Absent
1	Present very small amounts or if more common
	of marginal quality
2	Present in moderate amounts, but not of highest
	quality or in small amounts of highest quality
3	Present in moderate or greater amounts
	and of highest quality

End of Quantitative Rating. Complete Categorization Worksheets.

### Rater(s): BRH & TPM





-	

1

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Present very small amounts or if more common

Present in moderate amounts, but not of highest quality or in small amounts of highest quality

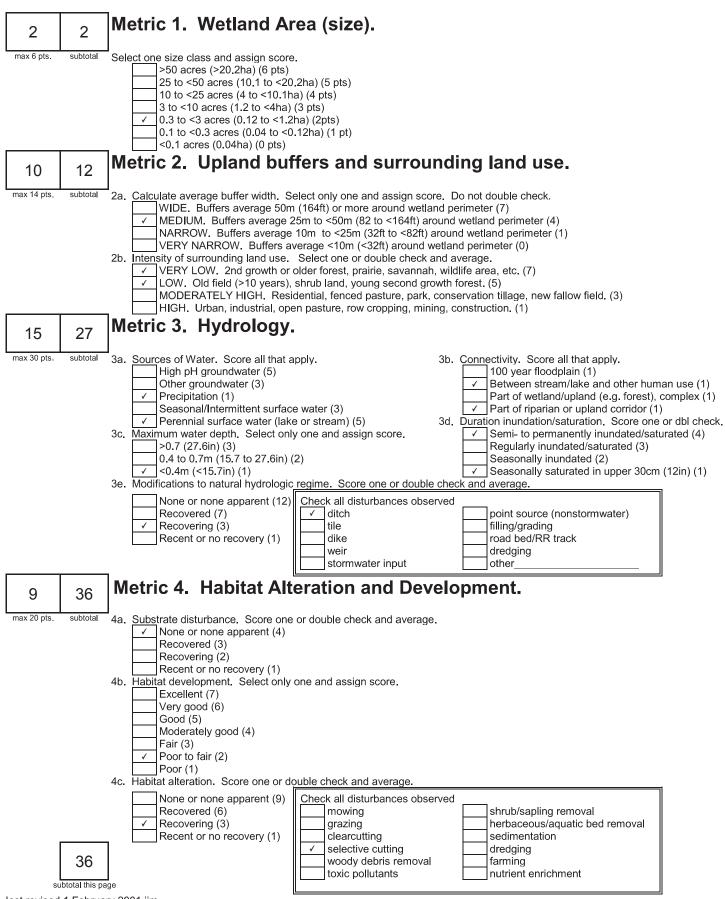
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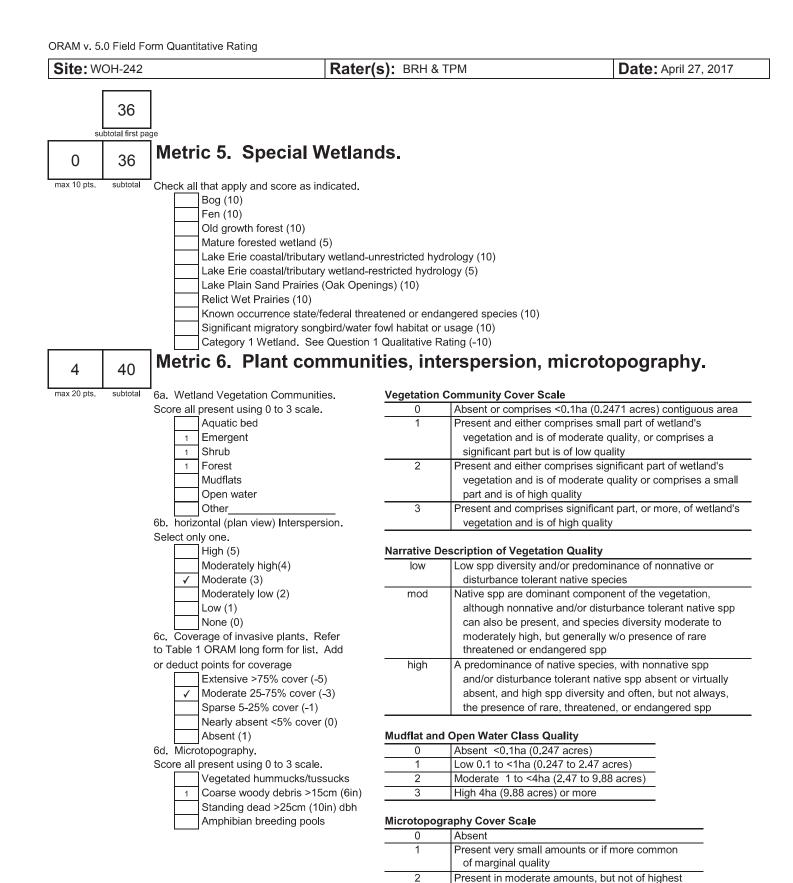
of marginal quality

and of highest quality

46

#### Rater(s): BRH & TPM





# End of Quantitative Rating. Complete Categorization Worksheets.

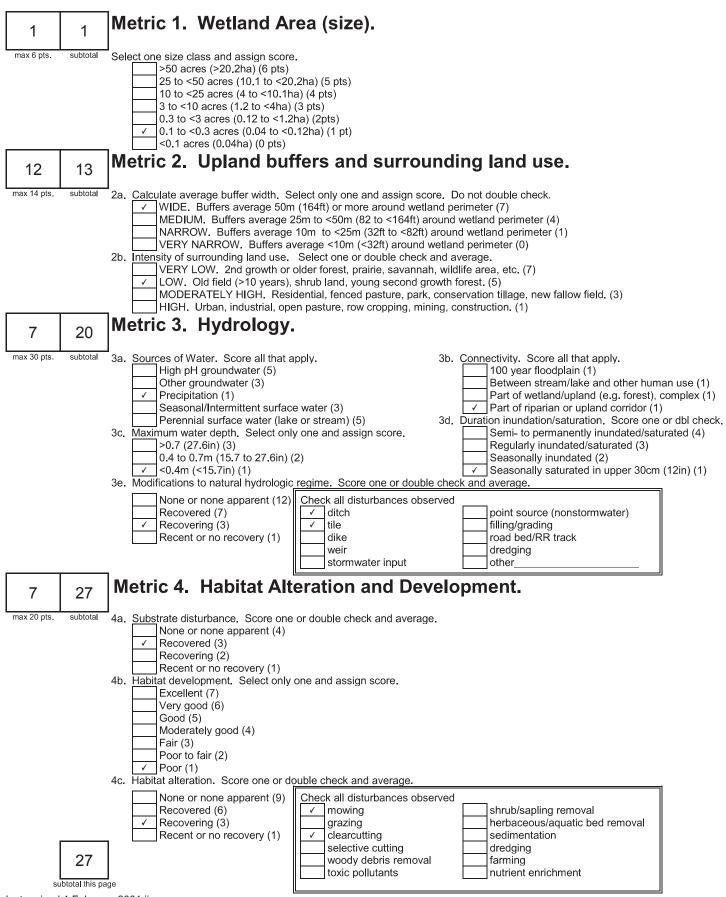
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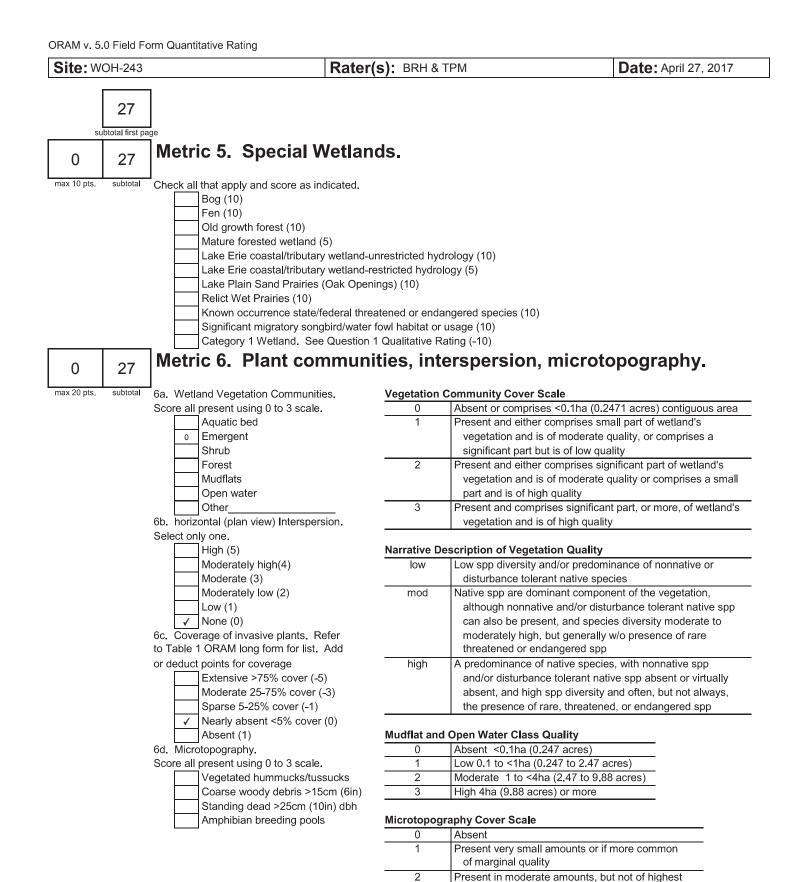
quality or in small amounts of highest quality

Present in moderate or greater amounts

and of highest quality

Rater(s): BRH & TPM





# End of Quantitative Rating. Complete Categorization Worksheets.

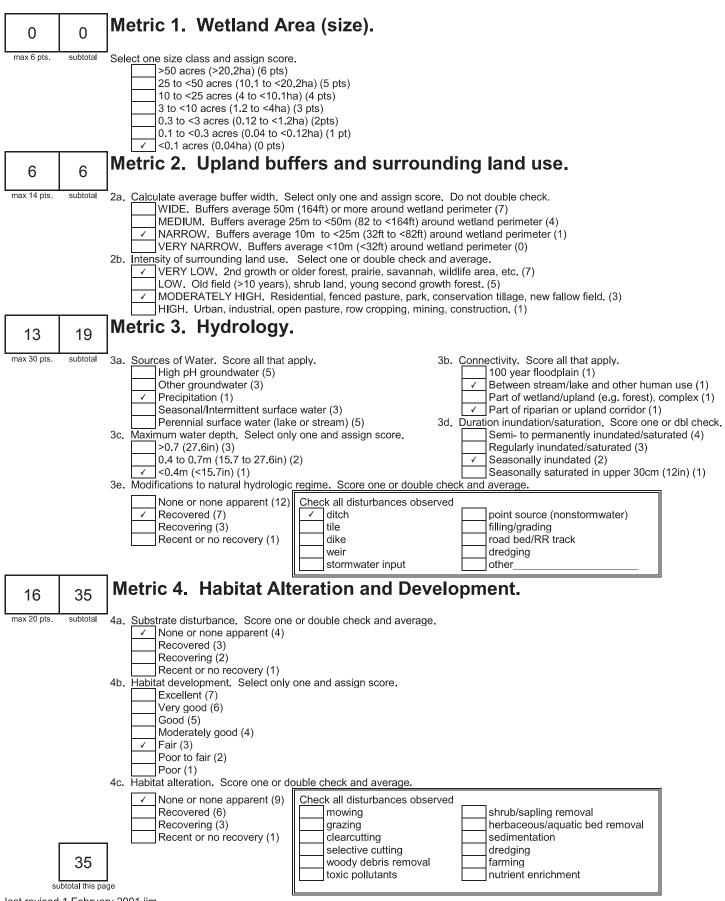
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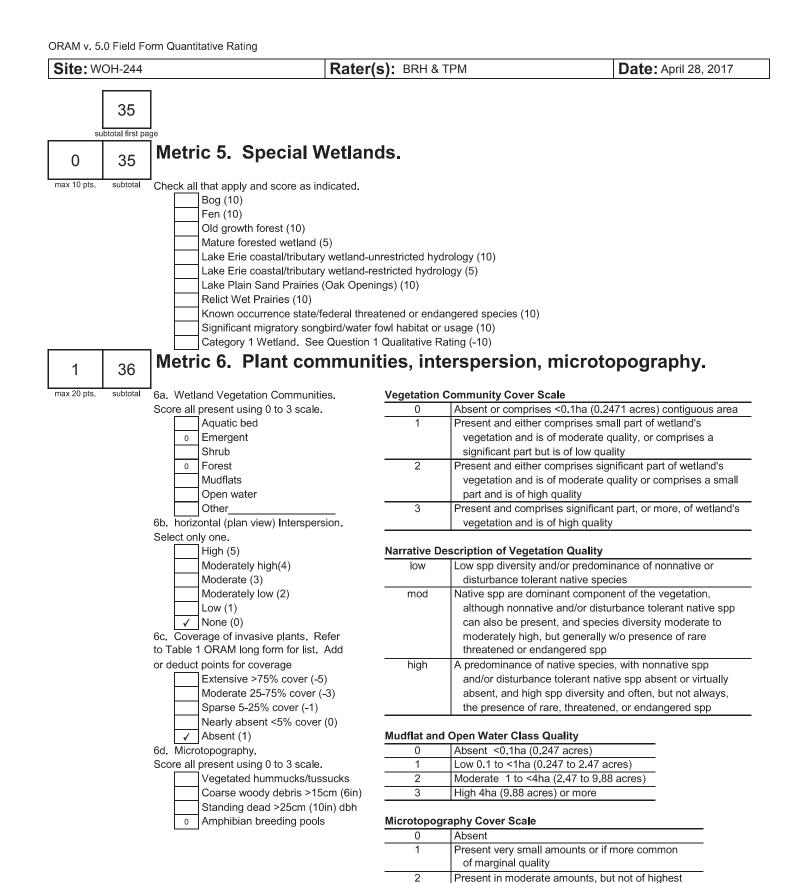
quality or in small amounts of highest quality

Present in moderate or greater amounts

and of highest quality

### Rater(s): BRH & TPM





# End of Quantitative Rating. Complete Categorization Worksheets.

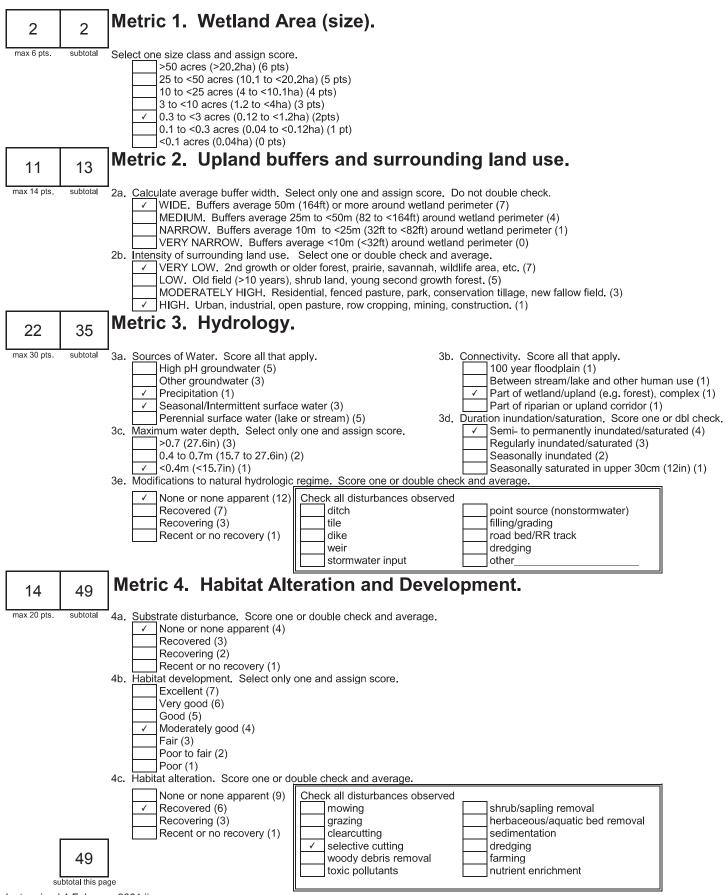
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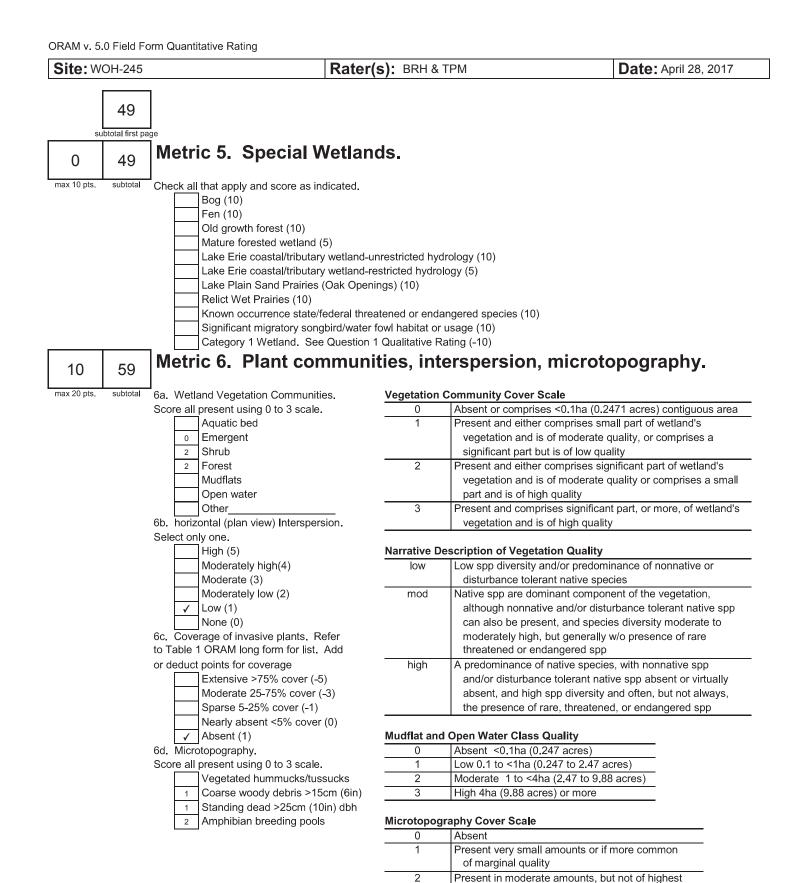
quality or in small amounts of highest quality

Present in moderate or greater amounts

and of highest quality

Rater(s): BRH & TPM





3

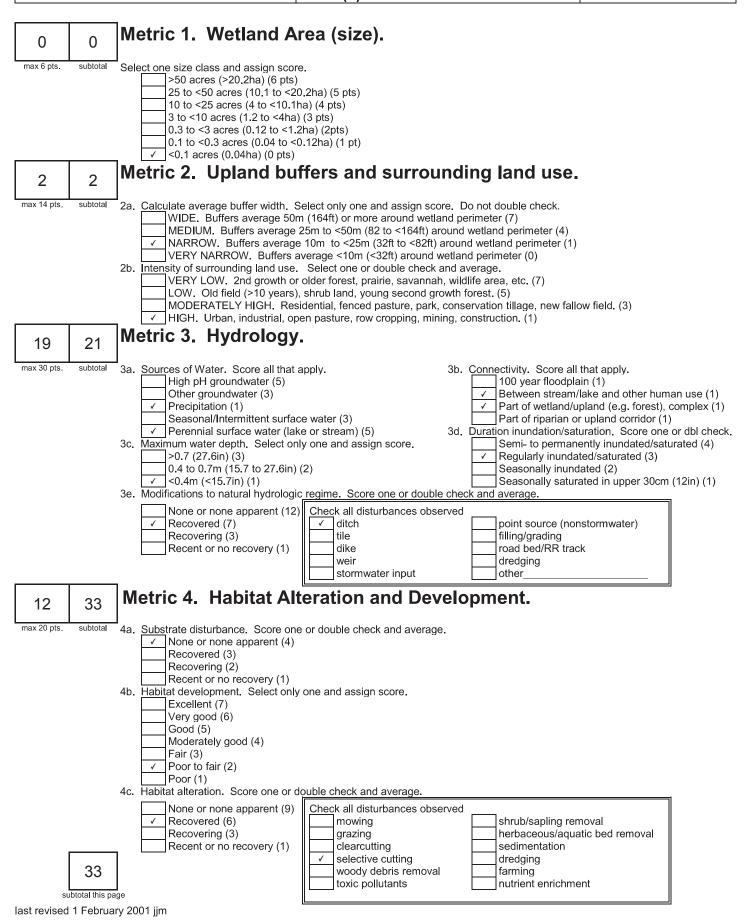
quality or in small amounts of highest quality

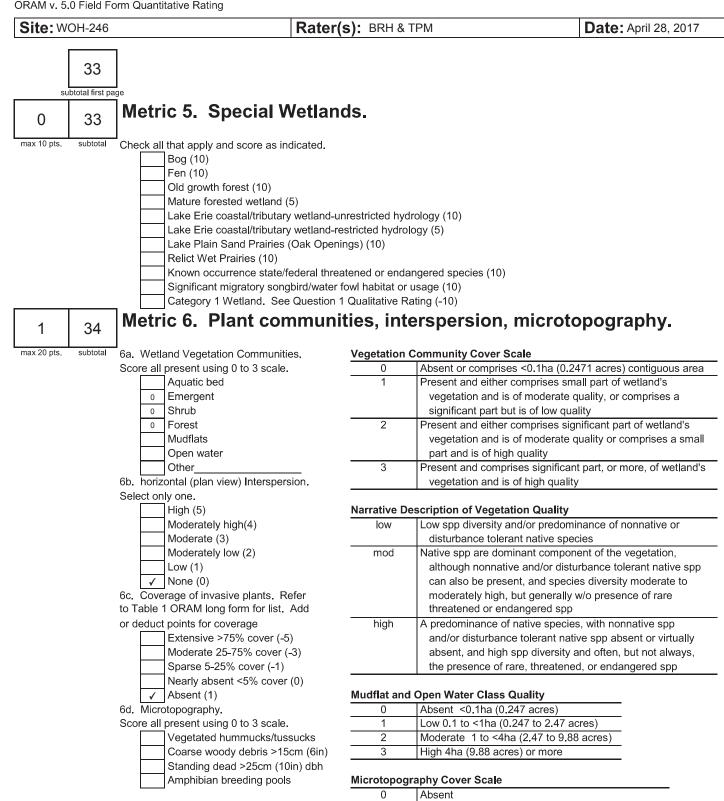
Present in moderate or greater amounts

and of highest quality

59

### Rater(s): BRH & TPM





# End of Quantitative Rating. Complete Categorization Worksheets.

1

2

3

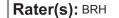
Present very small amounts or if more common

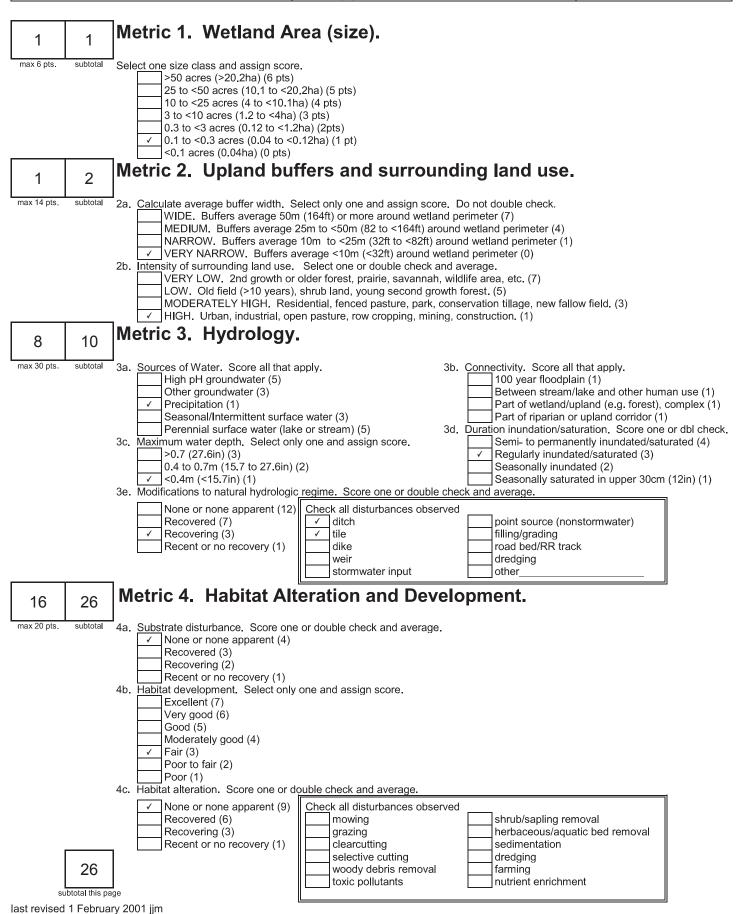
Present in moderate amounts, but not of highest quality or in small amounts of highest quality

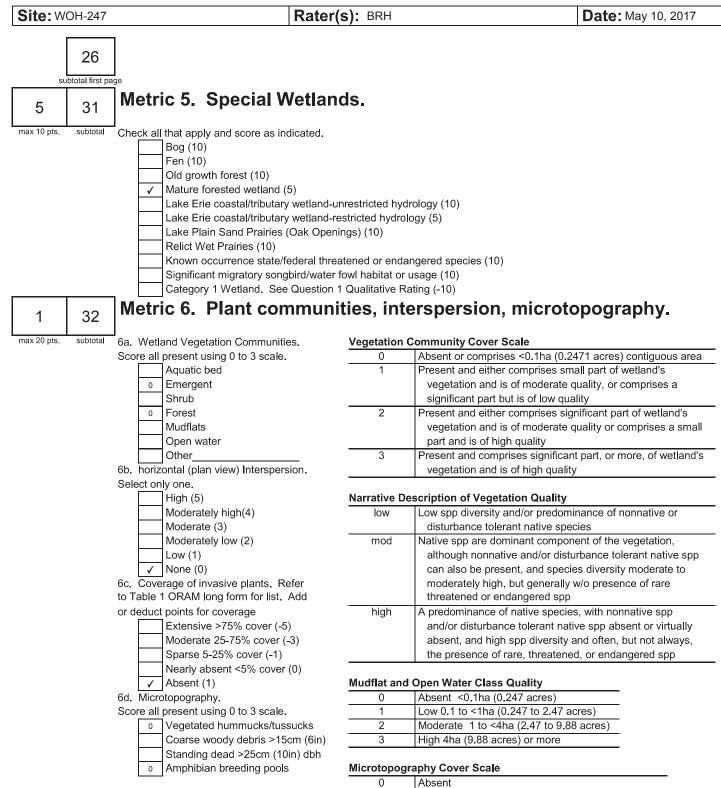
Present in moderate or greater amounts

of marginal quality

and of highest quality







 0
 Absent

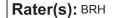
 1
 Present very small amounts or if more common of marginal quality

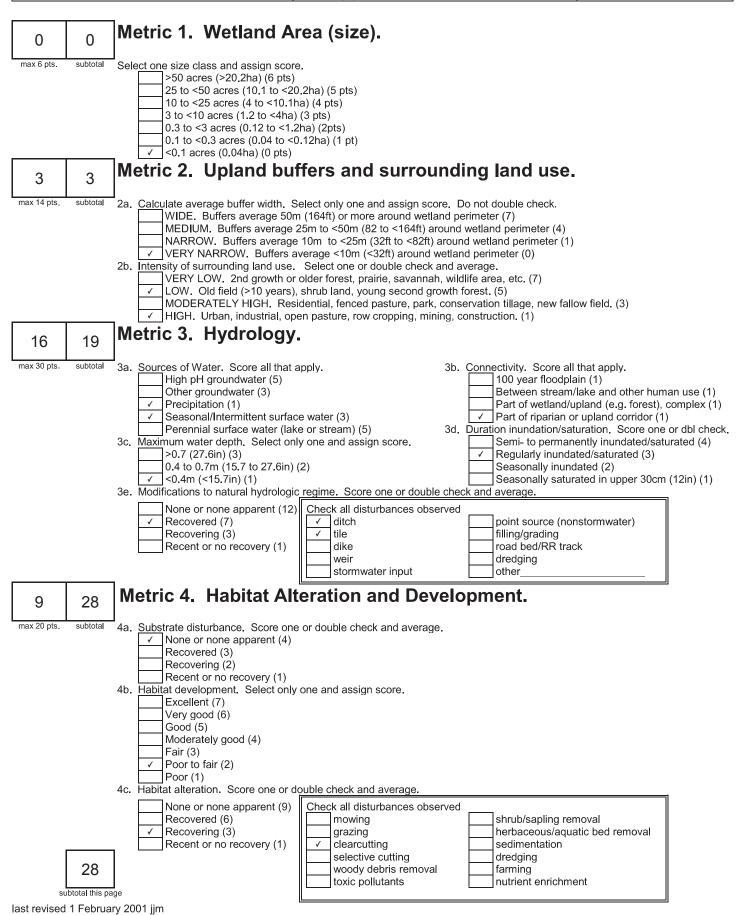
 2
 Present in moderate amounts, but not of highest quality or in small amounts of highest quality

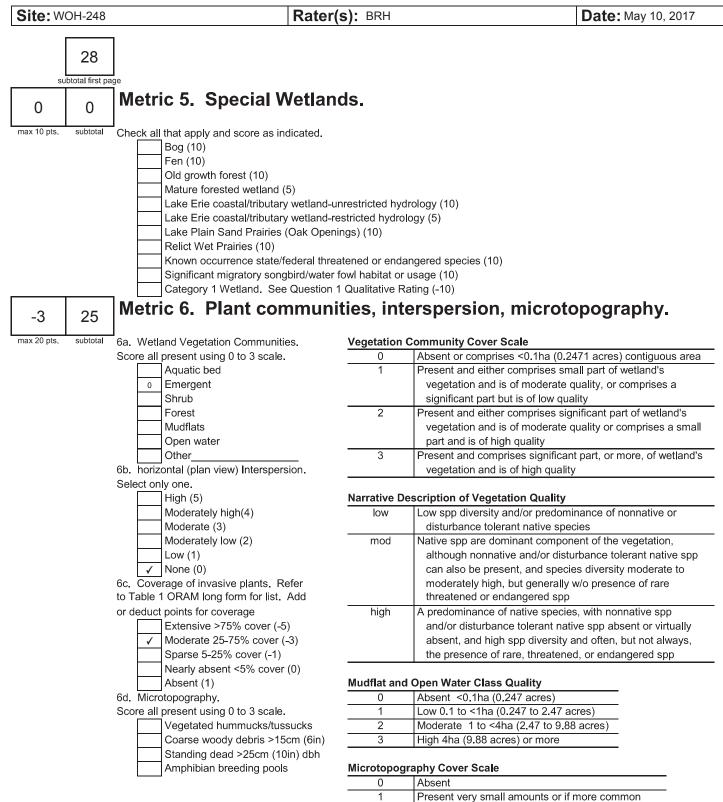
 3
 Present in moderate or greater amounts and of highest quality

32

End of Quantitative Rating. Complete Categorization Worksheets.







2

3

of marginal quality

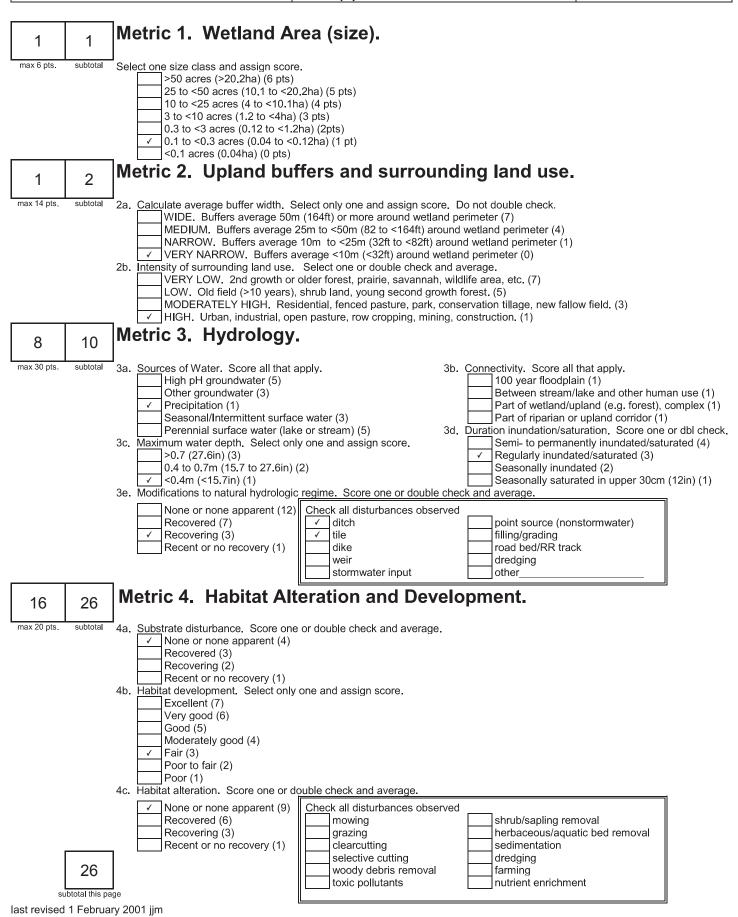
and of highest quality

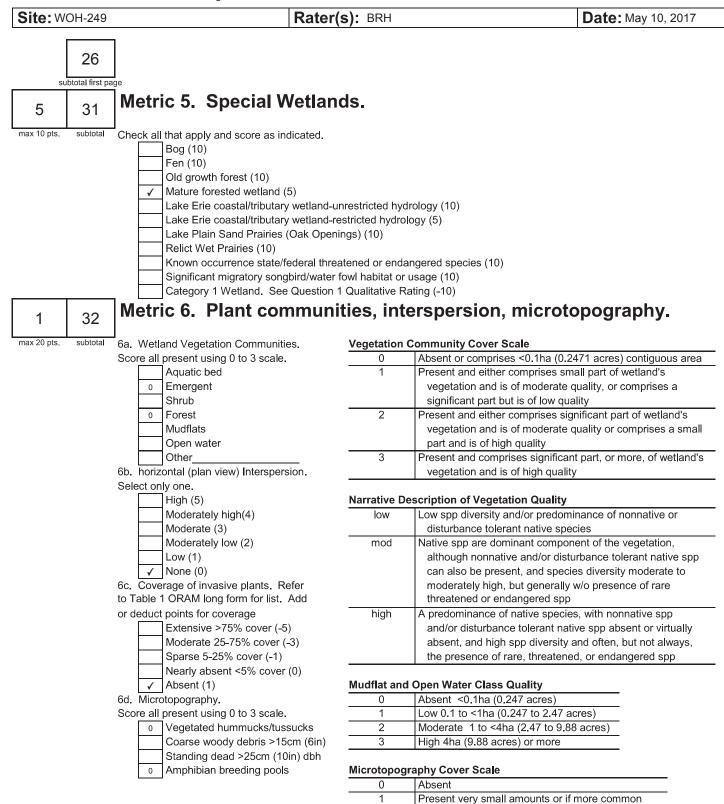
Present in moderate amounts, but not of highest quality or in small amounts of highest quality

Present in moderate or greater amounts

25

Rater(s): BRH





2

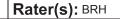
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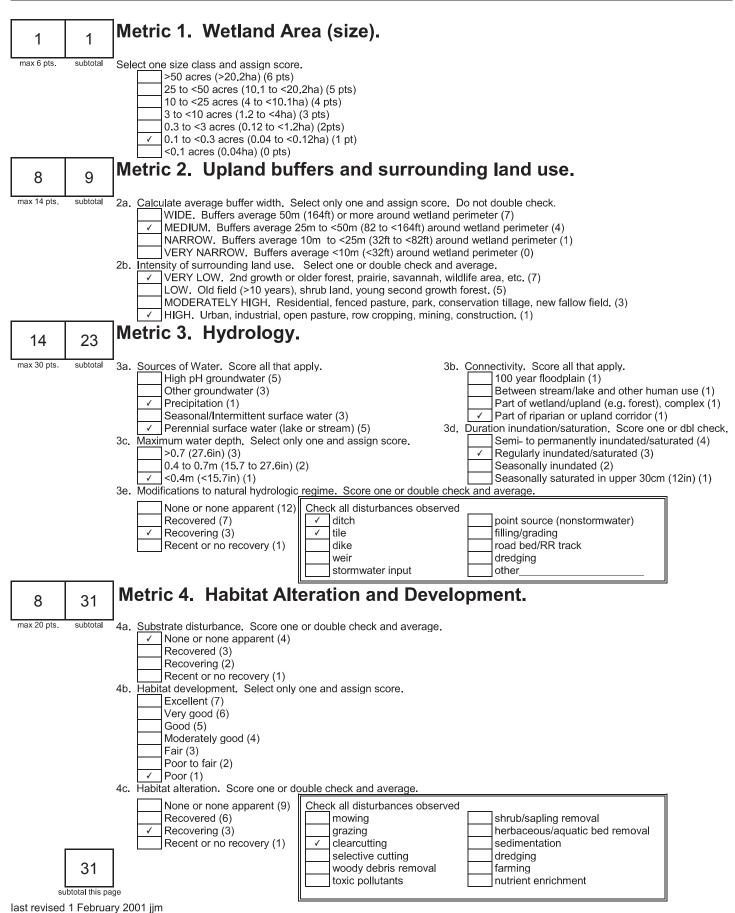
of marginal quality

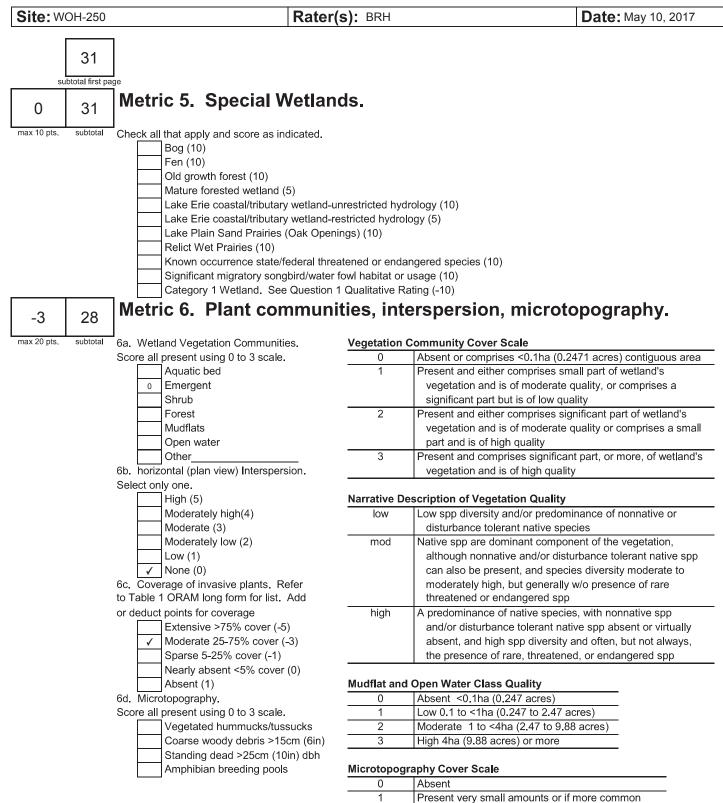
and of highest quality

Present in moderate amounts, but not of highest quality or in small amounts of highest quality

Present in moderate or greater amounts







2

3

of marginal quality

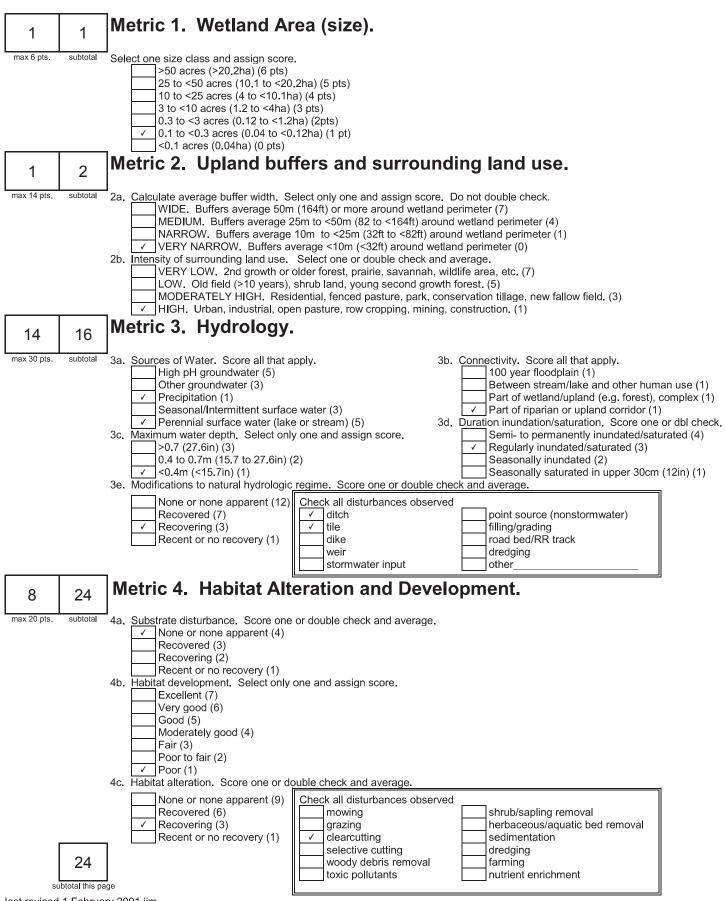
and of highest quality

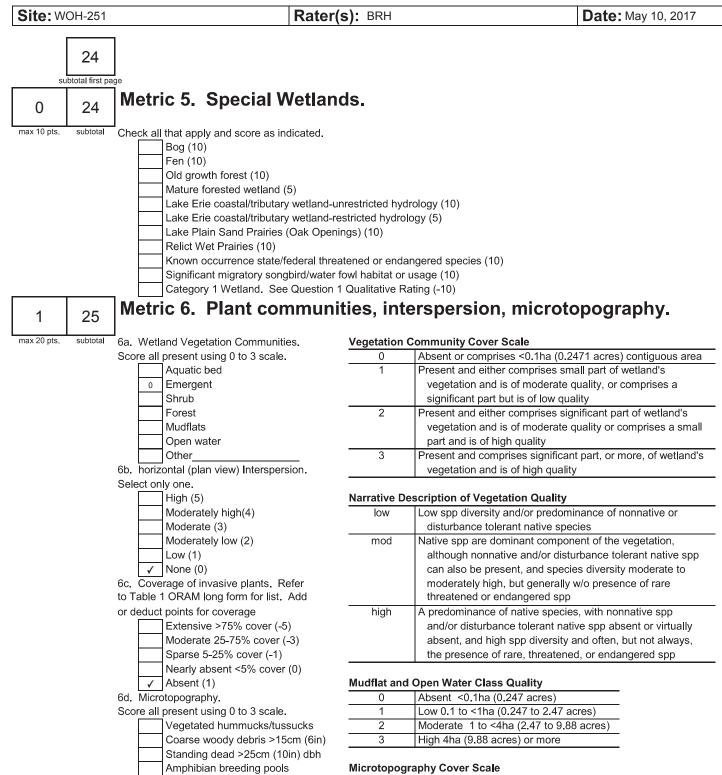
Present in moderate amounts, but not of highest quality or in small amounts of highest quality

Present in moderate or greater amounts

28

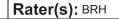
Rater(s): BRH

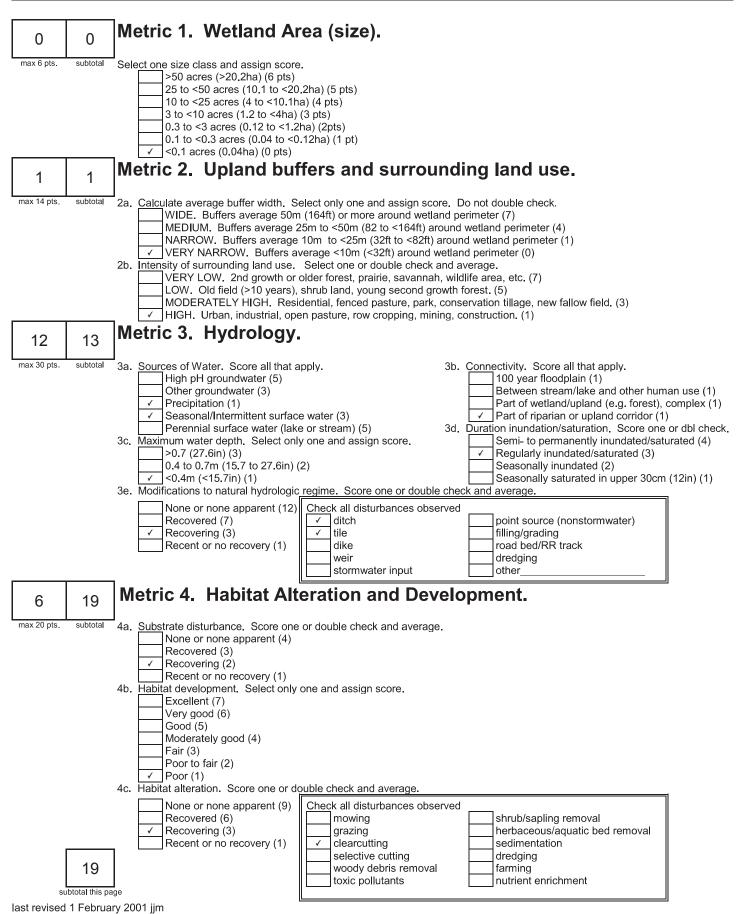


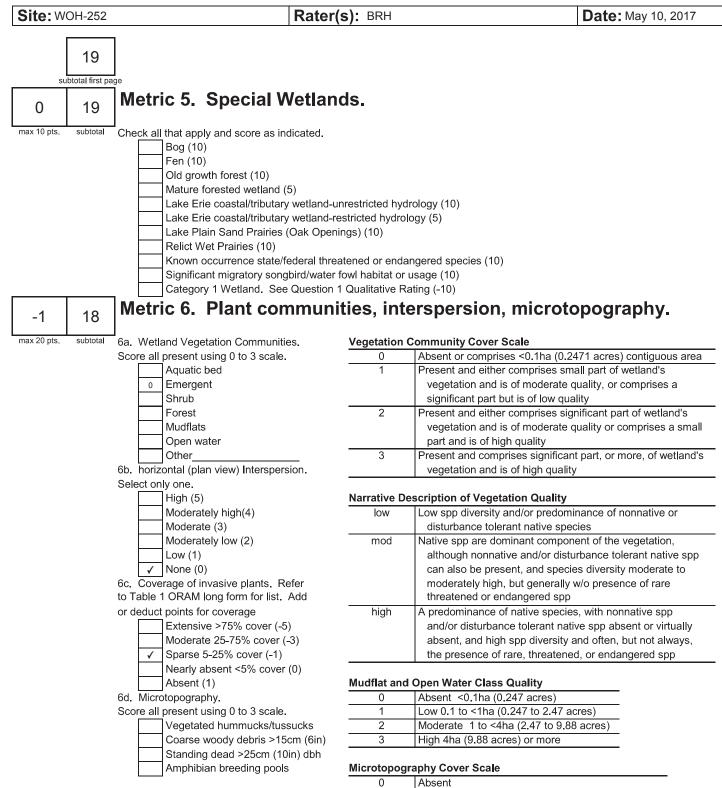


0	Absent
1	Present very small amounts or if more common
	of marginal quality
2	Present in moderate amounts, but not of highest
	quality or in small amounts of highest quality
3	Present in moderate or greater amounts
	and of highest quality

End of Quantitative Rating. Complete Categorization Worksheets.







1

2

3

Present very small amounts or if more common

Present in moderate amounts, but not of highest quality or in small amounts of highest quality

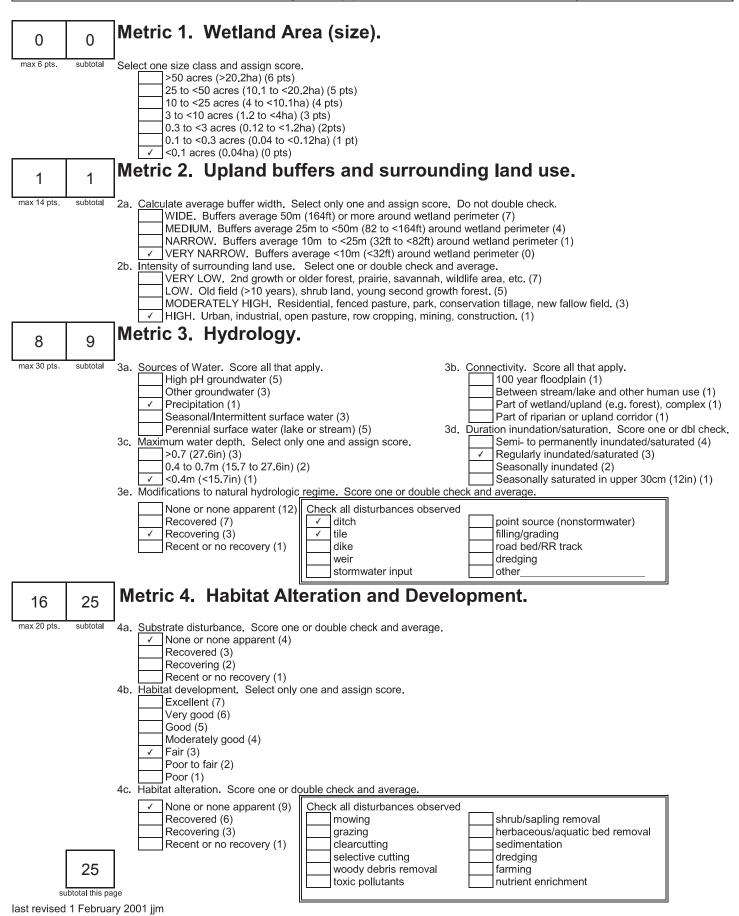
Present in moderate or greater amounts

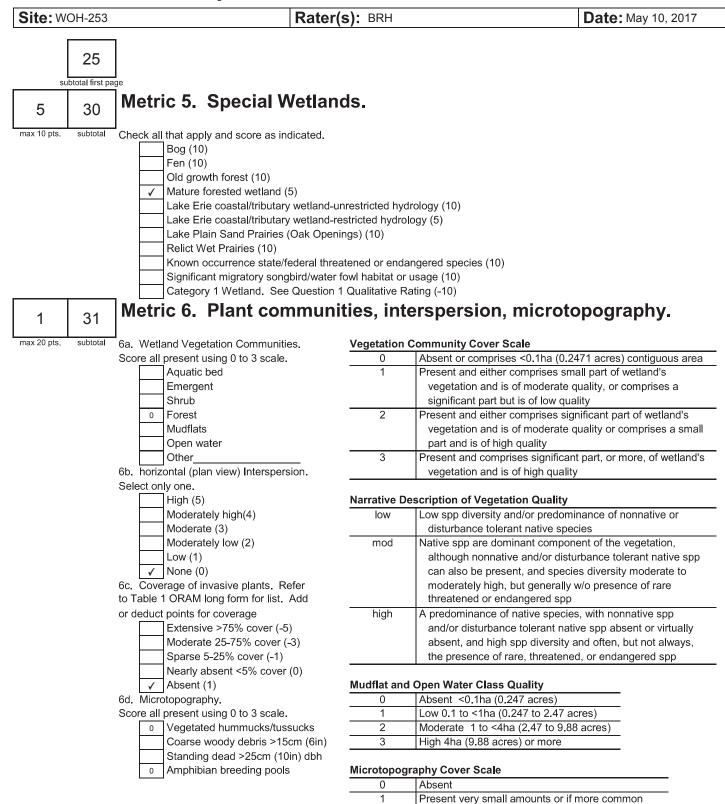
of marginal quality

and of highest quality

18

Rater(s): BRH





2

3

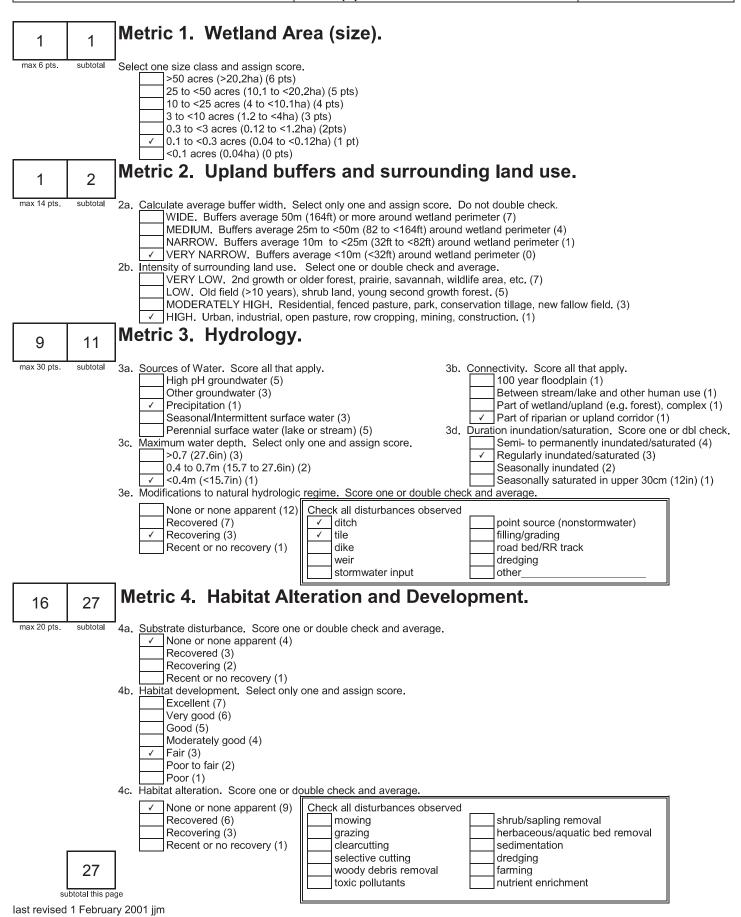
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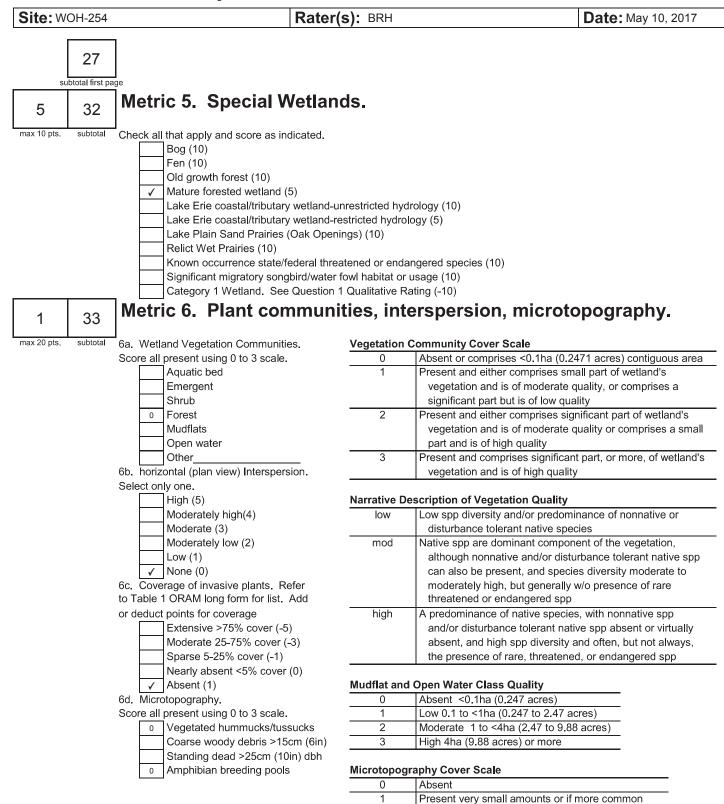
and of highest quality

Present in moderate amounts, but not of highest quality or in small amounts of highest quality

Present in moderate or greater amounts

Rater(s): BRH





# End of Quantitative Rating. Complete Categorization Worksheets.

2

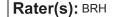
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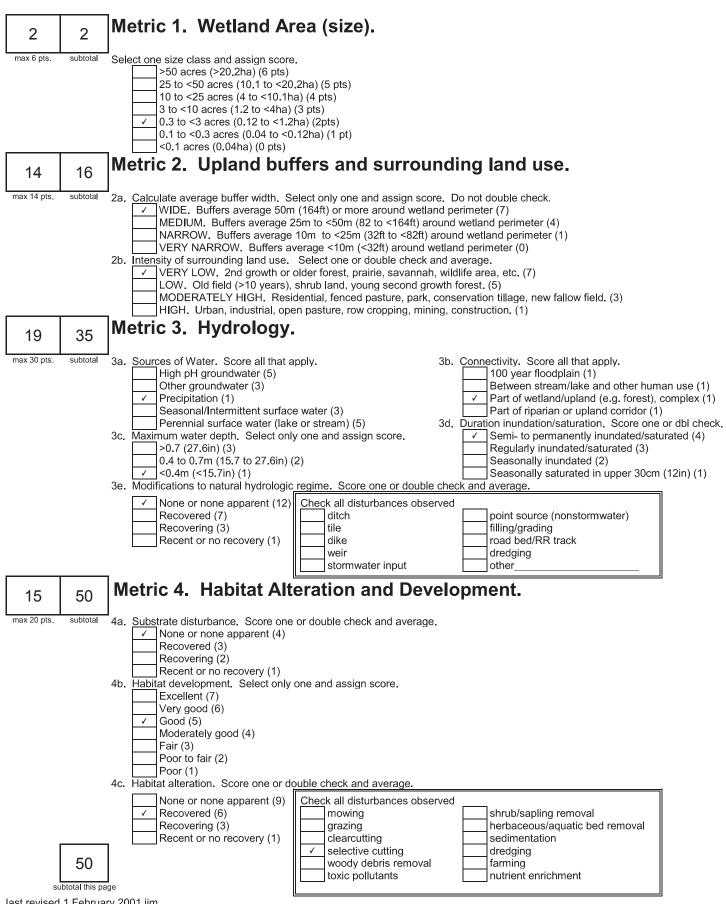
of marginal quality

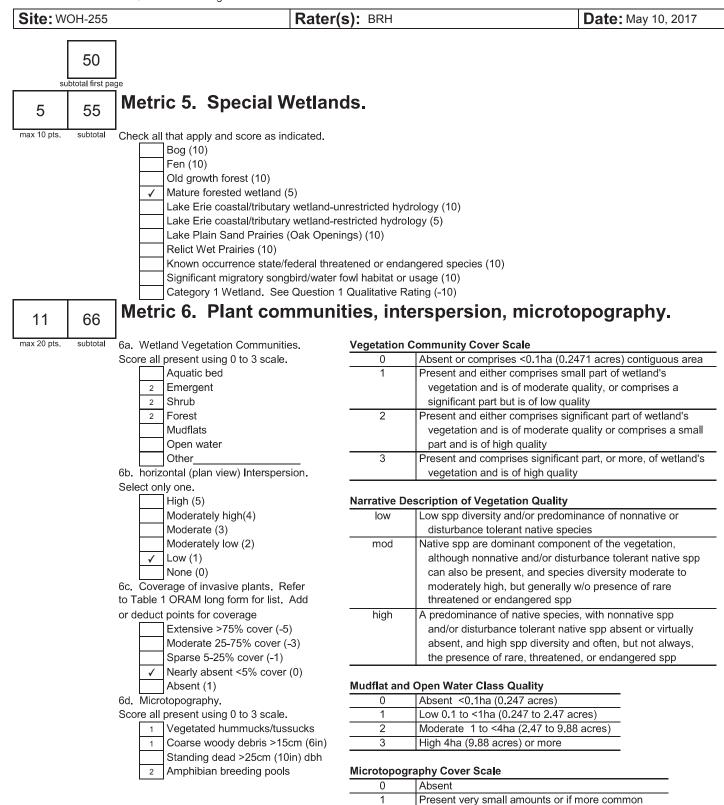
and of highest quality

Present in moderate amounts, but not of highest quality or in small amounts of highest quality

Present in moderate or greater amounts







# End of Quantitative Rating. Complete Categorization Worksheets.

1

2

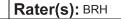
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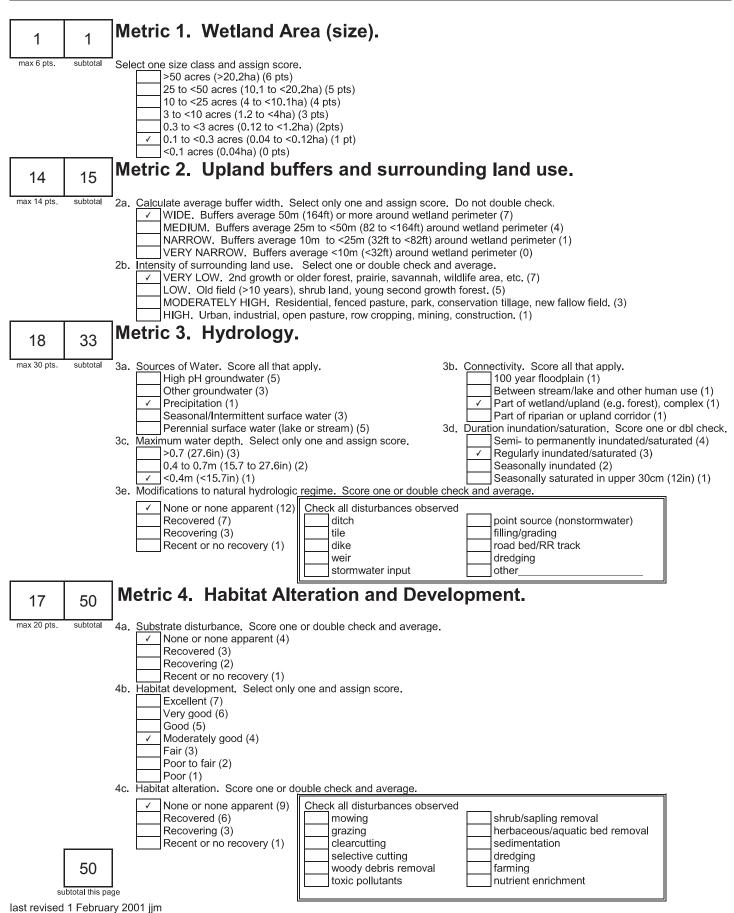
of marginal quality

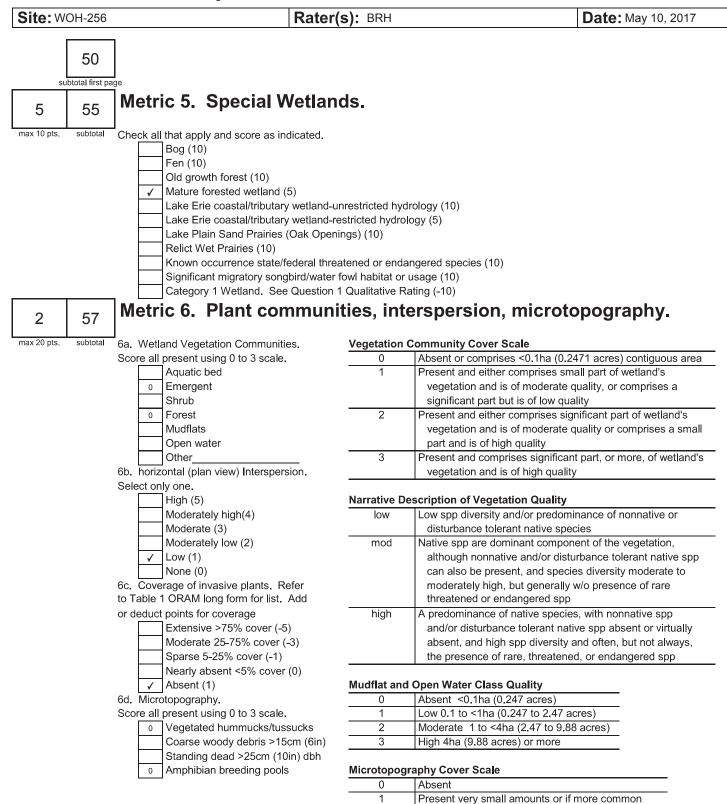
and of highest quality

Present in moderate amounts, but not of highest quality or in small amounts of highest quality

Present in moderate or greater amounts







# End of Quantitative Rating. Complete Categorization Worksheets.

2

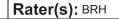
3

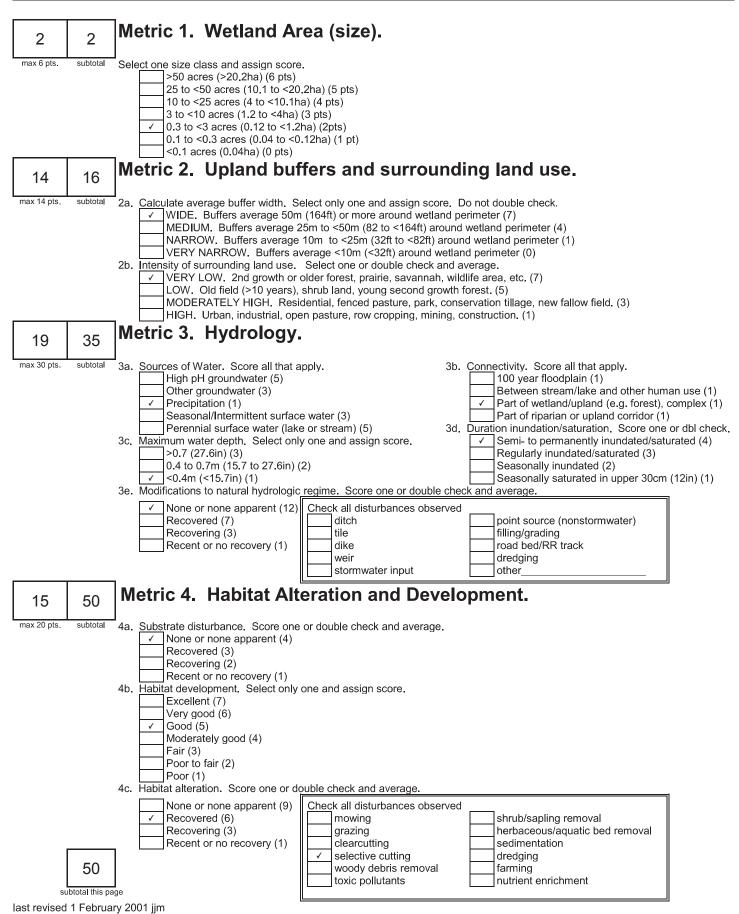
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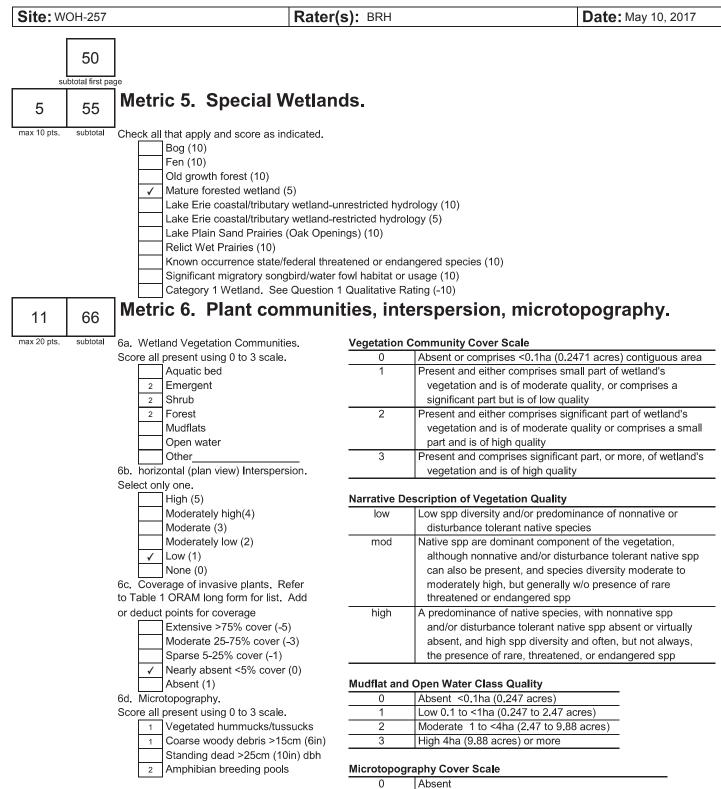
and of highest quality

Present in moderate amounts, but not of highest quality or in small amounts of highest quality

Present in moderate or greater amounts







1

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Present very small amounts or if more common

Present in moderate amounts, but not of highest quality or in small amounts of highest quality

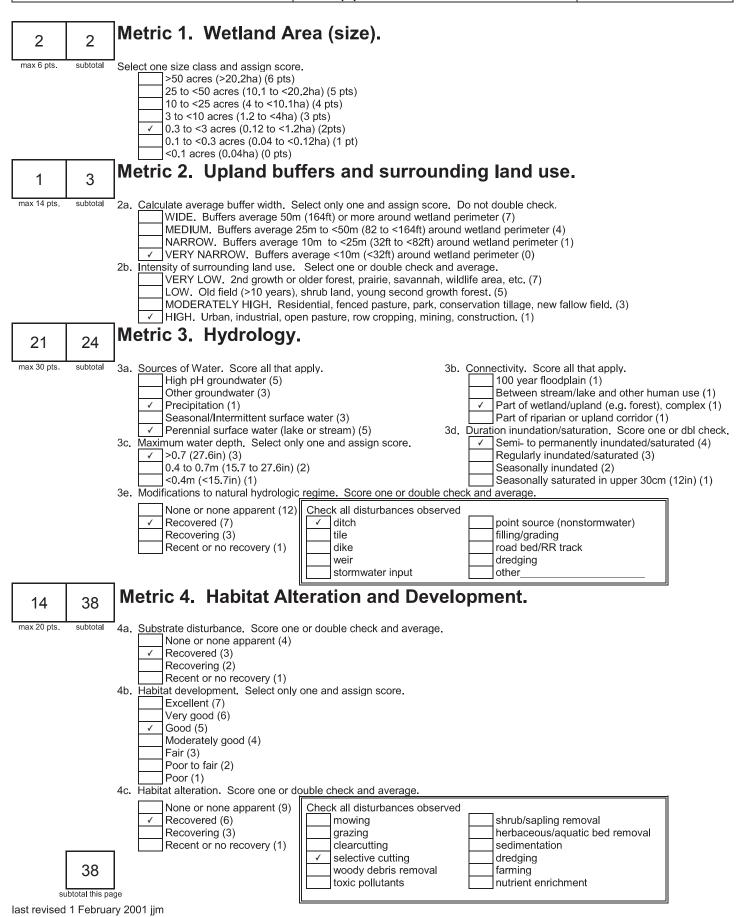
Present in moderate or greater amounts

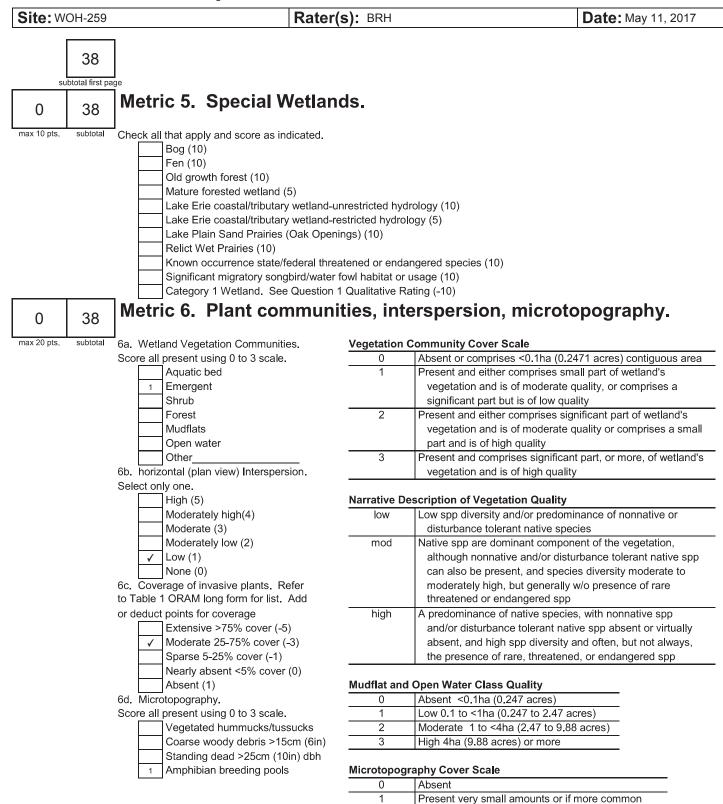
of marginal quality

and of highest quality

66

Rater(s): BRH





End of Quantitative Rating. Complete Categorization Worksheets.

2

3

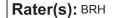
of marginal quality

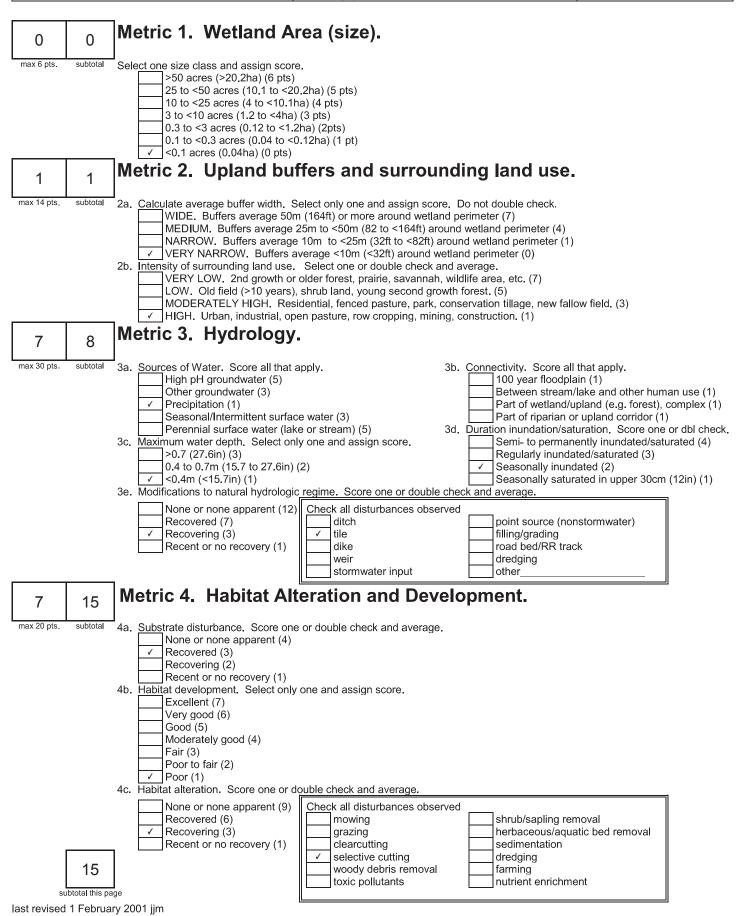
and of highest quality

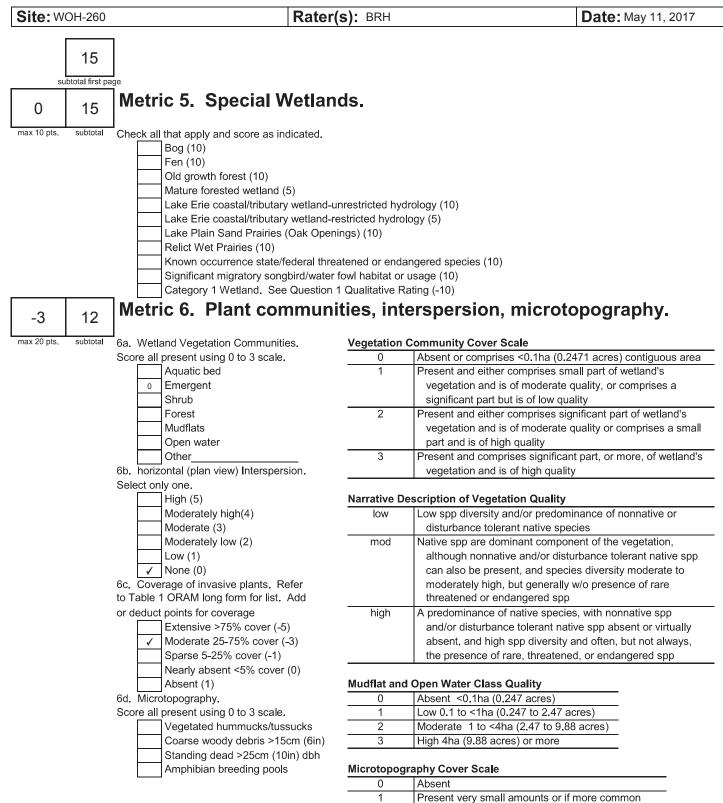
Present in moderate amounts, but not of highest quality or in small amounts of highest quality

Present in moderate or greater amounts

Site: WOH-260







## End of Quantitative Rating. Complete Categorization Worksheets.

2

3

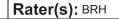
of marginal quality

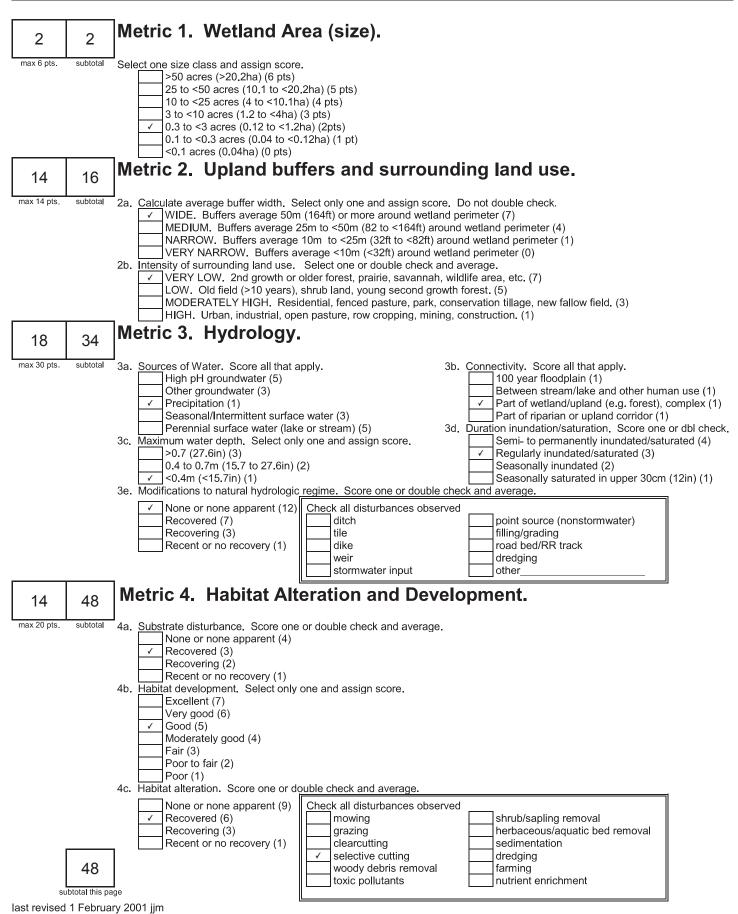
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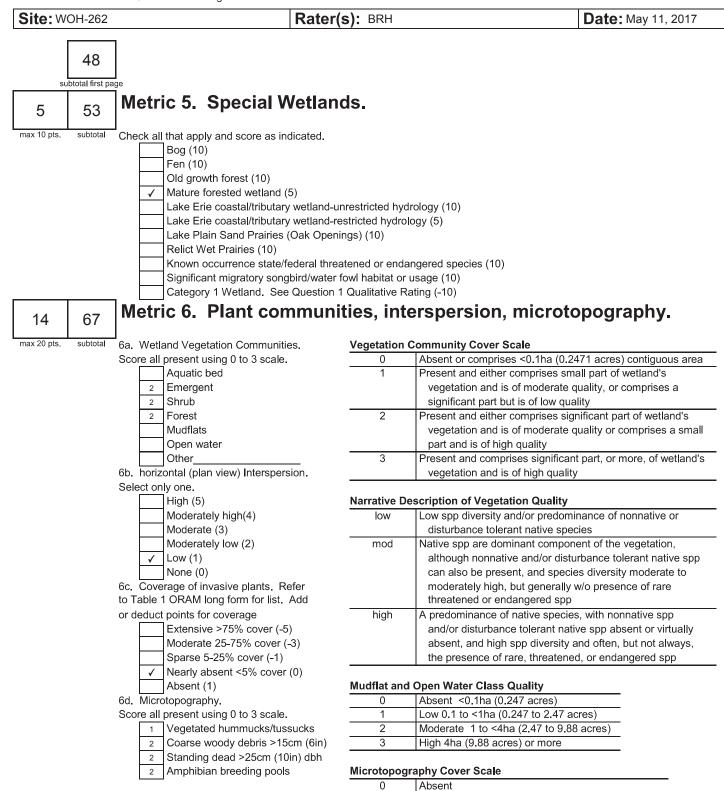
Present in moderate amounts, but not of highest quality or in small amounts of highest quality

Present in moderate or greater amounts

Site: WOH-262







 0
 Absent

 1
 Present very small amounts or if more common of marginal quality

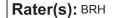
 2
 Present in moderate amounts, but not of highest quality or in small amounts of highest quality

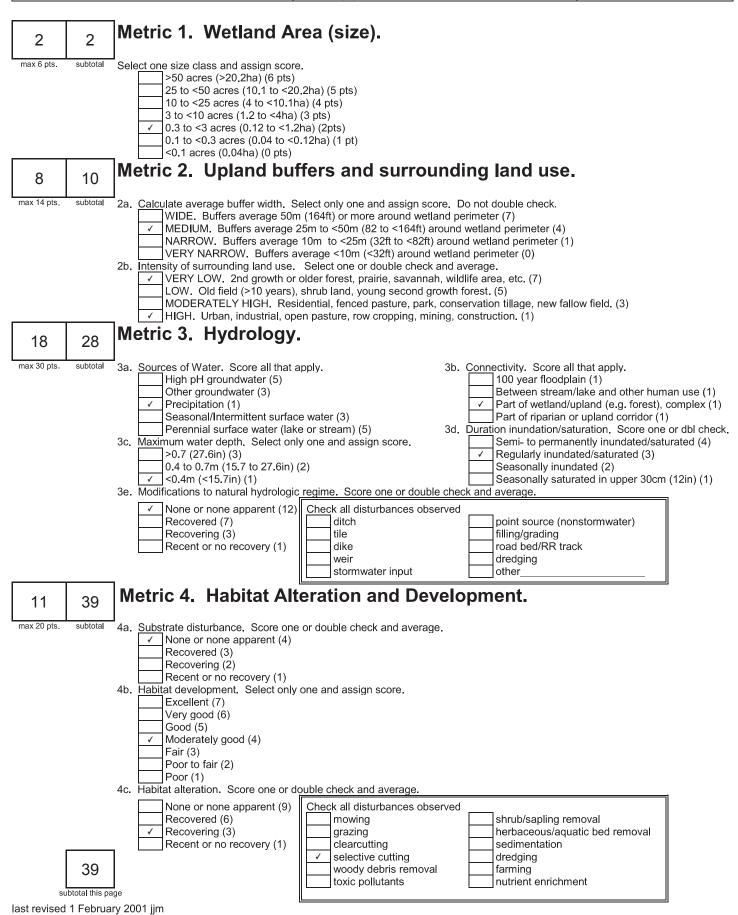
 3
 Present in moderate or greater amounts and of highest quality

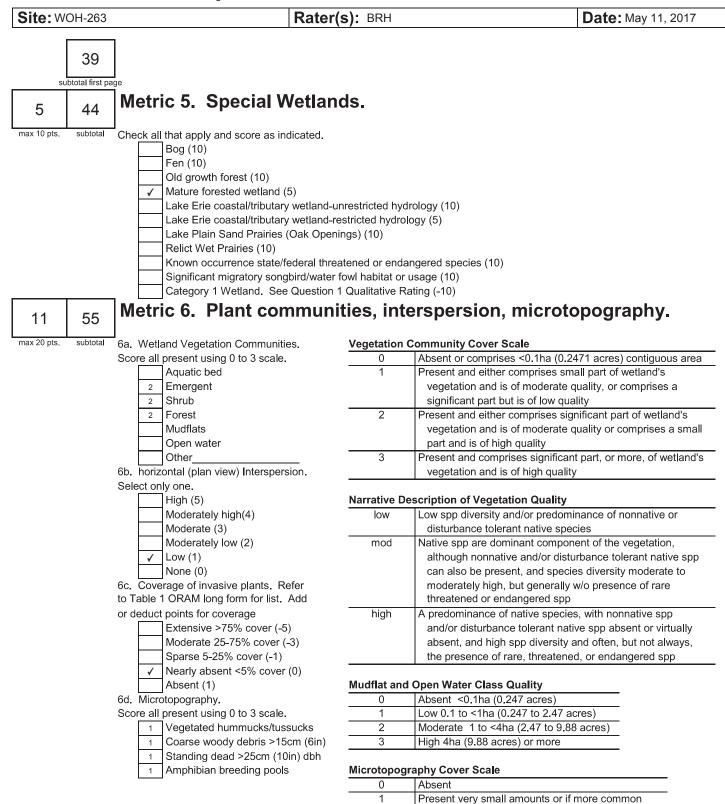
67

End of Quantitative Rating. Complete Categorization Worksheets.

Site: WOH-263







### End of Quantitative Rating. Complete Categorization Worksheets.

2

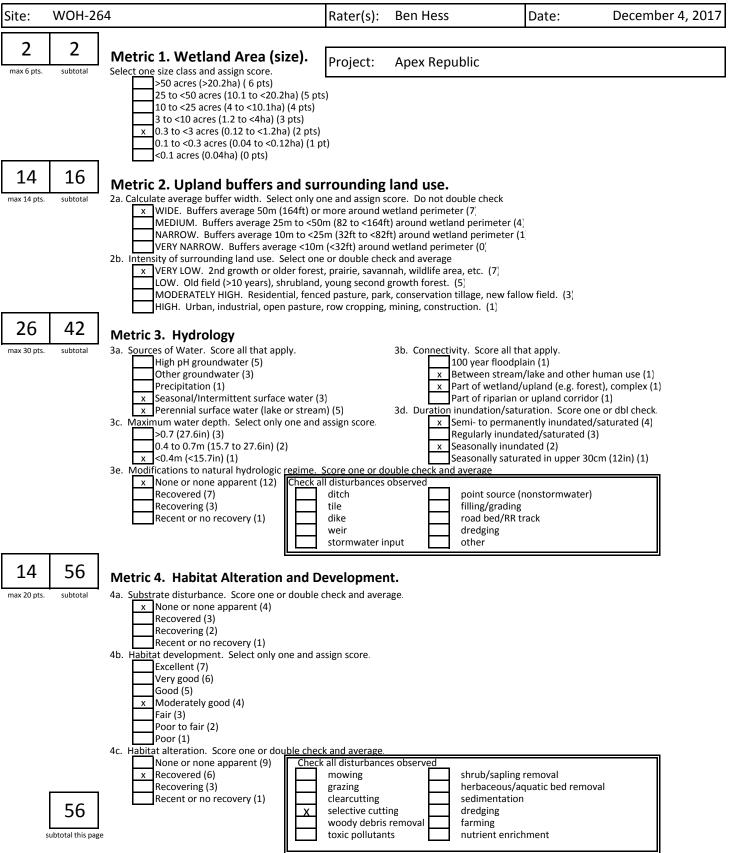
3

of marginal quality

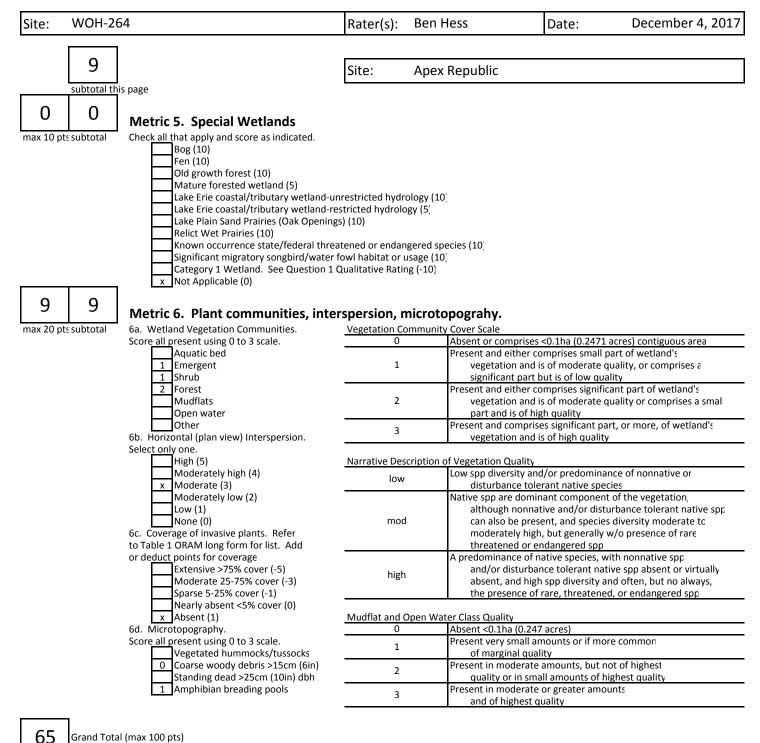
and of highest quality

Present in moderate amounts, but not of highest quality or in small amounts of highest quality

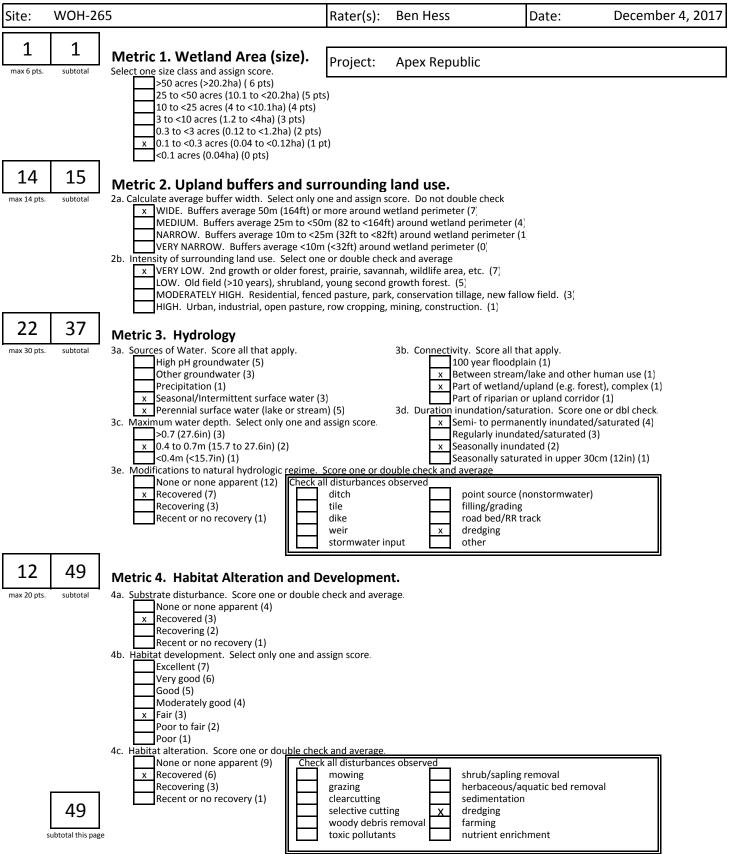
Present in moderate or greater amounts



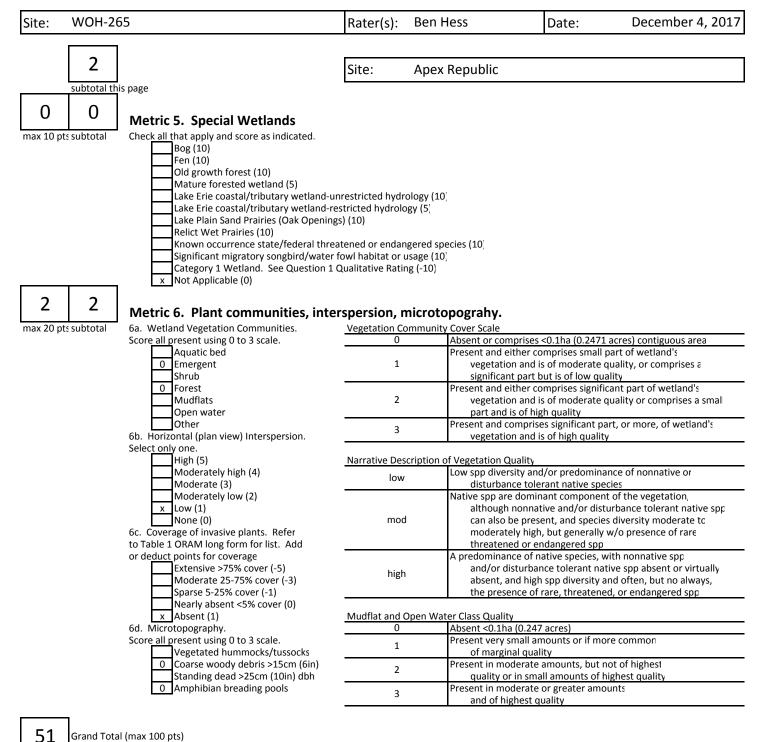
ORAM v 5.0 Field Form Quantitative Rating



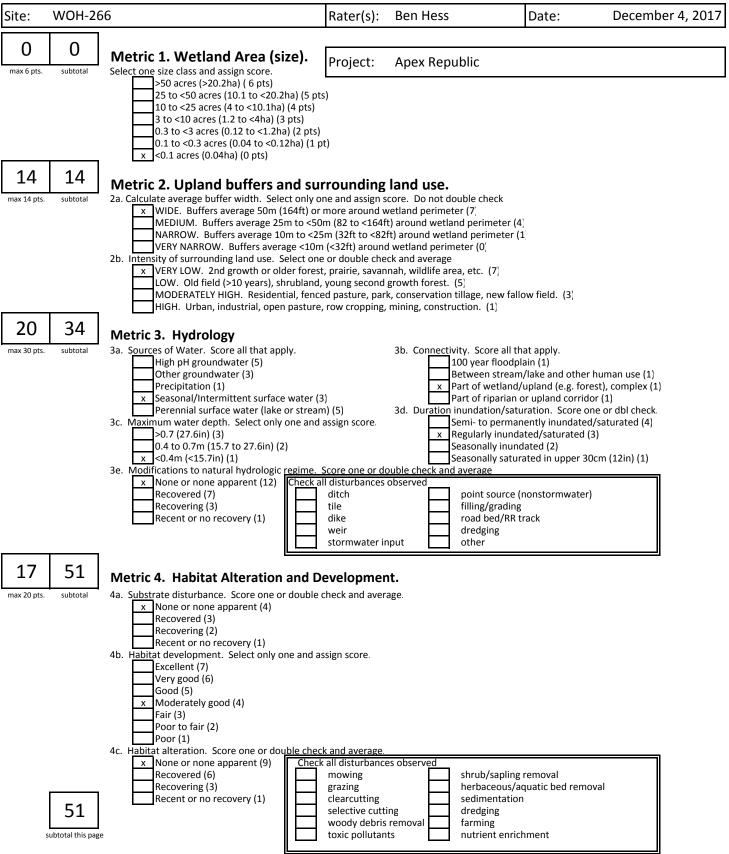
Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html



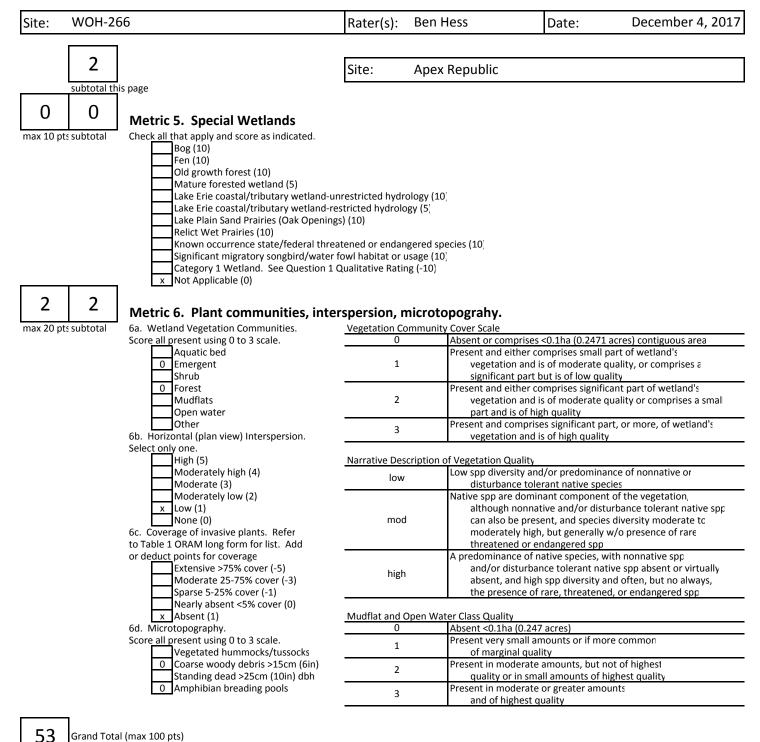
ORAM v 5.0 Field Form Quantitative Rating



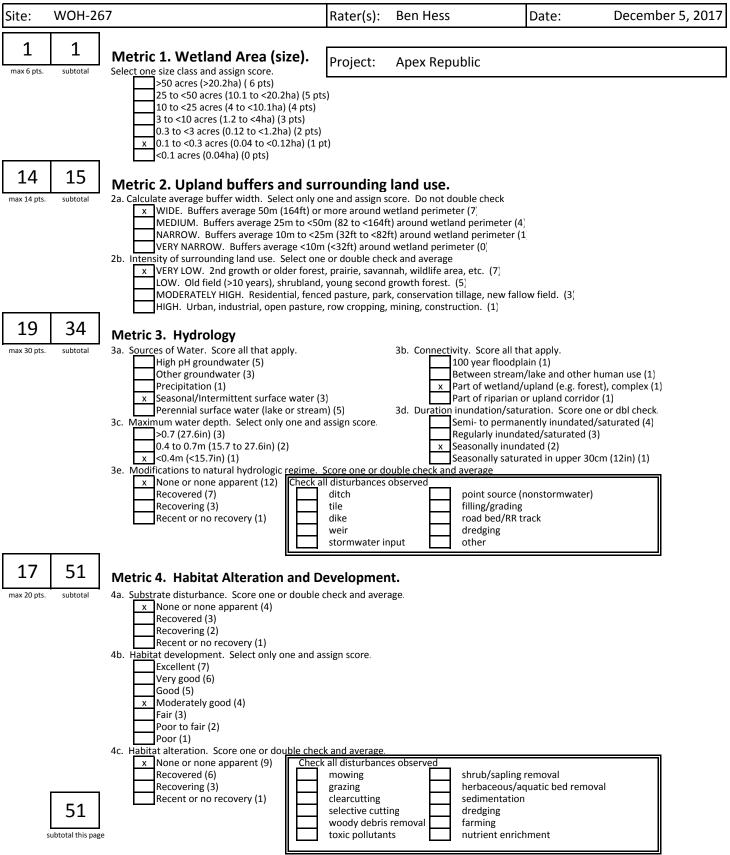
Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html



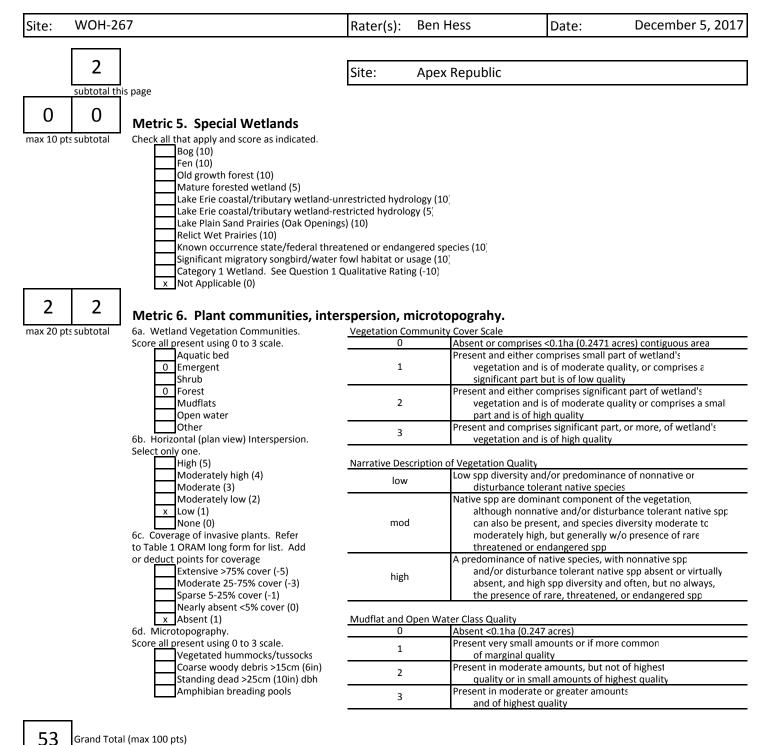
ORAM v 5.0 Field Form Quantitative Rating



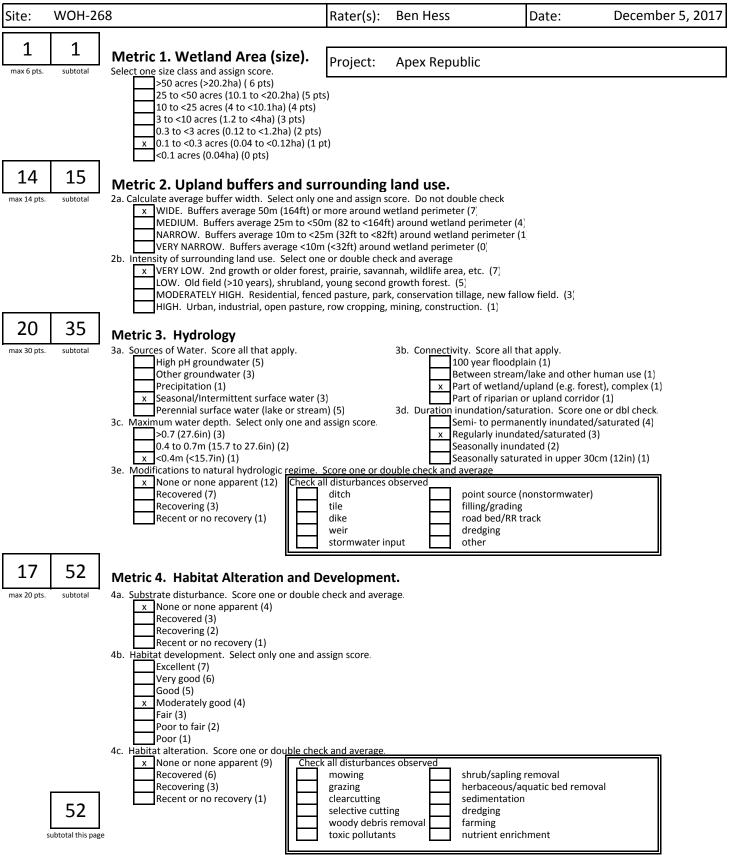
Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html



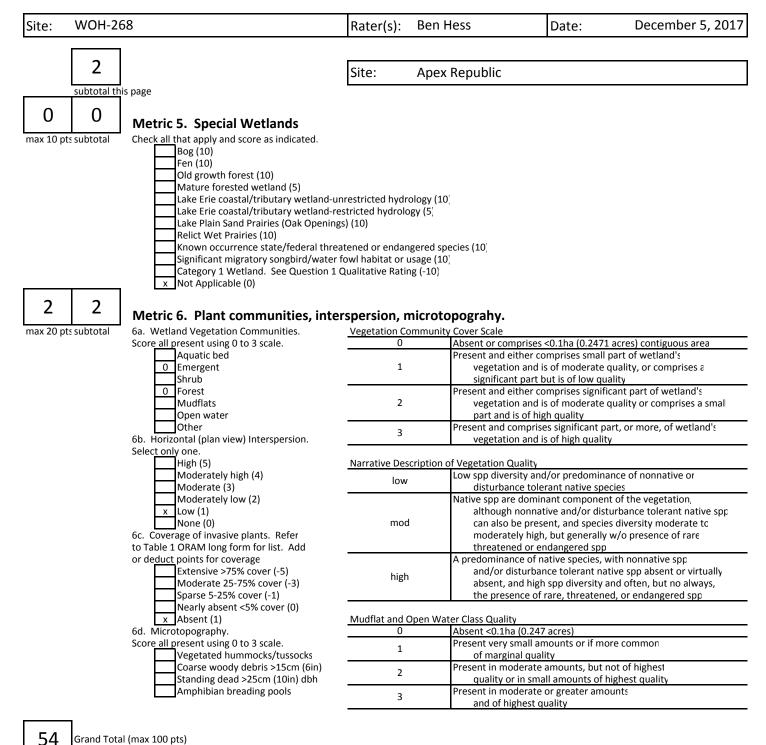
ORAM v 5.0 Field Form Quantitative Rating



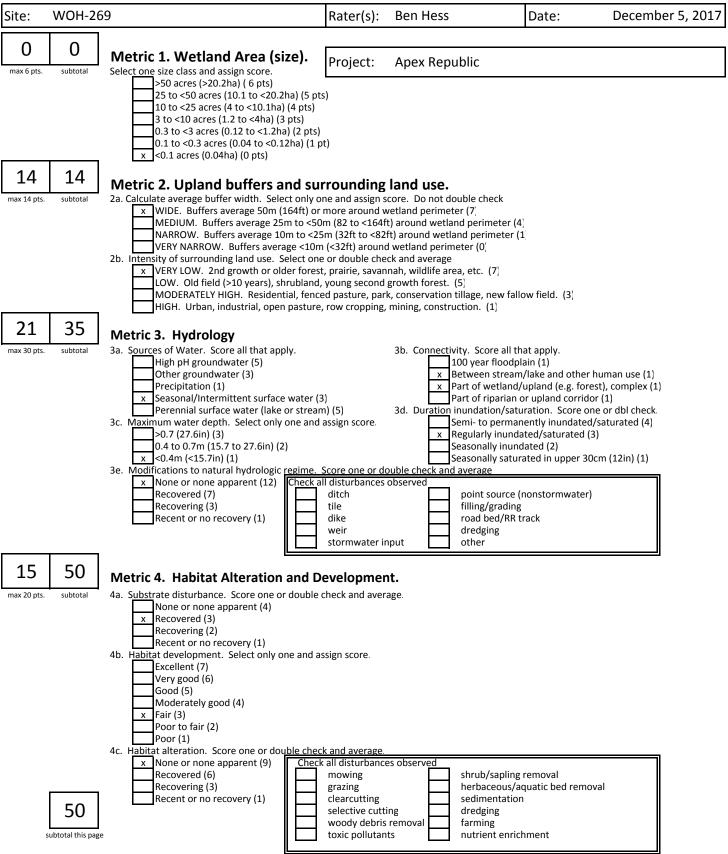
Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html



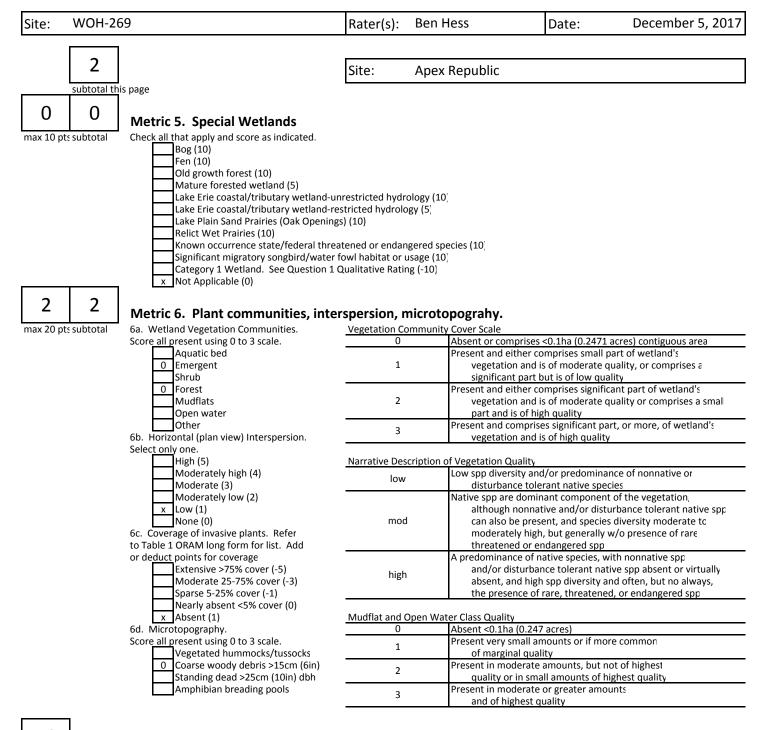
ORAM v 5.0 Field Form Quantitative Rating



Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html



ORAM v 5.0 Field Form Quantitative Rating



Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

Republic Wind Project

# APPENDIX

# WATERBODY ASSESSMENT FORMS



# **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION Apex Republic Wi		
SITE NAME/LOCATION APEX Republic W		DRAINAGE AREA (mi²) 0.12
	LAT. 41.21910 LONG83.09296 RIVE	
DATE 09/28/16 SCORER BJS	COMMENTS	
NOTE: Complete All Items On This Form		Obio's PHWH Streams" for Instructions
STREAM CHANNEL	URAL CHANNEL RECOVERED RECO	OVERING 1 RECENT OR NO RECOVERY
	y type of substrate present. Check ONLY two p	
	nt substrate types found (Max of 8). Final metric <b>ERCENT TYPE</b>	REPCENT Metric
BLDR SLABS [16 pts]	0% SILT [3 pt]	60% Points
BOULDER (>256 mm) [16 pts]	0%         Leaf Pack/WOODY           0%         Fine detritus [3 p	Cubetnet
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN	v ax = 4
	10% MUCK [0 pts]	0% 13
SAND (<2 mm) [6 pts]	25% ARTIFICIAL [3 pts]	13
Total of Percentages of <b>0</b> .	00% (A) Substrate Percentage 100	0% (B) A + B
Bldr Slabs, Boulder, Cobble, Bedrock		R OF SUBSTRATE TYPES: 4
2. Maximum Pool Depth (Measure the ma evaluation. Avoid plunge pools from road	aximum pool depth within the 61 meter (200 ft, culverts or storm water pipes) (Check ONLY of	· · · ·
> 30 centimeters [20 pts]		m [15 pts]
□ > 22.5 - 30 cm [30 pts] □ > 10 - 22.5 cm [25 pts]	☐ < 5 cm [5 pts] ✓ □ NO WATER 0	] OR MOIST CHANNEL [0 pts]
OMMENTS Roadside man-made	agricultural ditch	OCL DEPTH (centimeters): 0
3. BANK FULL WIDTH (Measured as the a	average of 3-4 measurements) (Check	Second Stress         Bankfull           3" - 4' 8") [15 pts]         Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	≤ 1.0 m (<=3' 3") [5 pi	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS Heavily vegetated	AVERAGE BA	NKFULL WIDTH (meters): 1.20 15
	This information must also be completed by the completed	
RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH	FLOODPLAIN QUALITY	Right (R) as looking downstream☆
L R (Per Bank)	L R (Most Predominant per Bank)	
Wide >10m	Mature Forest, Wetland Immature Forest, Shrub or Old	Conservation Tillage
Moderate 5-10m	Field	Urban or Industrial
Narrow <5m	Residential, Park, New Field	Open Pasture, Row Crop
None	Fenced Pasture	Mining or Construction
COMMENTS Sits within active	e Tiela	<u> </u>
FLOW REGIME (At Time of Evalu		al isolated people as flow (Intermittent)
Stream Flowing Subsurface flow with isolated pool		el, isolated pools, no flow (Intermittent) no water (Ephemeral)
COMMENTS		
	er 61 m (200 ft) of channel) (Check ONLY one b	
✓ None 0.5	1.0     2.0       1.5     2.5	3.0 >3
STREAM GRADIENT ESTIMATE		

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	_ Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:Watson NRCS Soil Map P	age: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/26/16	Quantity: 0.43
Photograph Information: 3 Photos taken, 1 upstream, 1 downstream, and 1 looking in	nto feature DOH-06 which connects.
Elevated Turbidity? (Y/N): _ Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	
Additional comments/description of pollution impacts:	
Located alongside a road and near active crop areas.	
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional	·
ID number.       Include appropriate field data sheets from the Print         Fish Observed? (Y/N)       N       Voucher? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N         Aquatic Macroinvertebrat	Voucher? (Y/N)
Comments Regarding Biology:	

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



Save as pdf

**Reset Form** 

# ChioEPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 32

SITE NAME/LOCATION Apex Republic Wind Farm	.85
LENGTH OF STREAM REACH (ft) 776 LAT. 41.21315 LONG83.11213 RIVER CODE RIVER MILE	
DATE 09/28/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC	OVERY
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         BLDR SLABS [16 pts]       0%       SILT [3 pt]         BOULDER (>256 mm) [16 pts]       0%       EAF PACK/WOODY DEBRIS [3 pts]	HHEI Metric Points
BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%           COBBLE (65-256 mm) [12 pts]         0%         CLAY or HARDPAN [0 pt]         0%	Substrate Max = 40
GRAVEL (2-64 mm) [9 pts]       10%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	12
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock       0.00%       (A)       Substrate Percentage Check       100%       (B)         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:       9       TOTAL NUMBER OF SUBSTRATE TYPES:       3	A + B
<ul> <li>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):</li> </ul>	Pool Depti Max = 30
> 30 centimeters [20 pts]       ✓       > 5 cm -       10 cm [15 pts]         □       > 22.5 - 30 cm [30 pts]       □       < 5 cm [5 pts]	15
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 6	15
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
$ \begin{array}{ c c c c c } \hline & > 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ \hline & > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline & > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \end{array} $	Bankfull Width Max=30
$ = > 4.0 \text{ meters } (> 13') [30 \text{ pts}] > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] = 1.0 \text{ m} - 1.5 \text{ m} (> 3' 3" - 4' 8") [15 \text{ pts}] \le 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] $	Width
$ \begin{array}{ c c c c c } &> 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7'' - 13') [25 \text{ pts}] \\ &> 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7'' - 4' 8'') [20 \text{ pts}] \end{array} \qquad \begin{array}{ c c c } &> 1.0 \text{ m} - 1.5 \text{ m} (> 3' 3'' - 4' 8'') [15 \text{ pts}] \\ &\leq 1.0 \text{ m} (<=3' 3'') [5 \text{ pts}] \end{array} $ $ \begin{array}{ c c } &> 1.0 \text{ m} (<=3' 3'') [5 \text{ pts}] \\ &\leq 1.0 \text{ m} (<=3' 3'') [5 \text{ pts}] \end{array} $	Width Max=30
$ \begin{array}{ c c c c c } \hline & > 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ \hline > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \\ \hline & \leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & \leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & \\ \hline \hline & \\ \hline & \\ \hline \hline & \\ \hline & \\ \hline \hline \hline & \\ \hline \hline & \\ \hline \hline \hline & \\ \hline \hline \hline \hline$	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]          > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS Recently modified on east side of Jopp Rd.         AVERAGE BANKFULL WIDTH (meters):         I.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]          > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]          This information must also be completed         Recently modified on east side of Jopp Rd.         AVERAGE BANKFULL WIDTH (meters):         I.0 m (<=3' 3") [5 pts]	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/26/16	Quantity:0.43
Photograph Information: 3 Photos taken, 1 upstream, 1 downstream, and 1 looking in	nto feature culvert under Jopp Rd
Elevated Turbidity? (Y/N): Y Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	
Additional comments/description of pollution impacts:	
Located alongside a road and near active crop areas with several field tile discharg	es. Recently modified with minor erosion.
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr	·
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	

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







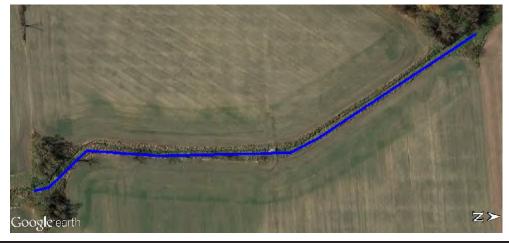


# **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION Apex Republic Win	d Farm	
	H-05 RIVER BASIN Indian Creek	DRAINAGE AREA (mi²) 2.00
LENGTH OF STREAM REACH (ft) 506	AT. 41.22270 LONG83.07816 RIVER CO	
DATE 09/28/16 SCORER BJS	COMMENTS Portion of Indian Creek	
NOTE: Complete All Items On This Form -	Refer to "Field Evaluation Manual for Ohio's	PHWH Streams" for Instructions
STREAM CHANNEL NONE / NATU MODIFICATIONS:	RAL CHANNEL RECOVERED RECOVERI	NG 🔲 RECENT OR NO RECOVERY
	type of substrate present. Check ONLY two predom	
	t substrate types found (Max of 8). Final metric score i	s sum of boxes A & B. PERCENT HHEI Metric
BLDR SLABS [16 pts]	🧏 🔽 SILT [3 pt]	40% Points
	%         LEAF PACK/WOODY DEBR           %         Image: State S	IS [3 pts] 0% Substrate
	%     CLAY or HARDPAN [0 pt]	20% Max = 40
	% MUCK [0 pts]	0% 13
SAND (<2 mm) [6 pts]	5% ARTIFICIAL [3 pts]	
Total of Percentages of <b>0.0</b> Bldr Slabs, Boulder, Cobble, Bedrock	0% (A) Substrate Percentage 100%	(B) A + B
SCORE OF TWO MOST PREDOMINATE SUBSTR	TOTAL NUMBER OF S	UBSTRATE TYPES: 4
2. Maximum Pool Depth (Measure the max	imum pool depth within the 61 meter (200 ft) evalu	ation reach at the time of <b>Pool Dept</b>
evaluation. Avoid plunge pools from road c > 30 centimeters [20 pts]	ulverts or storm water pipes) (Check ONLY one box > 5 cm - 10 cm [15 pts]	(): Max = 30
> 22.5 - 30 cm [30 pts]	< 5 cm [5 pts]	
✓ > 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CH	ANNEL [0 pts] 25
COMMENTS Limited pools along th	e feature MAXIMUM POOL DE	PTH (centimeters): 15
3 BANK FULL WIDTH (Measured as the av	verage of 3-4 measurements) (Check ONL Y	one box): Bankfull
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8 ≤ 1.0 m (<=3' 3") [5 pts]	") [15 pts] Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS	AVERAGE BANKFU	LL WIDTH (meters): 0.60 5
	This information must also be completed	
RIPARIAN ZONE AND FLOODPL/ RIPARIAN WIDTH	AIN QUALITY ☆NOTE: River Left (L) and Right (I FLOODPLAIN QUALITY	R) as looking downstream 🛠
L R (Per Bank)	L R (Most Predominant per Bank) L	R
Wide >10m	Mature Forest, Wetland	Conservation Tillage
Moderate 5-10m	Field	Urban or Industrial
Narrow <5m		Open Pasture, Row Crop
COMMENTS Located between	Fenced Pasture	Mining or Construction
FLOW REGIME (At Time of Evaluated Stream Flowing		ted pools, no flow (Intermittent)
Subsurface flow with isolated pools COMMENTS_	(Interstitial) Dry channel, no wa	ter (Ephemeral)
SINUOSITY (Number of bends per	61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.0	3.0
✓ 0.5	1.5 2.5	>3
STREAM GRADIENT ESTIMATE	Moderate (2 ft/100 ft) Moderate to Sever	e Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Mus	st Also be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score	e (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING	THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:Watson	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitatio	
Photograph Information: 2 Photos taken, 1 downstream, and	1 looking into culverts which cross to north side of CR44
Elevated Turbidity? (Y/N): Canopy (% open):	100%
Were samples collected for water chemistry? (Y/N): (N	Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/	
Is the sampling reach representative of the stream $(Y/N)$	If not, please explain:
Additional comments/description of pollution impacts:	
Located near active crop areas.	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations.	Voucher collections optional. NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate fi	eld data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salaman Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N	Iders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
<u> </u>	

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



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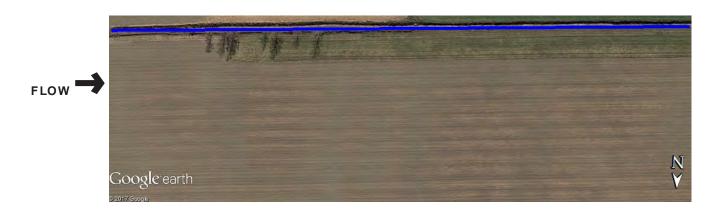
**Reset Form** 

# **ChieEPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

Anox Donublic Mi	
SITE NAME/LOCATION Apex Republic Wi	DH-06 RIVER BASIN Indian Creek DRAINAGE AREA (mi <sup>2</sup> ) 0.00
SITE NUMBER_DC	
LENGTH OF STREAM REACH (ft) 1,937 DATE 09/28/16 SCORER BJS	LAT. 41.21924 LONG83.08901 RIVER CODE RIVER MILE
NOTE: Complete All Items On This Form	- Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction
STREAM CHANNEL NONE / NATU MODIFICATIONS:	JRAL CHANNEL
	y type of substrate present. Check ONLY two predominant substrate TYPE boxes nt substrate types found (Max of 8) Final metric score is sum of boxes A & B
. ,	
BLDR SLABS [16 pts]	0% SILT [3 pt] 55% PO
	0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           0%         FINE DETRITUS [3 pts]         0%
	0% CLAY or HARDPAN [0 pt] 0%
	5% MUCK [0 pts] 0%
SAND (<2 mm) [6 pts]	40% ARTIFICIAL [3 pts]
Total of Percentages of <b>0.</b> Bldr Slabs, Boulder, Cobble, Bedrock	00% (A) Substrate Percentage 100% (B) A -
SCORE OF TWO MOST PREDOMINATE SUBST	RATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3
2. Maximum Pool Depth (Measure the ma	Eximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool
evaluation. Avoid plunge pools from road	
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]
OMMIENTS	MAXIMUM POOL DEPTH (centimeters): 0
3. BANK FULL WIDTH (Measured as the a > 4.0 meters (> 13') [30 pts]	average of 3-4 measurements)         (Check ONL Y one box):         Bar           > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         Wi
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	✓ ≤ 1.0 m (<=3' 3") [5 pts] Max
	AVERAGE BANKFULL WIDTH (meters): 0.60
RIPARIAN ZONE AND FLOODPI	This information <u>must</u> also be completed ▲AIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆
RIPARIAN WIDTH	FLOODPLAIN QUALITY
L R (Per Bank) Wide >10m	L R (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage
Moderate 5-10m	Immature Forest, Shrub or Old
Narrow <5m	
COMMENTS	Fenced Pasture Mining or Construction
FLOW REGIME (At Time of Evalu	
Stream Flowing	Moist Channel, isolated pools, no flow (Intermittent)
Subsurface flow with isolated pools COMMENTS	s (Interstitial) Dry channel, no water (Ephemeral)
SINUOSITY (Number of bends pe	er 61 m (200 ft) of channel) (Check ONLY one box): 1.0
	1.5 2.5 3
0.5	
STREAM GRADIENT ESTIMATE	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/26/16 Quantity: 0.43
Photograph Information: 2 Photos taken, 1 downstream, and 1 looking into culverts which cross to north side of CR44
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas.
BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) N Voucher?
Comments Regarding Biology:

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



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**Reset Form** 

# **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

Areas Densibilia Mila	
SITE NAME/LOCATION Apex Republic Wir	DH-07 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.02
SITE NUMBER DC	
DATE 09/29/16 SCORER BJS	
NOTE: Complete All Items On This Form	- Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL INONE / NATU MODIFICATIONS:	IRAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
	v type of substrate present. Check ONLY two predominant substrate TYPE boxes
	t substrate types found (Max of 8). Final metric score is sum of boxes A & B.
	RCENTTYPEPERCENTMet0%ISILT [3 pt]55%Poin
	0% LEAF PACK/WOODY DEBRIS [3 pts] 0%
	0%     0%     Substr       0%     FINE DETRITUS [3 pts]     0%
	CLAY or HARDPAN [0 pt]
	5%         0%         0%         12           10%         0%         0%         12
Total of Percentages of <b>0.0</b> Bldr Slabs, Boulder, Cobble, Bedrock	00% (A) Substrate Percentage 100% (B) A + B
SCORE OF TWO MOST PREDOMINATE SUBSTI	RATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3
	ximum pool depth within the 61 meter (200 ft) evaluation reach at the time of culverts or storm water pipes) (Check ONLY one box): Max =
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]
22.5 - 30  cm [30  pts]	<ul> <li>&lt; 5 cm [5 pts]</li> <li>NO WATER OR MOIST CHANNEL [0 pts]</li> </ul>
> 10 - 22.5 cm [25 pts]	
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 0
3. BANK FULL WIDTH (Measured as the a	verage of 3-4 measurements) (Check ONLY one box): Bankf
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Widt
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	✓ ≤ 1.0 m (<=3' 3") [5 pts] Max=3
	AVERAGE BANKFULL WIDTH (meters): 0.60 5
RIPARIAN ZONE AND FLOODPL	This information must also be completed AIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆
RIPARIAN WIDTH	FLOODPLAIN QUALITY
L R (Per Bank)	L R (Most Predominant per Bank) L R
✓ ✓ Wide >10m	Mature Forest, Wetland Conservation Tillage
Moderate 5-10m	Immature Forest, Shrub or Old Field Urban or Industrial
Narrow <5m	Residential, Park, New Field Open Pasture, Row Crop
	Fenced Pasture
FLOW REGIME (At Time of Evalu	ation) (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	
	r 61 m (200 ft) of channel) (Check ONLY one box):
Nors	1.0 2.0 3.0
None	
✓ 0.5	1.5 2.5 >3

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/28/16 Quantity: 0.42
Photograph Information: 2 Photos taken, 1 downstream, and 1 looking into culverts which cross to north side of CR44
Elevated Turbidity? (Y/N): Canopy (% open):100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas.
BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) N Voucher?
Comments Regarding Biology:

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





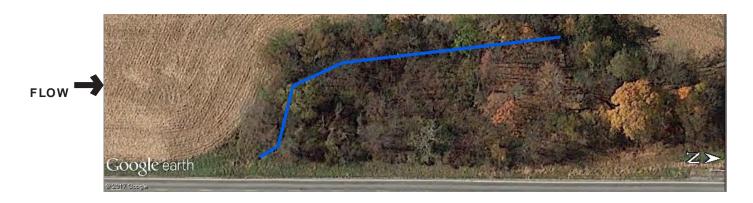


# **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-08 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	0.11
LENGTH OF STREAM REACH (ft) 85 LAT. 41.21934 LONG83.05454 RIVER CODE RIVER MILE	
DATE 09/29/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for In	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO R	ECOVERY
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	Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 55%	Points
BOULDER (>256 mm) [16 pt]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]       5%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	12
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
Bank FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ✓	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
= 2 + 2.0  meters  (> 13') [30  pts] = 2 + 2.0  m (> 3' 3'' - 4' 8'') [15  pts] = 2 + 2.0  m (< 3' 3'' - 4' 8'') [15  pts] = 2 + 2.0  m (< 3' 3'' - 4' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'' 8'') [15  pts] = 2 + 2.0  m (< 3'' 3'' - 4'') [15  pts] = 2 + 2.0  m (< 3''	Width Max=30
$ \begin{array}{ c c c c c } &> 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ &> 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \end{array} $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
$ \begin{array}{c} \begin{array}{c} > 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7'' - 13') [25 \text{ pts}] \\ > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7'' - 4' 8'') [20 \text{ pts}] \end{array} \end{array} $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]          > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]          COMMENTS         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       (Per Bank)       L R          Moderate 5-10m          Residential, Park, New Field          Open Pasture, Row	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5 Crop on
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5 Crop on
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 4.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5 Crop on
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       0 m (<> 3' 3" ) [5 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]       0 m (<<3' 3") [5 pts]	Width Max=30 5 Crop on
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5 Crop on

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/28/16 Quantity: 0.42
Photograph Information: 2 Photos taken, 1 downstream, and 1 upstream
Elevated Turbidity? (Y/N): Canopy (% open):100%
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mq/l)       pH (S.U.)       Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas.
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the s ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:

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



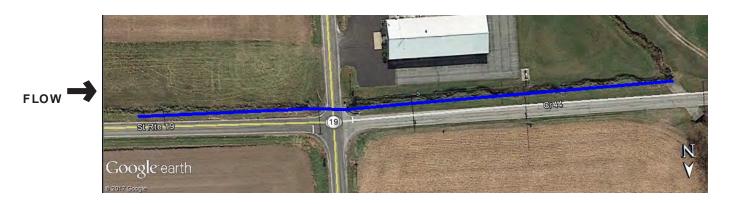


# **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION Apex Republic Wir				
	H-009 RIVER BASIN Beaver Creek	DRAINAGE AREA (mi²)	75	
	AT. 41.21312 LONG83.05397 RIV			
DATE 09/29/16 SCORER BJS	COMMENTS			
NOTE: Complete All Items On This Form		Ohio's PHWH Streams" for Instruc	ctions	
STREAM CHANNEL INONE / NATU MODIFICATIONS:	RAL CHANNEL RECOVERED REC	OVERING LIRECENT OR NO RECO	VERY	
	type of substrate present. Check ONLY two	•		
	t substrate types found (Max of 8). Final metric RCENT TYPE	score is sum of boxes A & B. PERCENT	HHE Metri	
BLDR SLABS [16 pts]	0% SILT [3 pt]	50%	Point	
	D%  LEAF PACK/WOOD    D%  FINE DETRITUS [3]		Substra	
	D%     FINE DETRITUS [3]       D%     CLAY or HARDPAN		Max = 4	
	0% MUCK [0 pts]	0%	12	
SAND (<2 mm) [6 pts]	0% ARTIFICIAL [3 pts]	0%	12	
Total of Percentages of <b>0.0</b>	00% (A) Substrate Percentage 10	(B)	A + B	
Bldr Slabs, Boulder, Cobble, Bedrock	Check	R OF SUBSTRATE TYPES: 3		
Maximum Daal Danth /Massure (ha ma	immen and denth with in the C1 meter (2004		De el De	
<ol> <li>Maximum Pool Depth (Measure the max evaluation. Avoid plunge pools from road of</li> </ol>	<i>kimum pool depth within the 61 meter (200 f</i> culverts or storm wa <u>ter pipes)</u> (Check ONLY		Pool Dep Max = 3	
> 30 centimeters [20 pts]		cm [15 pts]		
□         > 22.5 - 30 cm [30 pts]           □         > 10 - 22.5 cm [25 pts]		OR MOIST CHANNEL [0 pts]	15	
OMMENTS		DOL DEPTH (centimeters): 10		
OMMENTS MAXIMUM POOL DEPTH (centimeters): 10				
<ul> <li>BANK FULL WIDTH (Measured as the a</li> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> </ul>	verage of 3-4 measurements) (Chec > 1.0 m - 1.5 m (> 3'	k ONLY one box): 3" - 4' 8") [15 pts]	Bankful Width	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	≤ 1.0 m (<=3' 3") [5 p		Max=30	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS Widened out near culve	ert, but not the average AVERAGE B	ANKFULL WIDTH (meters): 0.60	5	
RIPARIAN ZONE AND FLOODPL		eted Right (R) as looking downstream☆		
RIPARIAN ZONE AND FLOODFL	FLOODPLAIN QUALITY	Right (R) as looking downstream A		
L R (Per Bank)	L R (Most Predominant per Bank)			
Wide >10m	Mature Forest, Wetland Immature Forest, Shrub or Old			
Moderate 5-10m	Field	Urban or Industrial		
Narrow <5m	Residential, Park, New Field	Open Pasture, Row Crop		
COMMENTS Located on roads	Fenced Pasture	Mining or Construction		
FLOW REGIME (At Time of Evalu Stream Flowing		el, isolated pools, no flow (Intermittent)		
Subsurface flow with isolated pools		no water (Ephemeral)		
COMMENTS				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):				
		3.0		
✓ 0.5	1.0     2.0       1.5     2.5	>3		

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):				
QHEI PERFORMED? - Yes Vo QHEI Score (If Yes, Attach Completed QHEI Form)				
DOWNSTREAM DESIGNATED USE(S)				
WWH Name: Distance from Evaluated Stream				
CWH Name: Distance from Evaluated Stream				
EWH Name: Distance from Evaluated Stream				
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION				
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order				
County: Seneca Township / City:				
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/28/16 Quantity: 0.42				
Photograph Information: 2 Photos taken, 1 downstream east of SR 778, and 1 downstream from east side of SR 778				
Elevated Turbidity? (Y/N): N Canopy (% open): 100%				
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:				
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)				
Is the sampling reach representative of the stream (Y/N) If not, please explain:				
Additional comments/description of pollution impacts:				
Located near active crop areas and roads.				
BIOTIC EVALUATION				
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sil ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)				
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) N Voucher?				
Comments Regarding Biology:				

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





# **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 43

	metrics $1, 2, 3$ .		
SITE NAME/LOCATION Apex Republic Wind Farm	0.70		
SITE NUMBER DOH-10 RIVER BASIN Beaver Creek	DRAINAGE AREA (mi²)		
ENGTH OF STREAM REACH (ft)       1,361       LAT.       41.19973       LONG.       -83.03867       RIVER COD         DATE       09/30/16       SCORER       BJS       COMMENTS			
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's F			
TREAM CHANNEL IN NONE / NATURAL CHANNEL RECOVERED RECOVERING			
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predomin	ant substrate TVRE bayes		
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is	sum of boxes A & B.		
PERCENT         TYPE           BLDR SLABS [16 pts]         0%         Image: Silt [3 pt]	PERCENT 45%		
$ \boxed{\begin{array}{c} \hline \\ \hline $	[3 pts] 0%		
BEDROCK [16 pt] D% FINE DETRITUS [3 pts]	0% Subs		
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] GRAVEL (2-64 mm) [9 pts] 20% MUCK [0 pts]	0%		
Image: Second secon	0%		
Total of Percentages of <b>FOOD</b> (A) Substrate Percentage	(B) A +		
Bldr Slabs, Boulder, Cobble, Bedrock			
ORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SU	STRATE TYPES: 4		
Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluat evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)			
> 30 centimeters [20 pts]			
□         > 22.5 - 30 cm [30 pts]         □         < 5 cm [5 pts]	ST CHANNEL [0 pts]		
OMMENTS MAXIMUM POOL DEPTH (centimeters):			
BANK FULL WIDTH (Measured as the average of 3-4 measurements)         (Check ONLY of a state of a st			
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	[15 pts] Max		
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]			
COMMENTS Widened out near culvert, but not the average AVERAGE BANKFULI	WIDTH (meters): 1.20 1		
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R)	as looking downstream 🛠		
RIPARIAN WIDTH FLOODPLAIN QUALITY			
L R (Per Bank) L R (Most Predominant per Bank) L F Wide >10m Mature Forest, Wetland	Conservation Tillage		
Moderate 5-10m Immature Forest, Shrub or Old Field	Urban or Industrial		
Narrow <5m Residential, Park, New Field	Open Pasture, Row Crop		
	Mining or Construction		
COMMENTS Located between residential lots and crop areas.			
<b>FLOW REGIME</b> (At Time of Evaluation) (Check ONLY one box):			
Stream Flowing Moist Channel, isolated pools (Interstitial) Dry channel, no wate	d pools, no flow (Intermittent)		
COMMENTS			
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0	3.0		
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	3.0 >3		

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):				
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)			
DOWNSTREAM DESIGNATED USE(S)				
WWH Name:	_ Distance from Evaluated Stream			
CWH Name:	Distance from Evaluated Stream			
EWH Name:	Distance from Evaluated Stream			
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	O AREA. CLEARLY MARK THE SITE LOCATION			
USGS Quadrangle Name: Watson NRCS Soil Map F	Page: NRCS Soil Map Stream Order			
County: Seneca Township / City:				
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/29/16	Quantity: 0.23			
Photograph Information: 6 photos taken along reache reviewed at various locations and angles.				
Elevated Turbidity? (Y/N): N Canopy (% open): 75%				
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:				
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) PH (S.U.) Conductivity (µmhos/cm)				
Is the sampling reach representative of the stream (Y/N) If not, please explain:				
Additional comments/description of pollution impacts:				
Located near active crop areas.				
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optiona ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra	imary Headwater Habitat Assessment Manual)			
Comments Regarding Biology:				

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



PHWH Form Page - 2

Save as pdf

Reset Form

	/ind Earm	
SITE NAME/LOCATION Apex Republic W	OH-11 RIVER BASIN Beaver Creek	DRAINAGE AREA (mi²) 0.09
LENGTH OF STREAM REACH (ft) 390	LAT. 41.19882 LONG83.03645 RIVER COL	
DATE 09/30/16 SCORER BJS	COMMENTS	
	n - Refer to "Field Evaluation Manual for Ohio's	PHWH Streams" for Instructions
STREAM CHANNEL INONE / NA MODIFICATIONS:	TURAL CHANNEL 🔲 RECOVERED 🔽 RECOVERIN	IG LRECENT OR NO RECOVERY
	ery type of substrate present. Check ONLY two predomi	
. ,	ant substrate types found (Max of 8). Final metric score is ERCENT TYPE	PERCENT Metri
BLDR SLABS [16 pts]	0% SILT [3 pt]	70% Point
BOULDER (>256 mm) [16 pts]	0%     LEAF PACK/WOODY DEBRIS       0%     Fine detritus [3 pts]	S [3 pts] 0% Substra
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt]	Max = 4
GRAVEL (2-64 mm) [9 pts]	10% MUCK [0 pts]	0% 12
SAND (<2 mm) [6 pts]	20% ARTIFICIAL [3 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	D.00% (A) Substrate Percentage 100%	(B) A + B
SCORE OF TWO MOST PREDOMINATE SUBS		BSTRATE TYPES: 3
Maximum Daal Daath (Macaum than		
2. Maximum Pool Depth (Measure the n evaluation. Avoid plunge pools from roa	aximum pool depth within the 61 meter (200 ft) evalua d culverts or storm water pipes) (Check ONLY one box)	
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 p	[s]
□         > 22.5 - 30 cm [30 pts]           □         > 10 - 22.5 cm [25 pts]	└──	ST CHANNEL [0 pts] 5
OMMENTS	MAXIMUM POOL DEF	PTH (centimeters): 5
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts]	e average of 3-4 measurements) (Check ONLY > 1.0 m - 1.5 m (> 3' 3" - 4' 8"	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	✓ ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS Widened out near cu	vert, but not the average AVERAGE BANKFUL	L WIDTH (meters): 0.60 5
RIPARIAN ZONE AND FLOODI	This information <u>must</u> also be completed PLAIN QUALITY ☆NOTE: River Left (L) and Right (R	) as looking downstream☆
<b>RIPARIAN ZONE AND FLOODI</b> <u>RIPARIAN WIDTH</u>	PLAIN QUALITY ☆NOTE: River Left (L) and Right (R FLOODPLAIN QUALITY	) as looking downstream ☆
<u>RIPARIAN WIDTH</u> L R (Per Bank)	PLAIN QUALITY ☆NOTE: River Left (L) and Right (R <u>FLOODPLAIN QUALITY</u> L R (Most Predominant per Bank) L	<u>~</u>
RIPARIAN WIDTH         L R       (Per Bank)         Wide >10m	PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R         FLOODPLAIN QUALITY         L       R         (Most Predominant per Bank)       L         Imature Forest, Wetland       Imature Forest, Shrub or Old	Conservation Tillage
L R       (Per Bank)         Wide >10m         Moderate 5-10m	PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R         FLOODPLAIN QUALITY         L       R         Mature Forest, Wetland         Immature Forest, Shrub or Old         Field	Conservation Tillage Urban or Industrial Open Pasture Row Crop
L       R       (Per Bank)         L       Wide >10m         Moderate 5-10m         Narrow <5m	PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R         FLOODPLAIN QUALITY         L       R         Mature Forest, Wetland         Immature Forest, Shrub or Old         Field         Residential, Park, New Field	Conservation Tillage Urban or Industrial Open Pasture, Row Crop
L R       (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R         FLOODPLAIN QUALITY         L       R         Mature Forest, Wetland         Immature Forest, Shrub or Old         Field         ✓       Residential, Park, New Field         Fenced Pasture	Conservation Tillage Urban or Industrial Open Pasture Row Crop
L R       (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R         FLOODPLAIN QUALITY         L R (Most Predominant per Bank)       L I         Mature Forest, Wetland       II         Immature Forest, Shrub or Old       III         Field       Field         Fenced Pasture       III         En residential lots and crop areas.       III	Conservation Tillage Urban or Industrial Open Pasture, Row Crop
L R       (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R         FLOODPLAIN QUALITY         L R (Most Predominant per Bank)       L I         Mature Forest, Wetland       II         Immature Forest, Shrub or Old       III         Field       Field         Fenced Pasture       III         En residential lots and crop areas.       IIII	Conservation Tillage Urban or Industrial Open Pasture, Row Crop
R       (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	PLAIN QUALITY       Image: Residential lots and crop areas.         PLOODPLAIN QUALITY         L R       (Most Predominant per Bank)         L R       (Most Predominant per Bank)         Mature Forest, Wetland       Imature Forest, Shrub or Old         Field       Imature Forest, Shrub or Old         Field       Fenced Pasture         Imature Forest       Mature Forest, Shrub or Old         Mature Forest       Shrub or Old         Field       Imature Forest, Shrub or Old         Fenced Pasture       Imature Forest, Shrub or Old         Imature Forest       Fenced Pasture         Imature Forest       Moist Channel, isolat	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction
R       (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	PLAIN QUALITY       Image: Research of the second sec	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction ed pools, no flow (Intermittent)
L R       (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R         FLOODPLAIN QUALITY         L       R         Mature Forest, Wetland         Immature Forest, Wetland         Immature Forest, Shrub or Old         Field         Fenced Pasture         Immetation)         (Check ONLY one box):         Interstitial)         Moist Channel, isolat         Dry channel, no wate	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction ed pools, no flow (Intermittent) er (Ephemeral)
RIPARIAN WIDTH         L R       (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	PLAIN QUALITY       Image: Research of the second sec	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction
RIPARIAN WIDTH         L       R       (Per Bank)         Wide >10m       Moderate 5-10m         Moderate 5-10m       Narrow <5m	PLAIN QUALITY       Image: Research of the second sec	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction ed pools, no flow (Intermittent) er (Ephemeral) 3.0

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/29/16 Quantity: 0.23
Photograph Information: 3 Photos taken, 1 at culvert along road, and 2 along the forested area before joing DOH-10
Elevated Turbidity? (Y/N): Canopy (% open):60%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas and a road.
BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) N Voucher?
Comments Regarding Biology:

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



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SITE NAME/LOCATION Apex Republic Wi	nd Farm	00
SITE NUMBER DC		
LENGTH OF STREAM REACH (ft) 1,083 I DATE 09/30/16 SCORER BJS		
NOTE: Complete All Items On This Form	- Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ictions
STREAM CHANNEL INONE / NATU MODIFICATIONS:	JRAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	OVERY
	y type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
( ) <b>(</b>	nt substrate types found (Max of 8). Final metric score is sum of boxes A & B.  RCENT TYPE PERCENT	Metri
BLDR SLABS [16 pts]	0% SILT [3 pt] 65%	Point
	0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           0%         FINE DETRITUS [3 pts]         0%	Substrat
	0% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts]	10% MUCK [0 pts] 0%	12
SAND (<2 mm) [6 pts]	25% ARTIFICIAL [3 pts]	12
Total of Percentages of <b>0</b> .	00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock		
	ximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road > 30 centimeters [20 pts]	culverts or storm water pipes) (Check ONLY one box): > 5 cm - 10 cm [15 pts]	Max = 3
□ > 22.5 - 30 cm [30 pts]	5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	0
OMMIENTS	MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured as the a	verage of 3-4 measurements) (Check ONLY one box):	Bankful
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ✓ ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 0.60	5
	This information must also be completed	
<b>RIPARIAN ZONE AND FLOODPL</b> RIPARIAN WIDTH	AIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY	
$\underline{L} \underline{R}$ (Per Bank)	<u>L R</u> (Most Predominant per Bank) <u>L R</u>	
Wide >10m	Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	Immature Forest, Shrub or Old Field Urban or Industrial	
Narrow <5m	Residential, Park, New Field Open Pasture, Row Cro	р
✓ ✓ None	Fenced Pasture Mining or Construction	
COMMENTS Located between	crop area and roadwav	
FLOW REGIME (At Time of Evalu		
Stream Flowing Subsurface flow with isolated pools	(Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
COMMENTS_		
SINUOSITY (Number of bends pe	r 61 m (200 ft) of channel) (Check ONLY one box):	
None	1.0 2.0 3.0	
0.5	1.5 2.5 >3	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attack	n Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	REA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page	ge: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/29/16	Quantity: 0.23
Photograph Information: 2 Photos taken along reach, 1 upstream and 1 downstream	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. an	d attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Located near active crop areas and a road.	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Prim	
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates	Voucher? (Y/N) N s Observed? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	

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



PHWH Form Page - 2



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SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-19 RIVER BASIN Indian Creek DRAINAGE AREA (mi²)	0.01
LENGTH OF STREAM REACH (ft) 674 LAT. 41.22654 LONG83.08762 RIVER CODE RIVER MILE	
DATE 09/30/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERI	COVERY
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.	HHEI Metric
TYPE         PERCENT         TYPE         PERCENT           BLDR SLABS [16 pts]         0%         ✓         SILT [3 pt]         50%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         10%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts]         0%         CLAY or HARDPAN [0 pt]         0%	Max = 40
GRAVEL (2-64 mm) [9 pts]     10%     MUCK [0 pts]     0%       SAND (<2 mm) [6 pts]	13
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
□       > 22.5 - 30 cm [30 pts]         □       > 10 - 22.5 cm [25 pts]         □       > 10 - 22.5 cm [25 pts]	
	0
OMMIENTS MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
Bank Full width (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ✓	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
$ = > 4.0 \text{ meters} (> 13') [30 \text{ pts}] > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] = > 1.0 \text{ m} - 1.5 \text{ m} (> 3' 3" - 4' 8") [15 \text{ pts}] \le 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] $	Width
$ \begin{array}{ c c c c c } &> 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ &> 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \end{array} $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ✓       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS    AVERAGE BANKFULL WIDTH (meters): 0.30	Width Max=30
$ \begin{array}{c} \begin{array}{c} > 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ > 3.0 \text{ m} - 4.0 \text{ m} (> 9'7" - 13') [25 \text{ pts}] \\ > 1.5 \text{ m} - 3.0 \text{ m} (> 9'7" - 4'8") [20 \text{ pts}] \end{array} \end{array} $	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]          > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]          AVERAGE BANKFULL WIDTH (meters): 0.30         COMMENTS         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         (Per Bank)       L         Wide >10m          Moderate 5-10m          Immature Forest, Shrub or Old       Urban or Industrial         Open Pasture, Row C	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]          > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]          COMMENTS         AVERAGE BANKFULL WIDTH (meters): 0.30         Inis information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY         ShOTE: River Left (L) and Right (R) as looking downstream ☆         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L R       (Per Bank)       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Moderate 5-10m       Immature Forest, New Field       Open Pasture, Row C         Mone       Fenced Pasture       Mining or Construction         COMMENTS       Located between crop area and road.       Mining or Construction	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]          > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         AVERAGE BANKFULL WIDTH (meters): 0.30         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY         & RIPARIAN ZONE AND FLOODPLAIN QUALITY       ☆NOTE: River Left (L) and Right (R) as looking downstream ☆         RIPARIAN WIDTH       FLOODPLAIN QUALITY         Wide >10m       Mature Forest, Wetland         @ Wide >10m       Immature Forest, Shrub or Old         @ Moderate 5-10m       Immature Forest, Shrub or Old         @ Narrow <5m	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul> AVERAGE BANKFULL WIDTH (meters): 0.30           This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         \$XNOTE: River Left (L) and Right (R) as looking downstream \$X\$           RIPARIAN WIDTH         FLOODPLAIN QUALITY         \$XNOTE: River Left (L) and Right (R) as looking downstream \$X\$           Wide >10 m         L R         (Most Predominant per Bank)         L R           Wide >10 m         Mature Forest, Wetland         Conservation Tillage           Moderate 5-10 m         Immature Forest, Shrub or Old         Urban or Industrial           None         Fenced Pasture         Mining or Construction           COMMENTS         Located between crop area and road.         Flow REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3' - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         AVERAGE BANKFULL WIDTH (meters): 0.30         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream at RIPARIAN WIDTH         FLOOPPLAIN QUALITY       AVERAGE BANKFULL WIDTH (meters): 0.30         Wide >10m       L       R         (Per Bank)       L       R         Wide >10m       Mature Forest, Shrub or Old       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	_ Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map P	age: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/29/16	Quantity: 0.23
Photograph Information: 1 Photos taken along reach, looking downstream	
Elevated Turbidity? (Y/N): Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id. a	Ind attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	
Additional comments/description of pollution impacts:	
Located near active crop areas and a road.	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Prin	
Fish Observed? (Y/N)     N     Voucher? (Y/N)     N     Salamanders Observed? (Y/N)       Frogs or Tadpoles Observed? (Y/N)     N     Voucher? (Y/N)     N	Voucher? (Y/N)
Comments Regarding Biology:	

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



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SITE NAME/LOCATION Apex Republic Wi		
	DH-023     RIVER BASIN     Sugar Creek     DRAINAGE AREA (mi²)     0.59	
LENGTH OF STREAM REACH (ft) 550	AT. 41.16321 LONG83.01463 RIVER CODE RIVER MILE	
DATE 10/01/16 SCORER BJS		
	- Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructi	ione
STREAM CHANNEL NONE / NATURE MODIFICATIONS:	JRAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVE	ERY
	y type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
		<b>Aetri</b>
BLDR SLABS [16 pts]	0% SILT [3 pt] 55% P	Points
	0% LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% FINE DETRITUS [3 pts] 0% Su	ubstrat
		/lax = 40
		40
SAND (<2 mm) [6 pts]	<b>30%</b> ARTIFICIAL [3 pts] <b>0%</b>	13
Total of Percentages of 5.	00% (A)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBST		
2. Maximum Pool Depth (Measure the ma	ximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	ool Dept
evaluation. Avoid plunge pools from road		Aax = 30
<ul> <li>&gt; 30 centimeters [20 pts]</li> <li>&gt; 22.5 - 30 cm [30 pts]</li> </ul>	> 5 cm - 10 cm [15 pts]	
→ 22.5 - 30 cm [30 pts] → 10 - 22.5 cm [25 pts]		25
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 20	
3. BANK FULL WIDTH (Measured as the a		Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]		Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.20	15
	This information must also be completed	
RIPARIAN ZONE AND FLOODPL RIPARIAN WIDTH	AIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ FLOODPLAIN QUALITY	
L R (Per Bank)	L R (Most Predominant per Bank) L R	
Wide >10m	Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	Field Groan or industrial	
Narrow <5m	Residential, Park, New Field Open Pasture, Row Crop	
None	Fenced Pasture Mining or Construction	
COMMENTS Located between	crop areas	
FLOW REGIME (At Time of Evalu		
<ul> <li>Stream Flowing</li> <li>Subsurface flow with isolated pools</li> </ul>	(Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
COMMENTS_		
SINUOSITY (Number of bends pe	r 61 m (200 ft) of channel) (Check ONLY one box):	
	1.0 2.0 3.0	
None 🗸		
0.5	1.5 <b>2</b> .5 <b>3</b>	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attac	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Pa	age: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitation:09/30/16	Quantity: 0.15
Photograph Information: 2 Photos taken along reach, 1 looking upstream, and 1 down	stream.
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. an	nd attach results) Lab Number:
	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	
Additional comments/description of pollution impacts:	
Located near active crop areas and a road.	
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Prim Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrate Comments Regarding Biology:	Nary Headwater Habitat Assessment Manual)

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



PHWH Form Page - 2

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SITE NAME/LOCATION Apex Republic W	/ind Farm	
		05
LENGTH OF STREAM REACH (ft) 583	LAT. 41.16579 LONG83.00500 RIVER CODE RIVER MILE	
DATE 10/01/16 SCORER BJS	COMMENTS	
NOTE: Complete All Items On This Form	n - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NAT	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	DVERY
	ery type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
	eant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  ERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	0% SILT [3 pt] 55%	Points
BOULDER (>256 mm) [16 pts]	0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           0%         FINE DETRITUS [3 pts]         0%	Substrate
BEDROCK [16 pt]	0%         Image:	Max = 40
GRAVEL (2-64 mm) [9 pts]	5% MUCK [0 pts] 0%	40
SAND (<2 mm) [6 pts]	40% ARTIFICIAL [3 pts] 0%	12
Total of Percentages of <b>0</b>	0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBS		
2. Maximum Pool Depth (Measure the ma	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road	d culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	5
OMMENTS Isolated pools	MAXIMUM POOL DEPTH (centimeters): 5	
3. BANK FULL WIDTH (Measured as the	e average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	≤ 1.0 m (<=3' 3") [5 pts]	Max=30
COMMENTS	AVERAGE BANKEULL WIDTH (meters): 1.10	15
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.10	15
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.10 This information <u>must</u> also be completed	15
RIPARIAN ZONE AND FLOODP	This information must also be completed         PLAIN QUALITY       公NOTE: River Left (L) and Right (R) as looking downstream 公	15
	This information <u>must</u> also be completed	15
<b>RIPARIAN ZONE AND FLOODP</b> <u>RIPARIAN WIDTH</u>	This information must also be completed         PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R) as looking downstream ☆         FLOODPLAIN QUALITY       L       R         L       R       (Most Predominant per Bank)       L       R         Mature Forest, Wetland       Image       Conservation Tillage	15
RIPARIAN ZONE AND FLOODP <u>RIPARIAN WIDTH</u> L_R_(Per Bank)	This information must also be completed         PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R) as looking downstream ☆         FLOODPLAIN QUALITY       L R         L R       (Most Predominant per Bank)       L R         Mature Forest, Wetland       Conservation Tillage         Immature Forest, Shrub or Old       Urban or Industrial	15
RIPARIAN ZONE AND FLOODP <u>RIPARIAN WIDTH</u> L R (Per Bank) Wide >10m Moderate 5-10m	This information must also be completed         PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R) as looking downstream ☆         FLOODPLAIN QUALITY       L         L       R         (Most Predominant per Bank)       L         Mature Forest, Wetland       Conservation Tillage         Immature Forest, Shrub or Old       Urban or Industrial         Field       Open Pasture, Row Crop	
RIPARIAN ZONE AND FLOODP <u>RIPARIAN WIDTH</u> L       R       (Per Bank)         Wide >10m       Wide >10m         Moderate 5-10m       Narrow <5m	This information must also be completed         PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R) as looking downstream ☆         FLOODPLAIN QUALITY       L       R         L       R       (Most Predominant per Bank)       L       R         Imature Forest, Wetland       Imature Forest, Shrub or Old       Imature Forest, Shrub or Old       Open Pasture, Row Cro         Imature Residential, Park, New Field       Imature Forest       Open Pasture, Row Cro	
RIPARIAN ZONE AND FLOODP         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m	This information must also be completed         PLAIN QUALITY       Provide the second secon	
RIPARIAN ZONE AND FLOODP         RIPARIAN WIDTH         L       R       (Per Bank)         Wide >10m       Wide >10m         Moderate 5-10m       Norrow <5m	This information must also be completed         PLAIN QUALITY       ☆NOTE: River Left (L) and Right (R) as looking downstream ☆         FLOODPLAIN QUALITY       L R         L R       (Most Predominant per Bank)       L R         Mature Forest, Wetland       Conservation Tillage         Immature Forest, Shrub or Old       Urban or Industrial         Field       Open Pasture, Row Cropen Pasture, Row Cropen Construction         Fenced Pasture       Mining or Construction	
RIPARIAN ZONE AND FLOODP <u>RIPARIAN WIDTH</u> L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m V None COMMENTS Located betwee FLOW REGIME (At Time of Eval Stream Flowing	This information must also be completed         PLAIN QUALITY       ANOTE: River Left (L) and Right (R) as looking downstream A         FLOODPLAIN QUALITY       L       R         L       R       (Most Predominant per Bank)       L       R         Immature Forest, Wetland       Immature Forest, Shrub or Old       Open Pasture, Row Crown or Industrial         Residential, Park, New Field       Immature Procest       Mining or Construction         Immature Forest       Method       Mining or Construction         Immature Forest       Moist Channel, isolated pools, no flow (Intermittent)	
RIPARIAN ZONE AND FLOODP <u>RIPARIAN WIDTH</u> L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m V None COMMENTS Located betwee FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool	This information must also be completed         PLAIN QUALITY       ANOTE: River Left (L) and Right (R) as looking downstream A         FLOODPLAIN QUALITY       L       R         L       R       (Most Predominant per Bank)       L       R         Immature Forest, Wetland       Immature Forest, Shrub or Old       Open Pasture, Row Crown or Industrial         Residential, Park, New Field       Immature Procest       Mining or Construction         Immature Forest       Method       Mining or Construction         Immature Forest       Moist Channel, isolated pools, no flow (Intermittent)	
RIPARIAN ZONE AND FLOODP         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	This information must also be completed         PLAIN QUALITY       ANOTE: River Left (L) and Right (R) as looking downstream A         FLOODPLAIN QUALITY       L       R         L       R       (Most Predominant per Bank)       L       R         Imature Forest, Wetland       Imature Forest, Shrub or Old       Open Pasture, Row Crown or Industrial         Residential, Park, New Field       Imature Presence       Mining or Construction         Residential, Park, New Field       Imature Presence       Mining or Construction         Imature Presence       Imature Presence       Imature Presence         Imature Presence       Imature Presence       Mining or Construction         Imature Presence       Imature Presence       Imature Presence         Imature Presence       Imature Presence       Imature Presence     <	
RIPARIAN ZONE AND FLOODP <u>RIPARIAN WIDTH</u> L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m V None COMMENTS Located betwee FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool COMMENTS SINUOSITY (Number of bends p	This information must also be completed         PLAIN QUALITY       ANOTE: River Left (L) and Right (R) as looking downstream A         FLOODPLAIN QUALITY       L       R         L       R       (Most Predominant per Bank)       L       R         Imature Forest, Wetland       Imature Forest, Shrub or Old       Open Pasture, Row Crown or Industrial         Residential, Park, New Field       Imature Presence       Mining or Construction         Residential, Park, New Field       Imature Presence       Mining or Construction         Residential, Park, New Field       Imature Presence       Mining or Construction         Imature Presence       Imature Presence       Mining or Construction         Imature Presence       Moist Channel, isolated pools, no flow (Intermittent)       Dry channel, no water (Ephemeral)         Open 61 m (200 ft) of channel)       Check ONLY one box):       Imature Presence       Imature Presence	
RIPARIAN ZONE AND FLOODP         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	This information must also be completed         PLAIN QUALITY       ANOTE: River Left (L) and Right (R) as looking downstream A         FLOODPLAIN QUALITY       L       R         L       R       (Most Predominant per Bank)       L       R         Imature Forest, Wetland       Imature Forest, Shrub or Old       Open Pasture, Row Crown or Industrial         Residential, Park, New Field       Imature Presence       Mining or Construction         Residential, Park, New Field       Imature Presence       Mining or Construction         Imature Presence       Imature Presence       Imature Presence         Imature Presence       Imature Presence       Mining or Construction         Imature Presence       Imature Presence       Imature Presence         Imature Presence       Imature Presence       Imature Presence     <	
RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS Located betwee FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool COMMENTS SINUOSITY (Number of bends p None	This information must also be completed         PLAIN QUALITY       ANOTE: River Left (L) and Right (R) as looking downstream A         FLOODPLAIN QUALITY       L R         L R       (Most Predominant per Bank)       L R         Mature Forest, Wetland       Conservation Tillage         Immature Forest, Shrub or Old       Urban or Industrial         Residential, Park, New Field       Imming or Construction         Encod Pasture       Mining or Construction         Antor of the box):       Moist Channel, isolated pools, no flow (Intermittent)         Dry channel, no water (Ephemeral)       Dry channel, no water (Ephemeral)	p

ADDITIONAL STREAM INFORMATION (This Information Must Also be Co	mpleted):
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE W	ATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:WatsonNRCS	Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / Ci	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/3	D/16 Quantity: 0.15
Photograph Information: 1 looking downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample	e no. or id. and attach results) Lab Number:
	DH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream $(Y/N)$ If not, please	explain:
Additional comments/description of pollution impacts:	
Located near active crop areas and a road.	

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



PHWH Form Page - 2

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TE NAME (LOCATION LADAY RODUDIC W)	ind Farm			
ITE NAME/LOCATION Apex Republic W	OH-027 RIVER BASI	IN Sugar Creek	DRAINAGE AREA (mi <sup>2</sup> )	0.68
	LAT. <b>41.19052</b> LONG			
ATE 10/01/16 SCORER BJS				
NOTE: Complete All Items On This Form	n - Refer to "Field Evalu	ation Manual for Ohio'	s PHWH Streams" for Ins	truction
TREAM CHANNEL	FURAL CHANNEL 🔲 REC	OVERED RECOVER	ING 🔲 RECENT OR NO RE	COVERY
SUBSTRATE (Estimate percent of even				
(Max of 32). Add total number of significa TYPE PE	ant substrate types found (M ERCENT TYPE	lax of 8). Final metric score	is sum of boxes A & B. PERCENT	HH
BLDR SLABS [16 pts]	<b>0%</b> S	SILT [3 pt]	45%	Poi
BOULDER (>256 mm) [16 pts]		EAF PACK/WOODY DEBF	RIS [3 pts] 10%	Subs
COBBLE (65-256 mm) [12 pts]		CLAY or HARDPAN [0 pt]	0%	Max
GRAVEL (2-64 mm) [9 pts]		/UCK [0 pts]	0%	13
SAND (<2 mm) [6 pts]	<u>40%</u>	RTIFICIAL [3 pts]	0%	
Total of Percentages of <b>O</b> . Bldr Slabs, Boulder, Cobble, Bedrock		Substrate Percentage 100%	(B)	A +
ORE OF TWO MOST PREDOMINATE SUBS	TRATE TYPES: 9	TOTAL NUMBER OF S	SUBSTRATE TYPES: 4	
Maximum Pool Depth (Measure the ma	aximum pool depth within	the 61 meter (200 ft) evalu	uation reach at the time of	Pool
evaluation. Avoid plunge pools from road	d culverts or storm water pipe	es) (Check ONLY one bo	ox):	Max
> 30 centimeters [20 pts]	H	> 5 cm - 10 cm [15	pts]	
> 10 - 22.5 cm [25 pts]		NO WATER OR M	OIST CHANNEL [0 pts]	2!
OMMENTS		MAXIMUM POOL D	EPTH (centimeters): 13	
BANK FULL WIDTH (Measured as the	average of 3-4 measureme	ents) (Check ONL	Y one box):	Ban
> 4.0 meters (> 13') [30 pts]		> 1.0 m - 1.5 m (> 3' 3" - 4'		Wic Max
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		≤ 1.0 m (<=3' 3") [5 pts]		
COMMENTS		AVERAGE BANKEL	ILL WIDTH (meters): 0.60	5
	This information r	nust also be completed		
RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH	FLOODPLAIN QUALITY SANOT	E: River Left (L) and Right	(R) as looking downstream 🛠	
	<u>L R</u> (Most Predomin	nant per Bank) I	R	
L R (Per Bank)				
	Mature Forest,	Wetland	Conservation Tillage	
L R (Per Bank)				
L R (Per Bank) Wide >10m	Immature Fore	Shrub or Old	Conservation Tillage	Crop
L R (Per Bank) Wide >10m Moderate 5-10m Varrow <5m None	Immature Fore         Field         Residential, Pa         Fenced Pasture	Wetland st, Shrub or Old ark, New Field a	Conservation Tillage Urban or Industrial	·
L R (Per Bank) Wide >10m Moderate 5-10m	Immature Fore         Field         Residential, Pa         Fenced Pasture	Wetland st, Shrub or Old ark, New Field a	Conservation Tillage Urban or Industrial Open Pasture, Row C	·
L R (Per Bank) Wide >10m Moderate 5-10m Vide >10m None COMMENTS Located between FLOW REGIME (At Time of Eval	Immature Fore Field Residential, Pa Fenced Pasture en crop areas with narro	Wetland st, Shrub or Old ark, New Field e w shrubby buffers	Conservation Tillage Urban or Industrial Open Pasture, Row C Mining or Constructio	n
L R (Per Bank) Wide >10m Moderate 5-10m V V Narrow <5m None COMMENTS	Immature Fore Field Residential, Pa Fenced Pasture en crop areas with narro	Wetland st, Shrub or Old ark, New Field e w shrubby buffers	Conservation Tillage Urban or Industrial Open Pasture, Row C Mining or Constructio	n
L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS Located betwee FLOW REGIME (At Time of Eval Stream Flowing	Immature Fore Field Residential, Pa Fenced Pasture en crop areas with narro	Wetland st, Shrub or Old ark, New Field e w shrubby buffers box): Moist Channel, isol	Conservation Tillage Urban or Industrial Open Pasture, Row C Mining or Constructio	n
L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS Located between FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool	Immature Fore Field Residential, Pa Fenced Pasture Interstitial)	Wetland st, Shrub or Old ark, New Field e w shrubby buffers box): Moist Channel, isol Dry channel, no wa (Check ONLY one box):	Conservation Tillage Urban or Industrial Open Pasture, Row C Mining or Constructio Ated pools, no flow (Intermitter ater (Ephemeral)	n
L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS Located between FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool COMMENTS	Immature Fore Field Residential, Pa Fenced Pasture Interstitial) (Check ONLY one Interstitial)	Wetland st, Shrub or Old ark, New Field e w shrubby buffers box): Moist Channel, isol Dry channel, no wa (Check ONLY one box): 2.0	Conservation Tillage Urban or Industrial Open Pasture, Row C Mining or Constructio Atted pools, no flow (Intermitter atter (Ephemeral) 3.0	n
L R (Per Bank) Wide >10m Moderate 5-10m V Narrow <5m None COMMENTS Located between FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool COMMENTS SINUOSITY (Number of bends pool	Immature Fore Field Residential, Pa Fenced Pasture In crop areas with narro Intuation) (Check ONLY one Interstitial)	Wetland st, Shrub or Old ark, New Field e w shrubby buffers box): Moist Channel, isol Dry channel, no wa (Check ONLY one box):	Conservation Tillage Urban or Industrial Open Pasture, Row C Mining or Constructio Ated pools, no flow (Intermitter ater (Ephemeral)	n

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Co	mpleted QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Dis	stance from Evaluated Stream
	tance from Evaluated Stream
EWH Name: Dis	tance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED ARE	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page:	NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/30/16	Quantity: 0.15
Photograph Information: 2 photos, 1 upstream and 1 downstream.	
Elevated Turbidity? (Y/N): Canopy (% open): _ 60%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and at	tach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Located near active crop areas.	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NO ID number. Include appropriate field data sheets from the Primary	•
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N V Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Ob	oucher? (Y/N) N pserved? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	

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



PHWH Form Page - 2

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SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-028 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi <sup>2</sup> ) 0.2	21
LENGTH OF STREAM REACH (ft) 480 LAT. 41.18955 LONG82.97850 RIVER CODE RIVER MILE	
DATE 10/01/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ctions
·	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	VERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(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	Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 50%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
□ COBBLE (65-256 mm) [12 pts] 0% □ CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 5% MUCK [0 pts] 0%	13
SAND (<2 mm) [6 pts]	
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft</i> ) evaluation reach at the time of	Pool Depti
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]         □ > 22.5 - 30 cm [30 pts]       □ < 5 cm [5 pts]	
□ > 10 - 22.5 cm [50 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	0
OMMENTS MAXIMUM POOL DEPTH (centimeters): 0	
3.         BANK FULL WIDTH (Measured as the average of 3-4 measurements)         (Check ONLY one box):           > 4.0 meters (> 13') [30 pts]         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.90	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 (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
	)
Image: Mining or Construction       COMMENTS       Located between crop areas	
<b>FLOW REGIME</b> (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial)  COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
SINUOSITY (Number of bends per 61 m (200 ft) of channel)       (Check ONLY one box):         None       1.0       2.0       3.0         0.5       1.5       2.5       >3	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):				
QHEI PERFORMED? - Yes Vo QHEI Score (If Yes, Attack	n Completed QHEI Form)			
DOWNSTREAM DESIGNATED USE(S)				
WWH Name:	Distance from Evaluated Stream			
CWH Name:	Distance from Evaluated Stream			
EWH Name:	Distance from Evaluated Stream			
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED A	AREA. CLEARLY MARK THE SITE LOCATION			
USGS Quadrangle Name: Fireside NRCS Soil Map Page	ge: NRCS Soil Map Stream Order			
County: Seneca Township / City:				
MISCELLANEOUS				
Base Flow Conditions? (Y/N):_Y Date of last precipitation:_ 09/30/16	Quantity: 0.15			
Photograph Information: 2 photos, 1 upstream and 1 downstream.				
Elevated Turbidity? (Y/N): N Canopy (% open): 100%				
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. an	d attach results) Lab Number:			
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)	Conductivity (µmhos/cm)			
Is the sampling reach representative of the stream (Y/N) If not, please explain:				
Additional comments/description of pollution impacts:				
Located near active crop areas.				
BIOTIC EVALUATION				
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)				
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates	Voucher? (Y/N)			
Comments Regarding Biology:				

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





PHWH Form Page - 2



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SITE NAME/LOCATION ADEX REDUDIC: VVIIO FAI		
SITE NAME/LOCATION Apex Republic Wind Far SITE NUMBER DOH-034	4 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.	73
	A       RIVER BASIN       Beaver Creek       DRAINAGE AREA (mi²)       0.         1.21238       LONG.       -83.05148       RIVER CODE       RIVER MILE	<u> </u>
		etione
NOTE: Complete All Items On This Form - Refer	r to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	Ictions
STREAM CHANNEL INONE / NATURAL CHANNEL INONE / NATURAL CHANNEL	HANNEL RECOVERED RECOVERING RECENT OR NO RECO	OVERY
	of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(Max of 32). Add total number of significant substi TYPE PERCENT	rate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT	Metric
BLDR SLABS [16 pts]	SILT [3 pt] 50%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] 0%	LEAF PACK/WOODY DEBRIS [3 pts] 5% FINE DETRITUS [3 pts] 0%	Substrate
COBBLE (65-256 mm) [12 pts]	CLAY or HARDPAN [0 pt]	Max = 40
GRAVEL (2-64 mm) [9 pts] 5%	MUCK [0 pts]	13
SAND (<2 mm) [6 pts]	ARTIFICIAL [3 pts]	13
Total of Percentages of 0.00%	(A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE T	Chieck	
2. Maximum Pool Depth (Measure the maximum	pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road culverts	s or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	<ul> <li>✓ &gt; 5 cm - 10 cm [15 pts]</li> <li>✓ &lt; 5 cm [5 pts]</li> </ul>	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	15
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 4	
	of 2 A managements) (Check ONLY and here)	Donkfull
3. BANK FULL WIDTH (Measured as the average > 4.0 meters (> 13') [30 pts]	of 3-4 measurements) (Check ONL Y one box):	Bankfull Width
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>		Bankfull Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul>	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul> COMMENTS	<ul> <li>&gt; 1.0 m - 1.5 m (&gt; 3' 3" - 4' 8") [15 pts]</li> <li>≤ 1.0 m (&lt;=3' 3") [5 pts]</li> <li>AVERAGE BANKFULL WIDTH (meters): 1.10</li> </ul>	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul> COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU         RIPARIAN WIDTH       FLOO		Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] $\leq$ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU         RIPARIAN WIDTH       FLOO         L       R       (Per Bank)       L       R	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU         RIPARIAN WIDTH       FLOO         L       R       (Per Bank)       L       R         Wide >10m       □       Moderate 5-10m       □	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU RIPARIAN WIDTH         L       R         (Per Bank)       L         Wide >10m         Moderate 5-10m         Narrow <5m	→ 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU RIPARIAN WIDTH         L       R         (Per Bank)       L         Wide >10m         Moderate 5-10m         ✓       None	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU RIPARIAN WIDTH         L R       (Per Bank)       L R         Wide >10m       Image: Commenter 5-10m       Image: Commenter 5-10m         Moderate 5-10m       Image: Commenter 5-10m       Image: Commenter 5-10m         COMMENTS       Located between crop commenter 5-10m       Image: Commenter 5-10m	→ 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU         RIPARIAN WIDTH       FLOO         L       R         (Per Bank)       L         Wide >10m       □         Moderate 5-10m       □         ✓       None         COMMENTS       Located between crop a         FLOW REGIME (At Time of Evaluation)       Stream Flowing	→ 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         → 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU RIPARIAN WIDTH         L R       (Per Bank)       L R         Wide >10m       □         Moderate 5-10m       □         Narrow <5m	→ 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         → 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU         RIPARIAN WIDTH       FLOO         L R       (Per Bank)       L R         Wide >10m       □         Moderate 5-10m       □         Narrow <5m	→ 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU RIPARIAN WIDTH         L R       (Per Bank)       L R         Wide >10m       □         Moderate 5-10m       □         Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODP LAIN QU         RIPARIAN WIDTH       FLOO         L R       (Per Bank)       L R         Wide >10m       □         Moderate 5-10m       □         Narrow <5m	→ 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLAIN QU         RIPARIAN WIDTH       FLOO         L R       (Per Bank)       L R         Wide >10m       □         Moderate 5-10m       □         Narrow <5m	<ul> <li>&gt; 1.0 m - 1.5 m (&gt; 3' 3" - 4' 8") [15 pts]</li> <li>≤ 1.0 m (&lt;=3' 3") [5 pts]</li> </ul> AVERAGE BANKFULL WIDTH (meters): <ul> <li>1.10</li> </ul> This information must also be completed DALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ DPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial           Mature Forest, Shrub or Old Field       Open Pasture, Row Cropt Open Pasture, Row Cropt Mining or Construction         Residential, Park, New Field <ul> <li>Open Pasture, Row Cropt Mining or Construction</li> <li>Geneas and with narrow meadowy buffer to the south</li> </ul> (Check ONLY one box):       Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)         (200 ft) of channel)       (Check ONLY one box):              3.0	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):			
QHEI PERFORMED? - Yes Ves No QHEI Score (If Yes,	Attach Completed QHEI Form)		
DOWNSTREAM DESIGNATED USE(S)			
WWH Name:	Distance from Evaluated Stream		
CWH Name:	_ Distance from Evaluated Stream		
EWH Name:	Distance from Evaluated Stream		
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS	HED AREA. CLEARLY MARK THE SITE LOCATION		
USGS Quadrangle Name: Watson NRCS Soil Ma	ap Page: NRCS Soil Map Stream Order		
County: Seneca Township / City:			
MISCELLANEOUS			
Base Flow Conditions? (Y/N):_Y Date of last precipitation:_ 10/01/16	Quantity: 0.37		
Photograph Information: 1 photo taken looking upstream			
Elevated Turbidity? (Y/N): N Canopy (% open): 85%			
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or	id. and attach results) Lab Number:		
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U	.) Conductivity (µmhos/cm)		
Is the sampling reach representative of the stream $(Y/N)$ If not, please explain	·		
Additional comments/description of pollution impacts:			
Located near active crop areas and roads.			
BIOTIC EVALUATION			
Performed? (Y/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)			
Comments Regarding Biology:			

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



PHWH Form Page - 2



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SITE NAME/LOCATION APEX REPUBLIC WITH FAIL	
SITE NAME/LOCATION       Apex Republic Wind Farm	<sup>2</sup> ) <b>4</b> .89
LENGTH OF STREAM REACH (ft) 1,601 LAT. 41.19821 LONG83.00942 RIVER CODE RIVER MI	
DATE 10/02/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for I	nstructions
·	
STREAM CHANNEL       NONE / NATURAL CHANNEL       RECOVERED       RECOVERING       RECENT OR NO         MODIFICATIONS:       RECOVERED       RECOVERING       RECENT OR NO	RECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE box	
(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	Metric
Image: BLDR SLABS [16 pts]         0%         Image: SILT [3 pt]         40%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts] 15% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] 0%	13
SAND (<2 mm) [6 pts]	
Total of Percentages of 15.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
□ > 10 - 22.5 cm [25 pts]	_    0
OMMENTS MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
	Width
= 2.0  meters  (> 13') [30  pts] = 2.0  m - 1.5  m (> 3' 3" - 4' 8") [15  pts] = 2.0  m (> 3' 3" - 4' 8") [15  pts] = 2.0  m (<=3' 3") [5  pts] =	Width Max=30
$ \begin{array}{ c c c c c } &> 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ &> 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \end{array} $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       < 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Width Max=30 0 5
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30 0 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 0 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 0 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 0 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 0 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 0 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 0 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 0 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 0 5

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):				
QHEI PERFORMED? - Yes Vo QHEI Score (If Yes, Attach Completed QHEI Form)				
DOWNSTREAM DESIGNATED USE(S)				
WWH Name: Distance from Evaluated Stream				
CWH Name: Distance from Evaluated Stream				
EWH Name: Distance from Evaluated Stream				
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIO	N			
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order				
County: Seneca Township / City:				
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/01/16 Quantity: 0.37				
Photograph Information: 2 photos taken, 1 photo looking upstream and 1 looking downstream towards SOH-14				
Elevated Turbidity? (Y/N): Canopy (% open):85%				
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id. and attach results) Lab Number:				
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)				
Is the sampling reach representative of the stream (Y/N) If not, please explain:				
Additional comments/description of pollution impacts:				
Located near active crop areas and roads.				
BIOTIC EVALUATION				
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled w ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)	ith the site			
N       Voucher? (Y/N)       N       Salamanders Observed? (Y/N)       N       Voucher? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N       Aquatic Macroinvertebrates Observed? (Y/N)       N       Voucher? (Y/N)				
Comments Regarding Biology:				

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



Save as pdf Reset Form

SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-36 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²)	.02
LENGTH OF STREAM REACH (ft) 944 LAT. 41.19804 LONG83.00902 RIVER CODE RIVER MILE	
DATE 10/02/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC MODIFICATIONS:	OVERY
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	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 55%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts]         0%         CLAY or HARDPAN [0 pt]         0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 5% MUCK [0 pts] 0%	12
SAND (<2 mm) [6 pts]         40%         ARTIFICIAL [3 pts]         0%	
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
□ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	0
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 0	
3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
$ \begin{array}{ c c c c c } &> 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7'' - 13') [25 \text{ pts}] \\ &> 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7'' - 4' 8'') [20 \text{ pts}] \end{array} $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] $\leq$ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         ✓         COMMENTS         AVERAGE BANKFULL WIDTH (meters):         0.90	Width Max=30
$ \begin{array}{ c c c c c c } &> 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7'' - 13') [25 \text{ pts}] \\ &> 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7'' - 4' 8'') [20 \text{ pts}] \\ \hline \end{array} \\ \hline \end{array} \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         ✓         COMMENTS         AVERAGE BANKFULL WIDTH (meters):         0.90	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       .10 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       - 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         AVERAGE BANKFULL WIDTH (meters): 0.90         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY         AVERAGE BANKFULL WIDTH         FLOODPLAIN QUALITY         AWERAGE SANKFULL WIDTH         Commentation         Wide >10m         Mature Forest, Wetland         Moderate 5-10m         Immature Forest, Shrub or Old         Urban or Industrial         Open Pasture, Row Creation         None         Fenced Pasture         None         Fenced Pasture         Mining or Construction         COMMENTS         Moderate flow with isolated pools (Interstitial)         COMMENTS         Stream Flowing         Subsurface flow with isolated pools (Interstitial)         COMMENTS         SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.0 m (< 9' 7" - 13') [25 pts]	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes Vo QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/01/16 Quantity: 0.37
Photograph Information: 1 photo looking upstream
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas and roads.
BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) N Voucher?
Comments Regarding Biology:

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



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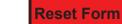
SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-37 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²)	0.60
LENGTH OF STREAM REACH (ft) 568 LAT. 41.15076 LONG82.96432 RIVER CODE RIVER MILE	
DATE 10/03/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RE	COVERY
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	HHEI   Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 45%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts]         5%         CLAY or HARDPAN [0 pt]         0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 15% MUCK [0 pts] 0%	13
SAND (<2 mm) [6 pts] 35% ARTIFICIAL [3 pts] 0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]         NO WATER OR MOIST CHANNEL [0 pts]	5
OMMENTS Limited pools on the eastern edge MAXIMUM POOL DEPTH (centimeters): 5	
OMMENTS Limited pools on the eastern edge MAXIMUM POOL DEPTH (centimeters): 5	
3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONL Y one box):         > 4.0 meters (> 13') [30 pts]       ✓       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ✓       > 1.0 m (<=3' 3") [5 pts]	Width
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONL Y one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONL Y one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ✓       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONL Y one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       -         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]       -         COMMENTS	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.10 This information must also be completed RIPARIAN ZONE AND FLOODP LAIN QUALITY $\Rightarrow$ NOTE: River Left (L) and Right (R) as looking downstream $\Rightarrow$ RIPARIAN WIDTH (Per Bank) L R (Most Predominant per Bank) L R	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box): > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.10 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY $\therefore$ NOTE: River Left (L) and Right (R) as looking downstream $\therefore$ RIPARIAN WIDTH FLOODPLAIN QUALITY $\therefore$ NOTE: River Left (L) and Right (R) as looking downstream $\therefore$ RIPARIAN WIDTH FLOODPLAIN QUALITY $\bigcirc$ Mature Forest, Wetland Conservation Tillage	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m (-1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13) [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       1.0 m (<=3' 3") [5 pts]	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS       AVERAGE BANKFULL WIDTH (meters):       1.10         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       ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH       L R (Most Predominant per Bank)       L R         Wide >10m       Immature Forest, Shrub or Old       Urban or Industrial       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes Vo QHEI Score (If Yes, Attach Con	npleted QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Dista	ance from Evaluated Stream
CWH Name: Dista	nce from Evaluated Stream
EWH Name: Dista	nce from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA	CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil Map Page:	NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/16 Qu	uantity: 0.06
Photograph Information: 1 photo looking upstream	
Elevated Turbidity? (Y/N): N Canopy (% open): 95%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and atta	ch results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Located near active crop areas.	
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE ID number. Include appropriate field data sheets from the Primary He	
N       Voucher? (Y/N)       N       Salamanders Observed? (Y/N)       N       Voucher?         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N       Aquatic Macroinvertebrates Observed?	ucher? (Y/N) N erved? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	

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



PHWH Form Page - 2



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SHE NAME/LUCATION	Apex Republic Wi	nd Farm				
			BASIN Beaver Creek	DR	AINAGE AREA (mi²)	1.41
LENGTH OF STREAM R				ER CODE		
DATE 10/03/16	SCORER BJS	COMMENTS				
			Evaluation Manual for C	) hio's PHWF	Streams" for Ins	tructions
		_				
STREAM CHANNEL MODIFICATIONS:		JRAL CHANNEL	RECOVERED RECO	OVERING	RECENT OR NO RE	COVERY
			present. Check ONLY two p			I HHE
(Max of 32). Add	-	RCENT TYPE	nd (Max of 8). Final metric	score is sum c	PERCENT	Metr
BLDR SLAB	S [16 pts]	0%	SILT [3 pt]		30%	Poin
		<u>0%</u>	LEAF PACK/WOODY FINE DETRITUS [3 pt		6] <u>15%</u> 0%	Substra
	L	10%	CLAY or HARDPAN [	-	0%	Max =
		15%	MUCK [0 pts]		0%	14
SAND (<2 m	ım) [6 pts]	30%	ARTIFICIAL [3 pts]		0%	
	Percentages of 10	).00% <sup>(A)</sup>	Substrate Percentage	)%	(B)	A + B
	Ider, Cobble, Bedrock	RATE TYPES: 9	TOTAL NUMBER		ATE TYPES: 5	
) Mayimum D I	Donth Macaura the		vithin the 61 meter (200 ft)			Pool De
	d plunge pools from road				ach at the time of	Max = 3
> 30 centimeters		F		m [15 pts]		I.——
	30 cm [30 pts] 2.5 cm [25 pts]	t			ANNEL [0 pts]	15
OMMENTS	Limited pools on the	eastern edge near	woodlot MAXIMUM PO		entimeters): 10	
	· · · · · · · · · · · · · · · · · · ·					
3. BANK FULL WI	IDTH (Measured as the a	average of 3-4 meas	urements) (Check	ONLY one bo		Bankfu Width
> 3.0 m - 4.0 m (3	> 9' 7" - 13') [25 pts]	l l	≤ 1.0 m (<=3' 3") [5 pt	· • ·	0]	Max=3
▶ 1.5 m - 3.0 m (¥	> 9' 7" - 4' 8") [20 pts]					
COMMENTS			AVERAGE BA		ΓH (meters): 3.40	25
RIPARIA	AN ZONE AND FLOODPI		tion <u>must</u> also be comple NOTE: River Left (L) and F		king downstream√≿	
	IAN WIDTH	FLOODPLAIN QUA		light (iv) as io		
LR (Per B	,		edominant per Bank)		Conservation Tillage	
	2 IU[]]		orest, Wetland			
Wide	note E 10m	Immature	Forest, Shrub or Old		0	
	rate 5-10m	Field	Forest, Shrub or Old		Urban or Industrial	rop
Mode	erate 5-10m w <5m	Field	e Forest, Shrub or Old ial, Park, New Field		0	rop
Mode Mode	w <5m	Field Field Field Fenced F	ial, Park, New Field Pasture		Urban or Industrial Open Pasture, Row C Mining or Construction	•
Mode Mode	w <5m	Field Field Field Fenced F	ial, Park, New Field		Urban or Industrial Open Pasture, Row C Mining or Construction	•
Mode Marro None COMME	w <5m NTS <mark>Located betweer</mark> REGIME (At Time of Evalu	Field Resident Fenced F acricultural area	ial, Park, New Field Pasture <u>s. but right bank has w</u> ⁄ one b <u>ox</u> ):	oodlot along	Urban or Industrial Open Pasture, Row C Mining or Construction 1 part of course	□_
Mode Mode Narro None COMME FLOW F Stream F Subsurfa	w <5m ENTS <b>Located betweer</b> REGIME (At Time of Evalu lowing ce flow with isolated pools	Field Resident Fenced F acricultural area wation) (Check ONL)	ial, Park, New Field Pasture <b>s. but right bank has w</b> / one box):	oodlot along	Urban or Industrial Open Pasture, Row C Mining or Construction 1 part of course Is, no flow (Intermitter	□_
Mode Mode Marro None COMME FLOW F Stream F	w <5m ENTS <b>Located betweer</b> REGIME (At Time of Evalu lowing ce flow with isolated pools	Field Resident Fenced F acricultural area wation) (Check ONL)	ial, Park, New Field Pasture <b>s. but right bank has w</b> / one box):	oodlot along	Urban or Industrial Open Pasture, Row C Mining or Construction 1 part of course Is, no flow (Intermitter	□_
Mode Mode Marro None COMME Stream F Subsurfa COMME	w <5m ENTS <b>Located betweer</b> REGIME (At Time of Evalu lowing ce flow with isolated pools ENTS	Field Fenced F acricultural area uation) (Check ONL) (Interstitial) Fr 61 m (200 ft) of cha	ial, Park, New Field Pasture <b>5. but right bank has w</b> 7 one box): Moist Channe Dry channel, nnel)	oodlot along	Urban or Industrial Open Pasture, Row C Mining or Construction I part of course Is, no flow (Intermitter emeral)	□_
Mode Mode Marro None COMME FLOW F Stream F Subsurfac COMME	w <5m ENTS <b>Located betweer</b> REGIME (At Time of Evalu lowing ce flow with isolated pools ENTS	Field Resident Fenced F acricultural area (Interstitial)	ial, Park, New Field Pasture <b>5. but right bank has w</b> 7 one box): Moist Channe Dry channel, r	oodlot along	Urban or Industrial Open Pasture, Row C Mining or Construction 1 part of course Is, no flow (Intermitter	n 
Mode Mode Marro Mone COMME FLOW F Stream F Subsurfac COMME SINUOS None 0.5	w <5m ENTS <b>Located betweer</b> REGIME (At Time of Evalu lowing ce flow with isolated pools ENTS	Field Fenced F acricultural area uation) (Check ONL) (Interstitial) Fr 61 m (200 ft) of cha 1.0	ial, Park, New Field Pasture <b>5. but right bank has w</b> (one box): Moist Channe Dry channel, n (Check <i>ONLY</i> one bo	oodlot along	Urban or Industrial Open Pasture, Row C Mining or Construction I part of course Is, no flow (Intermitter emeral)	n 

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):				
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)				
DOWNSTREAM DESIGNATED USE(S)				
WWH Name:	_ Distance from Evaluated Stream			
CWH Name:	Distance from Evaluated Stream			
EWH Name:	Distance from Evaluated Stream			
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	O AREA. CLEARLY MARK THE SITE LOCATION			
USGS Quadrangle Name: Fireside NRCS Soil Map F	Page: NRCS Soil Map Stream Order			
County: Seneca Township / City:				
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/16	Quantity: <b>0.06</b>			
Photograph Information: 5 photos, 3 photos looking upstream and 2 looking downst	ream			
Elevated Turbidity? (Y/N): Canopy (% open):50%				
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id. a	and attach results) Lab Number:			
	Conductivity (µmhos/cm)			
Is the sampling reach representative of the stream (Y/N) If not, please explain:				
Additional comments/description of pollution impacts:				
Located near active crop areas.				
BIOTIC EVALUATION				
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional	·			
ID number.       Include appropriate field data sheets from the Pri         Fish Observed? (Y/N)       N       Voucher? (Y/N)       N       Salamanders Observed? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N       Aquatic Macroinvertebrat	Voucher? (Y/N)			
Comments Regarding Biology:				

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



FLOW

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SITE NAME/LOCATION Apex Republic Wind Farm	3.23
LENGTH OF STREAM REACH (ft) 7,873 LAT. 41.16125 LONG82.94440 RIVER CODE RIVER MILE	
DATE 10/03/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING	ECOVERY
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         BLDR SLABS [16 pts]       0%	HHEI Metric Points
BOULDER (>256 mm) [16 pts]       0%       LEAF PACK/WOODY DEBRIS [3 pts]       10%         BEDROCK [16 pt]       0%       FINE DETRITUS [3 pts]       0%         COBBLE (65-256 mm) [12 pts]       10%       CLAY or HARDPAN [0 pt]       0%	Substrate Max = 40
GRAVEL (2-64 mm) [9 pts]       10%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	14
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock       10.00%       (A)       Substrate Percentage Check       100%       (B)         SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:       9       TOTAL NUMBER OF SUBSTRATE TYPES:       5	A + B
<ul> <li>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):</li> <li>&gt; 30 centimeters [20 pts]</li> <li>&gt; 5 cm - 10 cm [15 pts]</li> </ul>	Pool Depth Max = 30
✓       > 22.5 - 30 cm [30 pts]         ✓       > 10 - 22.5 cm [25 pts]         ✓       ✓         ✓	30
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 25	
3.       BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width Max=30
$ \begin{array}{ c c c c c } &> 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline &< 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \end{array} $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
$ \begin{array}{c} \begin{array}{c} > 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \end{array} \end{array} $	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 20
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 20

ADDITIONAL STREAM INFORMATION (This Information Must Also be (	Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NR	CS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township /	City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10.	<b>/02/16</b> Quantity: <b>0.06</b>
Photograph Information: 2 photos, 1 photo looking upstream and 1 loo	king downstream
Elevated Turbidity? (Y/N): Canopy (% open):100%	
Were samples collected for water chemistry? (Y/N): (Note lab sam	ple no. or id. and attach results) Lab Number:
	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, plea	se explain:
Additional comments/description of pollution impacts:	
Located near active crop areas.	
	ections optional. NOTE: all voucher samples must be labeled with the site ets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed?	
Comments Regarding Biology:	· · · · · · · · · · · · · · · · · · ·

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





PHWH Form Page - 2

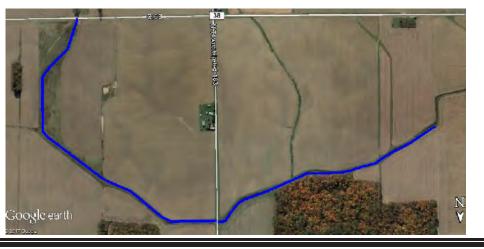


SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-041 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi <sup>2</sup> )	4.37
LENGTH OF STREAM REACH (ft) 6,838 LAT. 41.17337 LONG82.96515 RIVER CODE RIVER MILE	
DATE 10/03/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	I HHEI
(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	Metric
BLDR SLABS [16 pts]         0%         ✓         SILT [3 pt]         50%           BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%	Points
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 0%	
□       GRAVEL (2-64 mm) [9 pts]       15%       □       MUCK [0 pts]       0%         □       ✓       SAND (<2 mm) [6 pts]	13
Total of Percentages of <b>F con</b> ( <b>(A)</b> Substrate Percentage <b>(B)</b>	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft</i> ) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]         □ > 22.5 - 30 cm [30 pts]       □ < 5 cm [5 pts]	
✓ □ > 10 - 22.5 cm [25 pts] ■ ■ NO WATER OR MOIST CHANNEL [0 pts]	25
OMMENTS Deepest pool near culverted farm road crossing MAXIMUM POOL DEPTH (centimeters): 22	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.0 m (&lt;=3' 3") [5 pts]</li> </ul>	Width Max=30
✓ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 2.00	20
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L R     (Per Bank)     L R     (Most Predominant per Bank)     L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row C	ор
None Fenced Pasture Mining or Construction	1
COMMENTS Located between agricultural areas	.L
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): ✓ Stream Flowing Moist Channel, isolated pools, no flow (Intermitten	t)
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	7
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) (C</u> heck ONLY one box):	-
None 1.0 2.0 3.0	

ADDITIONAL STREAM INFORMATION (This Information Must Als	so be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Town	nship / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitation:	10/02/16 Quantity: 0.06
Photograph Information: 3 photos, 1 photo looking upstream and	1 looking downstream and 1 of nearby crossing
Elevated Turbidity? (Y/N): N Canopy (% open): 10	0%
Were samples collected for water chemistry? (Y/N): (Note la	ab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream $(Y/N)$ If no	ot, please explain:
Additional comments/description of pollution impacts:	
Located near active crop areas.	
	ner collections optional. NOTE: all voucher samples must be labeled with the site ata sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aqu	Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	

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





PHWH Form Page - 2

Save as pdf

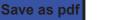
SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-042 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²)	3.50
LENGTH OF STREAM REACH (ft) 407 LAT. 41.16865 LONG82.95157 RIVER CODE RIVER MILE	
DATE 10/03/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for In	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO R	ECOVERY
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	Metric
Image: BLDR SLABS [16 pts]         0%         Image: SILT [3 pt]         35%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         20%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 0%	Max = 40
□       GRAVEL (2-64 mm) [9 pts]       10%       □       MUCK [0 pts]       0%         □       ✓       SAND (<2 mm) [6 pts]	14
Bldr Slabs, Boulder, Cobble, Bedrock Check 100%	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Depth Max = 30
> 30 centimeters [20 pts]	
□         > 22.5 - 30 cm [30 pts]         □         < 5 cm [5 pts]	15
OMMENTS MAXIMUM POOL DEPTH (centimeters): 10	
BANK FULL WIDTH (Measured as the average of 3-4 measurements)       (Check ONLY one box):         > 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
$ \begin{array}{ c c c c } &> 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ \hline \\ > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline \\ &\leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \end{array} $	
$ \begin{array}{ c c c c c } &> 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ \hline &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline &> 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \\ \end{array} $	Width Max=30
$ \begin{array}{ c c c c } &> 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ \hline \\ > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline \\ &\leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \end{array} $	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS    AVERAGE BANKFULL WIDTH (meters):        1.20	Width Max=30
$ \begin{array}{ c c c c c } \hline & > 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ \hline > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \\ \hline & \\ \hline \hline & \\ \hline & \\ \hline \hline & \\ \hline \hline & \\ \hline & \\ \hline & \\ \hline \hline \\ \hline \hline & \\ \hline \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \hline$	Width Max=30
$ \begin{array}{ c c c c c c c c } \hline & > 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ \hline > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & $ 1.0 \text{ m} (<=3'$	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       1.0 m (<=3' 3") [5 pts]	Width Max=30 15 Crop
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 15 Crop
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 15 Crop
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 15 Crop
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 15 Crop

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Attach Con	mpleted QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Dist	ance from Evaluated Stream
CWH Name: Dist	ance from Evaluated Stream
EWH Name: Dista	ance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil Map Page:	NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/16	Quantity: 0.06
Photograph Information: 2 photos, 1 photo looking upstream and 1 looking downstream	
Elevated Turbidity? (Y/N): _ N Canopy (% open): 60%	
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id. and att	ach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Located near active crop areas.	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOT ID number. Include appropriate field data sheets from the Primary H	
N N N	pucher? (Y/N)
Comments Regarding Biology:	

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







39

SITE NAME/LOCATION Apex Republic Wi	ind Farm	
SITE NAME/LOCATION APEX REPUBLIC W	OH-043     RIVER BASIN     Beaver creek     DRAINAGE AREA (mi²)	1.77
	LAT. <b>41.16787</b> LONG. <b>-82.93811</b> RIVER CODE RIVER MILE	
DATE 10/03/16 SCORER BJS		-
		structions
· · · · · · · · · · · · · · · · · · ·		
STREAM CHANNEL INONE / NAT MODIFICATIONS:	URAL CHANNEL RECOVERED RECOVERING RECENT OR NO R	ECOVERY
	ry type of substrate present. Check ONLY two predominant substrate TYPE boxes	
	Int substrate types found (Max of 8). Final metric score is sum of boxes A & B. RCENT TYPE PERCENT	Metr
BLDR SLABS [16 pts]	0% SILT [3 pt] 45%	Poin
BOULDER (>256 mm) [16 pts]	0%         LEAF PACK/WOODY DEBRIS [3 pts]         10%           0%         FINE DETRITUS [3 pts]         0%	Substra
COBBLE (65-256 mm) [12 pts]	5%         CLAY or HARDPAN [0 pt]         0%	Max =
GRAVEL (2-64 mm) [9 pts]	5% MUCK [0 pts] 0%	1 44
SAND (<2 mm) [6 pts]	35% ARTIFICIAL [3 pts] 0%	14
Total of Percentages of 5.	.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock		
2. Maximum Pool Depth (Measure the ma	aximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool De
evaluation. Avoid plunge pools from road > 30 centimeters [20 pts]	culverts or storm water pipes) (Check ONLY one box): > 5 cm - 10 cm [15 pts]	Max = 3
So certimeters [20 pts] 22.5 - 30 cm [30 pts]	$\sim$ 5 cm $\sim$ 10 cm [15 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	_    0
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured as the	average of 3-4 measurements) (Check ONLY one box):	Bankfu
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	≤ 1.0 m (<=3' 3") [5 pts]	Max=3
	AVERAGE BANKFULL WIDTH (meters): 3.00	25
	This information must also be completed	
RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH	LAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ FLOODPLAIN QUALITY	
L R (Per Bank)	LR (Most Predominant per Bank) LR	
Wide >10m	Mature Forest, Wetland Conservation Tillage	•
Moderate 5-10m	Field Urban or Industrial	
Narrow <5m	Residential, Park, New Field Open Pasture, Row	Crop
None None	Fenced Pasture Mining or Constructi	on
COMMENTS <u>riparian buffer p</u>	rimarilv on west side of ditch. before CR 27.	
FLOW REGIME (At Time of Eval		
Stream Flowing Subsurface flow with isolated pool	s (Interstitial) Moist Channel, isolated pools, no flow (Intermitte Dry channel, no water (Ephemeral)	ent)
COMMENTS_		
SINUOSITY (Number of bends ne	er 61 m (200 ft) of channel) (Check ONLY one box):	
None 🚺	1.0 2.0 3.0	
0.5	1.5 2.5 >3	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil Map P	Page: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/16	Quantity: 0.06
Photograph Information: 2 photos, 1 photo looking upstream and 1 looking downstree	pam
Elevated Turbidity? (Y/N): _ N Canopy (% open): 60%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Located near active crop areas.	
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prin	
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrat Comments Regarding Biology:	Voucher? (Y/N)

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



FLOW

Save as pdf

SITE NAME/LOCATION Apex Republic Wi	nd Form	
SITE NAME/LOCATION ADEX REPUBLIC WI	OH-044         RIVER BASIN         Beaver Creek	DRAINAGE AREA (mi²) 0.20
LENGTH OF STREAM REACH (ft) 3,703	LAT. 41.16944 LONG82.92596 RIVE	
DATE 10/03/16 SCORER BJS	COMMENTS	
	- Refer to "Field Evaluation Manual for C	hio's PHWH Streams" for Instructions
·		
STREAM CHANNEL NONE / NAT MODIFICATIONS:	URAL CHANNEL RECOVERED RECO	OVERING 🔲 RECENT OR NO RECOVERY
	y type of substrate present. Check ONLY two p	
	nt substrate types found (Max of 8). Final metric : RCENT TYPE	PERCENT Metr
BLDR SLABS [16 pts]	0% SILT [3 pt]	50% Point
BOULDER (>256 mm) [16 pts]	0% LEAF PACK/WOODY 0% FINE DETRITUS [3 pt	0% Substra
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [(	0 pt] 0%
GRAVEL (2-64 mm) [9 pts]	5% MUCK [0 pts]	0% 13
SAND (<2 mm) [6 pts]	40% ARTIFICIAL [3 pts]	
Total of Percentages of <b>0</b> . Bldr Slabs, Boulder, Cobble, Bedrock	00% (A) Substrate Percentage 100	0% (B) A + B
SCORE OF TWO MOST PREDOMINATE SUBS	TRATE TYPES: 9 TOTAL NUMBER	OF SUBSTRATE TYPES: 4
	eximum pool depth within the 61 meter (200 ft)	
evaluation. Avoid plunge pools from road > 30 centimeters [20 pts]		m [15 pts]
> 22.5 - 30 cm [30 pts]		
		OL DEPTH (centimeters):
3. BANK FULL WIDTH (Measured as the a		ONLY one box): Bankfu
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	> 1.0 m - 1.5 m (> 3' 3 ≤ 1.0 m (<=3' 3") [5 pt	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS	AVERAGE BA	NKFULL WIDTH (meters): 3.00 25
	This information must also be comple	
RIPARIAN ZONE AND FLOODP	LAIN QUALITY ANOTE: River Left (L) and F	Right (R) as looking downstream 🛠
<u>RIPARIAN WIDTH</u> L R (Per Bank)	FLOODPLAIN QUALITY L R (Most Predominant per Bank)	L R
Wide >10m	Mature Forest, Wetland	Conservation Tillage
Moderate 5-10m	Immature Forest, Shrub or Old Field	Urban or Industrial
Narrow <5m	Residential, Park, New Field	Open Pasture, Row Crop
V V None	Fenced Pasture	Mining or Construction
FLOW REGIME (At Time of Eval		
Stream Flowing Subsurface flow with isolated pool		I, isolated pools, no flow (Intermittent) no water (Ephemeral)
COMMENTS		
	er 61 m (200 ft) of channel) (Check ONLY one b	
■ None     0.5	1.0     2.0       1.5     2.5	3.0
STREAM GRADIENT ESTIMATE		

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	O AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/16	Quantity: 0.06
Photograph Information: 2 photos, 1 photo looking upstream and 1 looking downstre	am
Elevated Turbidity? (Y/N): Canopy (% open):100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:
	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Located near active crop areas.	
BIOTIC EVALUATION	
Performed? (Y/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 Pri	mary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N)       N       Voucher? (Y/N)       N       Salamanders Observed? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N       Aquatic Macroinvertebrat	Voucher? (Y/N) N tes Observed? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	
<u> </u>	

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





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43

An en Denuklie Mind Ferr		
SITE NAME/LOCATION Apex Republic Wind Farr	RIVER BASIN <b>Beaver creek</b> DRAINAGE AREA (mi²)	20
SITE NUMBER DOH-046		.30
	I.17494         LONG.         -82.91159         RIVER CODE         RIVER MILE           COMMENTS	
NOTE: Complete All Items On This Form - Refer	r to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru-	uctions
STREAM CHANNEL NONE / NATURAL CH.	HANNEL RECOVERED RECOVERING RECENT OR NO REC	OVERY
	f substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(Max of 32). Add total number of significant substra TYPE PERCENT	rate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT	Metric
BLDR SLABS [16 pts]	SILT [3 pt] 50%	Points
BOULDER (>256 mm) [16 pts] 0% BEDROCK [16 pt] 0%	LEAF PACK/WOODY DEBRIS [3 pts]	Substrate
COBBLE (65-256 mm) [12 pts]	CLAY or HARDPAN [0 pt]	Max = 40
GRAVEL (2-64 mm) [9 pts] 5%	MUCK [0 pts]	13
SAND (<2 mm) [6 pts]	ARTIFICIAL [3 pts]	
Total of Percentages of <b>0.00%</b> Bldr Slabs, Boulder, Cobble, Bedrock	(A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TY		
	pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road culverts of > 30 centimeters [20 pts]	or storm water pipes) (Check ONLY one box): > 5 cm - 10 cm [15 pts]	Max = 30
□ > 22.5 - 30 cm [30 pts]	C < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	15
OMMIENTS	MAXIMUM POOL DEPTH (centimeters): 5	
3 BANK FULL WIDTH (Measured as the average of	of 3-4 measurements) (Check ONLY one box):	Bankfull
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.10	15
Т	This information <u>must</u> also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUA RIPARIAN WIDTH FLOOD	ALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ DPLAIN QUALITY	
<u>L R</u> (Per Bank) <u>L R</u>	(Most Predominant per Bank) <u>L R</u>	
Wide >10m	Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	Field	
Narrow <5m	Residential, Park, New Field Open Pasture, Row Cro	р
None	Fenced Pasture Mining or Construction	
COMMENTS		-
FLOW REGIME (At Time of Evaluation) (		
FLOW REGIME (At Time of Evaluation) ( Stream Flowing Subsurface flow with isolated pools (Interstit	Moist Channel, isolated pools, no flow (Intermittent)	)
Stream Flowing	Moist Channel, isolated pools, no flow (Intermittent)	-
Stream Flowing Subsurface flow with isolated pools (Interstit COMMENTS	Moist Channel, isolated pools, no flow (Intermittent)	-
Stream Flowing Subsurface flow with isolated pools (Interstit COMMENTS	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) 200 ft) of channel) (Check ONLY one box):	-
Stream Flowing Subsurface flow with isolated pools (Interstit COMMENTS	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	-

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/16 Quantity: 0.06
Photograph Information: 1 looking downstream
Elevated Turbidity? (Y/N): Canopy (% open):100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas.
BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) N Voucher?
Comments Regarding Biology:

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



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### **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) :

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	/ind Farm	
SITE NAME/LOCATION Apex Republic W		2.70
	LAT. 41.17689 LONG82.93021 RIVER CODE RIVER MILE	
DATE 10/03/16 SCORER BJS	COMMENTS	
NOTE: Complete All Items On This Form	n - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
-	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC	
MODIFICATIONS:		
1. SUBSTRATE (Estimate percent of eve	ery type of substrate present. Check ONLY two predominant substrate TYPE boxes	
	ant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric
TYPE PE BLDR SLABS [16 pts]	ERCENT         TYPE         PERCENT           0%         Image: Sill T [3 pt]         45%	Points
BOULDER (>256 mm) [16 pts]	0%   LEAF PACK/WOODY DEBRIS [3 pts]	
BEDROCK [16 pt]	0%   Image: Simple of the simple of	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]	10%         CLAY or HARDPAN [0 pt]         0%           10%         MUCK [0 pts]         0%	
SAND (<2 mm) [6 pts]	<b>35%</b> ARTIFICIAL [3 pts] <b>0%</b>	13
		A + B
Bldr Slabs, Boulder, Cobble, Bedrock	Check 100 %	
SCORE OF TWO MOST PREDOMINATE SUBS	TOTAL NUMBER OF SUBSTRATE TYPES: 4	
	aximum pool depth within the 61 meter (200 ft) evaluation reach at the time of d culverts or storm water pipes) (Check ONLY one box):	Pool Depti Max = 30
> 30 centimeters [20 pts]	$\checkmark$ > 5 cm - 10 cm [15 pts]	Wax - 30
$ \boxed{ 0 } > 22.5 - 30 \text{ cm} [30 \text{ pts}] $ $ \boxed{ 0 } > 10 - 22.5 \text{ cm} [25 \text{ pts}] $	S cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts]	45
	NO WATER OR MOIST CHANNEL [0 pts]	15
	MAXIMUM POOL DEPTH (centimeters): 10	
3. BANK FULL WIDTH (Measured as the		Bankfull
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
		Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 2.40 This information <u>must</u> also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS           COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]           COMMENTS           RIPARIAN ZONE AND FLOODP           RIPARIAN WIDTH           L R         (Per Bank)	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]           COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] $\leq$ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]           COMMENTS           RIPARIAN ZONE AND FLOODP           RIPARIAN WIDTH           L R         (Per Bank)	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]           COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODP         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         Y       Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODP         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         Y       Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul> <b>RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH</b> L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m I Narrow <5m ✓ ✓ None COMMENTS <b>Minor woodlot transport of Evaluation of Evaluation</b>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]          COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul> <b>RIPARIAN ZONE AND FLOODP</b> <u>RIPARIAN WIDTH</u> L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Narrow <5m ✓ None COMMENTS Minor woodlot to FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool COMMENTS SINUOSITY (Number of bends proceed)	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         < 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         COMMENTS         RIPARIAN ZONE AND FLOODP         RIPARIAN WIDTH         L R       (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul> <b>RIPARIAN ZONE AND FLOODP</b> <u>RIPARIAN WIDTH</u> L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Narrow <5m ✓ None COMMENTS Minor woodlot to FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool COMMENTS SINUOSITY (Number of bends proceed)	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         < 1.0 m (<=3' 3") [5 pts]	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)		
DOWNSTREAM DESIGNATED USE(S)		
WWH Name: Distance from Evaluated Stream		
CWH Name: Distance from Evaluated Stream		
EWH Name: Distance from Evaluated Stream		
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION		
USGS Quadrangle Name: Fireside NRCS Soil Map Page: NRCS Soil Map Stream Order		
County: Seneca Township / City:		
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/16 Quantity: 0.06		
Photograph Information: 2 photos taken, 1 looking downstream and 1 upstream		
Elevated Turbidity? (Y/N): N Canopy (% open): 100%		
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:		
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)		
Is the sampling reach representative of the stream (Y/N) If not, please explain:		
Additional comments/description of pollution impacts:		
Located near active crop areas and a road.		
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N		

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





PHWH Form Page - 2



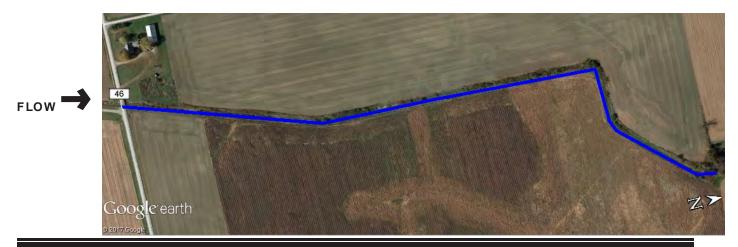


### **ChioEPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 27

An an Damakalia Mi		
SITE NAME/LOCATION Apex Republic Wi	DH-051     RIVER BASIN     Beaver Creek     DRAINAGE AREA (mi²)     4.0	12
SITE NUMBER DO		JZ
LENGTH OF STREAM REACH (ft) 3,091 DATE 10/04/16 SCORER BJS		
NOTE: Complete All Items On This Form	I - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction of the stream of t	ctions
STREAM CHANNEL NONE / NAT MODIFICATIONS:	URAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	VERY
· ·	ry type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
· · · · · ·	ant substrate types found (Max of 8). Final metric score is sum of boxes A & B. <b>RCENT TYPE PERCENT</b>	Metri
BLDR SLABS [16 pts]	0% SILT [3 pt] 50%	Point
BOULDER (>256 mm) [16 pts]	0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           0%         FINE DETRITUS [3 pts]         0%	Substra
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts]	5% MUCK [0 pts] 0%	12
SAND (<2 mm) [6 pts]	45% ARTIFICIAL [3 pts] 0%	
Total of Percentages of <b>D</b> . Bldr Slabs, Boulder, Cobble, Bedrock	.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBS	IRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the ma	aximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool De
evaluation. Avoid plunge pools from road		Max = 3
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	> 5 cm - 10 cm [15 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	0
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 0	
		Bankfu
3. BANK FULL WIDTH (Measured as the a > 4.0 meters (> 13') [30 pts]	average of 3-4 measurements)         (Check ONLY one box):           Image: 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	≤ 1.0 m (<=3' 3") [5 pts]	Max=30
		4 -
	AVERAGE BANKFULL WIDTH (meters): 1.10	15
a	This information must also be completed	
RIPARIAN ZONE AND FLOODP	This information <u>must</u> also be completed LAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH	FLOODPLAIN QUALITY	
L R (Per Bank)	L R (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	Immature Forest, Shrub or Old	
Narrow <5m	Field Open Pasture, Row Crop	)
Narrow <5m	Residential, Park, New Field   Image: Construction	
	ibarian veg on left bank, voung willows and shrubs.	
FLOW REGIME (At Time of Eval	uation) (Check ONLY one box):	
Stream Flowing	Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pool COMMENTS	s (Interstitial) Dry channel, no water (Ephemeral)	
	r 61 m (200 ft) of abaptal) (Check ON Vara bay)	
None None	er 61 m (200 ft) of channel) (Check ONLY one box): 1.0	
	1.5 🗌 2.5 🔲 >3	
0.5	1.5	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:Fireside NRCS Soil Map P	age: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/16	Quantity: 0.06
Photograph Information: 2 photos taken, 1 looking downstream and 1 upstream	
Elevated Turbidity? (Y/N): _ N Canopy (% open): 85%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	
Additional comments/description of pollution impacts:	
Located near active crop areas.	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Prin	
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrate	Voucher? (Y/N)
Comments Regarding Biology:	

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



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## **ChioEPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 17

	ind Farm	
SITE NAME/LOCATION Apex Republic Wi		.19
	LAT. 41.19150 LONG82.95760 RIVER CODE RIVER MILE	
DATE 10/05/16 SCORER BJS	COMMENTS	
	n - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	uctions
·		
MODIFICATIONS:		012111
1. SUBSTRATE (Estimate percent of ever	ry type of substrate present. Check ONLY two predominant substrate TYPE boxes	
	ant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric
TYPE PE BLDR SLABS [16 pts]	RCENT         TYPE         PERCENT           0%         I         SILT [3 pt]         50%	Points
BOULDER (>256 mm) [16 pts]	0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Substrate
BEDROCK [16 pt]	0%         Image: Fine detritus [3 pts]         0%           0%         Image: CLAY or HARDPAN [0 pt]         0%	Max = 40
	10%         Image: Multiple fill         0%           10%         Image: Multiple fill         0%	
	<b>40%</b> ARTIFICIAL [3 pts] <b>0%</b>	12
Total of Percentages of <b>0</b> .	.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	Check	
2. Maximum Pool Depth (Measure the ma	aximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road	culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	0
OMMENTS Moist channel	MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured as the	average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] < 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPI		Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] $\leq$ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]           COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS           COMMENTS           RIPARIAN ZONE AND FLOODPI RIPARIAN WIDTH (Per Bank)	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]           COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPI RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m ✓ ✓ None	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPI RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPI RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m ✓ None COMMENTS FLOW REGIME (At Time of Evaluation of Evalu	Image: Solution of the system of the sys	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPI RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m ✓ None COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPI RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m ✓ None COMMENTS FLOW REGIME (At Time of Evaluation of Evalua	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPI         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         ✓       None         COMMENTS         ✓       None         COMMENTS         FLOW REGIME (At Time of Evalue         Stream Flowing         Subsurface flow with isolated pools         COMMENTS         SINUOSITY (Number of bends per	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPI         RIPARIAN WIDTH         L R (Per Bank)         Wide >10m         Moderate 5-10m         ✓ None         COMMENTS         FLOW REGIME (At Time of Evalue         Stream Flowing         Subsurface flow with isolated pools         COMMENTS_	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPI         RIPARIAN WIDTH         L R (Per Bank)         Wide >10m         Moderate 5-10m         ✓ None         COMMENTS         FLOW REGIME (At Time of Evalue         Stream Flowing         Subsurface flow with isolated pool:         COMMENTS         SINUOSITY (Number of bends per None	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name:	Distance from Evaluated Stream	
CWH Name:	Distance from Evaluated Stream	
EWH Name:	Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: Fireside	NRCS Soil Map Page: NRCS Soil Map Stream Order	
County: Seneca Tow	wnship / City:	
MISCELLANEOUS		
Base Flow Conditions? (Y/N):_Y Date of last precipitation:_	10/02/16 Quantity: 0.06	
Photograph Information: 2 photos taken, 1 looking upstream an	d 1 looking downstream	
Elevated Turbidity? (Y/N): N Canopy (% open): 1	00%	
Were samples collected for water chemistry? (Y/N): N (Note	lab sample no. or id. and attach results) Lab Number:	
	pH (S.U.) Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream $(Y/N)$ If r	not, please explain:	
Additional comments/description of pollution impacts:		
Located near active crop areas and a road.		
BIOTIC EVALUATION		
Performed? (Y/N): (If Yes, Record all observations. Vou	cher collections optional. NOTE: all voucher samples must be labeled with the site	
ID number. Include appropriate field of	data sheets from the Primary Headwater Habitat Assessment Manual)	
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamander: Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) A	s Observed? (Y/N) N Voucher? (Y/N) N voucher? (Y/N) Voucher? (Y/N) N Voucher? (Y/N) N	
Comments Regarding Biology:		

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





PHWH Form Page - 2





## **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 18

SITE NAME/LOCATION Apex Republic W	ind Farm	
	OH-057 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²)	).16
LENGTH OF STREAM REACH (ft) 925	LAT. 41.18995 LONG82.94244 RIVER CODE RIVER MILE	
DATE 10/05/16 SCORER BJS	COMMENTS	
NOTE: Complete All Items On This Form	n - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NAT	URAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC	OVERY
	ry type of substrate present. Check ONLY two predominant substrate TYPE boxes	
	ant substrate types found (Max of 8). Final metric score is sum of boxes A & B. ERCENT TYPE PERCENT	HHEI   Metric
BLDR SLABS [16 pts]	0% SILT [3 pt] 50%	Points
BOULDER (>256 mm) [16 pts]	0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%           0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts]	0% □□ CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	5% MUCK [0 pts] 0%	13
SAND (<2 mm) [6 pts]	<b>40%</b> ARTIFICIAL [3 pts] <b>0%</b>	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBS	TRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the ma	aximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road	d culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]	
□ > 10 - 22.5 cm [25 pts]		0
OMMENTS Moist channel	MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured as the		Bankfull
> 4.0 meters (> 13') [30 pts]	average of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
	average of 3-4 measurements) (Check ONLY one box):	Bankfull Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul>	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m       - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ✓       ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	average of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul>	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m       - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ✓       ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>4.0 meters (&gt; 13') [30 pts]</li> <li>3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul>	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul> COMMENTS	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODP <u>RIPARIAN WIDTH</u>	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODP <u>RIPARIAN WIDTH</u> L R (Per Bank)	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH (Per Bank) Wide >10m	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m ✓ None	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS <b>RIPARIAN ZONE AND FLOODP</b> <u>RIPARIAN WIDTH</u> L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	average of 3-4 measurements)       (Check ONLY one box):	width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> <li>COMMENTS</li> <li>RiPARIAN ZONE AND FLOODP <u>RIPARIAN WIDTH</u>         L R (Per Bank)         Wide &gt;10m         Moderate 5-10m         Moderate 5-10m         Narrow &lt;5m         ✓ None         COMMENTS         <p>FLOW REGIME (At Time of Eval Stream Flowing     </p></li> </ul>	average of 3-4 measurements)       (Check ONLY one box):	width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODP         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         ✓       Narrow <5m	average of 3-4 measurements)       (Check ONLY one box):	width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         COMMENTS         RIPARIAN ZONE AND FLOODP         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 1.0 m (<=3' 3") [5 pts]	width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul> <b>RIPARIAN ZONE AND FLOODP</b> <u>RIPARIAN WIDTH</u> L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m ✓ None COMMENTS <b>FLOW REGIME</b> (At Time of Eval Stream Flowing Subsurface flow with isolated pool COMMENTS_ SINUOSITY (Number of bends points)	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/16 Quantity: 0.06
Photograph Information: 1 looking downstream
Elevated Turbidity? (Y/N): Canopy (% open): _ 100%
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas and a road.
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/
Comments Regarding Biology:
· · · · · · · · · · · · · · · · · · ·

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



Save as pdf Reset Form

## **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

33

SITE NAME/LOCATION       Apex Republic Wind Farm	5.07
LENGTH OF STREAM REACH (fft) 3,753 LAT. 41.22082 LONG82.91110 RIVER CODE RIVER MILE	
DATE 10/05/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
· · · · · · · · · · · · · · · · · · ·	
<b>STREAM CHANNEL</b> NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC MODIFICATIONS:	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	uue
(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	HHE Metri
BLDR SLABS [16 pts] 0% SILT [3 pt] 50%	Point
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substra
BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%           COBBLE (65-256 mm) [12 pts]         0%         CLAY or HARDPAN [0 pt]         0%	Max = 4
GRAVEL (2-64 mm) [9 pts]         5%         MUCK [0 pts]         0%	12
□         ✓         SAND (<2 mm) [6 pts]	13
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock Bdrock Gheck TOTAL NUMBER OF SUBSTRATE TYPES: 9	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max = 3
> 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]         □ > 22.5 - 30 cm [30 pts]       □ < 5 cm [5 pts]	
□ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	0
OMMENTS Moist channel MAXIMUM POOL DEPTH (centimeters): 0	
	<u> </u>
BANK FULL WIDTH (Measured as the average of 3-4 measurements)         (Check ONLY one box):           > 4.0 meters (> 13') [30 pts]         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful Width
$ = 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] $	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 2.40	20
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY 작NOTE: River Left (L) and Right (R) as looking downstream分	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial	
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial	op
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Y       Narrow <5m	qq
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	-
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Moderate 5-10m       Residential, Park, New Field       Open Pasture, Row Cross         Narrow <5m	-
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         ✓       Narrow <5m	-
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Moderate 5-10m       Residential, Park, New Field       Open Pasture, Row Cross         Narrow <5m	-
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Moderate 5-10m       Residential, Park, New Field       Open Pasture, Row Crow         Narrow <5m	-
Wide >10m       Image Mature Forest, Wetland       Image Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old         Image Moderate 5-10m       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old         Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old         Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old         Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old         Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old         Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Immature Forest, Shrub or Old       Open Pasture, Row Crow         Immature Forest, Shrub or Forest, Shrub or Old       Immature Forest, Shrub or Sh	-
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Vide >10m       Residential, Park, New Field       Open Pasture, Row Cropping         None       Fenced Pasture       Mining or Construction         COMMENTS       Mining of Evaluation       (Check ONLY one box):         Stream Flowing       Subsurface flow with isolated pools (Interstitial)       Moist Channel, isolated pools, no flow (Intermittent)         COMMENTS       SINUOSITY (Number of bends per 61 m (200 ft) of channel)       (Check ONLY one box):	-

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Cor	npleted QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Dist	ance from Evaluated Stream
CWH Name: Dista	ance from Evaluated Stream
EWH Name: Dista	nce from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil Map Page:	NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/16 Q	uantity: 0.06
Photograph Information: 1 looking across stream at typical section.	
Elevated Turbidity? (Y/N): Canopy (% open):100%	
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id. and atta	ach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Located near active crop areas.	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTI ID number. Include appropriate field data sheets from the Primary H	
N N N	ucher? (Y/N)
Comments Regarding Biology:	

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



PHWH Form Page - 2

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### **ChioEPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) :

33

SITE NAME/LOCATION       Apex Republic Wind Farm         SITE NUMBER       DOH-059       RIVER BASIN       Pickerel Creek       DRAINAGE AREA (mi²)       1.90         LENGTH OF STREAM REACH (ft)       4,369       LAT.       41.26611       LONG.       -82.90526       RIVER CODE       RIVER MILE         DATE       10/05/16       SCORER       BJS       COMMENTS       COMMENTS	
LENGTH OF STREAM REACH (ft) 4,369 LAT. 41.26611 LONG82.90526 RIVER CODE RIVER MILE DATE 10/05/16 SCORER BJS COMMENTS	0
DATE 10/05/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions
STREAM CHANNEL INONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOV	'ERY
I. 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	HHE Metr
BLDR SLABS [16 pts] 0% SILT [3 pt] 50%	Poin
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%         5%	Substr
	Max =
GRAVEL (2-64 mm) [9 pts]         5%         MUCK [0 pts]         0%	12
SAND (<2 mm) [6 pts]         40%         ARTIFICIAL [3 pts]         0%	13
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock Bldr Slabs, Boulder, Cobble, Bedrock Bldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 9	
Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	ool De
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max =
> 30 centimeters [20 pts]       ✓       > 5 cm -       10 cm [15 pts]         □       > 22.5 - 30 cm [30 pts]       □       < 5 cm [5 pts]	
□ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	15
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 10	
BANK FULL WIDTH (Measured as the average of 3-4 measurements)         (Check ONLY one box):           > 4.0 meters (> 13') [30 pts]         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfe Width
$2.3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}]$	Max=3
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.90	5
This information <u>must</u> also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old	
Narrow <5m	
COMMENTS Between crop areas.	
COMMENTS Between crop areas.	
COMMENTS       Between crop areas.         FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing    Moist Channel, isolated pools, no flow (Intermittent)	
COMMENTS       Between crop areas.         FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing         Subsurface flow with isolated pools (Interstitial)    Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
COMMENTS Between crop areas. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS	
COMMENTS       Between crop areas.         FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing         Subsurface flow with isolated pools (Interstitial)    Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
COMMENTS Between crop areas. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)		
DOWNSTREAM DESIGNATED USE(S)		
WWH Name:	_ Distance from Evaluated Stream	
CWH Name: Distance from Evaluated Stream		
EWH Name:	Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENT	IRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: Clyde	NRCS Soil Map Page: NRCS Soil Map Stream Order	
County: Sandusky Townsh	p / City:	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation:	10/02/16 Quantity: 0.06	
Photograph Information: 1 looking downstream.		
Elevated Turbidity? (Y/N): N Canopy (% open): 100%		
Were samples collected for water chemistry? (Y/N): (Note lab	sample no. or id. and attach results) Lab Number:	
	pH (S.U.) Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream $(Y/N)$ If not, p	lease explain:	
Additional comments/description of pollution impacts:		
Located near active crop areas.		
Performed? (Y/N): (If Yes, Record all observations. Voucher of	collections optional. NOTE: all voucher samples must be labeled with the site	
	heets from the Primary Headwater Habitat Assessment Manual)	
Fish Observed? (Y/N)     N     Voucher? (Y/N)     N     Salamanders Observed?       Frogs or Tadpoles Observed? (Y/N)     N     Voucher? (Y/N)     N     Aquation	served? (Y/N) Voucher? (Y/N) Voucher? (Y/N) N	
Comments Regarding Biology:		

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



PHWH Form Page - 2

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## **ChioEPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 52

SITE NAME/LOCATION Apex republic Wind Farm	
SITE NUMBER DOH-100 RIVER BASIN Spicer Creek DRAINAGE AREA (mi²)	0.21
LENGTH OF STREAM REACH (ft) 460 LAT. 41.21393 LONG83.12249 RIVER CODE RIVER MILE	
DATE 04/08/17 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERED	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Nav of 22). Add tatal number of circuiticant substrate type found (Nav of 2). Final matrix again of have a 4.8 B	HHEI
(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	Metric
BLDR SLABS [16 pts]         0%         SILT [3 pt]         75%           BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%	Points
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]       0%       CLAY or HARDPAN [0 pt]       0%         GRAVEL (2-64 mm) [9 pts]       5%       MUCK [0 pts]       0%	
□       GRAVEL (2-64 mm) [9 pts]       5%       □       MUCK [0 pts]       0%         □       ✓       SAND (<2 mm) [6 pts]	12
Total of Percentages of 0.00% (A) Substrate Percentage 10.0% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock Bdrock Check TOTAL NUMBER OF SUBSTRATE TYPES: 9	
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft</i> ) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
	25
OMMENTS       Fed by pond; depth estimated       MAXIMUM POOL DEPTH (centimeters):       15	
BANK FULL WIDTH (Measured as the average of 3-4 measurements)         (Check ONLY one box):           > 4.0 meters (> 13') [30 pts]         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.20	15
This information <u>must</u> also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	
RIPARIAN ZONE AND FLOODPLAIN QUALITY       NOTE: River Left (L) and Right (R) as looking downstream         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L R       (Per Bank)       L R	
RIPARIAN ZONE AND FLOODPLAIN QUALITY       ☆NOTE: River Left (L) and Right (R) as looking downstream ☆         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L       R (Per Bank)       L         Wide >10m       Mature Forest, Wetland         L       R (Most Predominant per Bank)       L         R       Wide >10m       Mature Forest, Wetland       Conservation Tillage	
RIPARIAN ZONE AND FLOODPLAIN QUALITY       ☆NOTE: River Left (L) and Right (R) as looking downstream ☆         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L       R       (Per Bank)       L       R         Wide >10m       L       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       L       Immature Forest, Shrub or Old       Urban or Industrial	rop
RIPARIAN ZONE AND FLOODPLAIN QUALITY       NOTE: River Left (L) and Right (R) as looking downstream ☆         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L R       (Per Bank)       L R       (Most Predominant per Bank)       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	
RIPARIAN ZONE AND FLOODPLAIN QUALITY       ☆NOTE: River Left (L) and Right (R) as looking downstream ☆         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L       R       (Per Bank)       L       R         Wide >10m       L       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       L       Immature Forest, Shrub or Old       Urban or Industrial	
RIPARIAN ZONE AND FLOODPLAIN QUALITY       NOTE: River Left (L) and Right (R) as looking downstream & RIPARIAN WIDTH         L       R       (Per Bank)       L       R       (Most Predominant per Bank)       L       R         Wide >10m       Mature Forest, Wetland       Conservation Tillage       Urban or Industrial         Moderate 5-10m       Immature Forest, Shrub or Old Field       Urban or Industrial       Open Pasture, Row C         Narrow <5m	
RIPARIAN ZONE AND FLOODPLAIN QUALITY       NOTE: River Left (L) and Right (R) as looking downstream A         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L R       (Per Bank)       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	
RIPARIAN ZONE AND FLOODPLAIN QUALITY         ARIPARIAN WIDTH       FLOODPLAIN QUALITY         L       R         (Per Bank)       L         Wide >10m       Mature Forest, Wetland         Moderate 5-10m       Immature Forest, Shrub or Old         Field       Urban or Industrial         Narrow <5m	
RIPARIAN ZONE AND FLOODPLAIN QUALITY         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L       R         (Per Bank)       L         Wide >10m       Mature Forest, Wetland         Moderate 5-10m       Immature Forest, Shrub or Old         Narrow <5m	
RIPARIAN ZONE AND FLOODPLAIN QUALITY       Image: River Left (L) and Right (R) as looking downstream in the read of the re	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	<u>_</u>
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, A	ttach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	_ Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSH	ED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map	Page: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): Y Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id	I. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream $(Y/N)$ If not, please explain:	
Additional comments/description of pollution impacts:	
Located within active grazing area with water source being pond POH-001	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the F	nal. NOTE: all voucher samples must be labeled with the site Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinverteb	Voucher? (Y/N) N rates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	

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





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### **ChieEPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) :

37

SITE NAME/LOCATION Apex republic Wind Farm	
SITE NUMBER DOH-101 RIVER BASIN Indian Creek DRAINAGE AREA (mi <sup>2</sup> )	.69
LENGTH OF STREAM REACH (ft) 2,635 LAT. 41.22291 LONG83.11232 RIVER CODE RIVER MILE	
DATE 04/08/17 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
·	
STREAM CHANNEL INONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(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	Metric
BLDR SLABS [16 pts]         0%         SILT [3 pt]         50%           BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 40%	Max = 40
GRAVEL (2-64 mm) [9 pts]       5%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	7
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 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	Pool Dept
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts]  > 5 cm - 10 cm [15 pts]	Max = 30
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
□         > 10 - 22.5 cm [25 pts]         □         NO WATER OR MOIST CHANNEL [0 pts]	15
OMMENTS MAXIMUM POOL DEPTH (centimeters): 10	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>✓ &gt; 1.0 m (&lt; 3' 3") [5 pts]</li> </ul>	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.20	15
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 (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial	
	a
	ዯ
V None Fenced Pasture Mining or Construction COMMENTS Sits between road and crop area	
	-
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)	
	-
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):          None       1.0       2.0       3.0	
$\square 0.5 \qquad \square 1.5 \qquad \square 2.5 \qquad \square >3$	
STREAM GRADIENT ESTIMATE	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach C	ompleted QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Di	stance from Evaluated Stream
CWH Name: Dis	tance from Evaluated Stream
EWH Name: Dis	tance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED ARE	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:Watson NRCS Soil Map Page:	NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_Y Date of last precipitation:	Quantity:
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): Y Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and a	ttach results) Lab Number:
	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Nearby road and crop areas	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NO ID number. Include appropriate field data sheets from the Primary	
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates O	/oucher? (Y/N) N bserved? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	
1	

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



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**Reset Form** 

## **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

20

SITE NAME/LOCATION Apex republic Wind Farm	
SITE NUMBER_DOH-103 RIVER BASIN Indian Creek DRAINAGE AREA (mi	0.77
LENGTH OF STREAM REACH (ft) 1,255 LAT. 41.22447 LONG83.09795 RIVER CODE RIVER MIL	
DATE 04/08/17 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for It	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO P	ECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxe	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHE   Metri
TYPE         PERCENT         TYPE         PERCENT           BLDR SLABS [16 pts]         0%         ✓         SILT [3 pt]         80%	Poin
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Substra
BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%           COBBLE (65-256 mm) [12 pts]         0%         CLAY or HARDPAN [0 pt]         0%	Max = 4
$\Box \checkmark GRAVEL (2-64 mm) [9 pts] \qquad \Box \checkmark GRAVEL (2-64 mm) [9 pts] \qquad \Box \checkmark MUCK [0 pts] \qquad \Box \land MU$	
SAND (<2 mm) [6 pts]	15
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A+B
Bldr Slabs, Boulder, Cobble, Bedrock ISB CORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft</i> ) evaluation reach at the time of	Pool De
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 3
$\square > 22.5 - 30 \text{ cm} [30 \text{ pts}]$	
□         > 10 - 22.5 cm [25 pts]         ✓         □         NO WATER OR MOIST CHANNEL [0 pts]	_    O
OMMENTS MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfu
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] ✓ ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.0	5
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L_R     (Per Bank)     L_R       (Most Predominant per Bank)     L_R	
Wide >10m Mature Forest, Wetland Conservation Tillag	3
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Field	
Narrow <5m Residential, Park, New Field Open Pasture, Rov	Crop
None Fenced Pasture Mining or Construc	ion
COMMENTS Sits between crop areas	
<b>FLOW REGIME</b> (At Time of Evaluation) (Check ONLY one box):	
<ul> <li>Stream Flowing</li> <li>Subsurface flow with isolated pools (Interstitial)</li> <li>Moist Channel, isolated pools, no flow (Intermit Dry channel, no water (Ephemeral)</li> </ul>	ent)
COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Att	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	_ Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	DAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map	Page: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/05/17	Quantity: 0.54
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Nearby road and crop areas	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the P	•
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N)
Comments Regarding Biology:	

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



PHWH Form Page - 2

Save as pdf Reset Form

### **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

45

SITE NAME/LOCATION Apex republic Wind Farm	
SITE NUMBER DOH-104 RIVER BASIN Spicer Creek DRAINAGE AREA (mi <sup>2</sup>	0.04
LENGTH OF STREAM REACH (ft) 1,353 LAT. 41.21185 LONG83.09044 RIVER CODE RIVER MILE	
DATE 04/08/17 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for In	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO R	ECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	, HHEI
(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	Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 80%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]     15%     MUCK [0 pts]     0%       SAND (<2 mm) [6 pts]	15
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts]	Max = 30
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
□ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	15
OMMENTS MAXIMUM POOL DEPTH (centimeters): 10	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts]	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts]	Width
$ \begin{array}{ c c c c c } \hline & > 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ \hline & > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline & \leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline \end{array} $	Width Max=30
$ \begin{array}{ c c c c c } &> 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ &> 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \end{array} $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
$ \begin{array}{c} \begin{array}{c} > 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7'' - 13') [25 \text{ pts}] \\ > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7'' - 4' 8'') [20 \text{ pts}] \end{array} \end{array} $	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 15 Crop
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 15 Crop
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 15 
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 15 Crop

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/05/17 Quantity: 0.54
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): Canopy (% open):100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Nearby road and crop areas
BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouche
Comments Regarding Biology:

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





# **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 52

SITE NAME/LOCATION Apex Republic Wind Farm	
	0.48
LENGTH OF STREAM REACH (ft) 2,307 LAT. 41.20330 LONG83.09171 RIVER CODE RIVER MILE	
DATE 04/08/17 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RE	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(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	Metric
□         BLDR SLABS [16 pts]         0%         ✓         SILT [3 pt]         90%           □         BOULDER (>256 mm) [16 pts]         0%         □         LEAF PACK/WOODY DEBRIS [3 pts]         0%	Points
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]       0%       CLAY or HARDPAN [0 pt]       0%         GRAVEL (2-64 mm) [9 pts]       5%       MUCK [0 pts]       0%	
□       GRAVEL (2-64 mm) [9 pts]       5%       □       MUCK [0 pts]       0%         □       ✓       SAND (<2 mm) [6 pts]	12
Total of Percentages of a const (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	ATD
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft)</i> evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check <i>ONLY</i> one box):	Pool Depth Max = 30
> 30 centimeters [20 pts]       > 5 cm -       10 cm [15 pts]         □       > 22.5 - 30 cm [30 pts]       □       < 5 cm [5 pts]	
✓       ✓	25
OMMENTSMAXIMUM POOL DEPTH (centimeters): 20	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts]	Width
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]             ≤ 1.0 m (<=3' 3") [5 pts]	Width
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul>	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
$ \begin{array}{ c c c c c c } \hline & > 4.0 \text{ meters } (> 13') [30 \text{ pts}] \\ \hline > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \\ \hline & \\ \hline \hline & \\ \hline & \\ \hline & \\ \hline \hline \\ \hline & \\ \hline \hline & \\ \hline \hline & \\ \hline \hline & \\ \hline \hline \hline \\ \hline \hline & \\ \hline \hline & \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \hline$	Width Max=30
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Width Max=30
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also	be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE EN	TIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Townsh	nip / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y _ Date of last precipitation:	04/05/17 Quantity: 0.54
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 1009	6
Were samples collected for water chemistry? (Y/N): (Note lab	sample no. or id. and attach results) Lab Number:
	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream $(Y/N)$ If not,	please explain:
Additional comments/description of pollution impacts:	
Nearby road and crop areas	
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher	collections optional. NOTE: all voucher samples must be labeled with the site
	sheets from the Primary Headwater Habitat Assessment Manual)
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquati	c Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	

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



PHWH Form Page - 2



# ChioEPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 22

SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-106 RIVER BASIN Sugar Creek DRAINAGE AREA (mi	<sup>2</sup> ) <b>0.00</b>
LENGTH OF STREAM REACH (ft) 664 LAT. 41.19786 LONG83.09970 RIVER CODE RIVER MIL	
DATE 04/08/17 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for I	nstructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO MODIFICATIONS:	RECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxe	es
(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	HHEI   Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 80%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts]         0%         CLAY or HARDPAN [0 pt]         0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 5% MUCK [0 pts] 0%	12
SAND (<2 mm) [6 pts]	
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
<ol> <li>Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of</li> </ol>	Pool Dept
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]         NO WATER OR MOIST CHANNEL [0 pts]	_    5
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 5	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.0 m (&lt;=3' 3") [5 pts]</li> </ul>	Width Max=30
> 1.5 m - 3.0 m (> 9' 7' - 4' 8") [20 pts]	
	Wax=30
COMMENTSAVERAGE BANKFULL WIDTH (meters): 0.9 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY XNOTE: River Left (L) and Right (R) as looking downstreams	0 5
COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.9 This information <u>must</u> also be completed	0 5
COMMENTS       AVERAGE BANKFULL WIDTH (meters):       0.9         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY       NOTE: River Left (L) and Right (R) as looking downstreams         RIPARIAN WIDTH       FLOODPLAIN QUALITY       NOTE: River Left (L) and Right (R) as looking downstreams         L       R       (Per Bank)       L       R         U       Wide >10m       Mature Forest, Wetland       Conservation Tillage	0 5
AVERAGE BANKFULL WIDTH (meters):         O.9         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY         AVERAGE BANKFULL WIDTH (meters):       0.9         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L       R       (Per Bank)       L         Mide >10m       Mature Forest, Wetland       Conservation Tillage         Immature Forest, Shrub or Old       Urban or Industrial	0 5
AVERAGE BANKFULL WIDTH (meters):         O.9         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY         MOTE: River Left (L) and Right (R) as looking downstreams         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L       R         (Per Bank)       L         Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old	0 5
AVERAGE BANKFULL WIDTH (meters):         COMMENTS         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY         PLPARIAN WIDTH       FLOODPLAIN QUALITY         L       R         (Per Bank)       L         Wide >10m       Mature Forest, Wetland         Vide >10m       Immature Forest, Shrub or Old         Vide >10m       Immature Forest, Shrub or Old         Moderate 5-10m       Residential, Park, New Field         Narrow <5m	0 5
AVERAGE BANKFULL WIDTH (meters):         COMMENTS         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY         PLOODPLAIN QUALITY       PLOODPLAIN QUALITY         PLOOD       PLOODPLAIN QUALITY         PLOOD       PLOOD         PLOOD	0 5
AVERAGE BANKFULL WIDTH (meters):         COMMENTS         This information must also be completed         RIPARIAN ZONE AND FLOODP LAIN QUALITY         Charles and the state of the state	0 5
AVERAGE BANKFULL WIDTH (meters):         COMMENTS         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY         AVERAGE BANKFULL WIDTH       (R) as looking downstreams         RIPARIAN WIDTH       FLOODPLAIN QUALITY         AVERAGE BANKFULL WIDTH       (R) as looking downstreams         RIPARIAN WIDTH       FLOODPLAIN QUALITY         Wide >10m       Mature Forest, Wetland         Wide >10m       Mature Forest, Shrub or Old         Wide >10m       Immature Forest, Shrub or Old         Wide >10m       Field         Narrow <5m	0 5
COMMENTS       AVERAGE BANKFULL WIDTH (meters):       0.9         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY       ANOTE: River Left (L) and Right (R) as looking downstreams         RIPARIAN WIDTH       FLOODPLAIN QUALITY       ANOTE: River Left (L) and Right (R) as looking downstreams         RIPARIAN WIDTH       FLOODPLAIN QUALITY       Conservation Tillage         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	0 5
AVERAGE BANKFULL WIDTH (meters):         D.9         This information must also be completed         RIPARIAN ZONE AND FLOODP LAIN QUALITY         L       R         PARIAN WIDTH       FLOODPLAIN QUALITY         L       R         (Per Bank)       L         Moderate 5-10m       Mature Forest, Wetland         Ripartial       Moderate 5-10m         Moderate 5-10m       Field         Narrow <5m	0 5
AVERAGE BANKFULL WIDTH (meters):         COMMENTS         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY         Image: Riparian width       Image: Riparian width         Riparian width       Riparian width         Riparian width       Riparian width         Riparian width       Riparian width <t< td=""><td>0 5</td></t<>	0 5
AVERAGE BANKFULL WIDTH (meters):         COMMENTS         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY INOTE: River Left (L) and Right (R) as looking downstream:         RIPARIAN WIDTH       FLOODPLAIN QUALITY         L       R         (Per Bank)       L         Wide >10m       Mature Forest, Wetland         Wide >10m       Immature Forest, Shrub or Old         Wide >10m       Immature Forest, Shrub or Old         Wature Forest, Shrub or Old       Urban or Industrial         Field       Open Pasture, Row         None       Fenced Pasture         None       Fenced Pasture         Moist Channel, isolated pools, no flow (Intermi         COMMENTS       Subsurface flow with isolated pools (Interstitial)         COMMENTS       Most Channel, isolated pools, no flow (Intermi         Dry channel, no water (Ephemeral)       COMMENTS         SINUOSITY (Number of bends per 61 m (200 ft) of channel)       (Check ONLY one box):         None       1.0       2.0       3.0	0 5

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/05/17 Quantity: 0.54
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): _ N Canopy (% open): _ 40%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Nearby road and crop areas
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouc
Comments Regarding Biology:

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





# ChiefPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 22

SITE NAME/LOCATION Apex Republic Wir	nd Farm	
		DRAINAGE AREA (mi²) 0.00
	AT. 41.19783 LONG83.09965 RIVER CODE	
DATE 04/08/17 SCORER BJS	COMMENTS	
NOTE: Complete All Items On This Form	- Refer to "Field Evaluation Manual for Ohio's P	HWH Streams" for Instructions
STREAM CHANNEL NONE / NATU MODIFICATIONS:		RECENT OR NO RECOVERY
1. SUBSTRATE (Estimate percent of every	v type of substrate present. Check ONLY two predomina	ant substrate TYPE boxes
(Max of 32). Add total number of significar	t substrate types found (Max of 8). Final metric score is s	um of boxes A & B.
	RCENT TYPE 0%	80%
	LEAF PACK/WOODY DEBRIS	[3 pts] 0%
		0% Substra
	D%         CLAY or HARDPAN [0 pt]           5%         MUCK [0 pts]	0%
	5% ARTIFICIAL [3 pts]	0%
		(B) A + B
Bldr Slabs, Boulder, Cobble, Bedrock	Check 100%	
SCORE OF TWO MOST PREDOMINATE SUBSTI	RATE TYPES: 9 TOTAL NUMBER OF SUE	STRATE TYPES: 3
• •	kimum pool depth within the 61 meter (200 ft) evaluati	
evaluation. Avoid plunge pools from road of > 30 centimeters [20 pts]	culverts or storm water pipes) (Check ONLY one box): > 5 cm - 10 cm [15 pts	Max =
> 22.5 - 30 cm [30 pts]	5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]		T CHANNEL [0 pts] 5
OMMENTS	MAXIMUM POOL DEP	FH (centimeters): 5
3 BANK FULL WIDTH (Measured as the a	verage of 3-4 measurements) (Check ONLY o	ne box): Bankfi
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") ✓ ≤ 1.0 m (<=3' 3") [5 pts]	[15 pts] Width Max=3
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS	AVERAGE BANKFULL	WIDTH (meters): 0.90 5
	This information must also be completed	
RIPARIAN ZONE AND FLOODPL	AIN QUALITY ANOTE: River Left (L) and Right (R)	as looking downstream 🛠
<u>RIPARIAN WIDTH</u> L R (Per Bank)	FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R	
Wide >10m	Mature Forest, Wetland	Conservation Tillage
Moderate 5-10m	Immature Forest, Shrub or Old	Urban or Industrial
Narrow <5m	Residential, Park, New Field	Open Pasture, Row Crop
	Fenced Pasture	Mining or Construction
COMMENTS Farm road draina		
FLOW REGIME (At Time of Evalu	ation) (Check ONLY one box):	
Stream Flowing	Moist Channel, isolate	d pools, no flow (Intermittent)
Subsurface flow with isolated pools COMMENTS	(Interstitial) Dry channel, no water	
SINI IOSITY (Number of bords pe	<sup>r</sup> 61 m (200 ft) of channel) <u>(C</u> heck ONLY one box):	
None	1.0 $\Box$ 2.0	3.0
0.5	1.5 2.5	>3
STREAM GRADIENT ESTIMATE		

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Attach C	completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: D	istance from Evaluated Stream
	stance from Evaluated Stream
EWH Name: Di	stance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AR	EA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map Page:	NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/05/17	Quantity: 0.54
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 40%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and a	attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Nearby road and crop areas	
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NC	)TE: all youcher samples must be labeled with the site
ID number. Include appropriate field data sheets from the Primary	•
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates C	Voucher? (Y/N) N Observed? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	

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





# **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION Apex Republic Wir	nd Farm	
SITE NUMBER DO	DH-108 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.	00
LENGTH OF STREAM REACH (ft) 279	LAT. 41.22916 LONG83.04328 RIVER CODE RIVER MILE	
DATE 04/11/17 SCORER BJS	COMMENTS	
NOTE: Complete All Items On This Form	- Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ictions
STREAM CHANNEL INONE / NATU MODIFICATIONS:	JRAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	OVERY
	y type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
	nt substrate types found (Max of 8). Final metric score is sum of boxes A & B.  RCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	0% SILT [3 pt] 85%	Points
	0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 0%	Max = 40
	5%         0%           10%         ARTIFICIAL [3 pts]         0%	12
Total of Percentages of <b>0.0</b> Bldr Slabs, Boulder, Cobble, Bedrock	00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBST	RATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
	ximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road or > 30 centimeters [20 pts]	culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 22.5 - 30 cm [30 pts]	5 cm [5 pts]	
▶ 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	15
	MAXIMUM POOL DEPTH (centimeters): 10	
3BANK FULL WIDTH (Measured as the a	average of 3-4 measurements) (Check ONLY one box):	Bankfull
		Bankfull Width Max=30
3. BANK FULL WIDTH (Measured as the at > 4.0 meters (> 13') [30 pts]	average of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
<ul> <li>BANK FULL WIDTH (Measured as the ar &gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	average of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Average of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] < 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 2.00	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	Average of 3-4 measurements) (Check ONL Y one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 2.00 This information must also be completed AIN QUALITY \$\stringty NOTE: River Left (L) and Right (R) as looking downstream \$\stringty as a second sec	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS 	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS 	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS 	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLL RIPARIAN WIDTH L R (Per Bank) ✓ Wide >10m ✓ Moderate 5-10m Narrow <5m None	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS 	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODPLL RIPARIAN WIDTH L R (Per Bank) ✓ Wide >10m Moderate 5-10m Narrow <5m None COMMENTS Located in woodl FLOW REGIME (At Time of Evalua	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODPLL RIPARIAN WIDTH L R (Per Bank) ✓ Wide >10m ✓ Moderate 5-10m Marrow <5m None COMMENTS Located in woodI FLOW REGIME (At Time of Evalue Stream Flowing Subsurface flow with isolated pools	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODPLL RIPARIAN WIDTH L R (Per Bank) ✓ Wide >10m ✓ Moderate 5-10m Marrow <5m None COMMENTS Located in woodI FLOW REGIME (At Time of Evalue Stream Flowing	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODPLL RIPARIAN WIDTH L R (Per Bank) ✓ Wide >10m ✓ Moderate 5-10m Marrow <5m None COMMENTS Located in woodI FLOW REGIME (At Time of Evalue Stream Flowing Subsurface flow with isolated pools COMMENTS_ SINUOSITY (Number of bends performed to the stream of	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the ar > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODPLL RIPARIAN WIDTH L R (Per Bank) ✓ Wide >10m ✓ Moderate 5-10m Marrow <5m None COMMENTS COMMENTS Located in woodI FLOW REGIME (At Time of Evalue Stream Flowing Subsurface flow with isolated pools COMMENTS	average of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach	Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name: [	Distance from Evaluated Stream
EWH Name: [	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED A	REA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Pag	e: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/10/17	Quantity: <b>0.09</b>
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): Canopy (% open):5%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and	attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mq/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Nearby crop areas and trash disposal	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. N ID number. Include appropriate field data sheets from the Prima	•
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates	Voucher? (Y/N) N Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
<u> </u>	

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



Save as pdf

**Reset Form** 

## **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 42

SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NAME/LOCATION ADex Republic wind Farm SITE NUMBER DOH-109 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.09	2
LENGTH OF STREAM REACH (ft) 401 LAT. 41.23451 LONG. 83.03599 RIVER CODE RIVER MILE DATE 04/11/17 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructi	lions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVE	ERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	UUEI
	HHEI Netric
BLDR SLABS [16 pts] 0% SILT [3 pt] 80% P	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
	Max = 40
0%	12
SAND (<2 mm) [6 pts]         15%         ARTIFICIAL [3 pts]         0%	12
Total of Percentages of 5.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock 0.0079 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
	ool Dept Max = 30
> 30  centimeters  [20  pts]	
□         > 22.5 - 30 cm [30 pts]         □         < 5 cm [5 pts]	25
	25
OMMIENTS MAXIMUM POOL DEPTH (centimeters):	
	Bankfull
	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS Narrow, recently excavated. AVERAGE BANKFULL WIDTH (meters): 0.50	5
	-
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L     R     (Per Bank)     L     R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
V Narrow <5m V Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes Vo QHEI Score (If Yes, Attack	n Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page	ge: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitation:04/11/17	Quantity: 0.05
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 90%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. an	d attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream $(Y/N)$ If not, please explain:	
Additional comments/description of pollution impacts:	
Nearby crop areas and roads located upstream	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Prim	
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates	Voucher? (Y/N) N s Observed? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	

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



FLOW





# **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 21

SITE NAME/LOCATION Apex Republic Wi	Ind Farm	-
SITE NUMBER_DO		(mi <sup>2</sup> ) <b>0.00</b>
LENGTH OF STREAM REACH (ft) 119	LAT. 41.21454 LONG83.04385 RIVER CODE RIVER	
DATE 04/12/17 SCORER BJS	COMMENTS	
	- Refer to "Field Evaluation Manual for Ohio's PHWH Streams" f	or Instructions
·		
STREAM CHANNEL	URAL CHANNEL RECOVERED RECOVERING RECENT OR	NO RECOVERY
	y type of substrate present. Check ONLY two predominant substrate TYPE	
	nt substrate types found (Max of 8). Final metric score is sum of boxes A & B. RCENT TYPE PERCEN	т I Metr
BLDR SLABS [16 pts]	0% SILT [3 pt] 95%	Poin
BOULDER (>256 mm) [16 pts]	0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           0%         FINE DETRITUS [3 pts]         0%	Substra
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 0%	Max =
GRAVEL (2-64 mm) [9 pts]	0% MUCK [0 pts] 0%	11
SAND (<2 mm) [6 pts]	5% ARTIFICIAL [3 pts] 0%	
Total of Percentages of <b>0</b> . Bldr Slabs, Boulder, Cobble, Bedrock	00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBST		2
	ximum pool depth within the 61 meter (200 ft) evaluation reach at the time	
evaluation. Avoid plunge pools from road > 30 centimeters [20 pts]	culverts or storm water pipes) (Check ONLY one box): > 5 cm - 10 cm [15 pts]	Max =
> 22.5 - 30 cm [30 pts]	S cm [5 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	5
OMMENTS	MAXIMUM POOL DEPTH (centimeters):	5
3. BANK FULL WIDTH (Measured as the	average of 3-4 measurements) (Check ONLY one box):	Bankfu
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=3
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS	AVERAGE BANKFULL WIDTH (meters):	0.50 5
	This information must also be completed	
RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH	LAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstre FLOODPLAIN QUALITY	amx
L R (Per Bank)	L R (Most Predominant per Bank) L R	
Wide >10m	Mature Forest, Wetland Conservation	-
Moderate 5-10m	Field Croan or Indus	
Narrow <5m	Residential, Park, New Field Open Pasture,	Row Crop
	Fenced Pasture Mining or Cons	struction
COMMENTS		
FLOW REGIME (At Time of Eval Stream Flowing	uation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Inte	() () () () () () () () () () () () () (
Subsurface flow with isolated pool		
COMMENTS		
	er 61 m (200 ft) of channel) (Check ONLY one box):	
✓ None	1.0     2.0     3.0       1.5     2.5     >3	
0.5	2.0	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/11/17 Quantity: 0.05
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): _ N Canopy (% open): _ 100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Nearby crop areas and roads.
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the s
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouc
Comments Regarding Biology:

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



PHWH Form Page - 2

Save as pdf

**Reset Form** 

### **ChioEPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 42

SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-111 RIVER BASIN Beaver creek DRAINAGE AREA (mi	<sup>2</sup> ) <b>0.44</b>
LENGTH OF STREAM REACH (ft) 1,289 LAT. 41.21310 LONG83.04054 RIVER CODE RIVER MIL	
DATE 04/12/17 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for I	nstructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO I MODIFICATIONS:	RECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxe	
(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	Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 85%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]       5%       MUCK [0 pts]       0%         Image: Sand (<2 mm) [6 pts]	12
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	25
	25
OMMENTS MAXIMUM POOL DEPTH (centimeters): 15	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):	Bankfull
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ≤ 1.0 m (<=3' 3") [5 pts]	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       ✓       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Width Max=30 0 5
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Width Max=30 0 5
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Width Max=30 5
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         AVERAGE BANKFULL WIDTH (meters):         0.7         This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream         RIPARIAN WIDTH         L R       (Per Bank)         L R       (Most Predominant per Bank)       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	Width Max=30 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       1.0 m (<=3' 3") [5 pts]	Width Max=30 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       1.0 m (<=3' 3") [5 pts]	Width Max=30 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]       > 1.0 m (<=3' 3") [5 pts]	Width Max=30 5

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/11/17 Quantity: 0.05
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Nearby road
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Comments Regarding Biology:

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



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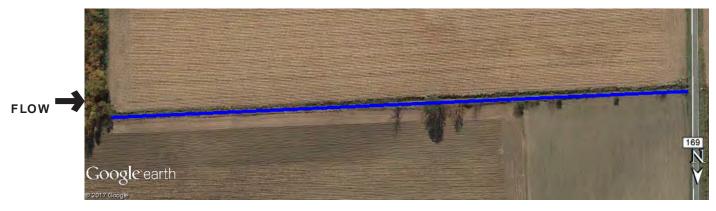


## **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 52

SITE NAWL/LOCATION FOR TOP AND THE	nd Farm	
SITE NAME/LOCATION Apex Republic Win SITE NUMBER DO	H-112 RIVER BASIN Indian Creek DRAINAGE AREA (mi²) 0.	22
	AT. 41.20533 LONG83.07134 RIVER CODE RIVER MILE	
DATE 04/12/17 SCORER BJS		
NOTE: Complete All Items On This Form -	- Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
	IRAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	
MODIFICATIONS:		JVERT
1. SUBSTRATE (Estimate percent of every	v type of substrate present. Check ONLY two predominant substrate TYPE boxes	
	It substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric
	RCENT         TYPE         PERCENT           0%         ✓         SILT [3 pt]         85%	Points
	D%     LEAF PACK/WOODY DEBRIS [3 pts]     5%       D%     EINE DETRITUS [3 pts]     0%	Substrate
	0%         Image: Fine detritus [3 pts]         0%           0%         Image: CLAY or HARDPAN [0 pt]         0%	Max = 40
	0% MUCK [0 pts] 0%	40
	0% ARTIFICIAL [3 pts] 0%	12
Total of Percentages of <b>0.0</b>	00% (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock		
2. Maximum Pool Depth (Measure the max evaluation. Avoid plunge pools from road c	ximum pool depth within the 61 meter (200 ft) evaluation reach at the time of culverts or storm water pipes) (Check ONLY one box):	Pool Dept Max = 30
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]	
<ul> <li>□ &gt; 22.5 - 30 cm [30 pts]</li> <li>✓ □ &gt; 10 - 22.5 cm [25 pts]</li> </ul>	S cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
		20
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 15	
3. BANK FULL WIDTH (Measured as the av		Bankfull Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	verage of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul>	<ul> <li>✓ &gt; 1.0 m - 1.5 m (&gt; 3' 3" - 4' 8") [15 pts]</li> <li>≤ 1.0 m (&lt;=3' 3") [5 pts]</li> <li>AVERAGE BANKFULL WIDTH (meters): 1.20</li> </ul>	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul>	✓       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS           COMMENTS           RIPARIAN ZONE AND FLOODPLA <u>RIPARIAN WIDTH</u>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	$1.0 \text{ m} - 1.5 \text{ m} (> 3' 3" - 4' 8") [15 \text{ pts}]$ $\leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}]$ AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed AIN QUALITY $\Rightarrow \text{NOTE: River Left (L) and Right (R) as looking downstream}$	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS           COMMENTS           RIPARIAN ZONE AND FLOODPLA <u>RIPARIAN WIDTH</u> (Per Bank)	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLA         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLA         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLA         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLA         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         ✓       Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLA         RIPARIAN WIDTH         L       R         (Per Bank)         Image: Stream Flowing	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLA         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         ✓       Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLA         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         ✓       Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLA         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         RIPARIAN ZONE AND FLOODPLA         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         ✓       Narrow <5m	<ul> <li>&gt; 1.0 m - 1.5 m (&gt; 3' 3" - 4' 8") [15 pts]</li> <li>&gt; 1.0 m (&lt;=3' 3") [5 pts]</li> </ul> <b>AVERAGE BANKFULL WIDTH (meters):</b> <ul> <li>1.20</li> </ul> <b>This information must also be completed AVERAGE BANKFULL WIDTH (meters): I.20 This information must also be completed ANOTE:</b> River Left (L) and Right (R) as looking downstream ☆ <b>FLOODPLAIN QUALITY</b> L R             (Most Predominant per Bank)                 L R	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes Vo QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/11/17 Quantity: 0.05
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Nearby road and crop areas
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouc
Comments Regarding Biology:

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



PHWH Form Page - 2

Save as pdf

**Reset Form** 

# **ChieFPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 57

SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-113 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi <sup>2</sup> )	4.43
LENGTH OF STREAM REACH (ft) 3,189 LAT. 41.20057 LONG82.99364 RIVER CODE RIVER MILE	
DATE 04/13/17 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL INONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC MODIFICATIONS:	COVERY
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	Metri
BLDR SLABS [16 pts] 0% SILT [3 pt] 90%	Point
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substra
COBBLE (65-256 mm) [12 pts]         0%         CLAY or HARDPAN [0 pt]         0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 5% MUCK [0 pts] 0%	12
SAND (<2 mm) [6 pts]         5%         ARTIFICIAL [3 pts]         0%	
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool De
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 3
✓ □ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]         NO WATER OR MOIST CHANNEL [0 pts]	30
OMMENTS MAXIMUM POOL DEPTH (centimeters): 23	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfu
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>✓ &gt; 1.0 m - 1.5 m (&gt; 3' 3" - 4' 8") [15 pts]</li> <li>≤ 1.0 m (&lt;=3' 3") [5 pts]</li> </ul>	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.20	15
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 D (Der Derl) L D (Meet Dredersinent von Derl) L D	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial	200
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	1
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	1
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	1
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	1
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Moderate 5-10m       Immature Forest, Shrub or Old       Urban or Industrial         Narrow <5m	1

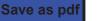
ADDITIONAL STREAM INFORMATION (This Information Must Als	so be Completed):
QHEI PERFORMED? - Yes Vo QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Tow	nship / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y _ Date of last precipitation:	04/11/17 Quantity: 0.05
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): Canopy (% open): _10	0%
Were samples collected for water chemistry? (Y/N): (Note I	ab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream $(Y/N)$ If no	ot, please explain:
Additional comments/description of pollution impacts:	
Nearby road and crop areas	
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Vouch	ner collections optional. NOTE: all voucher samples must be labeled with the site
	ata sheets from the Primary Headwater Habitat Assessment Manual)
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aqu	Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	

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





PHWH Form Page - 2





# **ChieFPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): 42

are water of the Anox Popublic Wir	ad Farm	
SITE NAME/LOCATION Apex Republic Win SITE NUMBER DO	DH-114 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi <sup>2</sup> ) 0.	79
	AT. <b>41.19878</b> LONG. <b>-82.99377</b> RIVER CODE RIVER MILE	
DATE 04/13/17 SCORER BJS		
	- Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
- 		
STREAM CHANNEL NONE / NATU MODIFICATIONS:	IRAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	OVERY
	y type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
	nt substrate types found (Max of 8). Final metric score is sum of boxes A & B.  RCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	0% SILT [3 pt] 90%	Points
	0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 0%	Max = 40
	5% MUCK [0 pts] 0%	12
SAND (<2 mm) [6 pts]	5% ARTIFICIAL [3 pts] 0%	
Total of Percentages of <b>0.0</b> Bldr Slabs, Boulder, Cobble, Bedrock	00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTR	RATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the max	ximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
evaluation. Avoid plunge pools from road c > 30 centimeters [20 pts]	culverts or storm water pipes) (Check ONLY one box): > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts]	< 5 cm [5 pts]	
□ > 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	15
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 10	
3 BANK FULL WIDTH (Measured as the av		Bankfull
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts]	verage of 3-4 measurements) (Check ONLY one box):	Width
3 BANK FULL WIDTH (Measured as the av	verage of 3-4 measurements) (Check ONLY one box):	
<ul> <li>BANK FULL WIDTH (Measured as the av &gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	verage of 3-4 measurements) (Check ONLY one box):	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	verage of 3-4 measurements) (Check ONLY one box):	Width
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	verage of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.20 This information <u>must</u> also be completed	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	verage of 3-4 measurements)       (Check ONL Y one box):         > 1.0 m       > 1.5 m (> 3' 3" - 4' 8") [15 pts]         < 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLA <u>RIPARIAN WIDTH</u> L R (Per Bank)	verage of 3-4 measurements)       (Check ONL Y one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS 	verage of 3-4 measurements)       (Check ONL Y one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLA <u>RIPARIAN WIDTH</u> L R (Per Bank)	verage of 3-4 measurements)       (Check ONL Y one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m	verage of 3-4 measurements)       (Check ONLY one box):	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m ↓ None	verage of 3-4 measurements)       (Check ONL Y one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m ↓ None COMMENTS	verage of 3-4 measurements)       (Check ONLY one box):	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m ↓ None	verage of 3-4 measurements)       (Check ONLY one box):	Width Max=30
3.       BANK FULL WIDTH (Measured as the average of the second se	verage of 3-4 measurements)       (Check ONLY one box):	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Narrow <5m ✓ None COMMENTS FLOW REGIME (At Time of Evaluated Stream Flowing Subsurface flow with isolated pools COMMENTS_	verage of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH L R (Per Bank) Wide > 10m Moderate 5-10m Moderate 5-10m Narrow <5m / None COMMENTS FLOW REGIME (At Time of Evalua Stream Flowing Subsurface flow with isolated pools COMMENTS SINUOSITY (Number of bends per	verage of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the av > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS COMMENTS RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Moderate 5-10m Narrow <5m / None COMMENTS FLOW REGIME (At Time of Evaluated Stream Flowing Subsurface flow with isolated pools COMMENTS_	verage of 3-4 measurements)       (Check ONLY one box):         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         > 1.0 m (<=3' 3") [5 pts]	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach	Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name: [	Distance from Evaluated Stream
EWH Name: [	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED A	REA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil Map Page	e: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/11/17	Quantity: 0.05
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): Canopy (% open):100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and	attach results) Lab Number:
	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Nearby road and crop areas	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. N	
ID number. Include appropriate field data sheets from the Prima	ry Headwater Habitat Assessment Manual)
Fish Observed? (Y/N)       N       Voucher? (Y/N)       N       Salamanders Observed? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N       Aquatic Macroinvertebrates	Voucher? (Y/N) N Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	

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



PHWH Form Page - 2





# **ChiefPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 58

	lind Form	
SITE NAME/LOCATION Apex Republic W	OH-115 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi <sup>2</sup> )	) 35
LENGTH OF STREAM REACH (ft) 1,732	LAT. 41.20071 LONG83.01104 RIVER CODE RIVER MILE	
DATE 04/13/17 SCORER BJS		
	n - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	ructions
· ·		
STREAM CHANNEL INONE / NAT MODIFICATIONS:	TURAL CHANNEL 🔲 RECOVERED 🔲 RECOVERING 🔽 RECENT OR NO REC	OVERY
	ery type of substrate present. Check ONLY two predominant substrate TYPE boxes	
	cant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  ERCENT TYPE PERCENT	HHEI   Metrie
BLDR SLABS [16 pts]	0% SILT [3 pt] 85%	Points
BOULDER (>256 mm) [16 pts]	0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%           0%         FINE DETRITUS [3 pts]         0%	Substrat
COBBLE (65-256 mm) [12 pts]	0% □ □ CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	5% MUCK [0 pts] 0%	13
SAND (<2 mm) [6 pts]	5% ARTIFICIAL [3 pts] 0%	
Total of Percentages of	D.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBS		
2. Maximum Pool Depth (Measure the m	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from roa	d culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	25
OMMIENTS	MAXIMUM POOL DEPTH (centimeters): 15	
2 DANK FULL WIDTH (Measured on the		Bankfull
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts]	e average of 3-4 measurements) (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>		Bankfull Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li></ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul>		Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul> <b>RIPARIAN ZONE AND FLOODF</b> <u>RIPARIAN WIDTH</u>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODE RIPARIAN WIDTH L R (Per Bank)		Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]           COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]          COMMENTS         RIPARIAN ZONE AND FLOODF         RIPARIAN WIDTH         L       R       (Per Bank)         Wide >10m         Moderate 5-10m         ✓       Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]          COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]          COMMENTS         RIPARIAN ZONE AND FLOODF         RIPARIAN WIDTH         L R (Per Bank)         Wide >10m         Moderate 5-10m         ✓         None         COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]          COMMENTS         COMMENTS         RIPARIAN ZONE AND FLOODF         RIPARIAN WIDTH         L       R         (Per Bank)         Wide >10m         Moderate 5-10m         ✓       Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]          COMMENTS         RIPARIAN ZONE AND FLOODF         RIPARIAN WIDTH         L R (Per Bank)         Wide >10m         Moderate 5-10m         ✓         None         COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.5 m - 3.0 m (&gt; 9' 7" - 4' 8") [20 pts]</li> <li>COMMENTS</li> </ul> <b>RIPARIAN ZONE AND FLOODF</b> RIPARIAN WIDTH         L       R         (Per Bank)         Image: Stream Flowing         Subsurface flow with isolated poor COMMENTS_	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         COMMENTS         RIPARIAN ZONE AND FLOODF         RIPARIAN WIDTH         L R (Per Bank)         Wide >10m         Moderate 5-10m         ✓       Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         < 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]         > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]         > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         COMMENTS         RIPARIAN ZONE AND FLOODF         RIPARIAN WIDTH         L R (Per Bank)         Wide >10m         Moderate 5-10m         ✓       Narrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]         < 1.0 m (<=3' 3") [5 pts]	Width Max=30

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Summary: Application Exhibit F Appendix H - Part 13 of 14 electronically filed by Teresa Orahood on behalf of Sally W. Bloomfield