

Stream 195 Mod. Class 1 hh-bce-030316-01

Ohio EPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **26**

SITE NAME/LOCATION: RR 1/2 Mile E of Canal
SITE NUMBER: 01 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
DATE: 3/3/10 SCORER: JHE COMMENTS: SM

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: ag. w/ ch. channelized

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)	<u>10</u>	<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>10</u>	<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	<u>10</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 12
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4
HHEI Metric Points: 16 (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 cuttings or storm water pipes). (Check ONLY one box)

<input type="checkbox"/> > 30 centimeters (30 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (20 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (23 pts)	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 5' MAXIMUM POOL DEPTH (centimeters)
HHEI Metric Points: 5 (Max = 30)

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

<input type="checkbox"/> > 4.0 meters (> 13) (30 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 7") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13) (28 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)	

COMMENTS: 8' AVERAGE BANKFULL WIDTH (meters)
HHEI Metric Points: 15 (Max = 30)

This information must also be completed

RIPIARIAN ZONE AND FLOODPLAIN QUALITY

NOTE: River Left (L) and Right (R) as looking downstream

RIPIARIAN ZONE	FLOODPLAIN QUALITY
<input checked="" type="checkbox"/> L <input checked="" type="checkbox"/> R (Per Bank)	<input type="checkbox"/> L <input type="checkbox"/> R (Most Predominant per Bank)
<input type="checkbox"/> Wide > 10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input checked="" type="checkbox"/> Open Pasture, Row Crop
	<input type="checkbox"/> 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: _____

BIOTICITY (Number of bands per 61 m (200 ft) of channel) (Check ONLY one box)

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> 3.5

STREAM GRADIENT ESTIMATE

☒ Flat to Moderate

☐ Moderate to Severe

☐ Severe to Extreme

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Stream 196 Mod. Class 1 hh-bce-030316-01

Ohio EPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **25**

SITE NAME/LOCATION: RR 1/2 Mile E of Canal
SITE NUMBER: 01 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
DATE: 3/3/10 SCORER: JHE COMMENTS: SM

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: channelized / no field

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>30</u>	<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 12
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3
HHEI Metric Points: 15 (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 cuttings or storm water pipes). (Check ONLY one box)

<input type="checkbox"/> > 30 centimeters (30 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (20 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (23 pts)	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 6' MAXIMUM POOL DEPTH (centimeters)
HHEI Metric Points: 5 (Max = 30)

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

<input type="checkbox"/> > 4.0 meters (> 13) (30 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 7") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13) (28 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)	

COMMENTS: 6' AVERAGE BANKFULL WIDTH (meters)
HHEI Metric Points: 15 (Max = 30)

This information must also be completed

RIPIARIAN ZONE AND FLOODPLAIN QUALITY

NOTE: River Left (L) and Right (R) as looking downstream

RIPIARIAN ZONE	FLOODPLAIN QUALITY
<input type="checkbox"/> L <input type="checkbox"/> R (Per Bank)	<input type="checkbox"/> L <input type="checkbox"/> R (Most Predominant per Bank)
<input type="checkbox"/> Wide > 10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input checked="" type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input checked="" type="checkbox"/> Open Pasture, Row Crop
	<input type="checkbox"/> 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: _____

BIOTICITY (Number of bands per 61 m (200 ft) of channel) (Check ONLY one box)

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> 3.5

STREAM GRADIENT ESTIMATE

☒ Flat to Moderate

☐ Moderate to Severe

☐ Severe to Extreme

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Stream 195

ADDITIONAL STREAM INFORMATION (This information must also be completed)

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: _____ (If Yes, Attach Completed GHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream: _____

☐ CWR 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): N Date of last precipitation: 2/16 County: _____

Photograph information: 2689 2-100

Elevated Turbidity? (Y/N): N Canopy (% open): 95

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or kit and attach results) Lab Number: _____

Field Measures: Temp (°C): _____ Dissolved Oxygen (mg/l): _____ pH (8.0): _____ Conductivity (umhos/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): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): _____ Voucher? (Y/N): _____ Salamanders Observed? (Y/N): _____ Voucher? (Y/N): _____

Frogs or Toads Observed? (Y/N): _____ Voucher? (Y/N): _____ Aquatic Macroinvertebrates Observed? (Y/N): _____ Voucher? (Y/N): _____

Comments Regarding Bioty: _____

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



PHWH Form Page - 2

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Stream 196

ADDITIONAL STREAM INFORMATION (This information must also be completed)

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: _____ (If Yes, Attach Completed GHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream: _____

☐ CWR 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): N Date of last precipitation: 3/1/10 County: _____

Photograph information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or kit and attach results) Lab Number: _____

Field Measures: Temp (°C): _____ Dissolved Oxygen (mg/l): _____ pH (8.0): _____ Conductivity (umhos/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): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): N Voucher? (Y/N): _____ Salamanders Observed? (Y/N): _____ Voucher? (Y/N): _____

Frogs or Toads Observed? (Y/N): _____ Voucher? (Y/N): _____ Aquatic Macroinvertebrates Observed? (Y/N): _____ Voucher? (Y/N): _____

Comments Regarding Bioty: _____

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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Stream 197 Mod. Class 2 hh-bce-030216-10

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **46**

SITE NAME/LOCATION: BLVD/CRK 197-201

SITE NUMBER: 12 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____

LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____

DATE: 3/2/16 SCORER: BCE COMMENTS: INT

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: by field ditch channelization

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (64-256 mm) (12 pts)	<u>10</u>	<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>50</u>	<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	<u>10</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: (A) 12 (B) 4

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 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):

☐ > 30 centimeters (30 pts)

☐ > 22.5 - 30 cm (24 pts)

☒ > 16 - 22.5 cm (21 pts)

COMMENTS: _____

MAXIMUM POOL DEPTH (centimeters): 6"

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

☐ > 4.0 meters (> 13' (36 pts))

☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (24 pts)

☒ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") (20 pts)

COMMENTS: 12'

AVERAGE BANKFULL WIDTH (meters): 3'

Final Metric Points: **16** (A+B)

Pool Depth: **25** (Max = 30)

Bankfull Width: **35** (Max = 40)

Final Metric Score: **5**

RIPIARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)

RIPIARIAN WIDTH: ☒ R (Per Bank) Wide > 10m ☐ L (Most Predominant per Bank) Mature Forest, Wetland, Immature Forest, Shrub or Old Field ☐ R Conservation Tillage ☐ L Urban or Industrial ☐ R Moderate 5-10m ☐ L Residential, Park, New Field ☒ R Open Pasture, Row Crop ☐ L Narrow < 5m ☐ L Fenced Pasture ☐ R Mining or Construction ☐ L None

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box): ☒ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): ☒ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ > 3.0

STREAM GRADIENT ESTIMATE: ☒ Flat to Moderate ☐ Moderate to Severe ☐ Severe

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Stream 197 hh-bce-030216-10

Ohio EPA Primary Headwater Habitat Evaluation Form

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: _____

☐ BWH 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): N Date of last precipitation: 3/1/16 Quantity: _____

Photograph information: _____

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 (8 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 site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): N Voucher? (Y/N): _____ Salamanders Observed? (Y/N): _____ Voucher? (Y/N): _____

Frogs or Tadpoles Observed? (Y/N): _____ Voucher? (Y/N): _____ Aquatic Macroinvertebrates Observed? (Y/N): _____ Voucher? (Y/N): _____

Comments Regarding Biology: _____

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

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

FLOW →

PHWH Form Page - 3

Stream 198 Mod. Class 1 hh-bce-030216-10

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **20**

SITE NAME/LOCATION: BLVD/CRK 198-201

SITE NUMBER: 10 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____

LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____

DATE: 3/2/16 SCORER: BCE COMMENTS: INT

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 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (64-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>10</u>	<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	<u>10</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: (A) 6 (B) 4

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 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):

☐ > 30 centimeters (30 pts)

☐ > 22.5 - 30 cm (24 pts)

☒ > 16 - 22.5 cm (21 pts)

COMMENTS: _____

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' (36 pts))

☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (24 pts)

☒ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") (20 pts)

COMMENTS: 12'

AVERAGE BANKFULL WIDTH (meters): 16'

Final Metric Points: **10** (A+B)

Pool Depth: **5** (Max = 30)

Bankfull Width: **35** (Max = 40)

Final Metric Score: **5**

RIPIARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)

RIPIARIAN WIDTH: ☒ R (Per Bank) Wide > 10m ☐ L (Most Predominant per Bank) Mature Forest, Wetland, Immature Forest, Shrub or Old Field ☐ R Conservation Tillage ☐ L Urban or Industrial ☐ R Moderate 5-10m ☐ L Residential, Park, New Field ☐ R Open Pasture, Row Crop ☐ L Narrow < 5m ☐ L Fenced Pasture ☐ R Mining or Construction ☐ L None

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box): ☐ Stream Flowing ☒ Subsurface flow with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): ☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☒ 3.0 ☐ > 3.0

STREAM GRADIENT ESTIMATE: ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe

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Stream 198 hh-bce-030216-10

Ohio EPA Primary Headwater Habitat Evaluation Form

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: _____

☐ BWH 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): N Date of last precipitation: 3/1/16 Quantity: _____

Photograph information: 2/1/16

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 (8 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): _____ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): _____ Voucher? (Y/N): _____ Salamanders Observed? (Y/N): _____ Voucher? (Y/N): _____

Frogs or Tadpoles Observed? (Y/N): _____ Voucher? (Y/N): _____ Aquatic Macroinvertebrates Observed? (Y/N): _____ Voucher? (Y/N): _____

Comments Regarding Biology: _____

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

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

FLOW →

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Stream 199

Mod. Class 2

hh-bae-032016-09

Stream 199

hh-bae-032016-09

OH EPA Primary Headwater Habitat Evaluation Form

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

13

DATE NAME/LOCATION: ALP-60071160-1160
 SITE NUMBER: 11 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
 LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
 DATE: 3/21/16 SCORER: hite COMMENTS: -1160

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

STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERYMODIFICATIONS: TL ROW / grading

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLAB (18 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (18 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (18 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (9 pts)		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Sand, Boulder, Cobble, Bedrock: (A) 13 (B) 0
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 2

2. Maximum Pool Depth (Measure the maximum pool depth within the 51 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)
☐ > 22.5 - 30 cm (10 pts)
☐ > 10 - 22.5 cm (5 pts)
☒ NO WATER OR MOIST CHANNEL (0 pts)
 COMMENTS: 1 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') (20 pts)
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (15 pts)
☐ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") (10 pts)
☒ AVERAGE BANKFULL WIDTH (meters): 3

HHEI Metric Points
Substrate
Max = 40
8Pool Depth
Max = 30
0Bankfull Width
Max = 20
5

This information must also be completed

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

RIPARIAN ZONE (Per Bank) **FLOODPLAIN QUALITY** (Most Predominant per Bank)

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

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☐ Stream Flowing
☐ Subsurface flow with isolated pools (intermittent)
☐ Dry channel, no water (Ephemeral)
 COMMENTS: _____

BIODIVERSITY (Number of bands per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None
☐ 0.5
☐ 1.0
☐ 1.5
☐ 2.0
☐ 2.5
☐ 3.0
☐ >3

STREAM GRADIENT ESTIMATE
☐ Flat (< 0.10% S) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (> 0.10% S)

PHWH Form Page - 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: _____
☐ PWH 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) N Date of last precipitation: 3/1/16 Quantity: _____Photograph Information: 2/21/16 200Elevated Turbidity? (Y/N) N Canopy (% open): 40-70Were 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 (5.0-14) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream? (Y/N) Y If no, please explain: _____

Additional comment/description of pollution impacts: _____

BIOTIC EVALUATION

Permitted? (Y/N) Y (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) Y Voucher? (Y/N) Y Salamanders Observed? (Y/N) Y Voucher? (Y/N) YFrogs or Toadpoles Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y

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



PHWH Form Page - 2

Stream 200

Mod. Class 2

hh-bae-032016-09

Stream 200

hh-bae-032016-09

OH EPA Primary Headwater Habitat Evaluation Form

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

40

DATE NAME/LOCATION: ALP-60071160-1160
 SITE NUMBER: 11 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
 LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
 DATE: 3/21/16 SCORER: hite COMMENTS: -1160

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

STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERYMODIFICATIONS: TL ROW / grading

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLAB (18 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (18 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (18 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (9 pts)		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Sand, Boulder, Cobble, Bedrock: (A) 20 (B) 20
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 2

2. Maximum Pool Depth (Measure the maximum pool depth within the 51 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)
☐ > 22.5 - 30 cm (10 pts)
☐ > 10 - 22.5 cm (5 pts)
☒ NO WATER OR MOIST CHANNEL (0 pts)
 COMMENTS: 2 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') (20 pts)
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (15 pts)
☐ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") (10 pts)
☒ AVERAGE BANKFULL WIDTH (meters): 3

HHEI Metric Points
Substrate
Max = 40
40Pool Depth
Max = 30
15Bankfull Width
Max = 20
5

This information must also be completed

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

RIPARIAN ZONE (Per Bank) **FLOODPLAIN QUALITY** (Most Predominant per Bank)

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

COMMENTS: TL ROW

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☒ Stream Flowing
☐ Subsurface flow with isolated pools (intermittent)
☐ Dry channel, no water (Ephemeral)
 COMMENTS: _____

BIODIVERSITY (Number of bands per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None
☐ 0.5
☐ 1.0
☐ 1.5
☐ 2.0
☐ 2.5
☐ 3.0
☐ >3

STREAM GRADIENT ESTIMATE
☐ Flat (< 0.10% S) ☐ Flat to Moderate ☒ Moderate to Severe ☐ Severe (> 0.10% S)

PHWH Form Page - 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: _____
☐ PWH 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) N Date of last precipitation: 3/1/16 Quantity: _____Photograph Information: 2/21/16 200Elevated Turbidity? (Y/N) N Canopy (% open): 90-100Were 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 (5.0-14) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream? (Y/N) Y If no, please explain: _____

Additional comment/description of pollution impacts: _____

BIOTIC EVALUATION

Permitted? (Y/N) Y (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) Y Voucher? (Y/N) Y Salamanders Observed? (Y/N) Y Voucher? (Y/N) YFrogs or Toadpoles Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y

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



PHWH Form Page - 2

Stream 201

Mod. Class 1

hh-bae-032016-07

Ohio EPA Primary Headwater Habitat Evaluation Form

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

19

SITE NAME/LOCATION: 100' Long Creek - 100'
 SITE NUMBER: 08 RIVER BASIN: DRAINAGE AREA (mi²)
 LENGTH OF STREAM REACH (ft): 18 LAT: LONG RIVER CODE: RIVER MILE
 DATE: 3/1/16 SCORER: JAE COMMENTS: completing

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: gravelly / covered by rocks / sand

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY 1 two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (64-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	5	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (0 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 6
 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 evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):
☐ > 30 centimeters (20 pts)
☐ > 22.5 - 30 cm (10 pts)
☒ > 15 - 22.5 cm (5 pts)
☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 4 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' (20 pts)
☐ > 3.0 m - 4.0 m (> 9' - 13') (10 pts)
☒ > 1.5 m - 3.0 m (> 4' - 9') (5 pts)

COMMENTS: 4 AVERAGE BANKFULL WIDTH (meters): 1.5

HHEI Metric Points
Substrate Max = 16
9
A + BPool Depth Max = 30
5Bankfull Width Max = 20
5This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) are looking downstream)

RIPARIAN WIDTH (Per Bank) FLOODPLAIN QUALITY (Note: Predominant per Bank)

R L
☒ Wide > 10m ☐ Mature Forest, Wetland ☐ Conservation Tillage
☐ Moderate 5-10m ☐ Immature Forest, Shrub or Old Field ☐ Urban or Industrial
☐ Narrow < 5m ☒ Residential, Park, New Field ☐ Open Pasture, Row Crop
☐ 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 (epifaunal)

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 m/m) ☐ Flat to Moderate ☐ Moderate to Severe ☐ Severe (> 2 m/m)

PHWH Form Page - 1

Stream 201

hh-bae-032016-07

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
☐ CWW 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 Quadrange Name: NRCS Soil Map Page: NRCS Soil Map Stream Order:
 County: Township / City:

MISCELLANEOUS

Base Flow Conditions? (Y/N) N Date of last precipitation: 2/2/16 Quantity: 1
 Photograph Information: 2/2/16
 Elevated Turbidity? (Y/N) N Canopy (% open): 90
 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 (8.0): Conductivity (umhos/cm):
 Is the sampling reach representative of the stream (Y/N) N If not, please explain:

Additional comment/description of pollution impacts:

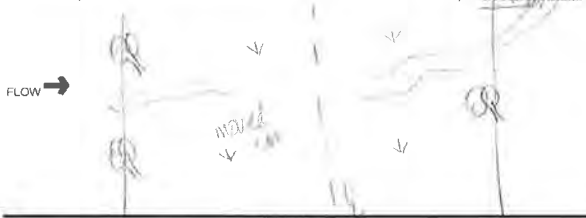
BIOTIC EVALUATION

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) Salamanders Observed? (Y/N) N Voucher? (Y/N) N
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
 Comments Regarding Biology:

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



PHWH Form Page - 2

Stream 202

Mod. Class 2

hh-bae-032016-07

Ohio EPA Primary Headwater Habitat Evaluation Form

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

50

SITE NAME/LOCATION: 100' Long Creek - 100'
 SITE NUMBER: 08 RIVER BASIN: DRAINAGE AREA (mi²)
 LENGTH OF STREAM REACH (ft): 18 LAT: LONG RIVER CODE: RIVER MILE
 DATE: 3/1/16 SCORER: JAE COMMENTS: completing

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: gravelly / covered by rocks / sand

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY 1 two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (64-256 mm) (12 pts)	15	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	5	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	20	<input type="checkbox"/> ARTIFICIAL (0 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 15
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15
 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):
☐ > 30 centimeters (20 pts)
☐ > 22.5 - 30 cm (10 pts)
☒ > 15 - 22.5 cm (5 pts)
☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 10 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' (20 pts)
☐ > 3.0 m - 4.0 m (> 9' - 13') (10 pts)
☒ > 1.5 m - 3.0 m (> 4' - 9') (5 pts)

COMMENTS: 10 AVERAGE BANKFULL WIDTH (meters): 1.5

HHEI Metric Points
Substrate Max = 16
20
A + BPool Depth Max = 30
5Bankfull Width Max = 20
5This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) are looking downstream)

RIPARIAN WIDTH (Per Bank) FLOODPLAIN QUALITY (Note: Predominant per Bank)

R L
☒ Wide > 10m ☐ Mature Forest, Wetland ☐ Conservation Tillage
☐ Moderate 5-10m ☐ Immature Forest, Shrub or Old Field ☐ Urban or Industrial
☐ Narrow < 5m ☒ Residential, Park, New Field ☐ Open Pasture, Row Crop
☐ 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 (epifaunal)

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 m/m) ☐ Flat to Moderate ☐ Moderate to Severe ☐ Severe (> 2 m/m)

PHWH Form Page - 1

Stream 202

hh-bae-032016-07

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
☐ CWW 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 Quadrange Name: NRCS Soil Map Page: NRCS Soil Map Stream Order:
 County: Township / City:

MISCELLANEOUS

Base Flow Conditions? (Y/N) N Date of last precipitation: 3/1/16 Quantity: 1
 Photograph Information: 2/2/16
 Elevated Turbidity? (Y/N) N Canopy (% open): 90
 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 (8.0): Conductivity (umhos/cm):
 Is the sampling reach representative of the stream (Y/N) N If not, please explain:

Additional comment/description of pollution impacts:

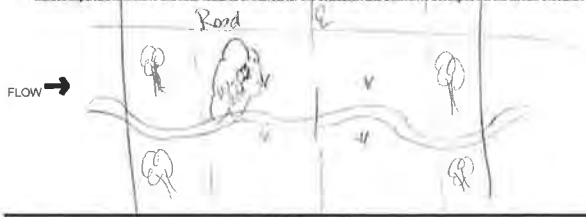
BIOTIC EVALUATION

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) Salamanders Observed? (Y/N) N Voucher? (Y/N) N
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
 Comments Regarding Biology:

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



PHWH Form Page - 2

Stream 203

Mod. Class 2

hh-bae-00016-01

Stream 203

hh-bae-00016-01

Ohio EPA Primary Headwater Habitat Evaluation Form

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

40

SITE NAME/LOCATION: 1121 East Highway (Winton)
 SITE NUMBER: 01 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
 LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
 DATE: 3/14/10 SCORER: BAE COMMENTS: WHT

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 RECOVERYMODIFICATIONS: 12 ROD/grading

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> SILT (3 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BOLDER (>256 mm) (18 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)	10	<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	40	<input type="checkbox"/> ARTIFICIAL (3 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (5 pts)	30		

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 15 (B) 5
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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):
☐ > 30 centimeters (30 pts)
☐ > 22.5 - 30 cm (20 pts)
☐ > 10 - 22.5 cm (15 pts)
☒ NO WATER OR MOIST CHANNEL (0 pts)
 COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 4

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):
☐ > 4.0 meters (> 13') (20 pts)
☐ > 3.0 m - 4.0 m (> 9'7" - 13') (15 pts)
☐ > 1.5 m - 3.0 m (> 4'9" - 9'7") (10 pts)
☒ None (< 1.5 m) (0 pts)
 COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 2.5

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

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☒ Stream Flowing
☐ Subsurface flow with isolated pools (intermittent)
☐ Dry channel, no water (Ephemeral)
 COMMENTS: _____

SHOUBTY (Number of bonds per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None
☐ 0.5
☐ 1.0
☐ 1.5
☐ 2.0
☐ 2.5
☒ 3.0
☐ >3

STREAM GRADIENT ESTIMATE (Flat to 1:100 ft):
☐ Flat to Moderate
☐ Moderate (1:100 ft)
☒ Moderate to Severe
☐ Severe (>1:100 ft)

PHWH Form Page - 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: _____
☐ RWH 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) N Date of last precipitation: 3/14/10 Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N) N Canopy (% open): 30-40Were 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 site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) N Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

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

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

FLOW → Mineral flow

PHWH Form Page - 2

Stream 204

Mod. Class 1

hh-bae-03036-06

Stream 204

hh-bae-03036-06

Ohio EPA Primary Headwater Habitat Evaluation Form

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

13

SITE NAME/LOCATION: 1121 East Highway (Winton)
 SITE NUMBER: 02 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
 LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
 DATE: 3/14/10 SCORER: BAE COMMENTS: WHT

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 RECOVERYMODIFICATIONS: grading/mowing

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> SILT (3 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BOLDER (>256 mm) (18 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (5 pts)			

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 6 (B) 7
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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):
☐ > 30 centimeters (30 pts)
☐ > 22.5 - 30 cm (20 pts)
☐ > 10 - 22.5 cm (15 pts)
☒ NO WATER OR MOIST CHANNEL (0 pts)
 COMMENTS: _____ 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') (20 pts)
☐ > 3.0 m - 4.0 m (> 9'7" - 13') (15 pts)
☐ > 1.5 m - 3.0 m (> 4'9" - 9'7") (10 pts)
☒ None (< 1.5 m) (0 pts)
 COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 2.5

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

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☐ Stream Flowing
☐ Subsurface flow with isolated pools (intermittent)
☐ Dry channel, no water (Ephemeral)
 COMMENTS: _____

SHOUBTY (Number of bonds per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None
☐ 0.5
☐ 1.0
☐ 1.5
☐ 2.0
☐ 2.5
☒ 3.0
☐ >3

STREAM GRADIENT ESTIMATE (Flat to 1:100 ft):
☒ Flat to Moderate
☐ Moderate (1:100 ft)
☐ Moderate to Severe
☐ Severe (>1:100 ft)

PHWH Form Page - 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: _____
☐ RWH 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) N Date of last precipitation: 3/14/10 Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N) N Canopy (% open): 30Were 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 site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) N Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

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

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

FLOW → W-02

PHWH Form Page - 2

Stream 207

Mod. Class 1

H- brie-030216-03

Stream 207

H- brie-030216-03

Ohio EPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **14**

SITE NAME/LOCATION: 1111 LITTLE CREEK
 SITE NUMBER: 13 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
 LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
 DATE: 3/1/16 SCORER: PAVE COMMENTS: excellent

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: grading

TYPE	PERCENT	TYPE	PERCENT	HHEI Metric Points
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	<u>20</u>	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	<u>20</u>	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)		
<input type="checkbox"/> CORBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)		
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>10</u>	<input type="checkbox"/> MUCK (3 pts)		
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock		(A) <u>6</u>		
SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:		(B) <u>3</u>		
TOTAL NUMBER OF SUBSTRATE TYPES: <u>3</u>				

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)
☐ > 22.5 - 30 cm (10 pts)
☐ > 10 - 22.5 cm (5 pts)
☒ NO WATER OR MOIST CHANNEL (0 pts)
 COMMENTS: 7 MAXIMUM POOL DEPTH (centimeters): 10

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):
☐ > 4.0 meters (120 ft) (20 pts)
☐ > 3.0 m - 4.0 m (9' 7" - 13') (10 pts)
☐ > 1.5 m - 3.0 m (4' 9" - 9' 7") (5 pts)
☒ < 1.0 m (< 3' 3") (3 pts)
 COMMENTS: 7.5 AVERAGE BANKFULL WIDTH (meters): 1

This information must also be completed

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

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☐ Stream Flowing
☒ Subsurface flow with isolated pools (intermittent)
☐ Most 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
☐ 0.5
☐ 1.0
☐ 1.5
☐ 2.0
☐ 2.5
☐ 3.0
☐ >3

STREAM GRADIENT ESTIMATE
☐ Flat (< 0.100 ft) ☐ Flat to Moderate ☒ Moderate to Severe ☐ Severe (> 0.100 ft)

PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This information Must Also be Completed)

OHEI PERFORMED? ☐ Yes ☒ No OHEI Score: _____ (If Yes, Attach Completed OHEI Form)
 DOWNSTREAM DESIGNATED USE(S):
☐ WWH Name: _____ Distance from Evaluated Stream: _____
☐ CWH Name: _____ Distance from Evaluated Stream: _____
☐ BWH 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) N Date of last precipitation: 3/1 Quantity: _____

Photograph information: 2/26 2/26

Elevated Turbidity? (Y/N) N Canopy (% open): 10

Were samples collected for water chemistry? (Y/N) N (Wide 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: _____

BOTIC EVALUATION

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

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Toads Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

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

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

FLOW →

PHWH Form Page - 2

Stream 208

Mod. Class 1

H- brie-030216-02

Stream 208

H- brie-030216-02

Ohio EPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **24**

SITE NAME/LOCATION: 1111 LITTLE CREEK
 SITE NUMBER: 13 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
 LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
 DATE: 3/1/16 SCORER: PAVE COMMENTS: excellent

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: AL ROAD/CHANNEL GRADING

TYPE	PERCENT	TYPE	PERCENT	HHEI Metric Points
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	<u>10</u>	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	<u>10</u>	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)		
<input type="checkbox"/> CORBLE (65-256 mm) (12 pts)	<u>5</u>	<input type="checkbox"/> CLAY or HARDPAN (3 pts)		
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>5</u>	<input type="checkbox"/> MUCK (3 pts)		
<input type="checkbox"/> SAND (<2 mm) (8 pts)	<u>10</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock		(A) <u>12</u>		
SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:		(B) <u>5</u>		
TOTAL NUMBER OF SUBSTRATE TYPES: <u>5</u>				

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)
☐ > 22.5 - 30 cm (10 pts)
☐ > 10 - 22.5 cm (5 pts)
☒ NO WATER OR MOIST CHANNEL (0 pts)
 COMMENTS: 7.5 MAXIMUM POOL DEPTH (centimeters): 10

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):
☐ > 4.0 meters (120 ft) (20 pts)
☐ > 3.0 m - 4.0 m (9' 7" - 13') (10 pts)
☐ > 1.5 m - 3.0 m (4' 9" - 9' 7") (5 pts)
☒ < 1.0 m (< 3' 3") (3 pts)
 COMMENTS: 7.5 AVERAGE BANKFULL WIDTH (meters): 1

This information must also be completed

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

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☒ Stream Flowing
☐ Subsurface flow with isolated pools (intermittent)
☐ Most 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
☐ 0.5
☐ 1.0
☐ 1.5
☐ 2.0
☐ 2.5
☐ 3.0
☐ >3

STREAM GRADIENT ESTIMATE
☐ Flat (< 0.100 ft) ☐ Flat to Moderate ☒ Moderate to Severe ☐ Severe (> 0.100 ft)

PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This information Must Also be Completed)

OHEI PERFORMED? ☐ Yes ☒ No OHEI Score: _____ (If Yes, Attach Completed OHEI Form)
 DOWNSTREAM DESIGNATED USE(S):
☐ WWH Name: _____ Distance from Evaluated Stream: _____
☐ CWH Name: _____ Distance from Evaluated Stream: _____
☐ BWH 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) N Date of last precipitation: 3/1 Quantity: _____

Photograph information: 2/26 2/26

Elevated Turbidity? (Y/N) N Canopy (% open): 10

Were samples collected for water chemistry? (Y/N) N (Wide 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: _____

BOTIC EVALUATION

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

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

Frogs or Toads Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

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

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

FLOW →

PHWH Form Page - 2

Stream 209

Mod. Class 1

hi 1001-1001-1001

Stream 209

hi 1001-1001-1001

OhioEPA Primary Headwater Habitat Evaluation Form

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

20

SITE NAME/LOCATION: 1001-1001-1001
 SITE NUMBER: 01 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
 LENGTH OF STREAM REACH (ft): 100 LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
 DATE: 9/1/10 SCORER: PAV COMMENTS: ephemeral

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

STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERYMODIFICATIONS: grading/road cut

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pt)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 16
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4
 HHEI Metric Points: 10
 Substrate Max = 40

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

<input type="checkbox"/> > 30 centimeters (20 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (2.5 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 4" MAXIMUM POOL DEPTH (centimeters): 4"
 Pool Depth Max = 30

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

<input type="checkbox"/> > 4.0 meters (120 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (30-4' 6") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (90-12' 10") (10 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (4' 6" - 9' 7") (25 pts)	

COMMENTS: 10' AVERAGE BANKFULL WIDTH (meters): 10'
 Bankfull Width Max = 30

This information must also be completed

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

RIPARIAN ZONE	FLOODPLAIN QUALITY
<input checked="" type="checkbox"/> L (Per Bank)	<input type="checkbox"/> (Most Predominant per Bank)
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture

COMMENTS: _____

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (intermittent)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS: _____

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

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

STREAM GRADIENT ESTIMATE (Flat to Moderate) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (>100%)

PWH Form Page - 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: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N) N Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N) N Canopy (% open) 50Were 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 (5-14) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream? (Y/N) 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) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Bioty: _____

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 →



PWH Form Page - 2

Stream 210

Mod. Class 1

hi 1001-1001-1001

Stream 210

hi 1001-1001-1001

OhioEPA Primary Headwater Habitat Evaluation Form

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

28

SITE NAME/LOCATION: 1001-1001-1001
 SITE NUMBER: 02 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
 LENGTH OF STREAM REACH (ft): 100 LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
 DATE: 9/1/10 SCORER: PAV COMMENTS: ephemeral

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

STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERYMODIFICATIONS: grading/road cut

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pt)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 16
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4
 HHEI Metric Points: 10
 Substrate Max = 40

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

<input type="checkbox"/> > 30 centimeters (20 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (2.5 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 10" MAXIMUM POOL DEPTH (centimeters): 10"
 Pool Depth Max = 30

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

<input type="checkbox"/> > 4.0 meters (120 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (30-4' 6") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (90-12' 10") (10 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (4' 6" - 9' 7") (25 pts)	

COMMENTS: 10' AVERAGE BANKFULL WIDTH (meters): 10'
 Bankfull Width Max = 30

This information must also be completed

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

RIPARIAN ZONE	FLOODPLAIN QUALITY
<input checked="" type="checkbox"/> L (Per Bank)	<input type="checkbox"/> (Most Predominant per Bank)
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture

COMMENTS: _____

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (intermittent)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS: _____

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

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

STREAM GRADIENT ESTIMATE (Flat to Moderate) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (>100%)

PWH Form Page - 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: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N) N Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N) N Canopy (% open) 50Were 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 (5-14) _____ Conductivity (µmhos/cm) _____

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

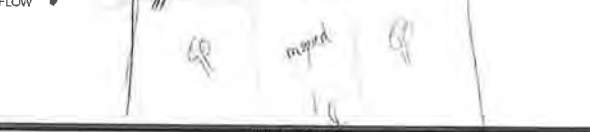
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) N Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Bioty: _____

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 →



PWH Form Page - 2

stream 219

Mod. Class 2

hh-bce-02276-03

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **37**

SITE NAME/LOCATION: 107-2-10-03 SITE NUMBER: 03 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
 LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
 DATE: 7/29/16 SCORER: BAE/SJC COMMENTS: 219

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 RECOVERYMODIFICATIONS: TL ROW, grading

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<u>10</u>	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	<u>40</u>	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [8 pts]	<u>10</u>	<input type="checkbox"/> ARTIFICIAL [0 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 12 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 + 5 = 17

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

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

COMMENTS: 9" MAXIMUM POOL DEPTH (centimeters): 3"

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

<input type="checkbox"/> > 4.0 meters (> 13' [20 pts])	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 8") [10 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 8" - 13') [20 pts]	<input type="checkbox"/> < 1.0 m (< 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: 3' AVERAGE BANK FULL WIDTH (meters): 2'

This information must also be completed

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

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

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

☐ Stream Flowing

☐ Subsurface flow with isolated pools (intermittent)

☒ Most Channel, isolated pools, no flow (intermittent)

☐ Dry channel, no water (ephemeral)

BIINUOSITY (Number of bands per 61 m (200 ft) of channel) (Check ONLY one box)

☐ None

☐ 0.5

☐ 1.0

☐ 1.5

☒ 2.0

☐ 2.5

☐ 3.0

☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 m/100 ft)

☐ Moderate (1 m/100 ft)

☐ Moderate to Severe

☐ Severe (>1.5 m/100 ft)

PHWH Form Page - 1

stream 219

hh-bce-02276-03

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)

☐ WHP 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): N Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 75Were 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 (SU): _____ Conductivity (µmhos/cm): _____

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

Additional comments (describe on 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): _____ Salamanders Observed? (Y/N): _____ Voucher? (Y/N): _____

Frogs or Tadpoles Observed? (Y/N): _____ Voucher? (Y/N): _____ Aquatic Macroinvertebrates Observed? (Y/N): _____ Voucher? (Y/N): _____

Comments Regarding Biology: _____

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

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

FLOW →

PHWH Form Page - 2

stream 220

Mod. Class 1

hh-bce-02276-04

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **18**

SITE NAME/LOCATION: 107-2-10-04 SITE NUMBER: 04 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
 LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
 DATE: 7/29/16 SCORER: BAE/SJC COMMENTS: 220

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 RECOVERYMODIFICATIONS: grading/former mining / ATN flow channel

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]		<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL [0 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 6 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 + 2 = 8

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

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

COMMENTS: 3" MAXIMUM POOL DEPTH (centimeters): 0.5'

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

<input type="checkbox"/> > 4.0 meters (> 13' [20 pts])	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [10 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 8" - 13') [20 pts]	<input type="checkbox"/> < 1.0 m (< 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: 2.5' AVERAGE BANK FULL WIDTH (meters): 2.5'

This information must also be completed

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

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

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

☐ Stream Flowing

☐ Subsurface flow with isolated pools (intermittent)

☒ Most Channel, isolated pools, no flow (intermittent)

☐ Dry channel, no water (ephemeral)

BIINUOSITY (Number of bands per 61 m (200 ft) of channel) (Check ONLY one box)

☐ None

☐ 0.5

☐ 1.0

☐ 1.5

☒ 2.0

☐ 2.5

☐ 3.0

☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 m/100 ft)

☐ Moderate (1 m/100 ft)

☒ Moderate to Severe

☐ Severe (>1.5 m/100 ft)

PHWH Form Page - 1

stream 220

hh-bce-02276-04

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)

☐ WHP 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): N Date of last precipitation: _____ Quantity: _____

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 75Were 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 (SU): _____ Conductivity (µmhos/cm): _____

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

Additional comments (describe on 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): _____ Salamanders Observed? (Y/N): _____ Voucher? (Y/N): _____

Frogs or Tadpoles Observed? (Y/N): _____ Voucher? (Y/N): _____ Aquatic Macroinvertebrates Observed? (Y/N): _____ Voucher? (Y/N): _____

Comments Regarding Biology: _____

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

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

FLOW →

PHWH Form Page - 2

ATTACHMENT C

REPRESENTATIVE PHOTOGRAPHS

ATTACHMENT C.1

REPRESENTATIVE WETLAND PHOTOGRAPHS

Client Name: AEP Ohio Transco	Site Location: Poston–Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 1	
Date: March 23, 2016	
Description: Wetland 27 Facing North PEM Wetland Category 1	

Photo No. 2	
Date: March 9, 2016	
Description: Wetland 4 Facing Southwest PEM Wetland Category 2	

Client Name: AEP Ohio Transco	Site Location: Poston–Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 3	
Date: March 23, 2016	
Description: Wetland 36 Facing West PEM/PFO Wetland Category 2	

Photo No. 4	
Date: March 9, 2016	
Description: Wetland 3 Facing Southeast PEM/PSS Wetland Category 1	

Client Name: AEP Ohio Transco	Site Location: Poston–Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 5	
Date: March 9, 2016	
Description: Wetland 7 Facing Southeast PEM/PSS Wetland Category 2	

Photo No. 6	
Date: March 22, 2016	
Description: Wetland 19a Facing South PFO Wetland Category 2	

Client Name: AEP Ohio Transco	Site Location: Poston-Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 7	
Date: March 22, 2016	
Description: Wetland 38 Facing West PFO/PEM Wetland Category 1	

Photo No. 8	
Date: March 03, 2016	
Description: Wetland 50 Facing North PFO/PEM Wetland Category 2	

Client Name: AEP Ohio Transco	Site Location: Poston–Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 9	
Date: March 10, 2016	
Description: Wetland 8 Facing North POW/PEM Wetland Category 1	

Photo No. 10	
Date: March 23, 2016	
Description: Wetland 18 Facing North PSS Wetland Category 1	

Client Name: AEP Ohio Transco	Site Location: Poston–Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 12	
Date: February 29, 2016	
Description: Wetland 39 Facing East PSS/PEM Wetland Category 2	

Photo No. 13	
Date: March 03, 2016	
Description: Wetland 49 Facing Northeast PSS/PFO Wetland Category 2	

Client Name: AEP Ohio Transco	Site Location: Poston–Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 14	
Date: March 9, 2016	
Description: Wetland 5 Facing West PUB Wetland Category 2	

Photo No. 15	
Date: March 10, 2016	
Description: Wetland 9 Facing West PUB/PFO Wetland Category 2	



PHOTOGRAPHIC RECORD

Representative Wetlands

Client Name:

AEP Ohio Transco

Site Location:

Poston-Good Hope 138 kV Rebuild Project

Project No.

60482520

Photo No. 16**Date:**

March 9, 2016

Description:

Wetland 6

Facing Northeast

PUB/PEM Wetland

Category 2



ATTACHMENT C.2

REPRESENTATIVE STREAM PHOTOGRAPHS

Client Name: AEP Ohio Transco	Site Location: Poston-Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 1	
Date: March 1, 2016	
Description: Stream 129 Facing Downstream Ephemeral Class 1	

Photo No. 2	
Date: March 9, 2016	
Description: Stream 1 Facing Downstream Ephemeral Modified Class 1	

Client Name: AEP Ohio Transco	Site Location: Poston-Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 3	
Date: March 3, 2016	
Description: Stream 158 Facing Downstream Ephemeral Class 2	

Photo No. 4	
Date: March 1, 2016	
Description: Stream 133 Facing Downstream Ephemeral Modified Class 2	

Client Name: AEP Ohio Transco	Site Location: Poston-Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 5	
Date: March 23, 2016	
Description: Stream 59 Facing Downstream Intermittent Class 1	

Photo No. 6	
Date: March 3, 2016	
Description: Stream 192 Facing Upstream Intermittent Modified Class 1	

Client Name: AEP Ohio Transco	Site Location: Poston-Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 7	
Date: March 22, 2016	
Description: Stream 111 Facing Downstream Intermittent Class 2	

Photo No. 8	
Date: March 8, 2016	
Description: Stream 181 Facing Downstream Intermittent Modified Class 2	

Client Name: AEP Ohio Transco	Site Location: Poston-Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 9	
Date: March 9, 2016	
Description: Stream 11 Facing Upstream Perennial Modified Class 2	

Photo No. 10	
Date: March 2, 2016	
Description: Stream 146 Facing Downstream Perennial QHEI - Good	

Client Name: AEP Ohio Transco	Site Location: Poston-Good Hope 138 kV Rebuild Project	Project No. 60482520
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Photo No. 11	
Date: March 21, 2016	
Description: Stream 85 Facing Downstream Perennial QHEI - Fair	

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

10/20/2016 4:53:35 PM

in

Case No(s). 16-1770-EL-BLN

Summary: Letter of Notification (5) electronically filed by Mr. Hector Garcia on behalf of AEP Ohio Transmission Company