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 EWH Name: Distance from Evaluated Stream 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
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream NAPPING: 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 Township / City: MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/11/17 Quantity: 0.05
WWH Name: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream 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 Township / City: MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/11/17 Quantity: 0.05
CWH Name: EWH Name: Distance from Evaluated Stream 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
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
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
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
County: Seneca Township / City: MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/11/17 Quantity: 0.05
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/11/17 Quantity: 0.05
Base Flow Conditions? (Y/N): Y Date of last precipitation:
Base Flow Conditions: (1714) Bate of last precipitation Quantity
Representative Photos Taken
Photograph information:
Elevated Turbidity? (Y/N): 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:
Nearby road and crop areas
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) Voucher? (Y/N) N Voucher? (Y/N)

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

FLOW

Google earth



SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-116 RIVER BASIN Sugar Creek DRAINAGE AREA (mi	1.03
LENGTH OF STREAM REACH (ft) 6,657 LAT. 41.17873 LONG83.02263 RIVER CODE RIVER MIL	
DATE 04/26/17 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
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxe (May of 22) Add total number of similificant substrate types found (May of 2). Final matrix scars is sum of boxes A & B.	es 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	Metri
□ BLDR SLABS [16 pts]	Point
BOULDER (>256 mm) [16 pts]	Substrat
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt] ☐ 0%	Max = 4
GRAVEL (2-64 mm) [9 pts]	12
SAND (<2 mm) [6 pts]	
Total of Percentages of 0.00% (A) Substrate Percentage Check 100%	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 Check 10076 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 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] > 5 cm - 5 cm [5 pts]	
✓	_ 25
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 15	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
	Bankful
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful 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] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	_
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 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): This information must also be completed	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] AVERAGE BANKFULL WIDTH (meters): 2.0 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ↑ NOTE: River Left (L) and Right (R) as looking downstreams.	Width Max=30
> 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): This information must also be completed	Width Max=30
> 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 ANOTE: River Left (L) and Right (R) as looking downstreams RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage	Width Max=30
> 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): 2.0 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 L R (Per Bank) L R (Most Predominant per Bank) L R	Width Max=30
Solution	Width Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field Solution (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 2.0 AVERAGE BANKFULL WIDTH (meters): AVERAGE BANKFULL WIDTH (meters): 2.0 AVERAGE BANKFULL WIDTH (meters):	Width Max=30 20 c
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Wide >10m Moderate 5-10m Narrow <5m Narrow <5m AVERAGE BANKFULL WIDTH (meters): 2.00 AVERAGE BANKFULL WIDTH (meters): L R (Most Predominant per Bank) L R (Most Predominant per Bank) I Mature Forest, Wetland Wide >10m Residential, Park, New Field Open Pasture, Rov	Width Max=30 20 c
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Width Max=30 20 20 Crop
3.0 m - 4.0 m (> 9' 7" - 4' 8") [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30 20 20 Crop
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Width Max=30 20 20 Crop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstreams RIPARIAN WIDTH FLOODPLAIN QUALITY Note Predominant per Bank) River Bank) Moderate 5-10m Mature Forest, Wetland Moderate 5-10m Residential, Park, New Field Viant None COMMENTS Residential, Park, New Field None COMMENTS Western portion has mature woods along banks. but majority does not. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Moderate, 10 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 2.0 AVERAG	Width Max=30 20 20 Crop
COMMENTS This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH RIPAR	Width Max=30 20 20 Crop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Mature Forest, Shrub or Old Field None COMMENTS Residential, Park, New Field None COMMENTS Residential, Park, New Field Robert Residential, Park, New Field COMMENTS Stream Flowing Subsurface flow with isolated pools (Interstitial) SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.	Width Max=30 20 20 Crop
COMMENTS This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH RIPAR	Width Max=30 20 20 cc e / Crop tion tent)

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: 04/20/17 _ Quantity: 0.21
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 80%
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 Voucher? (Y/N) N
Aduatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
-Trafilio 17/5
FLOW TO THE PROPERTY OF THE PR



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SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-117 RIVER BASIN Sugar Creek DRAINAGE AREA (mi²)	.27
LENGTH OF STREAM REACH (ft) 2,199 LAT. 41.17611 LONG83.01817 RIVER CODE RIVER MILE	
DATE 04/26/17 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	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.	HHEI
TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt]	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	12
SAND (<2 mm) [6 pts]	
Total of Percentages of 0.00% (A) Substrate Percentage Check (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 Dep
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]	
✓	25
OMMENTS MAXIMUM POOL DEPTH (centimeters): 15	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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
> 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 (Most Predominant per Bank) L R	
Wide >10m	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	p
✓ None	
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
COMMENTS	,
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/10	00 ft)

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:	
CWH Name:	
EWH Name: _	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE W	ATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS	Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township / Ci	ty:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/20	0/17 Quantity: 0.21
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): N (Note lab samples)	e no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	DH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please	
is the sampling reach representative of the stream (1714) in not, please	explain
<u> </u>	
Additional comments/description of pollution impacts:	
Nearby road and crop areas	
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collect	ions optional. NOTE: all voucher samples must be labeled with the site
· / ·	from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macr	d? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	N
	·····
DRAWING AND NARRATIVE DESCRIPTION OF S	TREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site ex	aluation and a narrative description of the stream's location
The state of the s	







	THIEF COOLS (Sum of metrics 1, 2, 3) :
SITE NAME/LOCATION Apex Republic W	/ind Farm
SITE NUMBER_D	OOH-118 RIVER BASIN Westerhouse ditch DRAINAGE AREA (mi²) 0.00
LENGTH OF STREAM REACH (ft) 834	LAT. 41.15957 LONG82.99000 RIVER CODE RIVER MILE
DATE 04/27/17 SCORER BJS	
	COMMENTS
NOTE: Complete All Items On This Form	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
A CURCIPATE (E. ()	
	ery type of substrate present. Check <i>ONLY</i> two predominant substrate <i>TYPE</i> boxes cant substrate types found (Max of 8). Final metric score is sum of boxes A & B.
, , ,	ERCENT TYPE PERCENT Metri
BLDR SLABS [16 pts]	0% SILT [3 pt] 95% Point
BOULDER (>256 mm) [16 pts]	0% LEAF PACK/WOODY DEBRIS [3 pts] 5%
☐ ☐ BEDROCK [16 pt]	0% Substra O% Max = 4
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 0%
GRAVEL (2-64 mm) [9 pts]	0% MUCK [0 pts] 0% 0%
SAND (<2 mm) [6 pts]	0% ARTIFICIAL [3 pts] 0%
Total of Percentages of	0.00% (A) Substrate Percentage 4009/ (B) A + B
Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A) Substrate Percentage 100% (B) A + B
SCORE OF TWO MOST PREDOMINATE SUBS	STRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2
	naximum 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 De 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]
OMM ENTS	MAXIMUM POOL DEPTH (centimeters): 0
3. BANK FULL WIDTH (Measured as the	e 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]	≤ 1.0 m (<=3' 3") [5 pts] Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 0.50
RIPARIAN ZONE AND FLOODE	This information <u>must</u> also be completed PLAIN 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
moderate o Tom	Field —— Field
☐ ☐ Narrow <5m	Residential, Park, New Field Open Pasture, Row Crop
☐ ✓ None	Fenced Pasture Mining or Construction
COMMENTS	
	/ (°) (O) O)(() ()
Stream Flowing	aluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent)
Subsurface flow with isolated poor	
COMMENTS_	, , , , , , , , , , , , , , , , , , , ,
	per 61 m (200 ft) of channel) (Check ONLY one box):
None	1.0 2.0 3.0
None 0.5 STREAM GRADIENT ESTIMATE	1.0 1.5 2.0 2.5 3.0 >3
None 0.5	1.0 2.0 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: 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: 04/27/17 Quantity: 0.07
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): _N Canopy (% open):75%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
is the sampling reach representative of the stream (1714) in not, please explain
<u> </u>
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) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Vouc
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







SITE NAME/LOCATION Apex Republic Wind	l Farm	
SITE NUMBER DOH		0.31
	T. 41.14766 LONG82.98625 RIVER CODE RIVER MILE	
DATE 04/27/17 SCORER BJS	COMMENTS	
NOTE: Complete All Items On This Form - F	Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURA MODIFICATIONS:	AL CHANNEL RECOVERED RECOVERING RECENT OR NO REC	OVERY
	ype of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
TYPE PERC	substrate types found (Max of 8). Final metric score is sum of boxes A & B. ENT TYPE PERCENT	Metri
BLDR SLABS [16 pts] 0%	SILT [3 pt] 70%	Point
BOULDER (>256 mm) [16 pts] 0% BEDROCK [16 pt] 0%		Substrat
COBBLE (65-256 mm) [12 pts] 5%		Max = 4
GRAVEL (2-64 mm) [9 pts] 10% SAND (<2 mm) [6 pts] 10%	Micor [o pts]	14
5,44 (2 mm) [6 pts]	(A) Substate Percentage (R)	AID
Bldr Slabs, Boulder, Cobble, Bedrock	Check 100%	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRA		
	num pool depth within the 61 meter (200 ft) evaluation reach at the time of liverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]	
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	S cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
	MAXIMUM POOL DEPTH (centimeters): 15	
2 DANK EIII I WIDTH /Magazirad on the aver	rage of 3-4 measurements) (Check ONLY one box):	
3. BANK FULL WIDTH (Measured as the average > 4.0 meters (> 13') [30 pts]		
> 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] ≤ 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]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] < 1.0 m (<=3' 3") [5 pts]	Bankful 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] AVERAGE BANKFULL WIDTH (meters): 2.00 This information must 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 RIPARIAN ZONE AND FLOODPLAII	> 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 N QUALITY % 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 RIPARIAN ZONE AND FLOODPLAID 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] AVERAGE BANKFULL WIDTH (meters): 2.00 This information must also be completed N QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ ELOODPLAIN QUALITY L R (Most Predominant per Bank) L R	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 FLOODPLAII RIPARIAN WIDTH L R (Per Bank) Wide >10m	> 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 N QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage	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 FLOODPLAID 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] AVERAGE BANKFULL WIDTH (meters): 2.00 This information must also be completed N QUALITY ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature Forest, Shrub or Industrial	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 FLOODPLAII 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] AVERAGE BANKFULL WIDTH (meters): 2.00 This information must also be completed N QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old	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 FLOODPLAII RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m V Narrow <5m None	> 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 NQUALITY NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Field Conservation Pow Or	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 FLOODPLAII RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS	This information must also be completed N QUALITY ANOTE: River Left (L) and Right (R) as looking downstream L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture N 1.5 m (> 3' 3" - 4' 8") [15 pts] 2.00 L R (Mothers): 2.00 L R (Most Predominant per Bank) L R (Most Predominant per Bank) Urban or Industrial Open Pasture, Row Creen Mining or Construction	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 FLOODPLAII RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m V Narrow <5m None	This information must also be completed N QUALITY ANOTE: River Left (L) and Right (R) as looking downstream L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture N 1.5 m (> 3' 3" - 4' 8") [15 pts] 2.00 L R (Mothers): 2.00 L R (Most Predominant per Bank) L R (Most Predominant per Bank) Urban or Industrial Open Pasture, Row Creen Mining or Construction	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 FLOODPLAII RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m V Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation	This information must also be completed N QUALITY ANOTE: River Left (L) and Right (R) as looking downstream LOODPLAIN QUALITY R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
A.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 FLOODPLAII RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (In COMMENTS) SINUOSITY (Number of bends per 6')	This information must also be completed N QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ COODPLAIN QUALITY R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Moist Channel, isolated pools, no flow (Intermittent nterstitial) Moist Channel, no water (Ephemeral)	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 FLOODPLAII RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (In COMMENTS) SINUOSITY (Number of bends per 6') None 1	This information must also be completed N QUALITY ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ ELOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral)	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 FLOODPLAII RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (In COMMENTS) SINUOSITY (Number of bends per 6') None 1	This information must also be completed N QUALITY	Width Max=30

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: 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:Quantity:
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) 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) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Vouc
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







	THIEF COOLS (Sum of metrics 1, 2, 3):
SITE NAME/LOCATION Apex Republic W	
SITE NUMBER D	OH-120 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²) 0.19
LENGTH OF STREAM REACH (ft) 2,783	LAT. 41.14975 LONG82.96973 RIVER CODE RIVER MILE
DATE 04/27/17 SCORER BJS	COMMENTS
	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
·	
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
	ery type of substrate present. Check ONLY two predominant substrate TYPE boxes
, , ,	eant substrate types found (Max of 8). Final metric score is sum of boxes A & B.
TYPE P BLDR SLABS [16 pts]	ERCENT TYPE SILT [3 pt] PERCENT 20% Poin
BOULDER (>256 mm) [16 pts]	0% LEAF PACK/WOODY DEBRIS [3 pts] 5%
BEDROCK [16 pt]	0% Substr. FINE DETRITUS [3 pts] 0% Max =
COBBLE (65-256 mm) [12 pts]	CLAY or HARDPAN [0 pt]
GRAVEL (2-64 mm) [9 pts]	25% MUCK [0 pts] 0% 0% 20
SAND (<2 mm) [6 pts]	ARTIFICIAL [3 pts]
Total of Percentages of	Substrate Percentage 100% (B) A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBS	
	Pool Design and the street of
> 30 centimeters [20 pts]	d culverts or storm water pipes) (Check ONLY one box): Max = 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
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 10
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts]	e average of 3-4 measurements) (Check <i>ONLY</i> one box): Bankfi
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	≤ 1.0 m (<=3' 3") [5 pts] Width
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 2.00 20
	AVERAGE BARRI GEE VIIB III (IIIctoro).
	This information much last a last a
RIPARIAN ZONE AND FLOODS	This information must also be completed PLAIN 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
V Wide >10m	Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old
Moderate 5-10m	Field Urban or Industrial
☐ ✓ Narrow <5m	Residential, Park, New Field Open Pasture, Row Crop
None	Fenced Pasture Mining or Construction
COMMENTS	
FLOW REGIME (At Time of Fue	aluation) (Check ONLY one box):
Stream Flowing	Moist Channel, isolated pools, no flow (Intermittent)
Subsurface flow with isolated poo	ols (Interstitial) Dry channel, no water (Ephemeral)
COMMENTS_	<u>_</u>
SINUOSITY (Number of bends p	per 61 m (200 ft) of channel) (Check ONLY one box):
None O.5	1.0 2.0 3.0
	1.5 2.5 >3
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate	Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 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: 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: 04/27/17 Quantity: 0.07
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 15%
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
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) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

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







SITE NUMBER DOH-121 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²) 0.00 LENGTH OF STREAM REACH (ft) 543 LAT. 41.14660 LONG. 82.96892 RIVER CODE RIVER MILE DATE 04/27/17 SCORER BJS COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT TYPE BLDR SLABS [16 pts] 9% D9% DEBRIS [3 pts] 9% D9% D9% DEBRIS [3 pts] 9% D9% D9% D9% DEBRIS [3 pts] 09% D9% D9% D9% D9% D9% D9% D9% D9% D9% D	SITE NAME/LOCATION Apex Republic W	/ind Farm
LENSTH OF STREAM REACH (II) 543 LAT. 41.14660 LONG 32.96892 RIVER CODE RIVER MILE DATE OA/27/17 SCORER BJS COMMENTS NOTE: Complete All items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING ZECENT OR NO RECOVERY MOIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING ZECENT OR NO RECOVERY MOIFICATIONS: 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. PERCENT PERCENT PERCENT PERCENT PERCENT PERCENT POINT PO	SITE NUMBER D	OOH-121 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²) 0.00
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL		
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONL Y 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. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT YPE BLDR SLABS [16 pts] 90% SLAT [12 pt] SLAT [21 pt] SLAT [21 pt] SLAT [22 pt]	. ,	
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. PERCENT (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT (Max of 22). Final metric score is sum of boxes A & B. PERCENT (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT (Max of 9). Final metric score is sum of boxes A &	NOTE: Complete All Items On This Form	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction
Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8 B. HHE Motificant Substrate Motifican		TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
Metrical Standard		 :
BLDR SLABS [16 pts]	, , ,	ERCENT TYPE PERCENT Me
BEDROCK [16 pt]	BLDR SLABS [16 pts]	0% SILT [3 pt] 85% POI
COBBLE (65-256 mm) (2 pts) 0% 0% 0% 0% 0% 0% 0% 0		
12 SAND (<2 mm) (6 pts) 10% ARTIFICIAL [3 pts] 0% Total of Percentages of 0.00% (A) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm (15 pts) > 5 cm - 10 cm (15 pts) > 10 - 22.5 cm [25 pts] > 10 cm (15 pts) > 10 - 1.5 m (×3 °3 °4 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6 °3 °3 °4 °5 °1) [15 pts] > 1.5 m (×6		nov Max
Total of Percentages of 0.00% (A) Bidr Slabs, Boulder, Cobble, Bedrock 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 6f meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters (20 pts) > 10 - 22.5 cm (25 pts) > 10 - 22.5 cm (25 pts) > 10 - 22.5 cm (25 pts) > 10 - 0.00 miles (15 pts) > 10 - 22.5 cm (25 pts) > 1.5 m - 3.0 m (-9 0" 7" -13") (25 pts) > 1.5 m - 3.0 m (-9 0" 7" -13") (25 pts) > 1.5 m - 3.0 m (-9 0" 7" -4" 8") (20 pts) COMMENTS		5% MUCK [0 pts] 0%
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): 3. Ocentimeters [20 pts] 3. Ocentimeters [20 pts] 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 3. DANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 3. DANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 3. DANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 3. DANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 3. DANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 3. DANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 3. DANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 4. Ometers (> 13 \) [30 pts] 4. Ometers (> 13 \) [30 pts] 4. Ometers (> 13 \) [30 pts] 5. OMMENTS AVERAGE BANKFULL WIDTH (meters): 6. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: A RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: A RIPARIAN WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: A VERAGE BANKFULL WIDTH (meters): 5. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY A NOTE: River Left (L) and Right (R) as looking downstream: A VERAGE BANKFULL WIDTH (meters): 5. Ometers (A Time of Evaluation) (Check ONLY one box): None 1. Ometers (A Time of Evaluation) (Check ONLY one box): None 2. Ometers (A Time of Evaluation) (Check ONLY one box): None 2. Ometers (A Time of Evaluat	SAND (<2 mm) [6 pts]	10% ARTIFICIAL [3 pts] 0%
Bidr Stabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): 30 centimeters [20 pts] 31. Death Form (15 pts) 32. So cm 30 cm 30 pts) 33. Death Full WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 34.0 meters (> 13) [30 pts) >1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] >1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.70 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 FLOODPLAIN QUALITY (Metary 10 mature Forest, Shrub or Old Urban or Industrial Field Immature Forest, Shrub or Old Urban or Industrial Field Immature Forest, Shrub or Old Urban or Industrial Field Immature Forest, Shrub or Old Width Immature Forest, Shrub or Old Immature, no water (Ephemera) FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemera) 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): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): SIRLEAM GRADJENT ESTIMATE		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): 30 centimeters [20 pts]	Bldr Slabs, Boulder, Cobble, Bedrock	Cneck
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): 3 centimeters [20 pts]		
> 30 centimeters [20 pts]		
Somments		
OMMENTS MAXIMUM POOL DEPTH (centimeters): 0 Bankfull WiDTH (Measured as the average of 3-4 measurements)		
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" - 4') [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: Note and RIPARIAN WIDTH R	> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [U pts]
> 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOOPPLAIN QUALITY Wide > 10 m (> 9' 8' 8') [15 pts] AVERAGE BANKFULL WIDTH (meters): O.70 This information must also be completed RIPARIAN WIDTH FLOOPPLAIN QUALITY Wide > 10 m (Most Predominant per Bank) Mature Forest, Wetland Moderate 5-10 m mature Forest, Shrub or Old Urban or Industrial Moderate 5-10 m Residential, Park, New Field 7 Open Pasture, Row Crop Narrow < 5 m Residential, Park, New Field 7 Open Pasture, Row Crop None Fenced Pasture Mining or Construction COMMENTS Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) 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 >3 STREAM GRADIENT ESTIMATE	OMM ENTS	MAXIMUM POOL DEPTH (centimeters): 0
> 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOOPPLAIN QUALITY Wide > 10 m (> 9' 8' 8') [15 pts] AVERAGE BANKFULL WIDTH (meters): O.70 This information must also be completed RIPARIAN WIDTH FLOOPPLAIN QUALITY Wide > 10 m (Most Predominant per Bank) Mature Forest, Wetland Moderate 5-10 m mature Forest, Shrub or Old Urban or Industrial Moderate 5-10 m Residential, Park, New Field 7 Open Pasture, Row Crop Narrow < 5 m Residential, Park, New Field 7 Open Pasture, Row Crop None Fenced Pasture Mining or Construction COMMENTS Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) 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 >3 STREAM GRADIENT ESTIMATE	3. BANK FULL WIDTH (Measured as the	e average of 3-4 measurements) (Check ONLY one box): Ban
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 FLOODPLAIN QUALITY R (Per Bank) L R (Most Predominant per Bank) L R (Per Bank) L R (Most Predominant per Bank) L R (Most Predominant	> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Wid
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY		≤ 1.0 m (<=3' 3") [5 pts]
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) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 1.0 2.0 3.0 >3.0		AVERAGE RANKELII I MIRTII (WAANA) 0.70
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RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R Conservation Tillage Mature Forest, Wetland Urban or Industrial Urban or Industrial Open Pasture, Row Crop Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture Mining or Construction 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): None		This information much last a last a
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Moderate 5-10m		
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3		Immature Forest Shrub or Old
None	Moderate 3-10111	Field Open Resture Rew Cree
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): None 1.0 2.0 3.0 3.0 3.0 3.1 STREAM GRADIENT ESTIMATE		Residential, Park, New Field
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) None 1.0 2.0 3.0 3.0 3.0 3.5 STREAM GRADIENT ESTIMATE		Fenced Pasture Mining or Construction
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 2.0 3.0 3.0 3.5 STREAM GRADIENT ESTIMATE	COMMENTS	<u></u>
Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 3.0 >3.0 >3.0 >3.0 >3.0 >3.0 >3.0 >3.0 >3.0 >3.0 >3.0 >3.0		
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 >3 STREAM GRADIENT ESTIMATE		
None 2.0 3.0 >3 STREAM GRADIENT ESTIMATE		
None 2.0 3.0 >3 STREAM GRADIENT ESTIMATE	SINUOSITY (Number of bends n	per 61 m (200 ft) of channel) (Check ONLY one box):
STREAM GRADIENT ESTIMATE	None	1.0 2.0 3.0
	0.5	1.5
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)		
		Dividents a succession Dividents to Succession Dividents

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed); OHEI PERFORMED? - Yes 7 No OHEI Score	
DOWNSTREAM DESIGNATED USE(S) WWH Name:	ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
Distance from Evaluated Stream	QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
Distance from Evaluated Stream	DOWNSTREAM DESIGNATED USE(S)
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): Date of last precipitation: 04/27/17 Quantity: 0.07 Photograph Information: Representative Photos Taken Elevated Turbidity? (Y/N): N Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) 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 Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):	WWH 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: 04/27/17 Quantity: 0.07 Photograph Information: Representative Photos Taken Elevated Turbidity? (Y/N): N Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Madditional comments/description of pollution impacts: Nearby road and crop areas BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NO TE: 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 Aqualtic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):	
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: 04/27/17 Quantity: 0.07 Photograph Information: Representative Photos Taken Elevated Turbidity? (Y/N): N Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp ("C) Dissolved Oxygen (mq/l) PH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Mearby 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 Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Oucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Oucher? (Y/N) N Ouche	EWH Name: Distance from Evaluated Stream
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/27/17 Quantity: 0.07 Photograph Information: Representative Photos Taken Elevated Turbidity? (Y/N): N Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Madditional 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 Vou	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/27/17 Quantity: 0.07 Photograph Information: Representative Photos Taken Elevated Turbidity? (Y/N): N Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) 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 Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Comments Regarding Biology:	USGS Quadrangle Name: Fireside NRCS Soil Map Page: NRCS Soil Map Stream Order
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Photograph Information: Representative Photos Taken Elevated Turbidity? (Y/N): N Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) 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 Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Oucher? (Y/N) N O	Base Flow Conditions? (Y/N):_Y Date of last precipitation:04/27/17 Quantity:0.07
Elevated Turbidity? (Y/N): N Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Mearby 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?	
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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	Nearby road and crop areas
	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) Voucher? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Hensinger-Rd 124	Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-122 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²)	0.00
LENGTH OF STREAM REACH (ft) 410 LAT. 41.14650 LONG82.96891 RIVER CODE RIVER MILE	
DATE 04/27/17 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 RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECOVERING RECENT OR NO RECOVERING RECO	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ı 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	Metri
□ BLDR SLABS [16 pts] □ ✓ SILT [3 pt] 40%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] D LEAF PACK/WOODY DEBRIS [3 pts] O% FINE DETRITUS [3 pts] O%	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 50% MUCK [0 pts] 0% SAND (<2 mm) [6 pts] 5% ARTIFICIAL [3 pts] 0%	15
Total of Percentages of Occor (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	^.5
	<u> </u>
 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 Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ S 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	0
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 0	
	Bankful
> 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]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.70	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	
Field Field Urban or industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row C	rop
✓ None	1
	4-
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Intermitten	t)
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Stream Flowing Moist Channel, isolated pools, no flow (Intermittent of Dry channel, no water (Ephemeral)	t)
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	t)
Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 3.0	t)
Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 3.0 3.0 3.0 3.5	t)
Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 3.0	1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: 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: 04/27/17 Quantity: 0.07
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts: Nearby road and crop areas
BIOTIC EVALUATION Performed? (Y/N): N
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location Complete Complete







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SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-123 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²)	.53
LENGTH OF STREAM REACH (ft) 2,316 LAT. 41.13359 LONG82.97269 RIVER CODE RIVER MILE	
DATE 04/28/17 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 RECOVERING.	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.	HHE
TYPE PERCENT TYPE PERCENT PERCENT	Metri
BLDR SLABS [16 pts] O% SILT [3 pt] 70%	Point
BOULDER (>256 mm) [16 pts]	Substrat
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%	13
SAND (<2 mm) [6 pts]	
Total of Percentages of 0.00% (A) Substrate Percentage Check 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 Dep
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]	0.5
✓ □ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	25
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 15	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfu
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (<=3' 3") [5 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): 2.00	20
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	
Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old Field Conservation Tillage Urban or Industrial	
Wide >10m	ор
Wide >10m	ор
Wide >10m	op _
Wide >10m	L
Wide >10m)

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: 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: 04/28/17 Quantity: 0.44
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Nearby road and crop areas
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) Voucher? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
FLOW -



Google earth



SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-124 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²)	.11
LENGTH OF STREAM REACH (ft) 164 LAT. 41.13351 LONG82.97181 RIVER CODE RIVER MILE	
DATE 04/28/17 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	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]	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt]	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt]	Max = 40
☐ GRAVEL (2-64 mm) [9 pts] ☐ MUCK [0 pts] 0% ☐ SAND (<2 mm) [6 pts]	12
Total of Percentages of 0.00% (A) Substrate Percentage 4000/ (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
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):	Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 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):	Bankfull
<pre></pre>	Width Max=30
> 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 FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant 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 R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial	
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Conservation Field Conservation Field	
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Conservation Field Conservation Field	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) Conservation Tillage With The Tillage of the T	
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old Field Narrow <5m Residential, Park, New Field None COMMENTS Minor woodlot along reach. but majority abuts open row crop FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	op -
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old Field Narrow <5m Residential, Park, New Field None COMMENTS Minor woodlot along reach. but majority abuts open row crop FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A NOTE: River Left (L) and Right (R) as looking downstream A NOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN ZONE AND FLOODPLAIN QUALITY FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A I RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A I RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A I RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A I RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A I RIPARIAN WIDTH FLOODPLAIN QUALITY AND A RIPARIAN WIDTH AND A RIPARIAN WIDTH FLOODPLAIN QUALITY AND A RIPARIAN WIDTH AND A R	op -
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field V Narrow <5m None COMMENTS Minor woodlot along reach. but maiority abuts open row crop FLOW REGIME (At Time of Evaluation) COMMENTS Wide >10m Conservation Tillage Urban or Industrial Open Pasture, Row Cro Mining or Construction Comments Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) COMMENTS COMMENTS Moist Channel, no water (Ephemeral)	op -
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS Fenced Pasture 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) CPER Bank (R) as looking downstream A NOTE: River Left (L) and Right (R) as looking downstream A NoTE: River Left (L) and Right (R) as looking downstream A NoTE: River Left (L) and Right (R) as looking downstream A NOTE: River Left (L) and Right (R) as looking downstream A NOTE: River Left (L) and Right (R) as looking downstream A note left (L) and Right (R) as looking to the left (L) and Right (R) as looking to the left (L) and Rig	op -
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old Field Varrow <5m Residential, Park, New Field None COMMENTS Minor woodlot along reach. but maiority abuts open row crop FLOW REGIME (At Time of Evaluation) (Check ONLY one box): 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):	op -
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Residential, Park, New Field None COMMENTS Minor woodlot along reach. but maiority abuts open row crop FLOW REGIME (At Time of Evaluation) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A NOTE: River Left (L) and Right (R) as looking downstream A NOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R Conservation Tillage Immature Forest, Shrub or Old Immature Fore	op -

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 Fusikated Otropos
CWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIR	F WATERSHED AREA CLEARLY MARK THE SITE LOCATION
Eirocido	CCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Township	
	City.
MISCELLANEOUS	
Date of last precipitation.	./28/17 Quantity: 0.44
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): (Note lab sa	nple 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, ple	ase explain:
, ,	
Additional comments/description of pollution impacts: Nearby road and crop areas	
nearby road and crop areas	
BIOTIC EVALUATION	
· / ————	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 Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic N	ved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	acionivertebrates observed: (1714)
<u> </u>	
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for sit	e evaluation and a narrative description of the stream's location



Save as pdf





SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-125 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²) 0.	.00
LENGTH OF STREAM REACH (ft) 4,861 LAT. 41.13920 LONG82.96031 RIVER CODE RIVER MILE	
DATE 04/28/17 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 NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS:	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.	HHEI
TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	FUIII
BEDROCK [16 pt]	Substrat Max = 4
COBBLE (65-256 mm) [12 pts]	
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	13
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
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): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 3
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
	0
OMM ENTS 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]	Bankful 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]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.50	5
AVEIGAGE SANTA GEE VIID III (III class).	
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	
Field —— Open Pacture Pow Cro	n
Narrow <5m Residential, Park, New Field VV	P
None Fenced Pasture Mining or Construction COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
COMMENTS Solution (Interestitation)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 2.0 3.0 >3 1.5	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/10	Oft)

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: 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: 04/28/17 Quantity: 0.44
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Nearby road and crop areas
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
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
Miller-Straub-Rd 23
Google earth N





	Title Coole (sum of metrics 1, 2, 3) :
SITE NAME/LOCATION Apex Republic W	
SITE NUMBER_	OH-127 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²) 0.27
LENGTH OF STREAM REACH (ft) 2,828	
DATE 04/28/17 SCORER BJS	
	COMMENTS
NOTE: Complete All Items On This Forn	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
A CUROTRATE (Estimate manual of an	and the second of second o
	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.
,	ERCENT TYPE PERCENT Metri
BLDR SLABS [16 pts]	0% SILT [3 pt] 70% Point
BOULDER (>256 mm) [16 pts]	0% LEAF PACK/WOODY DEBRIS [3 pts] 15%
BEDROCK [16 pt]	0% Substra Max = 4
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 0%
GRAVEL (2-64 mm) [9 pts]	5% MUCK [0 pts] 0% 10
SAND (<2 mm) [6 pts]	10% ARTIFICIAL [3 pts] 0%
Total of Percentages of	0.00% (A) Substrate Percentage 100% (B) A + B
Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A) Substrate Percentage 100% (B) A + B
SCORE OF TWO MOST PREDOMINATE SUBS	STRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 4
2 Mayimum Bool Donth (Massure the m	paximum pool depth within the 61 meter (200 ft) evaluation reach at the time of
	paximum pool depth within the 61 meter (200 ft) evaluation reach at the time of d 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] 15
OMM ENTS	MAXIMUM POOL DEPTH (centimeters): 15
OMM EAT 5	WAXINGWIFOOL BLF III (Centimeters).
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]	≤ 1.0 m (<=3' 3") [5 pts] Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.00
	This information must also be associated
RIPARIAN ZONE AND FLOODE	This information <u>must</u> also be completed PLAIN 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
	Field Open Pasture, Row Crop
✓ ✓ Narrow <5m	Residential, Park, New Field
None None	Fenced Pasture Mining or Construction
COMMENTS	
FLOW REGIME (At Time of Eve	aluation) (Check ONLY one box):
Stream Flowing	Moist Channel, isolated pools, no flow (Intermittent)
Subsurface flow with isolated poo	
COMMENTS_	
SINLIASITY (Number of bands of	per 61 m (200 ft) of channel) (Check ONLY one box):
None 0.5	1.0 2.0 3.0 3.0 1.5 2.5 3.0
None 0.5	1.0 2.0 3.0
None 0.5 STREAM GRADIENT ESTIMATE	1.0 1.5 2.0 2.5 3.0 >3
None 0.5	1.0 2.0 3.0

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: 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:_ 04/28/17 Quantity:_ 0.44
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
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site in the primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
FLOW



Google earth



SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-128 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi	0.22
LENGTH OF STREAM REACH (ft) 1,468 LAT. 41.14172 LONG82.95459 RIVER CODE RIVER MIL	
DATE 04/28/17 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for It	nstructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO F	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.	s HHE
TYPE PERCENT TYPE PERCENT	Metri
BLDR SLABS [16 pts]	Point
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substra Max = 4
COBBLE (65-256 mm) [12 pts]	I III AX
GRAVEL (2-64 mm) [9 pts]	9
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	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]	
✓	_ 25
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 15	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfu
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 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): 2.2	<u> 20</u>
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ঠ	'
RIPARIAN WIDTH FLOODPLAIN QUALITY L. D. (Next Part derricent res Park)	
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage	e
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
✓ ✓ Narrow <5m	/ Crop
None	tion
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Stream Flowing Moist Channel, isolated pools, no flow (Intermit Dry channel, no water (Ephemeral)	tent)
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box): None 1.0 2.0 3.0 3.0 3.5	
STREAM GRADIENT ESTIMATE	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe	0 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V 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: 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: 04/28/17	Quantity: 0.44
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Nearby road and crop areas	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebra Comments Regarding Biology:	imary Headwater Habitat Assessment Manual) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM F	







SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-150 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²)	0.13
LENGTH OF STREAM REACH (ft) 285 LAT. 41.15727 LONG82.99003 RIVER CODE RIVER MILE	
DATE 04/27/17 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	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ı 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	Metri
□ BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] D' LEAF PACK/WOODY DEBRIS [3 pts] 5% 0% FINE DETRITUS [3 pts]	Substrat
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	Max = 4
☐ GRAVEL (2-64 mm) [9 pts]	8
Total of Percentages of A A A Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock Check	^+6
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	0
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 0	
O DANK FULL MURTH (Managed on the control of the co	Danistal
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]	Bankful 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]	
> 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]	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
> 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]	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): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY 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 AVERAGE BANKFULL WIDTH (meters): This information must 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH L R (Per Bank) Wide > 10m Mature Forest, Wetland Conservation Tillage	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY LR (Per Bank) AVERAGE BANKFULL WIDTH (meters): O.50 This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY LR (Most Predominant per Bank) LR	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	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] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 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 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 FLOODPLAIN QUALITY L R (Per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field V V Open Pasture, Row C None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittee) Dry channel, no water (Ephemeral)	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Mature Forest, Shrub or Old Field Narrow <5m Narrow <5m Residential, Park, New Field Open Pasture, Row C This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH FLOODPLAIN QUALITY Anture Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Narrow <5m Residential, Park, New Field Open Pasture, Row C Open Pasture, Row C This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH FLOODPLAIN QUALITY Anture Forest, Wetland Open Pasture, Row C Open Pasture, Row C Open Pasture, Row C Mining or Construction COMMENTS Moist Channel, isolated pools, no flow (Intermitted Dry channel, no water (Ephemeral) COMMENTS	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 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 FLOODPLAIN QUALITY L R (Per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field V V Open Pasture, Row C None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittee) Dry channel, no water (Ephemeral)	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as look	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 This information must also be completed RIPARIAN WIDTH RIPARIAN WIDTH FLOODPLAIN QUALITY NoTE: River Left (L) and Right (R) as looking downstream Nature Forest, Wetland Wide > 10m Mature Forest, Wetland Narrow < 5m Narrow < 5m Residential, Park, New Field V Open Pasture, Row C Open Pasture, Row C Wining or Construction COMMENTS 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): None 1.0 SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0	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	ITIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Firside	NRCS Soil Map Stream Order
County: Seneca Towns	hip / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitation:	04/27/17 Quantity: 0.07
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) Y If not,	please explain:
is the sampling reach representative of the stream (1714)	picase expiani.
<u> </u>	
Additional comments/description of pollution impacts:	
Nearby road and crop areas	
BIOTIC EVALUATION	
()	r collections optional. NOTE: all voucher samples must be labeled with the site sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders O Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquat	bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	IN .

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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



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Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3) SITE NAME/LOCATION | Apex Republic Wind Farm SITE NUMBER DOH-152 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.20 LENGTH OF STREAM REACH (ft) 1,924 LAT. 41.17188 LONG. -82.89739 RIVER CODE RIVER MILE DATE 10/17/17 SCORER MAM COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** 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. Metric **TYPE PERCENT PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 85% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% **Substrate** 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 5% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 0% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 12 10% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 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): 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] 0 Only water by culvert/tile discharge **MAXIMUM POOL DEPTH (centimeters):** 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 Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] 5 COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.00 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS Sits within active field FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also	pe 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:	
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:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Townsh	ip / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitation:	10/12/17 Quantity: 0.02
Photograph Information: 3 photos taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
N	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, p Additional comments/description of pollution impacts:	lease explain:
· /	collections optional. NOTE: all voucher samples must be labeled with the signeets from the Primary Headwater Habitat Assessment Manual) served? (Y/N) N Voucher? (Y/N) N Voucher
	OF STREAM REACH (This <u>must</u> be completed): 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-153 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	3.22
LENGTH OF STREAM REACH (ft) 2,284 LAT. 41.16722 LONG82.89357 RIVER CODE RIVER MILE	
DATE 10/17/17 SCORER MAM 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 REMODIFICATIONS:	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
□ □ BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts]	11
SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts]	L
Total of Percentages of 0.00% (A) Substrate Percentage (B) Check 100%	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	0.5
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS Several tile discharges MAXIMUM POOL DEPTH (centimeters): 20	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 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): 4.00 This information must 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 AVERAGE BANKFULL WIDTH (meters): ### AVERAGE BANKFULL WIDTH (meters): ### 4.00 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY **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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Per Bank) AVERAGE BANKFULL WIDTH (meters): AVERAGE BANKFULL WIDTH (meters): 4.00 This information pust also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R	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	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	Width Max=30 25
> 4.0 meters (> 13') [30 pts]	Width Max=30 25
> 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 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 R (Per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field Narrow <5 m Residential, Park, New Field None COMMENTS At Flag 23. transitions into forrested modified ditch with more rocks. cobble. etc FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30 25 Crop
> 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field Narrow <5 m Residential, Park, New Field None COMMENTS At Flag 23, transitions into forrested modified ditch with more rocks. cobble. etc FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) > 1.0 m (< 3' 3" 4' 8") [15 pts] > 1.0 m (< 3' 3" 4' 8") [15 pts] > 1.0 m (< 3' 3" 4' 8") [15 pts] > 1.0 m (< 3' 3" 4' 8") [15 pts] > 1.0 m (< 3' 3" 4' 8") [15 pts] 4.00 AVERAGE BANKFULL WIDTH (meters): 4.00 AVERAGE BANKFULL WIDTH (meters):	Width Max=30 25 Crop
> 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 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 R (Per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field Narrow <5 m Residential, Park, New Field Narrow <5 m Residential, Park, New Field COMMENTS At Flag 23, transitions into forrested modified ditch with more rocks, cobble, etc FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermitter) Moist Channel, isolated pools, no flow (Intermitter)	Width Max=30 25 Crop
> 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream Nature Forest, Wetland RIPARIAN WIDTH L R (Most Predominant per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10 m Mature Forest, Shrub or Old Immature Forest, Shrub or Old Narrow <5 m Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed Wining or Construction COMMENTS At Flag 23. transitions into forrested modified ditch with more rocks, cobble, etc 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):	Width Max=30 25 Crop
> 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10m Wide >10m Wide >10m Wature Forest, Wetland Moderate 5-10m Mature Forest, Shrub or Old Field Narrow <5m Narrow <5m Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Fenced Pasture COMMENTS At Flag 23. transitions into forrested modified ditch with more rocks. cobble. etc FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Moist Channel, isolated pools, no flow (Intermitted Dry channel, no water (Ephemeral)	Width Max=30 25 Crop
> 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH I R (Per Bank) Wide > 10 m Mature Forest, Wetland Moderate 5-10 m Immature Forest, Shrub or Old Field Narrow <5m Residential, Park, New Field None COMMENTS Thom 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) None 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	Width Max=30 25 Crop
> 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 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) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field V None COMMENTS At Flag 23, transitions into forrested modified ditch with more rocks, cobble, etc 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): None 1.0 Check ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 Check ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 3.0 COMMENTS 3.0 3.0	Width Max=30 25 Crop nt)

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: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream 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: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N):_Y Date of last precipitation:10/12/17 Quantity:0.02
Photograph Information: 8 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:
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:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
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-156 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.11 LAT. 41.16737 LONG. -82.87626 RIVER CODE 961 LENGTH OF STREAM REACH (ft) RIVER MILE DATE 10/17/17 SCORER MAM COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** 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. Metric **TYPE PERCENT PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 80% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 20% 0% Substrate 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 0% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 8 0% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 2 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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): 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] 5 OMM ENTS **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) Bankfull (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] 5 COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.90 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS Excavated material appears to be built up alongside FLOW REGIME (At Time of Evaluation) (Check ONLY one box) Moist Channel, isolated pools, no flow (Intermittent) Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

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: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/17 Quantity: 0.02
Photograph Information: 2 photos
Elevated Turbidity? (Y/N): N Canopy (% open): 30%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
PIOTIC EVALUATION
BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the si ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Vo
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
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-159 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	.47
LENGTH OF STREAM REACH (ft) 2,442 LAT. 41.18466 LONG82.87483 RIVER CODE RIVER MILE	
DATE 10/17/17 SCORER MAM 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 RECOVERING.	OVERY
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Many (20) Add to the 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	Metri
BLDR SLABS [16 pts] 0% SILT [3 pt] 85%	Points
BOULDER (>256 mm) [16 pts]	Substrat
☐ ✓ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt] ☐ 0%	Max = 4
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	18
Total of Percentages of (A) Substrate Percentage (B)	A . B
Bldr Slabs, Boulder, Cobble, Bedrock Check	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	l
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	15
OMM ENTS Standing water throughout MAXIMUM POOL DEPTH (centimeters): 10	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.50	5
AVEITAGE BAILTI GEE WIB I'I (IIIGGES).	
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	
I II I Moderate 5-10m I IIVI I Urban or industrial	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr	эр
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr None Fenced Pasture Mining or Construction	р
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr None Fenced Pasture Mining or Construction COMMENTS Modified ditch. runs along forest edge	op -
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr None Fenced Pasture Mining or Construction COMMENTS Modified ditch. runs along forest edge FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	L
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr None Fenced Pasture Mining or Construction COMMENTS Modified ditch. runs along forest edge FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	L
None Fenced Pasture Mining or Construction COMMENTS Modified ditch. runs along forest edge FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Open Pasture, Row Cr Mining or Construction Mining or Construction Mining or Construction Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral)	L
None Fenced Pasture Mining or Construction COMMENTS Modified ditch. runs along forest edge 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): None 1.0 Open Pasture, Row Cr Mining or Construction Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral) COMMENTS 3.0	L
None Fenced Pasture Mining or Construction COMMENTS Modified ditch. runs along forest edge 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):	L
None Fenced Pasture Mining or Construction COMMENTS Modified ditch. runs along forest edge 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): None 1.0 Open Pasture, Row Cr Mining or Construction Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral) COMMENTS 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: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/17 Quantity: 0.02
Photograph Information: 2 photos
Elevated Turbidity? (Y/N): N Canopy (% open): 90%
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:
PIOTIC EVALUATION
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
rogs of Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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







SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-160 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	0.07
LENGTH OF STREAM REACH (ft) 1,314 LAT. 41.18396 LONG82.88652 RIVER CODE RIVER MILE	
DATE 10/17/17 SCORER MAM COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
(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] 40%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] D'W LEAF PACK/WOODY DEBRIS [3 pts] 0% FINE DETRITUS [3 pts] 0%	Substrat
COBBLE (65-256 mm) [12 pts] 30% CLAY or HARDPAN [0 pt] 0%	Max = 4
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	19
Total of Percentages of Co. CO. (A) Substrate Percentage (B)	4.18
Bldr Slabs, Boulder, Cobble, Bedrock	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	IVIAX - 5
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	5
OMMENTS MAXIMUM POOL DEPTH (centimeters): 2	
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]	Bankful Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.70	20
AVERAGE BANKFOLL WIDTH (Hieters).	20
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\text{NOTE: River Left (L) and Right (R) as looking downstream \$\text{2}}\$	
RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m	
✓✓ Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr	op
None Fenced Pasture Mining or Construction	1
COMMENTS	L
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)	7
COMMENTS_	Т
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	
0.5	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/	
	100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 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: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/17 Quantity: 0.02
Photograph Information: 2 photos
Elevated Turbidity? (Y/N): N Canopy (% open): 0%
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:
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Vouc
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
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ChieFPA Primary Headwater Habitat Evaluation Form

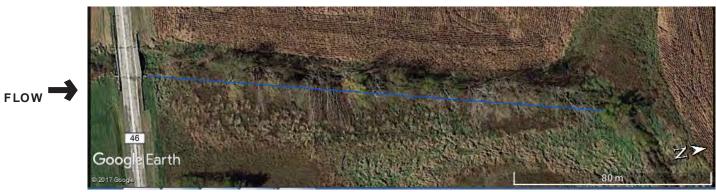
32

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

SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-161 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	6.44
LENGTH OF STREAM REACH (ft) LAT LAT LONG RIVER MILE RIVER MILE	
DATE 10/18/01 SCORER MAM COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	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	
(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
BLDR SLABS [16 pts] 0% SILT [3 pt] 75%	Point
BOULDER (>256 mm) [16 pts]	Substrat
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] 20% ARTIFICIAL [3 pts] 0%	
Total of Percentages of O.00% (A) Substrate Percentage Check (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 Dep
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]	
□ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	5
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 3	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
	Bankful
SANK 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] (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Bankful 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
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] ✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	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 This information must 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 AVERAGE BANKFULL WIDTH (meters): 1.20	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: 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	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	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 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) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.20 AVERAGE BANKFULL WIDTH (meters): 1.20 L R (Most Predominant per Loop Bank) L R (Most Predominant per Bank) Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Moderate 5-10m Residential, Park, New Field ✓ ✓ Open Pasture, Row Cr	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 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 Wide > 10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field V Narrow < 5m None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Noist Channel, isolated pools, no flow (Intermittent)	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Value Production COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30
S + 4.0 meters (> 13') [30 pts] S - 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] S - 1.0 m (<=3' 3") [5 pts] S - 1.0 m (<=	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN Wide > 10m	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30

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: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation:10/12/17Quantity:0.02
Photograph Information: 3 photos
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:

Additional comments/description of pollution impacts:
BIOTIC EVALUATION
N
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) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouc
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



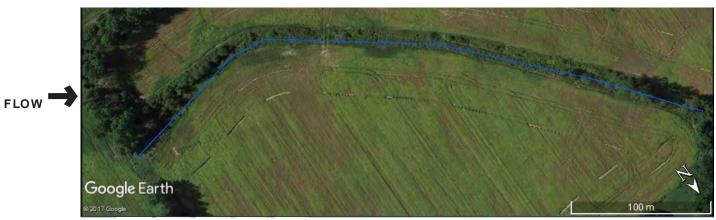




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SITE NAME/LOCATION | Apex Republic Wind Farm SITE NUMBER DOH-165 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²) 0.31 LAT. 41.14419 LONG. -82.98379 RIVER CODE 1,468 LENGTH OF STREAM REACH (ft) RIVER MILE DATE 10/18/17 SCORER MAM COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** 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. Metric **TYPE PERCENT PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 80% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% **Substrate** 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 5% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 12 15% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 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): 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] 15 10 OMM ENTS **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) Bankfull (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] 5 COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.90 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box) Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

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: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation:
Photograph Information: 5 photos
Elevated Turbidity? (Y/N): N Canopy (% open): 85%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:
Additional comments/description of pollution impacts:
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the 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:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-166 RIVER BASIN Morrion Creek DRAINAGE AREA (mi²) 0.15	
LENGTH OF STREAM REACH (ft) 1,563 LAT. 41.14419 LONG82.98379 RIVER CODE RIVER MILE	
DATE 10/18/17 SCORER MAM COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ons
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	RY
TYPE PERCENT TYPE PERCENT □ BLDR SLABS [16 pts] 0% □ SILT [3 pt] 95% □ BOULDER (>256 mm) [16 pts] 0% □ LEAF PACK/WOODY DEBRIS [3 pts] 0% □ BEDROCK [16 pt] 0% □ FINE DETRITUS [3 pts] 0% □ COBBLE (65-256 mm) [12 pts] 5% □ CLAY or HARDPAN [0 pt] 0% □ CAY [5] (2.64 mm) [9 pts] 0% □ MICK [0 pts] 0%	HHEI letric oints ubstrate ax = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5.00% (A) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 SUbstrate Percentage 100% (B) A TOTAL NUMBER OF SUBSTRATE TYPES: 2	A + B
	ol Dept ax = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
	15
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 8	
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	ankfull Width lax=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 2.50	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture Mining or Construction COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS The control of Evaluation (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 0.5 1.0 2.0 3.0 >3.0 >3.0 >3.0	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream 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: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/17 Quantity: 0.02
Photograph Information: 8 photos
Elevated Turbidity? (Y/N): _N Canopy (% open):100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
PIOTIC EVALUATION
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Vouc
Comments Regarding Biology:
DRAWING AND MARRATIVE RECORDED ON OF OTHER MARRADIA (TILL)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
include important fandinarks and other reactives of interest for site evaluation and a narrative description of the site and site causes
FLOW -
Google Earth





SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-168 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²) 1.	48
LENGTH OF STREAM REACH (ft) 2,679 LAT. 41.14367 LONG82.93291 RIVER CODE RIVER MILE	
DATE 10/19/17 SCORER MAM COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ıctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS:	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	Metri
BLDR SLABS [16 pts]	Point
BOULDER (>256 mm) [16 pts]	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%	15
SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B) Substrate Percentage Check	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 Dep
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]	_
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 5	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
<pre></pre>	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.30	15
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	
Field Field Urban or industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	ρ
None Fenced Pasture Mining or Construction	
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None	
□ 0.5	
	O ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes / No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: 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: 10/12/17 Quantity: 0.02
Photograph Information: 3 photos
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)
Υ
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
BIOTIC EVALUATION
Performed? (Y/N): 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) Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) N
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location









ChieFPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-169 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²)	.00
LENGTH OF STREAM REACH (ft) 400 LAT. 41.13997 LONG82.93835 RIVER CODE RIVER MILE	
DATE 10/19/17 SCORER MAM 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 RECOVERING RECENT OR NO RECOVERED RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERING RECENT OR NO RECOVERED RECO	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 BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 2	HHEI Metric Points Substrate Max = 40 14
	Dool Donth
 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]	l
□ > 10 - 22.5 cm [25 pts]	O
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 0	
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
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.30	5
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m	
Moderate 5-10m Immature Forest, Shrub or Old Irban or Industrial	
Field Narrow <5m Residential, Park, New Field Open Pasture, Row Cr	op
✓ None ☐ Fenced Pasture ☐ Mining or Construction	
COMMENTS	_
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS The control of Evaluation (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral))) <u> </u>
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 0.5 1.0 2.0 3.0 >3 >3	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/1	00 ft)

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: 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: 10/12/17 Quantity: 0.02
Photograph Information: 1 photo
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
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) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location Negurity R4 27
Google Earth

Save as pdf





Primary Headwater Habitat Evaluation Form

16

HHEI Score (sum of metrics 1, 2, 3) SITE NAME/LOCATION | Apex Republic Wind Farm SITE NUMBER DOH-171 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²) 0.00 LAT. 41.15547 LONG. -82.95198 RIVER CODE 507 LENGTH OF STREAM REACH (ft) RIVER MILE DATE 10/19/17 SCORER BJS COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** 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. Metric **TYPE PERCENT PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 75% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% **Substrate** 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 5% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 11 20% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 2 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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): 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] 0 OMM ENTS **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) Bankfull (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] 5 COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.90 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: 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: 10/12/17 Quantity: 0.02
Photograph Information: 2 photos
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Additional confinence of political impacts.
BIOTIC EVALUATION
Performed? (Y/N): 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:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location









SITE NAME/LOCATION Apex Republic Wind Farm		
	Pickerel Creek DRAINAGE AREA (mi²) 0.	.13
	82.90881 RIVER CODE RIVER MILE	
DATE 04/08/17 SCORER BH COMMENTS		
NOTE: Complete All Items On This Form - Refer to "Field Evaluati	on Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVER MODIFICATIONS:	/ERED ☑ RECOVERING ☐ RECENT OR NO RECO	OVERY
SUBSTRATE (Estimate percent of every type of substrate present. (May of 20) Add to be represented from force of the substrate type of substrate present.	·	HHE
(Max of 32). Add total number of significant substrate types found (Max TYPE PERCENT TYPE	PERCENT	Metri
	[3 pt] 100%	Point
	F PACK/WOODY DEBRIS [3 pts] 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLA	Y or HARDPAN [0 pt]	Max = 4
	CK [0 pts]	7
5/1/2 (*2 mm) [6 pts]		
Total of Percentages of 0.00% (A) Subs	trate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6	TOTAL NUMBER OF SUBSTRATE TYPES: 1	
2. Maximum Pool Depth (Measure the maximum pool depth within the		Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) > 30 centimeters [20 pts]	(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]	25
OMM ENTS	MAXIMUM POOL DEPTH (centimeters): 11	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement		Bankfu
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 4.0 meters (> 13') [30 pts]	s) (Check ONLY one box): .0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 4.0 meters (> 13') [30 pts]	s) (Check ONLY one box):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 4.0 meters (> 13') [30 pts]	s) (Check ONLY one box): .0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 4.0 meters (> 13') [30 pts]	s) (Check ONLY one box): .0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 1.0 m (<=3' 3") [5 pts]	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information mu	s) (Check ONLY one box): .0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.10 st also be completed	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information multiple of the in	s) (Check ONLY one box): .0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters):	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information mu RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) L R (Most Predominar	s) (Check ONLY one box): .0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.10 st also be completed River Left (L) and Right (R) as looking downstream the per Bank) L R	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information multiple of the properties of the proper	s) (Check ONLY one box): .0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.10 St also be completed River Left (L) and Right (R) as looking downstream: Int per Bank) L R etland Shrub or Old	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information mu RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) L R (Most Predominar	(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): 1.10 St also be completed River Left (L) and Right (R) as looking downstream to the per Bank) etland Shrub or Old Urban or Industrial	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information mu RIPARIAN ZONE AND FLOODPLAIN QUALITY PROPERTY A NOTE: RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m	s) (Check ONLY one box): .0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.10 st also be completed River Left (L) and Right (R) as looking downstream to the per Bank) etland Shrub or Old Urban or Industrial Onen Pasture Row Cro	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information mu RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) L R (Most Predominar Wide >10m Mature Forest, Wo Immature Forest, Wo Immature Forest, Field Narrow <5m Residential, Park, None Fenced Pasture	s) (Check ONLY one box): .0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.10 st also be completed River Left (L) and Right (R) as looking downstream to the per Bank) etland Shrub or Old Urban or Industrial Onen Pasture Row Cro	Width Max=30
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3. BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information multiple in the info	s) (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): 1.10 st also be completed River Left (L) and Right (R) as looking downstream the per Bank) the tell Conservation Tillage Shrub or Old Urban or Industrial New Field Open Pasture, Row Cro Mining or Construction	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information mu RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Per Bank)	s) (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): 1.10 St also be completed River Left (L) and Right (R) as looking downstream the per Bank) L R conservation Tillage Shrub or Old Urban or Industrial Open Pasture, Row Cro Mining or Construction C: Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information multiple in the properties of the proper	s) (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): 1.10 st also be completed River Left (L) and Right (R) as looking downstream the per Bank) ct per Bank) ct per Bank the per Bank Conservation Tillage Shrub or Old Urban or Industrial Open Pasture, Row Cro Mining or Construction C: Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information mu RIPARIAN ZONE AND FLOODPLAIN QUALITY PRIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one boy Stream Flowing Subsurface flow with isolated pools (Interstitial)	s) (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): 1.10 st also be completed River Left (L) and Right (R) as looking downstream the per Bank) ct per Bank) ct per Bank the per Bank Conservation Tillage Shrub or Old Urban or Industrial Open Pasture, Row Cro Mining or Construction C: Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information mu RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Per Bank) Uide >10m Mature Forest, Wilde >10m Moderate 5-10m Moderate 5-10m Narrow <5m Residential, Park, None COMMENTS 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) (Compared to the compared to the compar	s) (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): 1.10 St also be completed River Left (L) and Right (R) as looking downstream the per Bank) L R Conservation Tillage Shrub or Old Urban or Industrial Open Pasture, Row Cro Mining or Construction Check ONLY one box):	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurement > 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 This information mu RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, W. Moderate 5-10m Narrow <5m Residential, Park, None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one boy Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Contained) SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Contained)	s) (Check ONLY one box): .0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.10 st also be completed River Left (L) and Right (R) as looking downstream the per Bank) etland Shrub or Old Urban or Industrial Open Pasture, Row Cro Mining or Construction Check ONLY one box): 2.0 3.0	Width Max=30

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:
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: Sandusky Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y _ Date of last precipitation: 04/05/17 _ Quantity: 0.54
Photograph Information: Representative overview 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:
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) Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): 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



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SITE NAME/LOCATION Apex Republic Wind Farm		
SITE NUMBER DOH-205 RIVER BASIN Pickerel Creek DRAINAGE AREA (mi²)	.00	
LENGTH OF STREAM REACH (ft) 1,323 LAT. 41.26173 LONG82.90771 RIVER CODE RIVER MILE		
DATE 04/08/17 SCORER BH COMMENTS		
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions	
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	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]	Points	
BOULDER (>256 mm) [16 pts]	Substrat	
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40	
GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0%	7	
SAND (<2 mm) [6 pts]	<u> </u>	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep	
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]	4 -	
☐ ☐ NO WATER OR MOIST CHANNEL [0 pts]	15	
OMMENTS MAXIMUM POOL DEPTH (centimeters): 8		
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful	
> 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	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.10	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 (Most Predominant per Bank) L R		
☐		
Field 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) (Check ONLY one box):		
Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)		
COMMENTS	,	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):		
None 1.0 2.0 3.0 3.0 0.5 1.5 2.5 3		
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/10	00 ft)	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Comple QHEI PERFORMED? - Yes V No QHEI Score (If Y	
DOWNSTREAM DESIGNATED USE(S)	,
WWH Name:	Distance from Evaluated Stream
CWH Name:	
EWH Name: _	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE	RSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:NRCS Soi	Map Page: NRCS Soil Map Stream Order
County: Sandusky Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/05/17	Quantity: 0.54
Photograph Information: Representative overview photos taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no	or id. and attach results) Lab Number:
	S.U.) Conductivity (µmhos/cm)
Υ	
Is the sampling reach representative of the stream (Y/N) If not, please expl	ain:
Additional comments/description of pollution impacts:	
DIOTIO EVALUATION	
BIOTIC EVALUATION	
· /	optional. NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate field data sheets from	
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y	/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinv	N Voucier? (17/N)
Dominients Regarding Biology.	
DRAWING AND NARRATIVE DESCRIPTION OF STRE	AM PEACH (This must be completed):
Include important landmarks and other features of interest for site evalua	tion and a narrauve description of the stream's location
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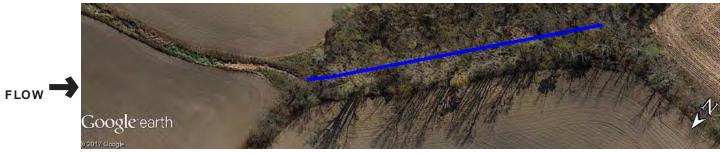
FLOW Coogle earth





SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-206 RIVER BASIN Pickerel Creek DRAINAGE AREA (mi²)	0.36
LENGTH OF STREAM REACH (ft) 454 LAT. 41.23284 LONG82.84572 RIVER CODE RIVER MILE	
DATE 04/08/17 SCORER BH COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute 1.	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
(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] 100% 100%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] D'W LEAF PACK/WOODY DEBRIS [3 pts] O'W FINE DETRITUS [3 pts] O'W O'W	Substrat
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt] ☐ ☐ 0%	Max = 4
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ☐ O% ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	7
Total of Percentages of (A) Substrate Percentage (B)	Aub
Bldr Slabs, Boulder, Cobble, Bedrock	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	25
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 15	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 2.00	20
AVERAGE BANKI GEE WIB III (Illeters).	20
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 ☐ Immature Forest, Shrub or Old ☐ ☐ University of the content of	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr	ор
None Fenced Pasture Mining or Construction	
Tenoca radiale EE intiming or conduction	
COMMENTS COMMENTS	L
COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent	L
COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	L
COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	L
COMMENTS 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): None 1.0 ONLY one box): 2.0 3.0	L
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) None 1.0 2.0 3.0 3.0 0.5 1.5 2.5	L
COMMENTS 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): None 1.0 ONLY one box): 2.0 3.0	L :)]

ADDITIONAL STREAM INFORMATION (This Information Must Also	pe 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 ENT	IRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Flat Rock	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Senca Townsh	ip / City:
MISCELLANEOUS	
Bate of last predipitation	04/05/17 Quantity: 0.54
Photograph Information: Representative overview photos taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): N (Note lab	sample no. or id. and attach results) Lab Number:
	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:	·
Additional comments/description of politicion impacts.	
BIOTIC EVALUATION	
	collections optional. NOTE: all voucher samples must be labeled with the site
	sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Ob Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic	served? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	N
DRAWING AND NARRATIVE DESCRIPTION (OF STREAM REACH (This <u>must</u> be completed):
	site evaluation and a narrative description of the stream's location

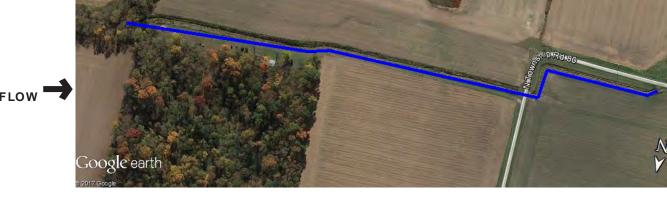






	THIEF COOLS (Sum of metrics 1, 2, 3) :
SITE NAME/LOCATION Apex Republic W	
SITE NUMBER_	OH-207 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.69
LENGTH OF STREAM REACH (ft) 1,936	
DATE 04/08/17 SCORER BH	COMMENTS
NOTE: Complete All Items On This Form	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NAT MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of ever	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.
	ERCENT TYPE PERCENT Metri
BLDR SLABS [16 pts]	O/A
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt]	0% LEAF PACK/WOODY DEBRIS [3 pts] 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%
SAND (<2 mm) [6 pts]	15% ARTIFICIAL [3 pts] 0% 12
T. I. I. C. D	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A) Substrate Percentage Check (B) A + B
SCORE OF TWO MOST PREDOMINATE SUBS	STRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3
	paximum 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 De 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]
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 15
3. BANK FULL WIDTH (Measured as the	
> 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 ✓ ≤ 1.0 m (<=3' 3") [5 pts] Max=3
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTO	AVERAGE BANKFULL WIDTH (meters): 1.00
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.00 5
DIDADIAN 70NF AND 51 00DF	This information must also be completed
RIPARIAN ZONE AND FLOODF RIPARIAN WIDTH	PLAIN 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	Immature Forest, Shrub or Old Urban or Industrial
	Field Open Pasture, Row Crop
Narrow <5m	Residential, Park, New Field
None None	Fenced Pasture Mining or Construction
COMMENTS	
FLOW REGIME (At Time of Eva	aluation) (Check ONLY one box):
Stream Flowing	Moist Channel, isolated pools, no flow (Intermittent)
Subsurface flow with isolated poor COMMENTS_	ols (Interstitial) Dry channel, no water (Ephemeral)
OCIVINIE I I I O	·
	per 61 m (200 ft) of channel) (Check ONLY one box):
None 0.5	1.0 1.5 2.5 3.0 3.0 3.0 3.0 3.0
	1.0
STREAM GRADIENT ESTIMATE	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate	Moderate (2 ft/100 ft) Moderate to Severe Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name:
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: Senca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/05/17 Quantity: 0.54
Photograph Information: Representative overview photos taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
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) Voucher? (Y/N)
Addatic Macioinvertebrates Observed? (17/N) N Voucher? (17/N) N Addatic Macioinvertebrates Observed? (17/N) N
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
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FLOW -







	Title Coole (sum of metrics 1, 2, 3) :
SITE NAME/LOCATION Apex Republic W	
SITE NUMBER_	OOH-208 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.42
LENGTH OF STREAM REACH (ft) 281	LAT. 41.20296 LONG82.91395 RIVER CODE RIVER MILE
DATE 04/12/17 SCORER BH	COMMENTS
NOTE: Complete All Items On This For	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of ever	ery type of substrate present. Check ONLY two predominant substrate TYPE boxes
(Max of 32). Add total number of signific	cant substrate types found (Max of 8). Final metric score is sum of boxes A & B.
	ERCENT TYPE PERCENT Met
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]	0% SILT [3 pt] 80% SILT [3 pt] 0%
BEDROCK [16 pt]	0% Subst
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 0%
GRAVEL (2-64 mm) [9 pts]	15% MUCK [0 pts] 0%
SAND (<2 mm) [6 pts]	5% ARTIFICIAL [3 pts] 0%
Total of Percentages of	Substrate Percentage (B)
Bldr Slabs, Boulder, Cobble, Bedrock _	0.00% (A) Substrate Percentage 100% (B) A + I
SCORE OF TWO MOST PREDOMINATE SUBS	STRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 3
2. Maximum Pool Depth (Measure the m	paximum pool depth within the 61 meter (200 ft) evaluation reach at the time of
	naximum pool depth within the 61 meter (200 ft) evaluation reach at the time of deculverts 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]
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 40
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts]	e average of 3-4 measurements) (Check ONL Y one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Wid
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	≤ 1.0 m (<=3' 3") [5 pts] Max=
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.00 5
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.00
DIDADIAN ZONE AND ELOODE	This information <u>must</u> also be completed PLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆
RIPARIAN ZONE AND FLOODF RIPARIAN WIDTH	FLOODPLAIN QUALITY 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 Open Pasture, Row Crop
Narrow <5m	Residential, Park, New Field
None	Fenced Pasture Mining or Construction
COMMENTS	<u>_</u>
`	aluation) (Check ONLY one box):
Stream Flowing	Moist Channel, isolated pools, no flow (Intermittent)
Subsurface flow with isolated poor	ols (Interstitial) Dry channel, no water (Ephemeral)
55nE.tt.5_	<u>,</u>
	per 61 m (200 ft) of channel) (Check ONLY one box):
None 0.5	1.0 1.5 2.5 3.0 3.0 >3
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate	Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream 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: Senca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/11/17 Quantity: 0.05
Photograph Information: Representative overview photos taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site of 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:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
FLOW -
Google earth.





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SITE NAME/LOCATION Apex Republic Wind Farm		
SITE NUMBER DOH-209 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	.26	
LENGTH OF STREAM REACH (ft) 1,744 LAT. 41.20275 LONG82.89723 RIVER CODE RIVER MILE		
DATE 04/12/17 SCORER BH COMMENTS		
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions	
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 (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] PERCENT TYPE SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts] O% SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts] O% O% ON	HHEI Metric Points Substrate Max = 40	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 6	A + B	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Depth Max = 30	
> 30 centimeters [20 pts]		
	15	
OMMENTS MAXIMUM POOL DEPTH (centimeters): 7		
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] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Bankfull Width Max=30	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 2.80	20	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY		
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS The control of Evaluation (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	_	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 0.5 1.5		
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/10	00 ft)	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attach Completed QHEI Form)		
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: EWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: Fireside NRCS Soil Map F	Page: NRCS Soil Map Stream Order	
MISCELLANEOUS		
Base Flow Conditions? (Y/N):_Y Date of last precipitation:_ 04/11/17	Quantity: 0.05	
Photograph Information: Representative overview 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:		
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Programme of Tadpoles Observed? (Y/N) N Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebra	rimary Headwater Habitat Assessment Manual) Voucher? (Y/N) N	
Comments Regarding Biology:		
DRAWING AND NARRATIVE DESCRIPTION OF STREAM I	· ·	
FLOW TO THE PROPERTY OF THE PR		

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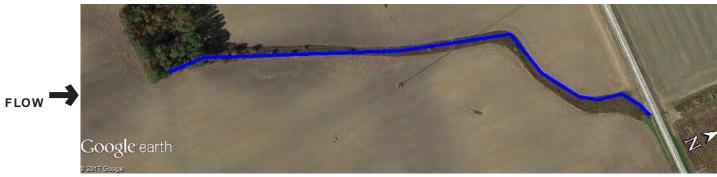




18

SITE NAME/LOCATION Apex Republic Wind Farm SITE NUMBER DOH-210 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.17 LENGTH OF STREAM REACH (ft) 1,573 LAT. 41.18850 LONG. -82.90719 RIVER CODE RIVER MILE DATE **04/12/17** SCORER BH **COMMENTS** NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** 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. Metric **TYPE PERCENT PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 80% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 20% 0% **Substrate** 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 0% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 8 0% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 2 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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): 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] 5 OMM ENTS **MAXIMUM POOL DEPTH (centimeters):** 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 Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] 5 COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.50 This information must also be completed ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN ZONE AND FLOODPLAIN QUALITY **FLOODPLAIN QUALITY** RIPARIAN WIDTH (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also	b 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 EI	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Senca Towns	ship / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitation:	04/11/17 Quantity: 0.05
Photograph Information: Representative overview photos taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100	%
Were samples collected for water chemistry? (Y/N): N (Note la	b 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:
is the sampling reach representative of the stream (1714)	, рессос съргані.
<u> </u>	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Vouche	er collections optional. NOTE: all voucher samples must be labeled with the site
· / ———	a sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed OVAN N Oslavendary C	N V V V V V V V V V V V V V V V V V V V
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders C Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqua	Observed? (Y/N) N Voucher? (Y/N) N Vouch
Comments Regarding Biology:	N Poddini (1711)
Confinents Regarding Biology.	
	
DRAWING AND NARRATIVE DESCRIPTION	OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest fo	r site evaluation and a narrative description of the stream's location







SITE NAME/LOCATION Apex Republic V	Vind Farm	
SITE NUMBER C	DOH-211 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	0.24
LENGTH OF STREAM REACH (ft) 2,791	LAT. 41.18480 LONG82.93550 RIVER CODE RIVER MILE	
DATE 04/12/17 SCORER BH	COMMENTS	
NOTE: Complete All Items On This For	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for In	structions
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO R	ECOVERY
	ery type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
	cant substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT TYPE PERCENT	Metri
BLDR SLABS [16 pts]	0% SILT [3 pt] 100%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt]	0% LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% 0%	Substrat
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts]	0% MUCK [0 pts] 0% 0% ARTIFICIAL [3 pts] 0%	7
SAND (<2 mm) [6 pts]	7.KTII TOIALE [O PLO]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBS	STRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1	
	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from roa > 30 centimeters [20 pts]	ad 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]	25
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 14	
3. BANK FULL WIDTH (Measured as the	e average of 3-4 measurements) (Check ONLY one box):	
<u> </u>	e average of 3-4 measurements) (Check ONL Folle box).	Bankful
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
		Bankful 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 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]	> 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] AVERAGE BANKFULL WIDTH (meters): 1.20 This information must 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 RIPARIAN ZONE AND FLOODE	> 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 must also be completed PLAIN QUALITY 公NOTE: River Left (L) and Right (R) as looking downstream 公	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)	This information must also be completed PLAIN QUALITY L R (Most Predominant per Bank) > 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 must also be completed PLAIN QUALITY L R (Most Predominant per Bank) L R	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) Wide >10m	This information must also be completed PLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Note	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)	This information must also be completed PLAIN QUALITY ♣ NOTE: River Left (L) and Right (R) as looking downstream ★ FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Wetland Conservation Tillage	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) V 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 FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Urban or Industrial	Width Max=30
> 4.0 meters (> 13') [30 pts]	This information must also be completed PLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Conservation Flow Pasture Row Onen Pasture Row	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) V Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS	This information must also be completed PLAIN QUALITY ∴ NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Note 1.5 m (> 3' 3" - 4' 8") [15 pts] L 20 L 20 L 31 L 4 Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction	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 (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS FLOW REGIME (At Time of Every Stream Flowing)	This information must also be completed PLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Residential, Park, New Field Fenced Pasture Mining or Constructival Aluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittice)	Width Max=30
> 4.0 meters (> 13') [30 pts]	This information must also be completed PLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Residential, Park, New Field Fenced Pasture Mining or Constructival Aluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittice)	Width Max=30
A.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 (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS FLOW REGIME (At Time of Every Stream Flowing Subsurface flow with isolated poor COMMENTS	This information must also be completed PLAIN QUALITY ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣ FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Residential, Park, New Field Fenced Pasture Mining or Construction of the construction o	Width Max=30
A 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 (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS FLOW REGIME (At Time of Evaluation of Evaluatio	This information must also be completed PLAIN QUALITY ∴ NOTE: River Left (L) and Right (R) as looking downstream ∴ FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Moist Channel, isolated pools, no flow (Intermitted only (Intermitted)) Moist Channel, no water (Ephemeral) Per 61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.0 3.0	Width Max=30
A.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 (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS FLOW REGIME (At Time of Every Stream Flowing Subsurface flow with isolated poor COMMENTS SINUOSITY (Number of bends in None 0.5	This information must also be completed PLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Residential, Park, New Field Residential, Park, New Field Moist Channel, isolated pools, no flow (Intermitted only construction) Moist Channel, no water (Ephemeral) Per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
A 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 (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS FLOW REGIME (At Time of Evaluation of Evaluatio	This information must also be completed PLAIN QUALITY ∴ NOTE: River Left (L) and Right (R) as looking downstream ∴ FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Moist Channel, isolated pools, no flow (Intermitted only (Intermitted)) Moist Channel, no water (Ephemeral) Per 61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.0 3.0	Width Max=30 15 Crop on ent)

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 Distance from Evaluated Stream Distance from Evaluated Stream 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: Senca Township / City:
MISCELLANEOUS Base Flow Conditions? (V/N): Y Date of last precipitation: 04/11/17 Quantity: 0.05
Base Flow Conditions? (Y/N): Y Date of last precipitation:
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain: Additional comments/description of pollution impacts:
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
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location FLOW



Google earth



SITE NAME/LOCATION Apex Republic Wind Farm SITE NUMBER DOH-212 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²) 0	.14
LENGTH OF STREAM REACH (ft) 1,148 LAT. 41.19424 LONG82.97120 RIVER CODE RIVER MILE	
DATE 04/25/17 SCORER BH COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL □ NONE / NATURAL CHANNEL □ RECOVERED □ RECOVERING □ RECENT OR NO RECOVERED □ 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.	HHEI
TYPE PERCENT TYPE PERCENT	Metri
■ BLDR SLABS [16 pts] 0% ✓ SILT [3 pt] 100% ■ BOULDER (>256 mm) [16 pts] 0% ■ LEAF PACK/WOODY DEBRIS [3 pts] 0%	Points
BEDROCK [16 pt] BEDROCK [16 pt] O% FINE DETRITUS [3 pts]	Substrat Max = 4
COBBLE (65-256 mm) [12 pts]	Wax - 4
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] O% ARTIFICIAL [3 pts] O% O%	7
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	4.5
The With the Control of the Control	15
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 7	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful 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): 1.20	15
AVERAGE BANKFOLL WIDTH (Hetels).	13
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	
RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R	
RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage	
RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Open Pasture Pow Creen	חו
RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Immature Forest, Shrub or Old Field Open Pasture, Row Cro	qı
RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Open Pasture Pow Creen	qr
RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Narrow <5m None FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Urban or Industrial Open Pasture, Row Cro Fenced Pasture Mining or Construction	qr
RIPARIAN WIDTH (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old Field Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Conservation Tillage Urban or Industrial Open Pasture, Row Cro Mining or Construction Mining or Construction Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	-
RIPARIAN WIDTH (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old Field Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	-
RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Open Pasture, Row Cro None COMMENTS FLOW REGIME (At Time of Evaluation) 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) Company (Most Predominant per Bank) L R (Conservation Tillage Urban or Industrial Open Pasture, Row Cro Mining or Construction Comments Open Pasture, Row Cro Mining or Construction Open Pasture, Row Cro Mining or Construction Comments Open Pasture Dry channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	-
RIPARIAN WIDTH (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old	-
RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old Immature Forest, Wetland Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature Forest, Wetland Immature Forest, Paulon Immatur	-) [

ADDITIONAL STREAM INFORMATION (This Information Must Ale	so 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:Fireside	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Senca Tow	nship / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitation:	04/11/17 Quantity: 0.05
Photograph Information: Representative overview photos taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 10	0%
Were samples collected for water chemistry? (Y/N): (Note I	lab sample no. or id. and attach results) Lab Number:
	pH (S.U.) Conductivity (µmhos/cm)
Y	ot, please explain:
to the earnpring reason representative or the edeath (1711)	5, piedes 6/pidini
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucl	her 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) N Salamanders Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqu	Observed? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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







SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-213 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²) 0.	.01
LENGTH OF STREAM REACH (ft) 1,065 LAT. 41.19213 LONG82.96490 RIVER CODE RIVER MILE	
DATE 04/25/17 SCORER BH COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL □ NONE / NATURAL CHANNEL □ RECOVERED □ RECOVERING □ RECENT OR NO RECOMMODIFICATIONS:	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.	HHEI
TYPE PERCENT TYPE PERCENT	Metri
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrat Max = 4
COBBLE (65-256 mm) [12 pts]	IVIAX - 4
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] O% ARTIFICIAL [3 pts] O% O% O% O% O% O% O% O% O% O	7
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	_
The White Community of	5
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 5	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.20	15
AVERAGE BANKFULL WIDTH (Heters).	
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	
☐ Wide >10m ☐ Mature Forest, Wetland ☐ Conservation Tillage ☐ Moderate 5-10m ☐ Immature Forest, Shrub or Old ☐ Urban or Industrial	
Field —— Open Pacture Pow Cro	ac
Residential, Park, New Field	-
None Fenced Pasture Mining or Construction COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
COMMENTS	
SINUOSITY (Number of ben <u>ds</u> per 61 m (200 ft) of channel) (Check ONLY one box):	
V None	
None 2.0 3.0 3.0 0.5 1.5 2.5	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ich Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:EWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	
USGS Quadrangle Name: Fireside NRCS Soil Map F	
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_Y Date of last precipitation:_ 04/20/17	Quantity: 0.21
Photograph Information: Representative overview photos taken	
Elevated Turbidity? (Y/N): 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) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): 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 Voucher? (Y/N) Aquatic Macroinvertebrate	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	N vodenie (1711)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation an	
The same was the same and the s	A STATE OF THE STA
FLOW -	
Google earth	z>

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SITE NAME/LOCATION Apex Republic Wind Farm SITE NUMBER DOH-214 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.12 LENGTH OF STREAM REACH (ft) 1,211 LAT. 41.17307 LONG. -82.92563 RIVER CODE RIVER MILE DATE **04/27/17** SCORER BH COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** 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. Metric **TYPE PERCENT PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 90% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% **Substrate** 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 10% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 14 0% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock 12 TOTAL NUMBER OF SUBSTRATE TYPES: 2 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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): 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] 5 OMM ENTS **MAXIMUM POOL DEPTH (centimeters):** 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 Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] 5 COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.50 This information must also be completed ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN ZONE AND FLOODPLAIN QUALITY **FLOODPLAIN QUALITY** RIPARIAN WIDTH (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

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: Fireside NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Senca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/27/17 Quantity: 0.07
Photograph Information: Representative overview photos taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Vouc
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
FLOW TO THE PROPERTY OF THE PR
Google earth





SITE NAME/LOCATION Apex Republic W	/ind Farm	
SITE NUMBER_D		.00
LENGTH OF STREAM REACH (ft) 60	LAT. 41.15982 LONG82.92374 RIVER CODE RIVER MILE	
DATE 05/10/17 SCORER BH	COMMENTS	
NOTE: Complete All Items On This Form	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NAT MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVE	OVERY
· · ·	ery type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
. , ,	cant substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT TYPE PERCENT	Metri
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]	0% SILT [3 pt] 75%	Point
BEDROCK [16 pt]	0% LEAF PACK/WOODY DEBRIS [3 pts] 25% 0% 0%	Substrat
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0% MUCK [0 pts] 0% 0% ARTIFICIAL [3 pts] 0%	8
T. I. CD	0.00% (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBS	Check 100%	Α.Β
	naximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Deal Day
	id culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts] < 5 cm [5 pts] 	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	5
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 3	
3. BANK FULL WIDTH (Measured as the	e 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]	L ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.50	15
	This information must also be completed	
RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH	PLAIN 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 Immature Forest, Shrub or Old Urban or Industrial	
Moderate 5-10m	——— Field	
Narrow <5m	Residential, Park, New Field Open Pasture, Row Cro	ıρ
None None	Fenced Pasture Mining or Construction	
COMMENTS		
	illustion) (Check ONLY one box):	
FLOW REGIME (At Time of Eva	aluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent)	
FLOW REGIME (At Time of Eva	Moist Channel, isolated pools, no flow (Intermittent)	
FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated poor COMMENTS_	Moist Channel, isolated pools, no flow (Intermittent)	
FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated poor COMMENTS_	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated poor COMMENTS SINUOSITY (Number of bends poor None 0.5	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) per 61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.0 3.0	
FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated poor COMMENTS SINUOSITY (Number of bends poor None	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) per 61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.0 3.0	

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: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream 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: Senca Township / City:
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation:
Photograph Information: Representative overview photos taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site of the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location FLOW Google earth





SITE NAME/LOCATION Apex Republic Wind	l Farm	
SITE NUMBER DOH).15
	T. 41.15418 LONG82.92425 RIVER CODE RIVER MILE	
DATE 05/10/17 SCORER BH	COMMENTS	
NOTE: Complete All Items On This Form - F	Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURA MODIFICATIONS:	AL CHANNEL RECOVERED RECOVERING RECENT OR NO REC	OVERY
	ype of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
TYPE PERC	substrate types found (Max of 8). Final metric score is sum of boxes A & B. EENT TYPE PERCENT	Metri
BLDR SLABS [16 pts] BOULDER (> 256 mm) [16 pts]		Point
BOULDER (>256 mm) [16 pts] 0% BEDROCK [16 pt] 0%		Substrat
COBBLE (65-256 mm) [12 pts]	CLAY or HARDPAN [0 pt]	Max = 4
GRAVEL (2-64 mm) [9 pts] 0%	INICOR [o pts]	7
G/1172 (12 mm) [0 pto]	7. KTIN TOPAL [O PLO]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	% (A) Substrate Percentage 100% (B)	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRA	TOTAL NUMBER OF SUBSTRATE TYPES: 1	
	num pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road cul > 30 centimeters [20 pts]	verts or storm water pipes (Check ONLY one box): 	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): 25	
3. BANK FULL WIDTH (Measured as the aver	rage 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
· ·		Bankful 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 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]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] < 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	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 3.00 This information must 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 RIPARIAN ZONE AND FLOODPLAIR	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 3.00 This information must also be completed N QUALITY % 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 RIPARIAN ZONE AND FLOODPLAIN RIPARIAN WIDTH LR (Per Bank) L	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 3.00 This information must also be completed N QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ ELOODPLAIN QUALITY L R (Most Predominant per Bank) L R	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 FLOODPLAIM RIPARIAN WIDTH L R (Per Bank) Wide >10m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 3.00 This information must also be completed N QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage	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 RIPARIAN WIDTH LR (Per Bank) L	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 3.00 This information must also be completed N QUALITY ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature Forest, Shrub or Industrial	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 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] AVERAGE BANKFULL WIDTH (meters): 3.00 This information must also be completed N QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old	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 FLOODPLAIR 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] AVERAGE BANKFULL WIDTH (meters): 3.00 This information must also be completed NQUALITY NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Mature Forest, Wetland Immature Forest, Shrub or Old Field Onen Bacture Row Completed Onen Bact	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 FLOODPLAIR RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS	This information must also be completed N QUALITY ANOTE: River Left (L) and Right (R) as looking downstream COODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture N 1.0 m (< 3' 3" - 4' 8") [15 pts] 3.00 AVERAGE BANKFULL WIDTH (meters): 3.00 L R Conservation Tillage Urban or Industrial Open Pasture, Row Creation Mining or Construction	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 FLOODPLAIR RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None	This information must also be completed N QUALITY ANOTE: River Left (L) and Right (R) as looking downstream COODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture N 1.0 m (< 3' 3" - 4' 8") [15 pts] 3.00 AVERAGE BANKFULL WIDTH (meters): 3.00 L R Conservation Tillage Urban or Industrial Open Pasture, Row Creation Mining or Construction	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 FLOODPLAIR RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation	This information must also be completed N QUALITY ANOTE: River Left (L) and Right (R) as looking downstream LOODPLAIN QUALITY R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Moist Channel, isolated pools, no flow (Intermittent) N AVERAGE BANKFULL WIDTH (meters): 3.00 3.00 L R Conservation Tillage Urban or Industrial Open Pasture, Row Cn Mining or Construction	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 RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (In COMMENTS)	This information must also be completed N QUALITY ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ ELOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral)	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 RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (In COMMENTS) SINUOSITY (Number of bends per 6') None 1	This information must also be completed N QUALITY	Width Max=30
A.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 RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (In COMMENTS) SINUOSITY (Number of bends per 6') None 0.5 1 1	This information must also be completed N QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ COODPLAIN QUALITY R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture Moist Channel, isolated pools, no flow (Intermittent nterstitial) Moist Channel, no water (Ephemeral) 1 m (200 ft) of channel) (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 FLOODPLAIN RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (In COMMENTS) SINUOSITY (Number of bends per 6') None 1	This information must also be completed N QUALITY	Width Max=30

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: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream 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: Senca Township / City:
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/05/17 Quantity: 0.99
Photograph Information: Representative overview photos taken
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (
Comments Regarding Biology.
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
FLOW TO THE PARTY OF THE PARTY

Save as pdf



Google earth



SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-217 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	0.01
LENGTH OF STREAM REACH (ft) 1,440 LAT. 41.15789 LONG82.92566 RIVER CODE RIVER MILE	
DATE 05/10/17 SCORER BH 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 RECOVERING.	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
(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]	Points
BOULDER (>256 mm) [16 pts]	Substrat
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt] ☐ ☐ O%	Max = 4
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	7
Total of Percentages of (A) Substrate Percentage (B)	Aub
Bldr Slabs, Boulder, Cobble, Bedrock Check	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	25
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 15	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful Width
> 3.0 m - 4.0 m (> 9 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.00	5
AVERAGE BARRI GEE WIB III (Indees).	
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	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr	op
✓ ✓ None	l
	-
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent	()
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
COMMENTS_	1
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	1
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	1
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 0.5 1.5	1
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	OO ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Senca Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/05/17 Quantity: 0.99
Photograph Information: Representative overview photos taken
Elevated Turbidity? (Y/N):N Canopy (% open):100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mq/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:
Additional comments that a state of a sile state of the s
Additional comments/description of pollution impacts:
BIOTIC EVALUATION
N N
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) Voucher? (Y/N) Vo
Comments Regarding Biology:
Comments regarding blology.
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







	THIEF COOLS (Sum of metrics 1, 2, 3) :
SITE NAME/LOCATION Apex Republic W	
SITE NUMBER_	OH-218 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²) 0.07
LENGTH OF STREAM REACH (ft) 951	LAT. 41.15446 LONG82.93611 RIVER CODE RIVER MILE
DATE 05/10/17 SCORER BH	COMMENTS
NOTE: Complete All Items On This Forr	n - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of every state of every state)	ery type of substrate present. Check ONLY two predominant substrate TYPE boxes
(Max of 32). Add total number of signific	ant substrate types found (Max of 8). Final metric score is sum of boxes A & B.
	ERCENT TYPE PERCENT Poin
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]	0% SILT [3 pt] 50% FOIII LEAF PACK/WOODY DEBRIS [3 pts] 0%
BEDROCK [16 pt]	0% Substra
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 30%
GRAVEL (2-64 mm) [9 pts]	15% MUCK [0 pts] 0%
SAND (<2 mm) [6 pts]	5% ARTIFICIAL [3 pts] 0%
Total of Percentages of	(A)
Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A) Substrate Percentage Check 100% (B) A + B
SCORE OF TWO MOST PREDOMINATE SUBS	STRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 4
Navious Bart Barth (Massaur them	Del De
	paximum 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 December 2 Pool December 3 Pool December 4 Pool December 4 Pool December 4 Pool December 4 Pool December 5 Pool December 6 Pool December 6 Pool December 6 Pool December 7 Pool December 7
> 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]
OMM ENTS	MAXIMUM POOL DEPTH (centimeters): 50
3. BANK FULL WIDTH (Measured as the	
> 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 ≤ 1.0 m (<=3' 3") [5 pts] Max=3
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTO	AVERAGE BANKFULL WIDTH (meters): 2.50
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 2.50 20
DIDADIAN TONE AND ELOOPE	This information must also be completed
RIPARIAN ZONE AND FLOODF RIPARIAN WIDTH	PLAIN 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	Immature Forest, Shrub or Old Urban or Industrial
	Field Open Pasture, Row Crop
Narrow <5m	Residential, Park, New Field
✓ ✓ None	Fenced Pasture Mining or Construction
COMMENTS	
FLOW REGIME (At Time of Eva	aluation) (Check ONLY one box):
Stream Flowing	Moist Channel, isolated pools, no flow (Intermittent)
Subsurface flow with isolated poo	ols (Interstitial) Dry channel, no water (Ephemeral)
COMMENTS_	
SINUOSITY (Number of bends p	per 61 m (200 ft) of channel) (Check ONLY one box):
None	1.0
0.5	1.5 2.5 >3
OTDEAN OD A DIENT FOTIMATE	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate	Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also b	e Completed):
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: EWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTI	RE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Senca Townshi	p / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation:	05/05/17 Quantity: 0.99
Photograph Information: Representative overview photos taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
NI NI	ample 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, pl	ease explain:
Additional comments/description of pollution impacts:	
ID number. Include appropriate field data s Fish Observed? (Y/N) N Salamanders Obs	ollections optional. NOTE: all voucher samples must be labeled with the site heets from the Primary Headwater Habitat Assessment Manual) erved? (Y/N) Voucher? (Y/N) Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
	F STREAM REACH (This must be completed): ite evaluation and a narrative description of the stream's location
Google earth	N. P.





SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER DOH-219 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²) 2.4	.7
LENGTH OF STREAM REACH (ft) 2,019 LAT. 41.14825 LONG82.94136 RIVER CODE RIVER MILE	
DATE 05/11/17 SCORER BH COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	ctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	/ERY
TYPE PERCENT TYPE PERCENT □ □ □ BLDR SLABS [16 pts] 0% ✓ ✓ SILT [3 pt] 100%	HHEI Metric Points
BEDROCK [16 pt]	Substrate Max = 40
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ MUCK [0 pts] ☐ 0% ☐ ARTIFICIAL [3 pts] ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0	7
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock O.00% (A) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 Substrate Percentage 100% (B) TOTAL NUMBER OF SUBSTRATE TYPES: 1	A + B
	Pool Dept Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	20
OMMENTS MAXIMUM POOL DEPTH (centimeters): 40	
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
COMMENTSAVERAGE BANKFULL WIDTH (meters): 3.00	20
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) Wide >10m Moderate 5-10m L R (Most Predominant per Bank) Mature Forest, Wetland D Moderate 5-10m L R (Most Predominant per Bank) Mature Forest, Wetland D Conservation Tillage Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture Mining or Construction COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box): None 0.5 1.0 2.0 3.0 >3 >3	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Complete	ed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes	s, 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 WATER	SHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil I	Map Page: NRCS Soil Map Stream Order
County: Senca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/11/17	Quantity: 0.75
Photograph Information: Representative overview photos taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. o	or id. and attach results) Lab Number:
	U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain	in:
<u> </u>	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed 2 (V/N)	NOTE III
Performed? (Y/N): (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from the second se	ptional. NOTE: all voucher samples must be labeled with the site the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Salamanders Observed? (Y/N)	N Voucher (V/N) N
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvel	Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	N

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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







	THIEF COOL (Sum of metrics 1, 2, 3) :
SITE NAME/LOCATION Apex Republic W	
SITE NUMBER_	OOH-220 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²) 0.79
LENGTH OF STREAM REACH (ft) 960	LAT. 41.14807 LONG82.93937 RIVER CODE RIVER MILE
DATE 05/11/17 SCORER BH	COMMENTS
NOTE: Complete All Items On This Form	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NAMODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of every continuous)	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.
<u>TYPE</u> P	PERCENT TYPE PERCENT Met
BLDR SLABS [16 pts]	0% SILT [3 pt] 100%
□ □ BOULDER (>256 mm) [16 pts] □ □ BEDROCK [16 pt]	0% LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% Subst
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 0%
GRAVEL (2-64 mm) [9 pts]	0% MUCK [0 pts] 0%
SAND (<2 mm) [6 pts]	0% ARTIFICIAL [3 pts] 0%
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A) Substrate Percentage 100% (B) A + I
SCORE OF TWO MOST PREDOMINATE SUBS	STRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1
	naximum pool depth within the 61 meter (200 ft) evaluation reach at the time of ad 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]
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 30
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] Wid
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	≤ 1.0 m (<=3' 3") [5 pts] With
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 2.00
COMMENTO	AVERAGE BARRI GEE WIDTH (Meters).
RIPARIAN ZONE AND FLOODE	This information <u>must</u> also be completed PLAIN 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	Residential, Park, New Field Open Pasture, Row Crop
✓ ✓ None COMMENTS	Fenced Pasture Mining or Construction
•	aluation) (Check ONLY one box):
Stream Flowing Subsurface flow with isolated poo	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)
COMMENTS_	En Signatural, no valor (Ephonolar)
SINUOSITY (Number of bends p None	per 61 m (200 ft) of channel) (Check ONLY one box): 1.0
0.5	1.5
	<u> </u>
OTDE 411 AD 151515	
STREAM GRADIENT ESTIMATE Flat to Moderate	Moderate (2 ff/100 ft)
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate	Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Complete	<u>ed):</u>
QHEI PERFORMED? - Yes No QHEI Score (If Yes	s, 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 WATER	SHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fireside NRCS Soil M	Map Page: NRCS Soil Map Stream Order
County: Senca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/11/17	Quantity: 0.75
Photograph Information: Representative overview photos taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	· · ·
N	or id. and attach results) Lab Number:
	,
	,
Is the sampling reach representative of the stream (Y/N) Y If not, please explain	n:
Additional comments/description of pollution impacts:	
	<u>'</u>
BIOTIC EVALUATION	
	otional. NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate field data sheets from t	
Fish Observed? (Y/N) N Salamanders Observed? (Y/N)	Voucher? (Y/N)
riogs of Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinver	tebrates Observed? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREA	AM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluati	on and a narrative description of the stream's location
	The state of the s
The season of th	







SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-001 RIVER BASIN Spicer Creek DRAINAGE AREA (mi²) 0.04	
LENGTH OF STREAM REACH (ft) 1,486 LAT. 41.21175 LONG83.12513 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 Instruct	ions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	ERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
TYPE PERCENT TYPE PERCENT N	/letri
□ BLDR SLABS [16 pts]	oint
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] BEDROCK [16 pt] D LEAF PACK/WOODY DEBRIS [3 pts] O% FINE DETRITUS [3 pts]	ubstrat
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt]	lax = 4
GRAVEL (2-64 mm) [9 pts]	13
SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5.00% (A) Substrate Percentage Check (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	ool Dep
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]	lax = 3
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
□ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	15
OMM ENTS Isolated pools, deepest at tile disrcharge point. MAXIMUM POOL DEPTH (centimeters): 6	
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
- (10x-20
└ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	/lax=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.90	Max=30 5
	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.90 This information must also be completed	
AVERAGE BANKFULL WIDTH (meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	
AVERAGE BANKFULL WIDTH (meters): 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	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) V Wide >10m Mature Forest, Wetland Conservation Tillage	
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) V Wide >10m Mature Forest, Wetland Moderate 5-10m AVERAGE BANKFULL WIDTH (meters): 0.90 Conservation Tillage Immature Forest, Shrub or Old Field	
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) V Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial	
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 Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture Mining or Construction	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\frac{1}{2}\text{NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{RIPARIAN WIDTH} \text{FLOODPLAIN QUALITY} \text{L R (Most Predominant per Bank)} \text{L R (Most Predominant per Bank)} L R (Onservation Tillage Immature Forest, Wetland Immature Forest, Shrub or Old Immature Forest, Sh	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH RIPARIAN ZONE AND FLOODPLAIN QUALITY Wide >10 Most Predominant per Bank) RIPARIAN WIDTH RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old COPEN Pasture, Row Crop None Residential, Park, New Field Open Pasture, Row Crop None COMMENTS Wooded buffer tapers moving south: ends at field tile discharge/crop area FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
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 Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture Mining or Construction COMMENTS Wooded buffer tapers moving south: ends at field tile discharge/crop area FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
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 Pield Urban or Industrial Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Residential, Park, New Field Mining or Construction COMMENTS Wooded buffer tapers moving south: ends at field tile discharge/crop area FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
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 RIPARIAN WIDTH (Most Pred Sank) RIPARIAN WIDTH (Most Pred Sank) RIPARIAN WIDTH (Most Pred Sank) RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN ZONE AND FLOODPLAIN Q	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: Tiffin North 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: 3 Photos taken, 1 upstream, 1 downstream, and 1 looking field tile discharge location
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas, receives flow from field tile.
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) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







SITE NAME/LOCATION Apex Republic Wind Farm		
SITE NUMBER SOH-002 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	18.76	
LENGTH OF STREAM REACH (ft) 740 LAT. 41.22812 LONG83.05467 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 Inst	ructions	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVE	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.	HHE	
TYPE PERCENT TYPE PERCENT	Metri Point	
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] D LEAF PACK/WOODY DEBRIS [3 pts] 5%	1 01110	
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts]	Substra Max = 4	
COBBLE (65-256 mm) [12 pts] 40% CLAY or HARDPAN [0 pt] 0% GRAVEL (2-64 mm) [9 pts] 15% MUCK [0 pts] 0%		
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] MUCK [0 pts] ARTIFICIAL [3 pts] 0%	24	
Total of Percentages of 50.00% (A) Substrate Percentage 100% (B)	A + B	
Bldr Slabs, Boulder, Cobble, Bedrock		
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 Dep Max = 3	
> 30 centimeters [20 pts]	<u> </u>	
> 10 - 22.5 cm [25 pts]	20	
OMMENTS MAXIMUM POOL DEPTH (centimeters): 40		
	Bankfu	
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]	Width	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 5.40	30	
AVERAGE BANKFOLL WIDTH (INELEIS).	30	
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		
Field Field		
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr	op	
None Fenced Pasture Mining or Construction	1	
COMMENTS Wooded buffer tapers moving north: beyond wooded buffer are active crop areas.	<u> </u>	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):		
Stream Flowing Moist Channel, isolated pools, no flow (Intermittent	t)	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral)	t)]	
Subsurface flow with isolated pools (Interstitial) COMMENTS Dry channel, no water (Ephemeral)	1)	
Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 Dry channel, no water (Ephemeral) (Check ONLY one box): 2.0 3.0	t)]_	
Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 3.0 3.0 3.5	1)	
Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 Dry channel, no water (Ephemeral) Check ONLY one box): 2.0 3.0	1	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attach Completed QHEI Form)		
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: EWH Name:		
	IRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: Watson	NRCS Soil Map Page: NRCS Soil Map Stream Order	
County: Seneca Townsh	p / City:	
MISCELLANEOUS		
Base Flow Conditions? (Y/N):_Y Date of last precipitation:_	09/28/16 Quantity: 0.42	
Photograph Information: 6 Photos taken, 3 upstream, 3 downstream		
Elevated Turbidity? (Y/N): Y Canopy (% open): 40%		
Were samples collected for water chemistry? (Y/N): (Note lab s	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) Y If not, p	lease explain:	
Additional comments/description of pollution impacts:		
Located near active crop areas and has a road overpass.		
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 Voucher? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) Voucher? (Y/N) N Voucher? (Y/N)		
	OF STREAM REACH (This must be completed): site evaluation and a narrative description of the stream's location	

Save as pdf





SITE NAME/LOCATION Apex Republic Wind Farm		
SITE NUMBER SOH-003 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	.89	
LENGTH OF STREAM REACH (ft) 5,500 LAT. 41.22840 LONG83.04504 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 Instru	ctions	
STREAM CHANNEL	VERY	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ппеі	
(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]	Points	
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] BEDROCK [16 pt]	Substrate	
COBBLE (65-256 mm) [12 pts] 45% CLAY or HARDPAN [0 pt]	Max = 40	
☐ GRAVEL (2-64 mm) [9 pts] 20% MUCK [0 pts] 0% ☐ SAND (<2 mm) [6 pts]	26	
Total of Percentages of AF 000/ (A) Substrate Percentage (B)	A + B	
Bldr Slabs, Boulder, Cobble, Bedrock	A · B	
 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] > 5 cm - 10 cm [15 pts] > 5 cm - 5 cm [5 pts]		
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	20	
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 60		
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	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 7.60	30	
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		
✓ ✓ Wide >10m		
Field —— Open Pasture Row Crow)	
Residential, Park, New Field		
None Fenced Pasture Mining or Construction COMMENTS Buffer between stream and crop area varies, but never less than 20 meters.		
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) COMMENTS Dry channel, no water (Ephemeral)		
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		
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 7 2.5		
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0) ft)	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream 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:
Photograph Information: 3 Photos taken, 2 upstream, 1 downstream
Elevated Turbidity? (Y/N):Y Canopy (% open):10%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas and has a road overpass.
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site of the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) Voucher? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location FLOW Google earth





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SITE NAME/LOCATION Apex Republic Wind Farm SITE NUMBER SOH-004 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	0.30
LENGTH OF STREAM REACH (ft) 2,538 LAT. 41.22509 LONG83.04449 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 Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's Physical Form - Refer to "Field Evaluation M	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	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] 20%	Points
BOULDER (>256 mm) [16 pts]	Substrat
COBBLE (65-256 mm) [12 pts]	Max = 40
✓ GRAVEL (2-64 mm) [9 pts] 40% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]	19
Total of Percentages of Cook (A) Substrate Percentage (B)	1.2
Bldr Slabs, Boulder, Cobble, Bedrock Check	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	IVIAX - S
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	15
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 10	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful 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): 0.50	
This information must also be completed	
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
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) Wide >10m Mature Forest, Wetland Conservation Tillage	
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) Wide >10m Moderate 5-10m Moderate 5-10m RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland L R (Conservation Tillage) Immature Forest, Shrub or Old	
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	Crop
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old Field Conservation Tillage	·
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Der Bank) Conservation Tillage Immature Forest, Shrub or Old Field Open Pasture, Row O	·
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Narrow <5m Narrow <5m None COMMENTS Fenced Pasture COMMENTS FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R (Conservation Tillage Immature Forest, Shrub or Old I	on
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None Residential, Park, New Field RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Conservation Tillage Immature Forest, Shrub or Old Field Open Pasture, Row Construction Tillage None Fenced Pasture Mining or Construction Tillage Mining or Construction Tillage Open Pasture, Row Construction Tillage None Fenced Pasture COMMENTS	on
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing STRANGA ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And Right (R) and Right (R) as looking downstream And Right (R) and Right (R) as looking downstream And Right (R) and Right (R) and Right (R) as looking downstream And Right (R) and Righ	on
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation) Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) CCheck ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) CCheck ONLY one box):	on
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) COMMENTS FLOW RETIME (Per Bank) Conservation Tillage Moderate 5-10m Residential, Park, New Field Open Pasture, Row Construction COMMENTS FLOW REGIME (At Time of Evaluation) COMMENTS Moist Channel, isolated pools, no flow (Intermitte Dry channel, no water (Ephemeral)) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 CCHeck ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) CCHeck ONLY one box): None 1.0 3.0	on
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY Residentian per Bank) FROODPLAIN QUALITY Residentian per Bank) From Mature Forest, Wetland Field Conservation Tillage Immature Forest, Shrub or Old Field Open Pasture, Row One Fenced Pasture COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Series of pools along the channel, with evidence of linkage during high flow SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	on
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) COMMENTS FLOW REGIME (At Time of pools along the channel, with evidence of linkage during high flow SINUOSITY (Number of bends per 61 m (200 ft) of channel) None CCHECK ONLY one box): None SINUOSITY (Number of bends per 61 m (200 ft) of channel) None CCHECK ONLY one box): None CCHECK ONLY one box): None 3.0 CCHECK ONLY one box): None CCHECK ONLY one box): None 3.0 CCHECK ONLY one box): None 3.0	nt)

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) WHY Name: Distance from Evaluated Stream (CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream (CWH Name: NAME NAME NAME NAME NAME NAME NAME NAM		
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: EWH Name: Distance from Evaluated Stream NRCS Soil Map Page: N	ADDITIONAL STREAM INFORMATION (This Information Must Also be Complete	eted):
WWH Name: WAPPING: 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 Township / City: MISCELLANEOUS Base Flow Conditions? (Y/N): Date of last precipitation: Distance from Evaluated Stream Di	QHEI PERFORMED? - Yes V No QHEI Score (If Y	es, Attach Completed QHEI Form)
CWH Name: Distance from Evaluated Stream	DOWNSTREAM DESIGNATED USE(S)	
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: 5 Photos taken, 3 upstream, 2 downstream Elevated Turbidity? (Y/N): N Canopy (% open): 15% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Additional comments/description of pollution impacts: Located near active crop areas and has a road overpass. 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 Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/	WWH 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:		
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: 5 Photos taken, 3 upstream, 2 downstream Elevated Turbidity? (Y/N): N Canopy (% open): 15% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Additional comments/description of pollution impacts: Located near active crop areas and has a road overpass. 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 Habital Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouche	EWH Name:	Distance from Evaluated Stream
Miscellaneous Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/28/16 Quantity: 0.42 Photograph Information: 5 Photos taken, 3 upstream, 2 downstream Elevated Turbidity? (Y/N): N Canopy (% open): 15% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Located near active crop areas and has a road overpass. 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 Vou	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE	ERSHED AREA. CLEARLY MARK THE SITE LOCATION
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/28/16 Quantity: 0.42 Photograph Information: 5 Photos taken, 3 upstream, 2 downstream Elevated Turbidity? (Y/N): N Canopy (% open): 15% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Located near active crop areas and has a road overpass. 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	USGS Quadrangle Name: Watson NRCS Soi	il Map Page: NRCS Soil Map Stream Order
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/28/16 Quantity: 0.42 Photograph Information: 5 Photos taken, 3 upstream, 2 downstream Elevated Turbidity? (Y/N): N Canopy (% open): 15% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Additional comments/description of pollution impacts: Located near active crop areas and has a road overpass. 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)	County: Seneca Township / City:_	
Photograph Information: 5 Photos taken, 3 upstream, 2 downstream Elevated Turbidity? (Y/N): N Canopy (% open): 15% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Located near active crop areas and has a road overpass. 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 Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N	MISCELLANEOUS	
Elevated Turbidity? (Y/N): N Canopy (% open): 15% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) Y If not, please explain: Additional comments/description of pollution impacts: Located near active crop areas and has a road overpass. 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? (Base Flow Conditions? (Y/N):_Y Date of last precipitation:_ 09/28/16	6 Quantity: 0.42
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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 has a road overpass. 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 Vouche	Elevated Turbidity? (Y/N): N Canopy (% open): 15%	
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 has a road overpass. 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 Vouche	Were samples collected for water chemistry? (Y/N): (Note lab sample no	o. or id. and attach results) Lab Number:
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Additional comments/description of pollution impacts: Located near active crop areas and has a road overpass. 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 Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) Voucher? (Y/N)	Is the sampling reach representative of the stream (Y/N) If not, please expl	lain:
Located near active crop areas and has a road overpass. 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) Voucher? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)		
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	Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) Fish Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinv	n the Primary Headwater Habitat Assessment Manual) (//N) N Voucher? (Y/N)

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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







SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-005 RIVER BASIN Beave	pr Creek DRAINAGE AREA (mi²) 3.05
LENGTH OF STREAM REACH (ft) 560 LAT. 41.22054 LONG83.054	` '
DATE 09/29/16 SCORER BJS COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Man	nual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED MODIFICATIONS:	▼ RECOVERING □ RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of every type of substrate present. Check C (Many (20)) Add the leave of substrate present.	·
(Max of 32). Add total number of significant substrate types found (Max of 8). Fi TYPE PERCENT TYPE	PERCENT Metri
BLDR SLABS [16 pts] 0% SILT [3 pt]	Point
	X/WOODY DEBRIS [3 pts] 5% Substrate 0%
COBBLE (65-256 mm) [12 pts] ■ CLAY or HA	ARDPAN [0 pt] 0%
GRAVEL (2-64 mm) [9 pts] 20% MUCK [0 pt SAND (<2 mm) [6 pts] 10% ARTIFICIAL	
оли» («2 mm) [о рю] — — — — — — — — — — — — — — — — — — —	
Total of Percentages of 45.00% (A) Substrate Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	100% (B) A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 18 TOTAL	NUMBER OF SUBSTRATE TYPES: 5
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 me	
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Che > 30 centimeters [20 pts] > 5 cm -	eck ONLY one box): Max = 3 10 cm [15 pts]
□ > 22.5 - 30 cm [30 pts] □ < 5	5 cm [5 pts]
	D WATER OR MOIST CHANNEL [0 pts] 25
OMMIENTS Deeper pools by overpass MAX	XIMUM POOL DEPTH (centimeters): 16
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)	(Check ONLY one box): Bankfu
	1.5 m (> 3' 3" - 4' 8") [15 pts] Width =3' 3") [5 pts] Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
2 1.5 m - 5.6 m (2 9 7 - 4 0) [20 pts]	0.50
	RAGE BANKFULL WIDTH (meters): 0.50 30
	ERAGE BANKFULL WIDTH (meters): 0.50 30
COMMENTS AVE	be completed
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Le	
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Legar RIPARIAN WIDTH FLOODPLAIN QUALITY LR (Per Bank) LR (Most Predominant per Ba	be completed eft (L) and Right (R) as looking downstream☆ ank) LR
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Lean RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R (Most Predominant per Bank) Mature Forest, Wetland Limitative Forest, Shrub of Limitati	be completed eft (L) and Right (R) as looking downstream ank) L R Conservation Tillage
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Letter RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Batter) Wide >10m Mature Forest, Wetland	be completed eft (L) and Right (R) as looking downstream ank) L R Conservation Tillage or Old Urban or Industrial
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣ NOTE: River Letter RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Batter) Wide >10m Mature Forest, Wetland Immature Forest, Shrub of Field Narrow <5m Residential, Park, New Field	be completed eft (L) and Right (R) as looking downstream ank) L Conservation Tillage or Old Urban or Industrial Open Pasture, Row Crop
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY ∴ NOTE: River Letter	be completed eft (L) and Right (R) as looking downstream ank) L R Conservation Tillage or Old Urban or Industrial Onen Pasture Row Crop
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Letter RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Batter) Wide >10m Mature Forest, Wetland Immature Forest, Shrub of Field Narrow <5m Residential, Park, New Field None Fenced Pasture COMMENTS	be completed eft (L) and Right (R) as looking downstream ank) L Conservation Tillage or Old Urban or Industrial Open Pasture, Row Crop
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Letter Properties of the	be completed eft (L) and Right (R) as looking downstream ank) L Conservation Tillage or Old Urban or Industrial Open Pasture, Row Crop Mining or Construction bist Channel, isolated pools, no flow (Intermittent)
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Letter RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Batter Forest, Wetland Immature Forest, Wetland Immature Forest, Shrub of Field Narrow <5m Residential, Park, New Field None Fenced Pasture COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing	be completed eft (L) and Right (R) as looking downstream ank) L Conservation Tillage or Old Urban or Industrial Open Pasture, Row Crop Mining or Construction bist Channel, isolated pools, no flow (Intermittent) y channel, no water (Ephemeral)
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Lean RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub on Field Narrow <5m Residential, Park, New Field None Fenced Pasture COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry COMMENTS Series of pools along the channel, with evidence	be completed eft (L) and Right (R) as looking downstream ank) L Conservation Tillage or Old Urban or Industrial Open Pasture, Row Crop Mining or Construction bist Channel, isolated pools, no flow (Intermittent) y channel, no water (Ephemeral) ce of linkage during high flow
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Letter RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Wetland Immature Forest, Shrub of Field Narrow <5m Residential, Park, New Field None Fenced Pasture COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry COMMENTS Series of pools along the channel, with evidence SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY OND CONDITION OF CONDITION O	be completed eft (L) and Right (R) as looking downstream ank) L Conservation Tillage or Old Urban or Industrial Open Pasture, Row Crop Mining or Construction bist Channel, isolated pools, no flow (Intermittent) y channel, no water (Ephemeral) ce of linkage during high flow WLY one box): 3.0
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub of Field Narrow <5m None COMMENTS 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) None 1.0 2.0 2.5	be completed eft (L) and Right (R) as looking downstream ank) L Conservation Tillage or Old Urban or Industrial Open Pasture, Row Crop Mining or Construction bist Channel, isolated pools, no flow (Intermittent) y channel, no water (Ephemeral) ce of linkage during high flow WLY one box):
This information must also RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Le RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Ba Wide >10m Mature Forest, Wetland Immature Forest, Shrub o Field Narrow <5m Residential, Park, New Field None Fenced Pasture COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Series of pools along the channel, with evidence SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check O None 1.0 2.0 0.5 7 1.5 2.5 STREAM GRADIENT ESTIMATE	be completed eft (L) and Right (R) as looking downstream ank) L Conservation Tillage or Old Urban or Industrial Open Pasture, Row Crop Mining or Construction bist Channel, isolated pools, no flow (Intermittent) y channel, no water (Ephemeral) ce of linkage during high flow WLY one box): 3.0

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)
Distance from Furtherland Observe
CWH 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:
Photograph Information: 3 Photos taken, 2 upstream, 1 downstream
Elevated Turbidity? (Y/N): N Canopy (% open): 30%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas and has a road overpass.
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 Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
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		
SITE NUMBER SOH-006 RIVER BASIN Beaver creek DRAINAGE AREA (mi²) 1.	73	
LENGTH OF STREAM REACH (ft) 85 LAT. 41.21086 LONG83.05382 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 Instru	ıctions	
STREAM CHANNEL	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	Metri	
□ BLDR SLABS [16 pts]	Point	
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] BEDROCK [16 pt] D LEAF PACK/WOODY DEBRIS [3 pts] 5% 0% FINE DETRITUS [3 pts]	Substrat	
COBBLE (65-256 mm) [12 pts] 15% CLAY or HARDPAN [0 pt] 0%	Max = 4	
GRAVEL (2-64 mm) [9 pts] 25% MUCK [0 pts] 0%	17	
SAND (<2 mm) [6 pts] 20% ARTIFICIAL [3 pts]		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 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	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]	30	
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 28		
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful	
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width	
<pre></pre>	Max=30	
COMMENTS Widens out by SR 778, but averages smaller AVERAGE BANKFULL WIDTH (meters): 0.60	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		
<u>L R</u> (Per Bank) <u>L R</u> (Most Predominant per Bank) <u>L R</u>		
Wide >10m		
Moderate 5-10m Field Moderate 5-10m Urban or Industrial		
✓ ✓ Narrow <5m	ρ	
None Fenced Pasture Mining or Construction		
COMMENTS To west of SR 778 lacks riparian buffer, but between SR 101/778, minor riparian 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)		
COMMENTS		
COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):		
COMMENTS		
COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 1.5 2.5 >3		
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	0 ft)	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes V No QHEI Score 38.5 (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 WATERSHEE	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: 4 Photos taken, 1 upstream, 3 downstream		
Elevated Turbidity? (Y/N): 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:	
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:		
7 7 7		
Additional comments/description of pollution impacts:		
Located near active crop and residential areas and has two road overpasses.		
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 Pri	mary 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 Macroinvertebrate	les Observed? (Y/N) Voucher? (Y/N)	
Comments Regarding Biology:		
DRAWING AND NARRATIVE DESCRIPTION OF STREAM F	REACH (This <u>must</u> be completed):	
Include important landmarks and other features of interest for site evaluation ar	d a narrative description of the stream's location	
The second secon		
FLOW -		
PLOW 4		
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Google earth	Y Y	





SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-007 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	1.73
LENGTH OF STREAM REACH (ft) 669 LAT. 41.20722 LONG83.05186 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 RECOVERING.	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
(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]	Points
BOULDER (>256 mm) [16 pts]	Substrat
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	Max = 4
☐ GRAVEL (2-64 mm) [9 pts] ☐ MUCK [0 pts] ☐ 0% ☐ ARTIFICIAL [3 pts] ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0	13
Total of Percentages of Annual (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	^.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 Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	25
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 16	
	Pankful
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]	Bankful
	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]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
2 1.0 III (2 0 7 - 10) [25 pts]	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.60 This information must also be completed	Max=30
AVERAGE BANKFULL WIDTH (meters): O.60 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) AVERAGE BANKFULL WIDTH (meters): 0.60 This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) and River Left (L)	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m AVERAGE BANKFULL WIDTH (meters): 0.60 L R (Nost Predominant per Bank) Mature Forest, Wetland Urban or Industrial	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m AVERAGE BANKFULL WIDTH (meters): 0.60 L R (Nost Predominant per Bank) Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and River Left (L) and River Le	5
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream Mature Forest, Wetland Wide >10m Moderate 5-10m None COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.60 AVERAGE BANKFULL WIDTH (5
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10 m Mature Forest, Wetland Moderate 5-10m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moder AVERAGE BANKFULL WIDTH (meters): 0.60 AVERAGE BANKFULL WIDTH (meters):	5 Sop
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) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	5 Sop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Mature Forest, Shrub or Old Immature Forest, Shrub or Old Immature Forest, Shrub or Old None Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Conservation Tillage) Immature Forest, Shrub or Old Immature Forest, Shrub or O	5
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH	5 Sop
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) Wide >10m	5 Sop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH	5 Sop

ADDITIONAL STREAM INFORMATION (This Information Must Als	so 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:	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:	09/29/16 Quantity: 0.23
Photograph Information: 1 upstream	
Elevated Turbidity? (Y/N): N Canopy (% open): 20	0%
Were samples collected for water chemistry? (Y/N): (Note I	ab sample no. or id. and attach results) Lab Number:
	pH (S.U.) Conductivity (µmhos/cm)
Y	ot, please explain:
in the sampling reash representative of the stream (1774)	A, produce oxplain.
Additional comments/description of pollution impacts:	
Located near active 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)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqu	Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	N

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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 SOH-009 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (m	2) 0.62
LENGTH OF STREAM REACH (ft) 670 LAT. 41.20722 LONG83.05186 RIVER CODE RIVER MI	
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 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 box	es I HHE
(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]	Point
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] BEDROCK [16 pt] D LEAF PACK/WOODY DEBRIS [3 pts] 5% 0% FINE DETRITUS [3 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 10% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts]	14
SAND (<2 mm) [6 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10.00% (A) Substrate Percentage Check 100% (B)	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	Pool Dep
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]	_ 15
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 10	
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]	Bankful Width
	Bankfu
> 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]	Bankful 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]	Bankful 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): This information must also be completed	Bankful 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): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream.	Bankful 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 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 L R (Per Bank) L R (Most Predominant per Bank) L R	Bankful Width Max=30
> 4.0 meters (> 13') [30 pts]	Bankful Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	Bankful 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	Bankful Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	Bankful 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] X NOTE: River Left (L) and Right (R) as looking downstream: A NOTE: River Left (L) and Right (R) as looking downstream: Conservation Tillage	Bankful 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 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 (Per Bank) Wide > 1.0 m (<=3' 3") [5 pts] 1.2 This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY Wide > 1.0 m (<=3' 3") [5 pts] L R (Most Predominant per Bank) Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Open Pasture, Rown None COMMENTS Flow REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermination must also be completed AVERAGE BANKFULL WIDTH (meters): 1.2 AVERAGE BANKFULL WIDTH (meters): 1.2 NAFFAGE BANKFULL WIDTH (meters): 1.2 AVERAGE BANKFULL WIDTH (meters):	Bankful Width Max=30
> 4.0 meters (> 13') [30 pts]	Bankful 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m Narrow <5m Narrow <5m Residential, Park, New Field None COMMENTS Flow REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS None Dry channel, no water (Ephemeral) Rough Conservation Tillary Check ONLY one box): Moist Channel, isolated pools, no flow (Intermit) Dry channel, no water (Ephemeral)	Bankful 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH FLOODPLAIN QUALITY Wide > 10 m Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field Narrow < 5 m None COMMENTS 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): None 1.0 None 1.0 COMMENTS 1.2 1.2 1.3 1.4 (8') [15 pts] > 1.0 m (<=3' 3") [5 pts] 5 pts] 6 pts] 6 pts] 7 pts] 7 pts] 7 pts] 7 pts] 7 pts] 8 pts] 8 pts] 9 pts] 1.2 1.2	Bankful 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH FLOODPLAIN QUALITY Wide > 10 m (> 3' 3" - 4' 8") [15 pts] 1.2 This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY Wide > 10 m (Nost Predominant per Bank) RIPARIAN WIDTH FLOODPLAIN QUALITY Mature Forest, Wetland Moderate 5-10 m Mature Forest, Wetland Moderate 5-10 m Residential, Park, New Field Narrow <5m Residential, Park, New Field None COMMENTS Fenced Pasture COMMENTS 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):	Bankful 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH FLOODPLAIN QUALITY Wide > 10 m Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field Narrow < 5 m None COMMENTS 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): None 1.0 None 1.0 COMMENTS 1.2 1.2 1.3 1.4 (8') [15 pts] > 1.0 m (<=3' 3") [5 pts] 5 pts] 6 pts] 6 pts] 7 pts] 7 pts] 7 pts] 7 pts] 7 pts] 8 pts] 8 pts] 9 pts] 1.2 1.2	Bankful Width Max=30 15 Co 15 Co Crop Cition Citent)

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 Distance from Evaluated Stream Distance from Evaluated Stream 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: 09/30/16 Quantity: 0.15
Photograph Information: 2 upstream
Elevated Turbidity? (Y/N):N Canopy (% open):
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.
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N V
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location FLOW
Google earth

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SITE NAME/LOCATION Apex Republic Wind Farm SITE NUMBER SOH-010 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²)	
SITE NUMBER SOLUTION RIVER BASIN WESTERNOUSE DITCH DRAINAGE AREA (mi²)	8.00
LENGTH OF STREAM REACH (ft) 6,114 LAT. 41.17936 LONG83.00501 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 Inst	ructions
STREAM CHANNEL	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ı 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] □ □ SILT [3 pt] 15%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt]	Substrate
✓ ☐ COBBLE (65-256 mm) [12 pts] 30% ☐ ☐ CLAY or HARDPAN [0 pt] 0%	Max = 40
☐ GRAVEL (2-64 mm) [9 pts]	26
Total of Percentages of Occopy (A) Substrate Percentage (R)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	ATB
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):	Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 5 cm - 5 cm [5 pts]	<u>-</u>
□ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	20
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 32	
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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	1
COMMENTS AVERAGE BANKFULL WIDTH (meters): 2.40	20
AVERAGE BANKFULL WIDTH (meters): 2.40 This information must also be completed	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\frac{1}{2}NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\$	20
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 LR (Per Bank) LR (Most Predominant per Bank) LR	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and River Left (L) a	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and River Left (L	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and River Left (rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH LR (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY LR (Most Predominant per Bank) Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Conservation Pow Conservation Conservation Tillage	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m None Fenced Pasture This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream Residence Left (L) and Right (R) as looking Residence Left (L) and Right (R) as looking Residence Left	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing This information must also be completed NOTE: River Left (L) and Right (R) as looking downstream the support of the completed of the complete of th	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Narrow <5m Residential, Park, New Field Open Pasture, Row Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	rop
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 (Most	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: 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 Residential, Park, New Field Open Pasture, Row C None Residential, Park, New Field Mining or Construction COMMENTS Moist Channel, isolated pools, no flow (Intermitter Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS COMMENT	rop
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	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3	rop

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes No QHEI Score 51.0 (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream 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: 09/30/16 Quantity: 0.15
Photograph Information: 3 photos taken, 1 upstream, 1 downstream and 1 cross channel
Elevated Turbidity? (Y/N): N Canopy (% open): 40%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Located near active crop areas.
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Vouc
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location FLOW



Google earth



SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-011 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²)	10.28
LENGTH OF STREAM REACH (ft) 2,915 LAT. 41.19532 LONG83.01085 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 Institute 1.	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
(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] 15% 16% 16% 16% 16% 16% 16% 16%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] D LEAF PACK/WOODY DEBRIS [3 pts] 0% FINE DETRITUS [3 pts] 0%	Substrat
COBBLE (65-256 mm) [12 pts] 30% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] MUCK [0 pts] ARTIFICIAL [3 pts] 0%	26
Total of Percentages of October (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	4+6
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	20
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 45	
	- Davidson
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]	Bankful Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 3.70	25
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	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr	op
None Provide P	
None Fenced Pasture Mining or Construction]
COMMENTS	L
COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): ✓ Stream Flowing	L
COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	L
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Ory channel, no water (Ephemeral)	L
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): None 1.0 None 3.0	L
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) None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	L
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): None 1.0 None 3.0	L :)]

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes No QHEI Score 61.5 (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream 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:
Photograph Information: 6 photos taken, 2 upstream, 2 downstream and 2 cross channel
Elevated Turbidity? (Y/N): N Canopy (% open): 10%
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.
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) Voucher? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location FLOW



Google earth



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SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-014 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²)	15.73
LENGTH OF STREAM REACH (ft) 4,214 LAT. 41.19918 LONG83.01323 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	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
(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] 20%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] DW LEAF PACK/WOODY DEBRIS [3 pts] 0% FINE DETRITUS [3 pts] 0%	Substrat
COBBLE (65-256 mm) [12 pts] 15% CLAY or HARDPAN [0 pt] 0%	Max = 4
✓ GRAVEL (2-64 mm) [9 pts] 30% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]	20
Total of Percentages of Asiana (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15	
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 Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	20
OMMIENTS MAXIMUM POOL DEPTH (centimeters): 45	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful Width
> 3.0 m - 4.0 m (> 9 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 2.00	20
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH LR (Per Bank) LR (Most Predominant per Bank) LR	
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	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Urban or Industrial	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Urban or Industrial	ор
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Residential, Park, New Field Residential, Park, New Field RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) L R (Mos	•
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Residential, Park, New Field None COMMENTS RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) Conservation Tillage Wirban or Industrial Open Pasture, Row Cr	•
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	L
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Residential, Park, New Field None RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R (Most Predominant per	L
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) Subsurface flow with isolated pools (Interstitial) RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank) L R (Per Bank) L R (Most Predominant per Bank) L R (Por Bank) L R (Por Bank) L R (Most Predominant per Bank) L R (Por Bank) L R (Po	L
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field V Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And Right (R) as looking downstr	L
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Residential, Park, New Field V Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation) Sinuosity (Number of bends per 61 m (200 ft) of channel) SINUOSITY (Number of bends per 61 m (200 ft) of channel) RIPARIAN WIDTH FLOODPLAIN QUALITY Most Predominant per Bank) L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R Conservation Tillage Urban or Industrial Open Pasture, Row Cr Mining or Construction Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) Check ONLY one box): None 1.0 3.0	L

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes No QHEI Score 52.0 (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:EWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
	-
WAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED USGS Quadrangle Name: Watson NRCS Soil Map P	
0	
County Township / Oity	
MISCELLANEOUS	0.27
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/01/16	Quantity: 0.37
Photograph Information: 4 photos taken, 2 downstream and 2 upstream	
Elevated Turbidity? (Y/N): _ N Canopy (% open): _ 30%	
Were samples collected for water chemistry? (Y/N): 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 and a road crossing	
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 Pri	The state of the s
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Aquatic Macroinvertebrat	voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	N reasons ()
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	FACH (This must be completed):
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R Include important landmarks and other features of interest for site evaluation an	
	(1965) and
	Self-self-self-self-self-self-self-self-s
FLOW	





SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-015 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²) 4.44	ŀ
LENGTH OF STREAM REACH (ft) 2,402 LAT. 41.20081 LONG83.00001 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 Instruct	ions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	ERY
TYPE PERCENT TYPE PERCENT BLDR SLABS [16 pts] 0% SILT [3 pt] 5% BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	HHEI Metric Points Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 Substrate Percentage 100% TOTAL NUMBER OF SUBSTRATE TYPES: 4	A + B
	ool Dept //ax = 30
> 30 centimeters [20 pts]	
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	15
OMMENTS MAXIMUM POOL DEPTH (centimeters): 10	
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 2.30	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture Mining or Construction COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS The property of the control of the	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box): None 1.0 2.0 3.0 >3 1.5	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)	ı

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:EWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson/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:_ 10/01/16	Quantity: 0.37
Photograph Information: 3photos taken, 1 upstream and 2 cross channel	
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 options ID number. Include appropriate field data sheets from the Pi	·
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 Macroinvertebra Comments Regarding Biology:	ates Observed? (Y/N) N Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation a	
include important fandinarks and other reatures of interest for site evaluation a	nu a namauve description of the stream's location
FLOW -	



Google earth



SITE NAME/LOCATION Apex Republic Wind Farm		
SITE NUMBER SOH-016	RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	13.98
LENGTH OF STREAM REACH (ft) 2,643 LAT. 41.2		
DATE 10/04/16 SCORER BJS COI	MMENTS	
NOTE: Complete All Items On This Form - Refer to	o "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	ructions
STREAM CHANNEL NONE / NATURAL CHAIN MODIFICATIONS:	NNEL ☐ RECOVERED ☐ RECENT OR NO REC	COVERY
	ubstrate present. Check ONLY two predominant substrate TYPE boxes	HHE
(Max of 32). Add total number of significant substrate TYPE PERCENT	e types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT	Metri
BLDR SLABS [16 pts] O% O(4)	SILT [3 pt] 5%	Point
BOULDER (>256 mm) [16 pts]	LEAF PACK/WOODY DEBRIS [3 pts] DIFINE DETRITUS [3 pts] 0% 0%	Substrat
COBBLE (65-256 mm) [12 pts] 65%	CLAY or HARDPAN [0 pt]	Max = 4
GRAVEL (2-64 mm) [9 pts] 15% SAND (<2 mm) [6 pts] 15%	MUCK [0 pts] ARTIFICIAL [3 pts] 0%	25
0,445 (-2 mm) [0 pto]	THE POPUL TO PLOT	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 65.00%	(A) Substrate Percentage Check 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYP	es: 21 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
	ol depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or > 30 centimeters [20 pts]	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
OMM ENTS	MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured as the average of		
5. BANK FULL WIDTH (Measured as the average of	3-4 measurements) (Check ONLY one box):	Bankful
> 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 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]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 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 Thi	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] \(\leq 1.0 \text{ m (<=3' 3") [5 pts]} \) AVERAGE BANKFULL WIDTH (meters): 1.80 is information must 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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.80 is information must also be completed ANOTE: 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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL RIPARIAN WIDTH 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] AVERAGE BANKFULL WIDTH (meters): 1.80 is information must also be completed LITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ PLAIN QUALITY (Most Predominant per Bank) L R	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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL RIPARIAN WIDTH L R (Per Bank)	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] \$\leq 1.0 m (\leq=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.80 is information must also be completed ITY \$\text{2NOTE: River Left (L) and Right (R) as looking downstream }\text{2PLAIN QUALITY} (Most Predominant per Bank) Mature Forest, Wetland Immature Forest Shrub or Old Immature Forest Shrub or Old	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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL RIPARIAN WIDTH 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] AVERAGE BANKFULL WIDTH (meters): 1.80 is information must also be completed LITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ PLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Urban or Industrial	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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL 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] AVERAGE BANKFULL WIDTH (meters): 1.80 is information must also be completed LITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ PLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old	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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL 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] AVERAGE BANKFULL WIDTH (meters): 1.80 is information must also be completed ITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ PLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Wetland Immature Forest, Shrub or Old Field Onen Basture Row Or	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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL 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] AVERAGE BANKFULL WIDTH (meters): 1.80 Is information must also be completed ITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ PLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Residential, Park, New Field ✓ ✓ Open Pasture, Row Creen Fenced Pasture Mining or Construction Mining or Construction Interval Interval Interval Interval Interval Interval Interval	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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL 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] AVERAGE BANKFULL WIDTH (meters): 1.80 Is information must also be completed ITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ PLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Residential, Park, New Field ✓ ✓ Open Pasture, Row Creen Fenced Pasture Mining or Construction Mining or Construction Interval Interval Interval Interval Interval Interval Interval	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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation) (Chr	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation) (Check Stream Flowing Subsurface flow with isolated pools (Interstitia COMMENTS)	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): 1.80 Is information must also be completed and also be comp	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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL RIPARIAN WIDTH FLOODP L R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation) (Chestream Flowing Subsurface flow with isolated pools (Interstitian COMMENTS) SINUOSITY (Number of bends per 61 m (200 None) 1.0	AVERAGE BANKFULL WIDTH (meters): AVERAGE BANKFULL WIDTH (meters): Is information must also be completed ITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ PLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Wetland Residential, Park, New Field Residential, Park, New Field Residential, Park, New Field Wining or Construction Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral) Off) of channel) Off) of channel) (Check ONLY one box): 2.0 3.0	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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation) (Cr. Stream Flowing Subsurface flow with isolated pools (Interstitia COMMENTS) SINUOSITY (Number of bends per 61 m (200)	AVERAGE BANKFULL WIDTH (meters): AVERAGE BANKFULL WIDTH (meters): 1.80 AVERAGE BAN	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 Thi RIPARIAN ZONE AND FLOODPLAIN QUAL RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation) (Check Stream Flowing Subsurface flow with isolated pools (Interstitiated COMMENTS) SINUOSITY (Number of bends per 61 m (200 None 0.5 1.0 1.5) STREAM GRADIENT ESTIMATE	AVERAGE BANKFULL WIDTH (meters): AVERAGE BANKFULL WIDTH (meters): Is information must also be completed ITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ PLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Wetland Residential, Park, New Field Residential, Park, New Field Residential, Park, New Field Wining or Construction Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral) Off) of channel) Off) of channel) (Check ONLY one box): 2.0 3.0	Width Max=30

QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form) DOWNSTREAM DESIGNATED USE(S) WWH Name: Distance from Evaluated Stream
WWH 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 upstream and 1 cross channel
Elevated Turbidity? (Y/N): N Canopy (% open): 35%
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.
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) Voucher? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







SITE NAME/LOCATION Apex Republic Wind Farm			
SITE NAME/LOCATION APEX REPUBLIC WING FAITH SITE NUMBER SOH-017 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²) 1.16			
LENGTH OF STREAM REACH (ft) 3,094 LAT. 41.18723 LONG82.95322 RIVER CODE RIVER MILE			
DATE 10/04/16 SCORER BJS COMMENTS			
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's Physical Form - Refer to "Field Evaluation M	tructions		
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	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	Metri		
BLDR SLABS [16 pts]	Points		
BEDROCK [16 pt]	Substrat		
COBBLE (65-256 mm) [12 pts]	Max = 4		
☐ GRAVEL (2-64 mm) [9 pts] ☐ MUCK [0 pts] ☐ 0% ☐ ARTIFICIAL [3 pts] ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0	12		
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B		
Bldr Slabs, Boulder, Cobble, Bedrock			
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] > 5 cm - 5 cm [5 pts] < 5 cm [5 pts]			
□ > 10 - 22.5 cm [25 pts]	0		
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 0			
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful		
> 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		
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	,		
COMMENTS AVERAGE BANKFULL WIDTH (meters): 3.00			
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 Urban or Industrial			
Field Open Pasture Pow (Crop		
Residential, Park, New Field			
None Fenced Pasture Mining or Construction COMMENTS	on 		
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):			
Stream Flowing Moist Channel, isolated pools, no flow (Intermitte			
Subsurface flowwith isolated peole (Interstitial)	nt)		
Subsurface flow with isolated pools (Interstitial) COMMENTS Dry channel, no water (Ephemeral)	nt)		
	nt)		
COMMENTS	nt)		
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 0.5 1.0 2.0 3.0 3.0 >3 1.5	nt)		
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0			

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: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream 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: 3 photos taken, 1 upstream, 1 downstream, and 1 cross channel
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.
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
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location FLOW





SITE NAME/LOCATION Apex Republic Wind Farm		
SITE NAME/LOCATION APEX TOPABLE VIII T AIM SITE NUMBER SOH-018 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 13.73		
LENGTH OF STREAM REACH (ft) 5,888 LAT. 41.20600 LONG82.90061 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	
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	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	Metri	
□ BLDR SLABS [16 pts]	Points	
BOULDER (>256 mm) [16 pts]	Substrat	
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 4	
GRAVEL (2-64 mm) [9 pts] 15%	12	
OAND (42 min) [0 pts]		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (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 Dep	
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]	0	
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 0		
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful	
> 4.0 meters (> 13') [30 pts] > 4.0 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	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	l l l	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.50	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 (Most Predominant per Bank) L R		
Wide >10m		
Field Field		
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	op	
None Fenced Pasture Mining or Construction COMMENTS		
	-	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent))	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	, 	
COMMENTS_	L	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0		
0.5		
STREAM GRADIENT ESTIMATE		
	00 ft)	

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: 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 upstream and 1 downstream
Elevated Turbidity? (Y/N): 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.
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)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
FLOW Google earth





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SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-19 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	.52
LENGTH OF STREAM REACH (ft) 555 LAT. 41.21316 LONG83.05617 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 Instr	uctions
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	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	Metri
□ BLDR SLABS [16 pts] □ □ SILT [3 pt] 20%	Point
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] 0% LEAF PACK/WOODY DEBRIS [3 pts] 5% 0% FINE DETRITUS [3 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 25% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts]	26
SAND (<2 mm) [6 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 25.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 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	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 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]	20
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 35	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 1.0 m (<= 3 3) [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	IVIAX-30
COMMENTS Widens out on average north of CR 44 AVERAGE BANKFULL WIDTH (meters): 1.00	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 (Most Predominant per Bank) L R	
Wide >10m	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	op
None Fenced Pasture Mining or Construction COMMENTS North of CR 44 has minor buffer, but south of CR44 has none	
	-
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing)
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
COMMENTS_	_
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	
0.5	
STREAM GRADIENT ESTIMATE	
	00 ft)

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:	
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:	09/29/16 Quantity: 0.23
Photograph Information: 2 Photos taken, 1 upstream, 1 downstream	
Elevated Turbidity? (Y/N): N Canopy (% open): 50%	
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:	
Located near active crop and residential areas and has a road over	
BIOTIC EVALUATION	pusses.
ID number. Include appropriate field data	collections optional. NOTE: all voucher samples must be labeled with the site sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquati	oserved? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION	OF STREAM REACH (This must be completed):

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







SITE NAME/LOCATION Apex Republic Wind Farm		
SITE NUMBER SOH-100 RIVER BASIN Sugar Creek DRAINAGE AREA (mi²) 0.00		
LENGTH OF STREAM REACH (ft) 117 LAT. 41.19953 LONG83.09697 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 □ NONE / NATURAL CHANNEL □ RECOVERED □ RECOVERING □ RECENT OR NO RECOMMODIFICATIONS:	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.	HHE	
TYPE PERCENT TYPE PERCENT	Metri Point	
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts] 10%	Folin	
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts]	Substra Max = 4	
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 0% MUCK [0 pts] 0%	lilux -	
GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] 0% SAND (<2 mm) [6 pts] 15% ARTIFICIAL [3 pts] 0%	14	
Total of Percentages of 5.00% (A) Substrate Percentage 100% (B)	A + B	
Bldr Slabs, Boulder, Cobble, Bedrock 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 Dep Max = 3	
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]		
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	15	
OMMENTS MAXIMUM POOL DEPTH (centimeters): 6		
	Bankfu	
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]	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): 0.50	5	
This information must also be completed		
RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\frac{1}{2}\text{NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{ and Right (R) as looking downstream \$\frac{1}{2} and Right (R) and Righ		
RIPARIAN WIDTH FLOODPLAIN QUALITY LR (Per Bank) LR (Most Predominant per Bank) LR		
✓ ✓ Wide >10m		
Field Field Urban or industrial		
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	pp	
None Fenced Pasture Mining or Construction		
COMMENTS Located in woodlot, drains field	-	
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) COMMENTS Dry channel, no water (Ephemeral)	L	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):		
None 2.0 3.0		
None 1.0 2.0 3.0 >3 >3		
)O ft)	

ADDITIONAL STREAM INFORMATION (This Information Must Also	o 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 EI	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Seneca Towns	ship / 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): 5%	o l
Were samples collected for water chemistry? (Y/N): Note lat	b 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:	
Nearby road and crop areas	
ID number. Include appropriate field date Fish Observed? (Y/N) N Salamanders O	er collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) Voucher? (Y/N)
	

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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







SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-101 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.	.20
LENGTH OF STREAM REACH (ft) 1,610 LAT. 41.22957 LONG83.04101 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	uctions
STREAM CHANNEL	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.	HHE
TYPE PERCENT TYPE PERCENT	Metri
BLDR SLABS [16 pts]	Point
BEDROCK [16 pt] BEDROCK [16 pt] O% FINE DETRITUS [3 pts] O%	Substra
COBBLE (65-256 mm) [12 pts]	Max = 4
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	13
Total of Percentages of 0.00% (A) Substrate Percentage 400% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
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): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 3
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	25
The White Community of the Community of	25
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 15	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfu Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.50	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	
✓ Wide >10m ✓ Mature Forest, Wetland ✓ Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial	
Field Open Pacture Pow Cro	nn
Residential, Park, New Field	P
None Fenced Pasture Mining or Construction COMMENTS Located in woodlot near farm field	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 2.0 3.0 >3 1.5 2.5	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/10	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Co	ompleted QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
	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:04/10/17	Quantity: 0.09
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 5%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and at	ttach 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	
. Total by 0.0p alous	
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NO ID number. Include appropriate field data sheets from the Primary	·
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Aquatic Macroinvertebrates Observed?	oucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	N
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REAC	CH (This must be completed):

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









SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-102 RIVER BASIN Beaver Creek DRAINAGE AREA (mi	0.08
LENGTH OF STREAM REACH (ft) 192 LAT. 41.23104 LONG83.03892 RIVER CODE RIVER MIL	
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 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	s HHE
(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]	Point
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] O LEAF PACK/WOODY DEBRIS [3 pts] O O O O O O O O O O O O O	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0%	8
SAND (<2 mm) [6 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	_ A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max = 3
> 30 centimeters [20 pts]	
□ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	_ 15
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 10	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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]	Max=30
COMMENTS Wide/braided, shallow poorly defined channel. AVERAGE BANKFULL WIDTH (meters): 4.0	25
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	7
L R (Per Bank) L R (Most Predominant per Bank) L R	
✓ Wide >10m	е
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Rov	/ Crop
None Fenced Pasture Mining or Construction	tion
COMMENTS Located in woodlot near farm field	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermit	tent)
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	tonty
COMMENTS_	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 2.0 3.0 3.0 5 1.5 2.5 3.0	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe	0 ft/100 ft)

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)
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: 04/10/17 Quantity: 0.09
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): Canopy (% open):0%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Nearby crop areas. Fed by tile.
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
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-103 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	0.53
LENGTH OF STREAM REACH (ft) 733 LAT. 41.21351 LONG83.04254 RIVER CODE RIVER MILE	
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 Inst	ructions
STREAM CHANNEL	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ı 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	Metri
□ □ BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] D LEAF PACK/WOODY DEBRIS [3 pts] 5% 0% FINE DETRITUS [3 pts] 0%	Substrat
COBBLE (65-256 mm) [12 pts] 15% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 5% MUCK [0 pts] 0%	20
SAND (<2 mm) [6 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15	
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): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 3
✓ □ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	
□	30
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 30	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Wax-30
	1
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.70	20
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.70	20
This information must also be completed	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\frac{1}{2}\text{NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (R) and Right (R) as looking downstream \$\frac{1}{2}River River	20
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 LR (Per Bank) LR (Most Predominant per Bank) LR	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ARIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and River Left (L	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland D Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial	
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	rop
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	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	rop
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) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) This information must also be completed RIPARIAN WIDTH ANOTE: River Left (L) and Right (R) as looking downstream ☆ Riparian Moderate (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Conservation Tillage Urban or Industrial Open Pasture, Row C Mining or Construction COMMENTS Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral)	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Mining or Construction Moist Channel, isolated pools, no flow (Intermitten	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream looking d	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Riparian Width (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Riparian Width (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Riparian Width (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Riparian Width (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Riparian Width (L) and Riparian Width (R) as looking downstream ANOTE: RIPARIAN WIDTH (L) and Riparian	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m None Fenced Pasture COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 1.0 2.5 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY \$NOTE: River Left (L) and Right (R) as looking downstream \$\frac{A}{2} \] 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 T Residential, Park, New Field Urban or Industrial Narrow <5m Residential, Park, New Field Open Pasture, Row C None Residential, Park, New Field Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	rop t)

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 Distance from Evaluated Stream Distance from Evaluated Stream 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 Page Flow Conditions 2 (V/N): Y Date of last precipitation: 04/11/17 Ougntity: 0.05
Base How Conditions: (174) Date of last precipitation Quantity
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 crop areas and roads.
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
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Google earth



SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-104 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.	.00
LENGTH OF STREAM REACH (ft) 343 LAT. 41.21319 LONG83.04163 RIVER CODE RIVER MILE	
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 Instru	uctions
STREAM CHANNEL	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.	HHEI
TYPE PERCENT TYPE PERCENT PERCENT	Metri
BLDR SLABS [16 pts]	Point
BEDROCK [16 pt] BEDROCK [16 pt] O% FINE DETRITUS [3 pts] O%	Substrat
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 0%	Max = 4
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ O% ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	14
Total of Percentages of Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock 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	Pool Dep
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]	4.5
The vivil extension of with the Legisland of the vivil extension of with the Legisland of the vivil extension of t	15
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 10	
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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 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): 0.50	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	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	p
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) COMMENTS Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 2.0 3.0 >3 1.5 2.5	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/10	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:EWH Name:	Distance from Evaluated Stream
	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	
USGS Quadrangle Name: Watson NRCS Soil Map F	
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): 10%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr	·
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
	·
DRAWING AND NARRATIVE DESCRIPTION OF STREAM F	PEACH (This must be completed):
Include important landmarks and other features of interest for site evaluation ar	
·	·
FLOW T	
	N.
Google earth	THE PROPERTY OF THE PARTY OF TH

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SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-105 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²	0.00
LENGTH OF STREAM REACH (ft) 139 LAT. 41.20374 LONG83.04634 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 Ir	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO F MODIFICATIONS:	RECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxe	s I HHE I
(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] 70%	Point
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] D LEAF PACK/WOODY DEBRIS [3 pts] 0% FINE DETRITUS [3 pts] 0%	Substrat
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 5% MUCK [0 pts] 0% SAND (<2 mm) [6 pts] 10% ARTIFICIAL [3 pts] 0%	14
Table (2 min) [e pto]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage (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	Pool Dep
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] ☐ NO WATER OR MOIST CHANNEL [0 pts]	15
The viville terminate for project the vi	
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 8	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	_
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (<=3' 3") [5 pts] > 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful 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]	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): This information must 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 AVERAGE BANKFULL WIDTH (meters):	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ₹ RIPARIAN WIDTH ELOODPLAIN QUALITY LR (Per Bank) LR (Most Predominant per Bank) LR	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstreams RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) V Wide >10m Moderate 5-10m Moderate 5-10m Note: River Left (L) and Right (R) as looking downstreams Moderate 5-10m Note: River Left (L) and Right (R) as looking downstreams V Wetland Conservation Tillag	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	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] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30 5
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	Width Max=30 5
> 4.0 meters (> 13') [30 pts]	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) V Wide >10 m Mature Forest, Wetland Moderate 5-10 m Narrow <5 m Narrow <5 m Residential, Park, New Field Narrow <5 m None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Noist Channel, isolated pools, no flow (Intermit	Width Max=30 5
> 4.0 meters (> 13') [30 pts]	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10 m (Most Predominant per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10m Narrow <5m Narrow <5m Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS 1 1.0 m (<=3' 3") [5 pts] > 1.0 m (<=3' 3") [5 pts] 1.0 m (<=3' 3") [5 pts] 2 1.0 m (<=3' 3") [5 pts] 3 1.0 m (<=3' 3") [5 pts] 4 1.0 m (<=3' 3") [5 pts] 5 1.0 m (<=3' 3") [5 pts] 6 1.0 m (<=3' 3") [5 pts] 6 1.0 m (<=3' 3") [5 pts] 7 1.0 m (<=3' 3") [5 pts]	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 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) Wide >10 m L R Conservation Tillag Immature Forest, Wetland Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Narrow <5m Residential, Park, New Field Open Pasture, Row None Fenced Pasture Mining or Construct COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing 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 Check ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 Check ONLY one box):	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY Wide > 10 m (<=3' 3") [5 pts] This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY Wide > 10 m (<=3' 3") [5 pts] This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY Mature Forest, Wetland Moderate 5-10 m Residential, Park, New Field Conservation Tillag Moderate 5-10 m Residential, Park, New Field Open Pasture, Row None Residential, Park, New Field Open Pasture, Row None Fenced Pasture Mining or Construct COMMENTS Moist Channel, isolated pools, no flow (Intermit Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	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 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) Wide >10 m L R Conservation Tillag Immature Forest, Wetland Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Narrow <5m Residential, Park, New Field Open Pasture, Row None Fenced Pasture Mining or Construct COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing 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 Check ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 Check ONLY one box):	Width Max=30 5 ce e crop cion dent)

	Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream
WWH Name: CWH Name: EWH Name: MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS! USGS Quadrangle Name: Watson NRCS Soil Ma	Distance from Evaluated Stream Distance from Evaluated Stream HED AREA. CLEARLY MARK THE SITE LOCATION
CWH Name: EWH Name: MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS! USGS Quadrangle Name: Watson NRCS Soil Ma	Distance from Evaluated Stream Distance from Evaluated Stream HED AREA. CLEARLY MARK THE SITE LOCATION
EWH Name: MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS USGS Quadrangle Name: Watson NRCS Soil Ma	Distance from Evaluated Stream HED AREA. CLEARLY MARK THE SITE LOCATION
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS USGS Quadrangle Name: Watson NRCS Soil Ma	HED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Watson NRCS Soil Ma	
	ap Page:NRCS Soil Map Stream Order
Seneca Tamakia (Cita	
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): 0%	
Vere 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)
s the sampling reach representative of the stream (Y/N) If not, please explain:	
dditional comments/description of nell-tion improcess:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
· · · · · · · · · · · · · · · · · · ·	onal. NOTE: all voucher samples must be labeled with the s
ID number. Include appropriate field data sheets from the	
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinverte	Voucher? (Y/N) N
	brates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM	M REACH (This <u>must</u> be completed):







24

SITE NAME/LOCATION Apex Republic Wind Farm SITE NUMBER SOH-106 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 0.00 LAT. 41.20368 LONG. -83.04664 RIVER CODE 458 LENGTH OF STREAM REACH (ft) RIVER MILE 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 Instructions ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** 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. Metric **TYPE PERCENT PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 70% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 10% 0% **Substrate** 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 5% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 5% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 14 10% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 5.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 5 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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): 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] 5 OMM ENTS **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) Bankfull (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] 5 COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.50 This information must also be completed ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH **FLOODPLAIN QUALITY** R (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box) Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

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
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION Watern
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:
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 0%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
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:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
FLOW TO THE PROPERTY OF THE PR
Google earth





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SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-107 RIVER BASIN Morrison Creek DRAINAGE AREA (mi²)	0.00
LENGTH OF STREAM REACH (ft) 258 LAT. 41.15281 LONG82.98597 RIVER CODE RIVER MILE	
DATE 04/27/17 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 REMODIFICATIONS:	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
BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] O LEAF PACK/WOODY DEBRIS [3 pts] O FINE DETRITUS [3 pts] O O O O O O O O O O O O O	Substrat
COBBLE (65-256 mm) [12 pts]	Max = 4
☐ GRAVEL (2-64 mm) [9 pts] ☐ MUCK [0 pts] ☐ 0% ☐ ARTIFICIAL [3 pts] ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0	8
Tatal of Remarks and of	
Bldr Slabs, Boulder, Cobble, Bedrock Check Check Check Check	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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] ☐ NO WATER OR MOIST CHANNEL [0 pts]	15
The Withert of Mutable [6 pto]	
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 10	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
	Bankful
> 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] ≤ 1.0 m (<=3' 3") [5 pts]	Bankful 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] ≤ 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): 1.20	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): This information must 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 AVERAGE BANKFULL WIDTH (meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY AVERAGE BANKFULL WIDTH (meters): This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	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): AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) V Wide >10 m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Field	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]	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): AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) V Wide >10 m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Field	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream Nature Forest, Wetland (Per Bank) Wide >10 m (<=3' 3") [5 pts] 1.20 This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10 m (Ver Bank) Wide >10 m (Ver Bank) Nature Forest, Wetland Moderate 5-10 m Immature Forest, Shrub or Old Urban or Industrial Field Narrow <5 m Residential, Park, New Field Open Pasture, Row Completed Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN ZONE AND FLOODPLAIN QUALITY REPARIAN ZONE AND FLOODP	Width Max=30
> 4.0 meters (> 13') [30 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 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 Wide >10 m Average Bank L R (Most Predominant per Bank) L R (Per Bank) L R (Most Predominant per Bank) L R	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH L R (Per Bank) Wide >10 m Moderate 5-10 m Moderate 5-10 m Narrow <5 m Residential, Park, New Field None COMMENTS 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): None 1.0 None 1.0 Check ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 Check ONLY one box): Check ONLY one box): None 1.0 Check ONLY one box): Check ONLY one box): None 1.0 Check ONLY one box): Check ONLY one box): None 1.0 Check ONLY one box): Check ONLY one box): None 1.0 Check ONLY one box): Check ONLY one box): None 1.0 3.0	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH L R (Per Bank) Wide >10 m Moderate 5-10 m Moderate 5-10 m Narrow <5 m Residential, Park, New Field None COMMENTS 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): None 1.0 None 1.0 Check ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 Check ONLY one box): Check ONLY one box): None 1.0 Check ONLY one box): Check ONLY one box): None 1.0 Check ONLY one box): Check ONLY one box): None 1.0 Check ONLY one box): Check ONLY one box): None 1.0 Check ONLY one box): Check ONLY one box): None 1.0 3.0	Width Max=30

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:
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: 04/27/07 _ Quantity: 0.07
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 0%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) 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:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
FLOW
Google earth





SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-108 RIVER BASIN Westerhouse Ditch DRAINAGE AREA (mi²)	0.00
LENGTH OF STREAM REACH (ft) 333 LAT. 41.19504 LONG83.01710 RIVER CODE RIVER MILE	
DATE 04/25/17 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 REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	. UUEI
(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
□ □ BLDR SLABS [16 pts] □ □ ✓ SILT [3 pt] 85%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] D BEDROCK [16 pt] D LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% FINE DETRITUS [3 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0%	9
SAND (<2 mm) [6 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	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] > 5 cm - 5 cm [5 pts]	
□ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	5
OMMENTS MAXIMUM POOL DEPTH (centimeters): 5	
	1
3 RANK FILL WINTH (Massured as the average of 3.4 massurements) (Check ONI V one hov):	Bankful
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]	
> 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]	Bankful 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]	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
> 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
> 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): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: 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 AVERAGE BANKFULL WIDTH (meters): 1.20 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	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY PROPERTY AND TE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) V Wide > 10m Moderate 5-10m Moderate 5-10m None 1.5 m (> 3' 3" - 4' 8") [15 pts] > 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 L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters): L R (None 1.5 m (> 3' 3" - 4' 8") [15 pts] AVERAGE BANKFULL WIDTH (meters):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH L R (Per Bank) V Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m S 1.0 m (-1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] 1.20 L R (Nost Predominant per Bank) L R (Most Predominant per Bank) I R (Most Predominant per Bank)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] ≤ 1.0	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Narrow <5m Narrow <5m Narrow <5m Narrow <5m Residential, Park, New Field None COMMENTS PLOW 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] > 1.0 m (<=3' 3") [5 pts] > 1.0	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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Narrow <5m Narrow <5m Narrow <5m Narrow <5m Residential, Park, New Field None COMMENTS PLOW REGIME (At Time of Evaluation) (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 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10 m Mature Forest, Wetland Moderate 5-10 m Moderate 5-10 m Narrow <5 m None Residential, Park, New Field None COMMENTS Flow REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Moderate Stream Flowing Subsurface flow with isolated pools (Interstitial) None water (Ephemeral)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] > 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 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" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY \$\times\$ NOTE: River Left (L) and Right (R) as looking downstream \$\times\$ RIPARIAN WIDTH FLOODPLAIN QUALITY \$\times\$ NOTE: River Left (L) and Right (R) as looking downstream \$\times\$ RIPARIAN WIDTH FLOODPLAIN QUALITY \$\times\$ NOTE: River Left (L) and Right (R) as looking downstream \$\times\$ RIPARIAN WIDTH FLOODPLAIN QUALITY \$\times\$ Note Predominant per Bank) \$\times\$ River Flood \$\times\$ Mature Forest, Wetland \$\times\$ Conservation Tillage \$\times\$ Moderate 5-10m \$\times\$ Immature Forest, Shrub or Old \$\times\$ Urban or Industrial Field \$\times\$ Open Pasture, Row Completed \$\times\$ None \$\times\$ Residential, Park, New Field \$\times\$ Open Pasture, Row Completed \$\times\$ None \$\times\$ Residential, Park, New Field \$\times\$ Open Pasture, Row Completed \$\times\$ None \$\times\$ Residential \$\times\$ Mining or Construction \$\times\$ Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): \$\times\$ None \$\times\$ 1.0 \$\times\$ 2.0 \$\times\$ 3.0 \$\t	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] > 1.0	Width Max=30 15 Top It)

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: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream 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:_ 04/20/17 Quantity:_ 0.21
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 5%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Crop area upslope
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) Voucher? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
FLOW Google earth





SITE NAME/LOCATION Apex Republic Wind Farm			
SITE NUMBER SOH-109 RIVER BASIN Sugar Creek DRAINAGE AREA (mi²) 0.05			
LENGTH OF STREAM REACH (ft) 327 LAT. 41.18208 LONG83.02568 RIVER CODE RIVER MILE			
DATE 04/26/17 SCORER BJS COMMENTS			
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions			
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	COVERY		
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ı 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	Metri		
□ BLDR SLABS [16 pts] □ □ ✓ SILT [3 pt] 90%	Points		
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0% FINE DETRITUS [3 pts] 0%	Substrat		
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 4		
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] 0% MUCK [0 pts] 0% ARTIFICIAL [3 pts] 0%	8		
Total of Percentages of Apply (A) Substrate Percentage (B)	A + B		
Bldr Slabs, Boulder, Cobble, Bedrock	ATB		
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2			
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3		
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]			
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ NO WATER OR MOIST CHANNEL [0 pts]	5		
3			
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 5			
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful Width		
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30		
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.00	5		
AVERAGE BANKFULL WIDTH (Hetels).			
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			
RIPARIAN WIDTH FLOODPLAIN QUALITY LR (Per Bank) LR (Most Predominant per Bank) LR			
Wide >10m			
Moderate 5-10m We field Moderate 5-10m We find the Folest, String of Old Urban or Industrial			
Narrow <5m Residential, Park, New Field Open Pasture, Row Ci	rop		
None Fenced Pasture Mining or Construction	1		
<u> </u>	1		
COMMENTS COMMENTS	L		
COMMENTS [COMMENTS [Check ONLY one box):	l		
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) One of the control of the cont	l		
COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermitten	l		
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):	l		
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS COMMENTS	l		
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): None 1.0 3.0	l		
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): None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	t)		

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: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream 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: 04/20/17 Quantity: 0.21			
Photograph Information: Representative Photos Taken			
Elevated Turbidity? (Y/N): N Canopy (% open): 5%			
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:			
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)			
Is the sampling reach representative of the stream (Y/N) If not, please explain:			
Additional comments/description of pollution impacts:			
Crop area upslope			
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) Voucher? (Y/N) N Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):			
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location			
FLOW Google earth			





SITE NAME/LOCATION Apex Republic Wind Farm SITE NUMBER SOH-154 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²) 3.36			
LENGTH OF STREAM REACH (ft) 3,781 LAT. 41.16722 LONG82.89357 RIVER CODE RIVER MILE			
DATE 10/17/17 SCORER MAM COMMENTS			
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions			
STREAM CHANNEL			
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 Metr			
BLDR SLABS [16 pts]			
BEDROCK [16 pt] 0% Substr Max =			
COBBLE (65-256 mm) [12 pts] 30% CLAY or HARDPAN [0 pt] 0%			
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] O% ARTIFICIAL [3 pts] 0% 0% 0% 0% 0%			
Total of Percentages of 30 00% (A) Substrate Percentage 400% (B)			
Bldr Slabs, Boulder, Cobble, Bedrock			
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]			
✓ □ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]			
30			
OMMENTS MAXIMUM POOL DEPTH (centimeters): 30			
3. BANK FULL WIDTH (Measured as the average 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] Width			
✓ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]			
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]			
COMMENTSAVERAGE BANKFULL WIDTH (meters): 4.00 This information must also be completed			
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY AVERAGE BANKFULL WIDTH (meters): 4.00 4.00 AVERAGE BANKFULL WIDTH (meters): 4.00 **NOTE: River Left (L) and Right (R) as looking downstream **			
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: 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			
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY LR (Per Bank) LR (Most Predominant per Bank) LR (Most Predominant per Bank) LR (Conservation Tillage Immature Forest, Wetland Immature Forest, Shrub or Old			
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY PROPERTY AVERAGE BANKFULL WIDTH (meters): AVERAGE BANKFULL WIDTH (meters): 4.00 25 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY PROPERTY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) V Wide >10m Moderate 5-10m Moderate 5-10m Urban or Industrial			
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) ✓ Wide >10m Moderate 5-10m Narrow <5m AVERAGE BANKFULL WIDTH (meters): 4.00 L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Conservation Tillage Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature, Row Crop			
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) V Wide >10m Moderate 5-10m AVERAGE BANKFULL WIDTH (meters): 4.00 25 L R (Most Predominant per Bank) L R (Most Predominant per Bank) I Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Conservation Field			
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: 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			
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m Narrow <5m Residential, Park, New Field Narrow <5m None Residential, Park, New Field Fenced Pasture COMMENTS AVERAGE BANKFULL WIDTH (meters): 4.00 25 L R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)			
AVERAGE BANKFULL WIDTH (meters): 4.00 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\times \text{NOTE: River Left (L) and Right (R) as looking downstream \$\times \frac{RIPARIAN WIDTH}{RIPARIAN WIDTH} \frac{FLOODPLAIN QUALITY}{FLOODPLAIN QUALITY} \times \frac{Most Predominant per Bank}{Moderate 5-10m} \frac{L}{V} \times \frac{Mature Forest, Wetland}{Field} \frac{Conservation Tillage}{Urban or Industrial} \frac{Dopen Pasture, Row Crop}{Dopen Pasture, Row Crop} \frac{Residential, Park, New Field}{Residential, Park, New Field} \frac{Mining or Construction}{Mining or Construction} \frac{FLOW REGIME (At Time of Evaluation)}{Residential, Park, New Field} \frac{Dopen Pasture}{Dopen Pasture} \frac{Mining or Construction}{Mining or Construction} \frac{COMMENTS}{Dopen Pasture} \frac{Dopen Pasture}{Dopen Pasture} Dopen			
AVERAGE BANKFULL WIDTH (meters): AVERAGE BANKFULL WIDTH (meters): 4.00			
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS AVERAGE BANKFULL WIDTH (meters): 4.00 ANOTE: River Left (L) and Right (R) as looking downstream: Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)			
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\frac{1}{2}\text{NOTE}: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{RIPARIAN WIDTH} FLOODPLAIN QUALITY \$\frac{1}{2}\text{NOTE}: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{RIPARIAN WIDTH} FLOODPLAIN QUALITY \$\frac{1}{2}\text{NOTE}: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{RIPARIAN WIDTH} FLOODPLAIN QUALITY \$\frac{1}{2}\text{Most Predominant per Bank} L R (Most Predominant per Bank) L R Conservation Tillage Immature Forest, Wetland Durban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Residential, Park, New Field Mining or Construction COMMENTS Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0			

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: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream 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: 10/12/17 Quantity: 0.02 Photograph Information:
Elevated Turbidity? (Y/N): N Canopy (% open): 40%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) Y If not, please explain: Additional comments/description of pollution impacts:
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/
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location FLOW

Save as pdf



Google Earth



ChieFP Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Apex Republic Wind Farm			
SITE NUMBER SOH-158 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	.11		
LENGTH OF STREAM REACH (ft) 234 LAT. 41.18183 LONG82.87481 RIVER CODE RIVER MILE			
DATE 10/17/17 SCORER MAM COMMENTS			
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions			
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	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 BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 SUBSTRATE (Estimate percent. Check ONLY two predominant substrate TYPE boxes (Max of 32). A Bubstrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). A Bubstrate Present. Check ONLY two predominant substrate TYPE boxes (Max of 32). A Bubstrate Present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Final metric score is sum of boxes A & B. TYPE SILT [3 pt] SUBSTRATE [3 pts] O% SUBSTRATE Percentage Check TOTAL NUMBER OF SUBSTRATE TYPES: 2	HHEI Metric Points Substrate Max = 40 11		
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] □ NO WATER OR MOIST CHANNEL [0 pts]	0		
OMM ENTS 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 Max=30		
> 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]	IVIAX-30		
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 Urban or Industrial			
Field Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	эр		
None Fenced Pasture Mining or Construction			
COMMENTS Historic stream modified for drainage	_		
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral)) <u> </u>		
SINUOSITY (Number of ben <u>ds</u> per 61 m (200 ft) of channel) (Check ONLY one box):			
None 2.0 3.0 0.5 1.5 2.5 >3			
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/1	00 ft)		

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attac	h Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	
USGS Quadrangle Name: Fireside NRCS Soil Map Pa	ge: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_Y _ Date of last precipitation:_ 10/12/17	Quantity: 0.02
Photograph Information: 3 photos	
Elevated Turbidity? (Y/N): N Canopy (% open): 0%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. ar	nd 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:	
tile discharge	
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	Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrate Comments Regarding Biology:	s Observed? (Y/N) Voucher? (Y/N)
Confinents Regarding Biology.	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM RE	EACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and	a narrative description of the stream's location
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宝色似 性	《像心》 能泛色 " , " 。
Google Earth	Z>
9.20(∓°Gog)€	40 m





Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3) SITE NAME/LOCATION | Apex Republic Wind Farm SITE NUMBER SOH-167 RIVER BASIN Westerhouse ditch DRAINAGE AREA (mi²) 0.90 1,915 LAT. 41.14564 LONG. -82.93163 RIVER CODE LENGTH OF STREAM REACH (ft) RIVER MILE DATE 10/19/17 SCORER MAM COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** 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. Metric **TYPE PERCENT TYPE PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 90% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% **Substrate** 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 5% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 12 5% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 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): 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 20 OMM ENTS **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) Bankfull (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] 15 COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.50 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box) Moist Channel, isolated pools, no flow (Intermittent) Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 25 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

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 Distance from Evaluated Stream Distance from Evaluated Stream 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: 10/12/17 Quantity: 0.02
Photograph Information: 3 photos
Elevated Turbidity? (Y/N): N Canopy (% open): 10%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
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)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location FLOW





SITE NAME/LOCATION Apex Republic Win	nd Farm		
SITE NUMBER SOH-200 RIVER BASIN Pickerel Creek DRAINAGE AREA (mi²) 0.18			
LENGTH OF STREAM REACH (ft) 102 LAT. 41.21888 LONG82.86025 RIVER CODE RIVER MILE			
DATE 04/07/17 SCORER BH COMMENTS			
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions			
STREAM CHANNEL NONE / NATURE MODIFICATIONS:	RAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC	OVERY	
	type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE	
, , ,	t substrate types found (Max of 8). Final metric score is sum of boxes A & B. CENT TYPE PERCENT	Metri	
BLDR SLABS [16 pts]	9% SILT [3 pt] 85%	Point	
	LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% 0%	Substrat	
COBBLE (65-256 mm) [12 pts]	CLAY or HARDPAN [0 pt]	Max = 4	
	MUCK [0 pts] 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	12	
5,445 (-2 min) [6 pts]	Substate Personage (B)		
Bldr Slabs, Boulder, Cobble, Bedrock	Check 100%	A+B	
SCORE OF TWO MOST PREDOMINATE SUBSTR	RATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3		
	timum pool depth within the 61 meter (200 ft) evaluation reach at the time of culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3	
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]		
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	☐ ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]	20	
ZO NO ZELO GINI [ZO PIO]			
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 60			
3. BANK FULL WIDTH (Measured as the av	verage of 3-4 measurements) (Check ONLY one box):		
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]		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]	/erage of 3-4 measurements) (Check <i>ONLY</i> one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Bankful 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]	verage of 3-4 measurements) (Check ONL Y one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	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]	verage of 3-4 measurements) (Check <i>ONLY</i> 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 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	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): 2.00 This information must also be completed AIN QUALITY ★NOTE: River Left (L) and Right (R) as looking downstream ★	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 <i>ONLY</i> 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	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	This information must also be completed AIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Check ONLY one box): Check ONLY one box): 2.00 AIN QUALITY	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)	This information must also be completed AIN QUALITY L R (Most Predominant per Bank) Check ONLY one box): Check ONLY one box): 1.0 m (-3' 3" - 4' 8") [15 pts] 2.00 AVERAGE BANKFULL WIDTH (meters): 2.00 2.00 Check ONLY one box): 2.00 2.00 Check ONLY one box: 2.00 2.00 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	This information must also be completed AIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland I Mature Forest, Shrub or Old Check ONLY one box): AVERAGE BANKFULL WIDTH (meters): 2.00 AVERAGE BANKFULL WIDTH (meters): 2.00 L R (Most Predominant per Bank) L R (Conservation Tillage Immature Forest, Shrub or Old L Irban or Industrial	Width Max=30	
3. BANK FULL WIDTH (Measured as the average of the second	This information must also be completed AIN QUALITY	Width Max=30	
3. BANK FULL WIDTH (Measured as the average of the second	This information must also be completed AIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Wetland Residential, Park, New Field Check ONLY one box): 1.0 m (-3' 3" 5 pts] AVERAGE BANKFULL WIDTH (meters): 2.00 AVERAGE BANKFULL WIDTH (meters): 2.00 L R (st pts) AVERAGE BANKFULL WIDTH (meters): 2.00 L R (st pts) L R (st pts) L R (st pts) L R (st pts) Conservation Tillage Urban or Industrial Open Pasture, Row Crief (st pts) O	Width Max=30	
3. BANK FULL WIDTH (Measured as the average of the second	This information must also be completed AIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture (Check ONLY one box): 2.00 AVERAGE BANKFULL WIDTH (meters): 2.00 AVERAGE BANKFULL WIDTH (meters): 2.00 L R (Most Predominant per Bank) L R (Most Predominant per Bank) Urban or Industrial Open Pasture, Row Credominant per Bank) Fenced Pasture Mining or Construction	Width Max=30	
3. BANK FULL WIDTH (Measured as the average of the second	This information must also be completed AIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Residential, Park, New Field Fenced Pasture Moist Channel, isolated pools, no flow (Intermittent): Check ONLY one box): Check ONLY one box one check of the c	Width Max=30	
3. BANK FULL WIDTH (Measured as the average of the second	### AVERAGE BANKFULL WIDTH (meters): AVERAGE BANKFULL WIDTH (meters):	Width Max=30	
3. BANK FULL WIDTH (Measured as the average of the second	This information must also be completed AIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Immature Forest, Shrub or Old Residential, Park, New Field Residential, Park, New Field Residential, Park, New Field Open Pasture, Row Cn Mining or Construction Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral) 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30	
3. BANK FULL WIDTH (Measured as the average of the second	### AVERAGE BANKFULL WIDTH (meters): AVERAGE BANKFULL WIDTH (meters):	Width Max=30	
3. BANK FULL WIDTH (Measured as the average of the second	This information must also be completed AIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Residential, Park, New Field Fenced Pasture Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral) 61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.00 AVERAGE BANKFULL WIDTH (meters):	Width Max=30	

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:_ 04/20/17 Quantity:_ 0.21			
Photograph Information: Representative Photos Taken			
Elevated Turbidity? (Y/N): N Canopy (% open): 5%			
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:			
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)			
Is the sampling reach representative of the stream (Y/N) If not, please explain:			
is the sampling reach representative of the stream (TM)			
Additional comments/description of pollution impacts:			
Crop area upslope			
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 N N N N N N N N N N N N N N N N N			
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Vouche			
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):			
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location			



Save as pdf





SITE NAME/LOCATION Apex Republic	Wind Farm		
SITE NUMBER_	SOH-201 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	3.61	
LENGTH OF STREAM REACH (ft) 5,472	LAT. 41.18233 LONG82.93057 RIVER CODE RIVER MILE		
DATE 04/14/17 SCORER BH	COMMENTS		
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions			
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS:			
	very type of substrate present. Check ONLY two predominant substrate TYPE boxes icant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHE	
	PERCENT TYPE PERCENT 10% SILT [3 pt] 60%	Metric Points	
BOULDER (>256 mm) [16 pts]	0% LEAF PACK/WOODY DEBRIS [3 pts] 0%		
BEDROCK [16 pt]	0% FINE DETRITUS [3 pts]	Substrate Max = 40	
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ GRAVEL (2-64 mm) [9 pts]	5% CLAY or HARDPAN [0 pt] 0% 0% 0%		
SAND (<2 mm) [6 pts]	20% ARTIFICIAL [3 pts] 0%	14	
Total of Percentages of	15.00% (A)Substrate Percentage	A + B	
Bldr Slabs, Boulder, Cobble, Bedrock	Cneck	"	
	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of add culverts or storm water pipes) (Check ONLY one box):	Pool Dept Max = 30	
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]	I	
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	S cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts]	20	
OMMENTS	MAXIMUM POOL DEPTH (centimeters): 32		
3. BANK FULL WIDTH (Measured as the second s	ne average of 3-4 measurements) (Check ONLY one box): > 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): 3.10	25	
	This information much by the last the l		
RIPARIAN ZONE AND FLOOD	This information <u>must</u> also be completed PPLAIN 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 Urban or Industrial		
✓ ✓ Narrow <5m	Field Residential, Park, New Field Open Pasture, Row C	rop	
None Name	Fenced Pasture Mining or Construction	1	
COMMENTS		1	
FLOW REGIME (At Time of E	valuation) (Check ONLY one box):		
Stream Flowing Subsurface flow with isolated po	Moist Channel, isolated pools, no flow (Intermitten pols (Interstitial) Dry channel, no water (Ephemeral)	t)	
COMMENTS_	Diy Channel, no water (Ephemeral)		
SINUOSITY (Number of bends	per 61 m (200 ft) of channel) <u>(Check ONLY</u> one box):		
☐ None	1.0 2.0 3.0		
0.5	1.5 2.5 >3		
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate	Moderate (2 ft/100 ft) Moderate to Severe Severe Severe (10 ft/	100 ft\	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes ✓ 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: Fireside 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:	Quantity: 0.05
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 5%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. al	nd 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:	
Crop area upslope	
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional.	NOTE: all yougher samples must be labeled with the site
ID number. Include appropriate field data sheets from the Prin	·
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N	Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrate	
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	EACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and	d a narrative description of the stream's location







SITE NAME/LOCATION Apex Republic Wind Farm	
SITE NUMBER SOH-202 RIVER BASIN Beaver Creek DRAINAGE AREA (mi²)	0.00
LENGTH OF STREAM REACH (ft) 153 LAT. 41.18198 LONG82.93081 RIVER CODE RIVER MILE	
DATE 04/26/17 SCORER BH COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ı 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 PERCENT	Metri
BLDR SLABS [16 pts]	Point
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] D LEAF PACK/WOODY DEBRIS [3 pts] 0% FINE DETRITUS [3 pts] 0%	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 40% MUCK [0 pts] 0%	16
SAND (<2 mm) [6 pts] 20% ARTIFICIAL [3 pts] 0%	
Total of Percentages of 0.00% (A) Substrate Percentage (B) Check	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 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 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] > 5 cm - 5 cm [5 pts]	I
	5
OMM ENTS MAXIMUM POOL DEPTH (centimeters): 3	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.00	Max=30
	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.00 This information <u>must</u> also be completed	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.00	Max=30
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	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and River Left (L)	Max=30
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) V Wide >10m Moderate 5-10m AVERAGE BANKFULL WIDTH (meters): 1.00 L R (NOST PREDOMPLAIN QUALITY Mature Forest, Wetland Urban or Industrial	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) V Wide >10m Moderate 5-10m Narrow <5m AVERAGE BANKFULL WIDTH (meters): I.00 Conservation Tillage Immature Forest, Wetland Open Pasture, Row Conservation Field Open Pasture, Row Conservation Field Open Pasture, Row Conservation Field	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) V Wide >10m Moderate 5-10m Narrow <5m None AVERAGE BANKFULL WIDTH (meters): 1.00 This information must also be completed RIPARIAN WIDTH (R) as looking downstream Review Left (L) and Right (R) as looking downstream Review Left (L) and Righ	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: 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 Auture Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Field Narrow <5m Residential, Park, New Field Open Pasture, Row Comments	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Moderate 5-10m Residential, Park, New Field Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) AVERAGE BANKFULL WIDTH (meters): 1.00 A	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) Durban or Industrial Immature Forest, Shrub or Old Durban or Industrial Field Pasture Forest, New Field Open Pasture, Row Comments Narrow <5m Residential, Park, New Field Open Pasture, Row Comments Flow Regime (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermitter	Max=30
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 R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY Mature Forest, Wetland Moderate 5-10m Residential, Park, New Field Narrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.00 This information must also be completed RIPARIAN WIDTH (Most Predominant per Bank) L R (Most Predominan	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream Marrow Some and Floodplain Quality Mature Forest, Wetland Conservation Tillage Immature Forest, Wetland Urban or Industrial Moderate 5-10m Residential, Park, New Field Open Pasture, Row Comments Narrow <5m Residential, Park, New Field Open Pasture, Row Comments None Fenced Pasture Mining or Construction COMMENTS Moist Channel, isolated pools, no flow (Intermitter Subsurface flow with isolated pools (Interstitial)	Max=30
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 Wide >10m Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS 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) None COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.00 AND CERN AND A SINUO Sinus (L) and Right (R) as looking downstream AND A SINUS (L) and Right (Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: EWH Name:	_ Distance from Evaluated Stream Distance from Evaluated Stream 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 Pa	age: NRCS Soil Map Stream Order
County: Seneca Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/20/17	Quantity: 0.21
Photograph Information: Representative Photos Taken	
Elevated Turbidity? (Y/N): N Canopy (% open): 5%	
NI NI	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Crop area upslope	
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 Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:	mary Headwater Habitat Assessment Manual) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	EACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and	
FLOW	





TYPE
LENGTH OF STREAM REACH (ft) 255
DATE 04/27/17 SCORER BH COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STRAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONL / Mo predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 3). Find metric score is sum of boxes A & B. PERCENT TYPE Max of 32). Add total number of significant substrate types found (Max of 3). Find metric score is sum of boxes A & B. PERCENT TYPE BLDR SLABS [16 pts] 0% DS. LEAP PACK/WOODY DEBRIS [3 pts] 10% D% D% D% D% D% D% D%
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY 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. PERCENT 179E SULT [3 pt] SULDER (2-266 mm) [16 pts] O%. O%.
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. B. TYPE BLDR SLABS [16 pts] PERCENT 7YPE BLDR SLABS [16 pts] PERCENT 7YPE SLT [3 pt] PERCENT 30%. SUBSTRATE 17YPE BLDR SLABS [16 pts] PERCENT 79%. SLT [3 pt] 10½.
(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 O%.
Metric Percent Substrate Percent Substrate Percent Substrate S
BLDR SLABS [16 pts]
BEDROCK [16 pt] 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
COBBLE (65-256 mm) [12 pts]
SAND (<2 mm) (6 pts) 20% ARTIFICIAL (3 pts) 0%
Total of Percentages of 3.0.00% (A) Biddr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 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): No water of pipes No water of
Bidr Slabs, Boulder, Cobble, Bedrock
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): 30 centimeters [20 pts]
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] > 10 - 22.5 cm [25 pts] > 10 - 22.5 cm [25 pts] OMMENTS MAXIMUM POOL DEPTH (centimeters): 10 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.00 This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOOPPLAIN QUALITY Mature Forest, Wetland Conservation Tillage Moderate 5-10m Immature Forest, Wetland Conservation Tillage Moderate 5-10m Residential, Park, New Field Open Pasture, Row Crop None Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture Mining or Construction COMMENTS Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) To ye channel, no water (Ephemeral)
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 5 cm - 10 cm [15 pts] > 10 - 22.5 cm [25 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] NO WAT
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]
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This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY A Most Predominant per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m Residential, Park, New Field Penced Pasture Flood Residential, Park, New Field Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Moderate 5-10m Residential, Park, New Field Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)
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RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS Fenced Pasture Fenced Pasture COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) PLOODPLAIN QUALITY L R (Most Predominant per Bank) L R (Onservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction Mining or Construction Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)
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Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)
COMMENTS_
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0
0.5 1.5 2.5 >3
STREAM GRADIENT ESTIMATE
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

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: CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream 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:04/27/17 _ Quantity:0.07
Photograph Information: Representative Photos Taken
Elevated Turbidity? (Y/N): N Canopy (% open): 5%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Crop area upslope
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) Voucher? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
FLOW -



Google earth

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in

Case No(s). 17-2295-EL-BGN

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