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## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

Stream 077 Date:

June 10, 2020 **Description:** 

Intermittent

Stream

Modified Small Drainage Warmwater

Facing Upstream

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 







**Client Name:** 

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

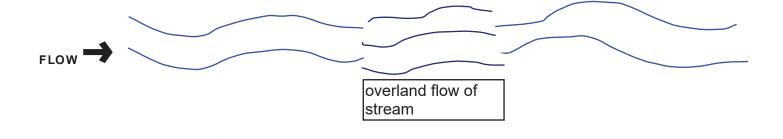


Stream 078 Modified Ephemeral Stream		
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):		
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project		
hh-aeh-20200609-11 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.		
LENGTH OF STREAM REACH (ft) 200 LAT. 39.95601 LONG82.29968 RIVER CODE RIVER MILE 0	.23	
DATE 06/09/20 SCORER AEH COMMENTS Ephemeral		
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING UNDER COVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING R	OVERY	
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI	
TYPE         PERCENT         TYPE         PERCENT           BLDR SLABS [16 pts]         0%         ✓         SILT [3 pt]         80%	Metric Points	
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 20%	Substrate	
BEDROCK         [16 pt]         0%         FINE DETRITUS         [3 pts]         0%           COBBLE         (65-256 mm)         [12 pts]         0%         CLAY or HARDPAN         [0 pt]         0%	Max = 40	
GRAVEL (2-64 mm) [9 pts]     0%     MUCK [0 pts]     0%	8	
SAND (<2 mm) [6 pts]         0%         ARTIFICIAL [3 pts]         0%	•	
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2		
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft)</i> evaluation reach at the time of	Pool Depth	
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30	
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]		
> 10 - 22.5 cm [25 pts]	0	
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00		
3.         BANK FULL WIDTH (Measured as the average of 3-4 measurements)         (Check ONLY one box):           > 4.0 meters (> 13') [30 pts]         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width	
$2 = 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7'' - 13') [25 \text{ pts}] \leq 1.0 \text{ m} (<=3' 3'') [5 \text{ pts}]$	Max=30	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 1.00	5	
This information must also be completed		
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY		
LR (Per Bank) LR (Most Predominant per Bank) LR		
Wide >10m Mature Forest, Wetland Conservation Tillage Moderate 5-10m Mature Forest, Shrub or Old Urban or Industrial		
	a	
	۲	
None     Fenced Pasture     Mining or Construction       COMMENTS		
<b>FLOW REGIME</b> (At Time of Evaluation) (Check ONLY one box):		
Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)		
COMMENTS		
<b>SINUOSITY</b> (Number of bends per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box):		
None         1.0         2.0         3.0           0.5         1.5         2.5         >3		
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe (10 ft/10	10 ft)	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name: _	Distance from Evaluated Stream
EWH Name: Valley Run	Distance from Evaluated Stream 2.90
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	OAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map P	Page: NRCS Soil Map Stream Order
County: Licking Township / City: Newar	n
MISCELLANEOUS	
Y 06/05/20	0.73
Base Flow Conditions? (Y/N): Date of last precipitation: 00/05/20	Quantity:
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open): <b>70%</b>	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Y	
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution imports:	
Additional comments/description of pollution impacts:	
BANK Stability LOW V MO	ODERATE HIGH
BIOTIC EVALUATION         Performed? (Y/N):       N         (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri         Fish Observed? (Y/N)       N         Voucher? (Y/N)       N         Salamanders Observed? (Y/N)       N         Aquatic Macroinvertebrat	imary Headwater Habitat Assessment Manual)
Comments Regarding Biology:	· · · · · · · · · · · · · · · · · · ·
Comments Regarding Biology:	

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

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



PHWH Form Page - 2

**Reset Form** 

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# AECOM Imagine it. Delivered.

## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

Stream 078 Date:

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

## Project No.

60616110, 60618779, 60616126





## June 9, 2020 **Description:** Ephemeral

Modified Ephemeral Stream

Facing Upstream



**Client Name:** 

AEP

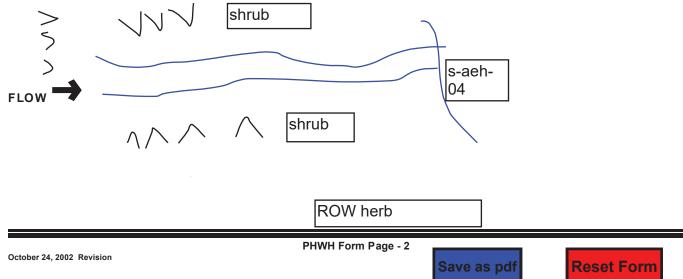
## Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project



Stream 079 Small Drainage Warmwater Stream		
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form <b>30</b>		
HHEI Score (sum of metrics 1, 2, 3) :		
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project		
s-aeh-20200610-05 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.01		
LENGTH OF STREAM REACH (ft)       50       LAT.       39.96557       LONG.       -82.30584       RIVER CODE       RIVER MILE       0.0         DATE       06/10/20       SCORER       AEH       COMMENTS       Intermittent trib to Stream 080		
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ons	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVE		
MODIFICATIONS:		
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes		
TYPE PERCENT TYPE PERCENT M	HEI letric	
BLDR SLABS [16 pts]         0%         SILT [3 pt]         20%           BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         10%	oints	
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0% Su	ıbstrate ax = 40	
COBBLE (65-256 mm) [12 pts]		
□       GRAVEL (2-64 mm) [9 pts]       35%       □       MUCK [0 pts]       0%         □       SAND (<2 mm) [6 pts]	25	
Total of Percentages of 35.00% (A) Substrate Percentage 100% (B)	A + B	
Bldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 4		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool	ol Depth	
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	ax = 30	
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]		
> 10 - 22.5 cm [25 pts]       ✓       NO WATER OR MOIST CHANNEL [0 pts]         COMMENTS       MAXIMUM POOL DEPTH (Inches): 0.00	0	
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	ankfull Vidth	
$ = 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \\ \end{bmatrix} \qquad \qquad$	lax=30	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 1.00	5	
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY がNOTE: River Left (L) and Right (R) as looking downstreamな		
RIPARIAN WIDTH FLOODPLAIN QUALITY		
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage		
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial		
Image: Narrow <5m		
None Fenced Pasture Mining or Construction		
COMMENTS		
FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools, no flow (Intermittent)		
Subsurface flow with isolated pools (Interstitial)   COMMENTS		
None         1.0         2.0         3.0           0.5         1.5         2.5         >3		
STREAM GRADIENT ESTIMATE		
Flat (0.5 ft/100 ft) Flat to Moderate I Moderate (2 ft/100 ft) Moderate to Severe I Severe (10 ft/100 ft)		

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         WH Name:       Valley Run         Distance from Evaluated Stream       3.70
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION         USGS Quadrangle Name:       Glenford         NRCS Soil Map Page:       NRCS Soil Map Stream Order         Counting       Townshin ( Citing
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/05/20 Quantity: 0.73
Photograph Information:
Elevated Turbidity? (Y/N): Canopy (% open): 20%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mq/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Additional comments/description of pollution impacts:



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## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

Stream 079	
Date:	
June 10, 2020	
Description:	
Intermittent	
Small Drainage Warmwater Stream	
Facing Upstream	

## Stream 079

Date:

June 10, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Downstream





**Client Name:** 

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

60616110, 60618779, 60616126

Project No.

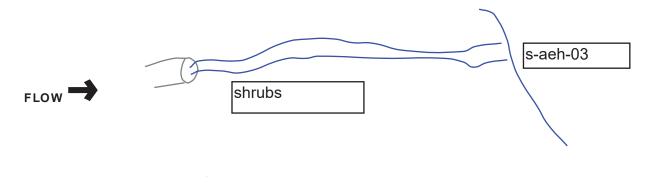


Stream 080 Modified Ephemeral Stream		
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): 29		
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project		
she namericoca non activities and restance of the manufacture of the restance		
LENGTH OF STREAM REACH (ft) 200 LAT. 39.96583 LONG82.30584 RIVER CODE RIVER MILE 0.0		
DATE 06/10/20 SCORER AEH COMMENTS ephemeral trib to Stream 081		
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING CUlverted	'ERY	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes		
	HHEI Metric	
BLDR SLABS [16 pts] 0% SILT [3 pt] 35%	Points	
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate	
COBBLE (65-256 mm) [12 pts]     35%     CLAY or HARDPAN [0 pt]	Max = 40	
GRAVEL (2-64 mm) [9 pts] 25% MUCK [0 pts] 0%	19	
SAND (<2 mm) [6 pts]         0%         ARTIFICIAL [3 pts]         0%		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 35.00% (A) Substrate Percentage 100% (B)	A + B	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4		
	ool Depth	
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30	
> 22.5 - 30 cm [30 pts]      < 5 cm [5 pts]	<b>_</b>	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5	
COMMENTS MAXIMUM POOL DEPTH (Inches): 1.00		
3.         BANK FULL WIDTH (Measured as the average of 3-4 measurements)         (Check ONLY one box):           > 4.0 meters (> 13') [30 pts]         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width	
$2 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \le 1.0 \text{ m} (<=3' 3") [5 \text{ pts}]$	Max=30	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	_	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 1.00	5	
This information must also be completed		
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY		
LR (Per Bank) LR (Most Predominant per Bank) LR		
Wide >10m Mature Forest, Wetland Conservation Tillage Moderate 5-10m Mature Forest, Shrub or Old Urban or Industrial		
Field Crop Pasture Bow Crop		
None     Fenced Pasture     Mining or Construction       COMMENTS		
<b>FLOW REGIME</b> (At Time of Evaluation) (Check ONLY one box):		
Stream Flowing       Moist Channel, isolated pools, no flow (Intermittent)         Subsurface flow with isolated pools (Interstitial)       Dry channel, no water (Ephemeral)		
COMMENTS		
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0		
✓     0.5     1.5     2.5     >3		
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100 ft)	t)	

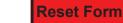
ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	_ Distance from Evaluated Stream _
EWH Name: VAlley Run	Distance from Evaluated Stream _ 3.60
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	O AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map P	Page: NRCS Soil Map Stream Order
County: Licking Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:06/05/20	Quantity: 0.73
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	ODERATE HIGH
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri	•
Fish Observed? (Y/N)       N       Voucher? (Y/N)       N       Salamanders Observed? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N       Aquatic Macroinvertebrat	Voucher? (Y/N)
Comments Regarding Biology:	

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

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



PHWH Form Page - 2



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## PHOTOGRAPHIC RECORD **STREAMS**

## **Client Name:**

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No.

60616110, 60618779, 60616126





## Stream 080 Date: June 10, 2020 **Description:** Ephemeral Modified Ephemeral Stream Facing Upstream

# AECOM Imagine it. Delivered.

## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

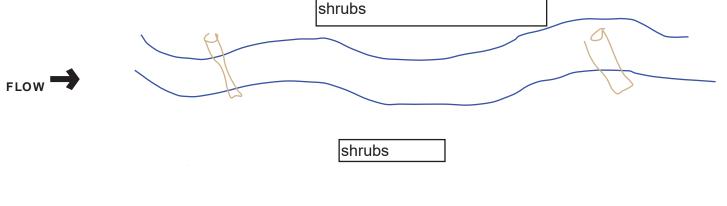
## Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 



Stream 081 Small Drainage Warmwater Stream		
ChieFPA Primary Headwater Habitat Evaluation Form 45		
HHEI Score (sum of metrics 1, 2, 3) :		
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project		
s-aeh-20200610-03 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.		
LENGTH OF STREAM REACH (ft) 125 LAT. 39.96622 LONG82.30572 RIVER CODE RIVER MILE 0. DATE 06/10/20 SCORER AEH COMMENTS intermittent	08	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	untiona	
STREAM CHANNEL       Independent of None / Natural Channel       Independent of Recovered       Independent of Recovering       Independent of Recovering         MODIFICATIONS:       Independent of Recovering       Independent of Recovering       Independent of Recovering	IVERY	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes		
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric	
TYPE         PERCENT         TYPE         PERCENT           BLDR SLABS [16 pts]         0%         SILT [3 pt]         25%	Points	
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         10%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate	
COBBLE (65-256 mm) [12 pts]     35%     CLAY or HARDPAN [0 pt]     0%	Max = 40	
GRAVEL (2-64 mm) [9 pts]       30%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	25	
Total of Percentages of 35.00% (A) Substrate Percentage 100% (B)	A + B	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 TOTAL NUMBER OF SUBSTRATE TYPES: 4		
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft)</i> evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Depth Max = 30	
> 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       ✓		
> 10 - 22.5 cm [25 pts]       NO WATER OR MOIST CHANNEL [0 pts]	5	
COMMENTS MAXIMUM POOL DEPTH (Inches): 1.00		
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull	
$ \begin{array}{ c c c c c } & > 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ \hline & > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline & \leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline & \leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \end{array} $	Width Max=30	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 4.00	15	
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆		
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L R (Per Bank)     L R (Most Predominant per Bank)     L R		
Wide >10m Mature Forest, Wetland Conservation Tillage		
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial		
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	)	
None Fenced Pasture Mining or Construction		
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):		
Stream Flowing Subsurface flow with isolated pools (Interstitial) Subsurface flow with isolated pools (Interstitial)		
COMMENTS		
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):		
None     1.0     2.0     3.0       ✓     0.5     1.5     2.5     >3		
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100	) ft)	

	o be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)         WWH Name:         CWH Name:         WWH Name:         WWH Name:         WH NAME:	Distance from Evaluated Stream         Distance from Evaluated Stream         Distance from Evaluated Stream         3.50
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Licking Town	ship / City:Newark
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation:	06/05/20 Quantity: 0.73
Photograph Information: N Capapy (% app): 15	2/0
Elevated Turbidity? (Y/N): Canopy (% open): N	
Were samples collected for water chemistry? (Y/N): (Note la	b sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mq/l)	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not	, please explain:
Additional comments/description of pollution impacts:	
BANK Stability LOW	MODERATE V HIGH
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Vouch ID number. Include appropriate field dat Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aqua Comments Regarding Biology:	er collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) N Voucher? (Y/N) N tic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Vouch ID number. Include appropriate field dat Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aqua Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION	er collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) N Voucher? (Y/N) N



PHWH Form Page - 2

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# AECOM Imagine it. Delivered.

## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

## Date: June 10, 2020 **Description:** Intermittent

Stream 081

Small Drainage Warmwater Stream

Facing Upstream





Date:

June 10, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Downstream





**Client Name:** 

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

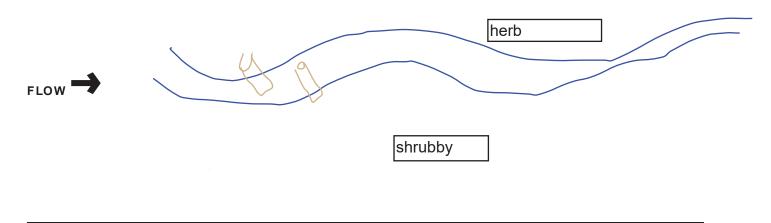


Stream 082 Small Drainage Warmwater Stream		
ChieEPA Primary Headwater Habitat Evaluation Form 57		
HHEI Score (sum of metrics 1, 2, 3) :	<u> </u>	
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project		
s-aeh-20200610-02 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.13		
LENGTH OF STREAM REACH (ft)       200       LAT.       39.96840       LONG.       -82.30733       RIVER CODE       RIVER MILE       0.0         DATE       06/10/20       SCORER       AEH       COMMENTS       intermittent		
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	 ns	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER		
MODIFICATIONS:	-	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes		
TYPE PERCENT TYPE PERCENT MALE PERCENT	HEI	
BLDR SLABS [16 pts] 0% SILT [3 pt] 40% PO	ints	
BEDROCK [16 pt] 0% Sub	strate c = 40	
COBBLE (65-256 mm) [12 pts]	40	
GRAVEL (2-64 mm) [9 pts]       30%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	7	
Total of Percentages of 15.00% (A) Substrate Percentage 100% (B) A	+ B	
Bldr Slabs, Boulder, Cobble, Bedrock 1007/0 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool	Depth	
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	c = 30	
□ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts]	<i>c</i>	
> 10 - 22.5 cm [25 pts]     NO WATER OR MOIST CHANNEL [0 pts]     2	5	
COMMENTS MAXIMUM POOL DEPTH (Inches): 8.00		
	nkfull idth	
$ = 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] $	x=30	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 4.00	5	
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY · · · ☆NOTE: River Left (L) and Right (R) as looking downstream☆		
RIPARIAN WIDTH FLOODPLAIN QUALITY		
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage		
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial		
Narrow <5m I Residential, Park, New Field Open Pasture, Row Crop		
None Fenced Pasture Mining or Construction		
COMMENTS		
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing         Moist Channel, isolated pools, no flow (Intermittent)		
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)		
None         1.0         2.0         3.0           7         0.5         1.5         2.5         >3		
STREAM GRADIENT ESTIMATE		
Flat (0.5 ft/100 ft) Flat to Moderate Moderate Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100 ft)		

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed	<u>d):</u>
QHEI PERFORMED? - Yes I No QHEI Score (If Yes,	Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
	_ Distance from Evaluated Stream _
EWH Name: Valley Run	Distance from Evaluated Stream 3.70
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS	HED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil M	ap Page: NRCS Soil Map Stream Order
Lieking	wark
County: County	Wain
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation: 06/05/20	Quantity: 0.73
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open): 80%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or	id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) PH (S.U	.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream $(Y/N)$ If not, please explain	:
Additional comments/description of pollution impacts:	
BANK Stability LOW	MODERATE HIGH
ID number. Include appropriate field data sheets from the         Fish Observed? (Y/N)         N         Voucher? (Y/N)         Salamanders Observed? (Y/N)	

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

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



PHWH Form Page - 2



AECOM Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS	
Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126
	Rebuild Project	60618779, 6061612





## Stream 082 Date:

June 10, 2020 **Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Downstream





**Client Name:** 

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project



Stream 083 Ephemeral Stream			
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 25			
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project			
s-aeh-20200610-01 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.01			
LENGTH OF STREAM REACH (ft) 200 LAT. 39.97046 LONG82.30873 RIVER CODE RIVER MILE 0.11	i		
DATE 06/10/20 SCORER AEH COMMENTS Ephemeral			
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions		
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVI MODIFICATIONS: pipe within stream	ERY		
pipe within Stream			
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI		
	Metric Points		
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 20%	ubstrate		
BEDROCK 116 pti 0% LIL FINE DETRITUS 13 ptsi 0%	Aax = 40		
GRAVEL (2-64 mm) [9 pts] 35% MUCK [0 pts] 0%	15		
SAND (<2 mm) [6 pts]	13		
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B		
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 3			
	ool Depth		
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30		
<ul> <li>&gt; 22.5 - 30 cm [30 pts]</li> <li>&gt; 10 - 22.5 cm [25 pts]</li> <li>NO WATER OR MOIST CHANNEL [0 pts]</li> </ul>	5		
	5		
	Bankfull Width		
= 3.0  m - 4.0  m (> 9' 7" - 13') [25  pts] $ = 1.5  m - 3.0  m (> 9' 7" - 4' 8") [20  pts]$	Max=30		
COMMENTSAVERAGE BANKFULL WIDTH (Feet): 2.00	5		
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream☆			
RIPARIAN WIDTH FLOODPLAIN QUALITY			
L R (Per Bank) L R (Most Predominant per Bank) L R U Wide >10m Conservation Tillage Conservation Tillage			
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial			
Narrow <5m I Residential, Park, New Field Open Pasture, Row Crop			
None Fenced Pasture Mining or Construction			
COMMENTS			
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)			
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)			
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0			
✓ 0.5 I.5 I.5 >3			
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100 ft)	)		

QHEI PERFORMED? - Yes 🖌 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name: FWH Name: Valley Run	Distance from Evaluated Stream Distance from Evaluated Stream 3.90
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIF	RE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford N	RCS Soil Map Page NRCS Soil Map Stream Order
County: Licking Township	/ City:Newark
MISCELLANEOUS	
	6/05/20 Quantity: 0.73
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open): 70%	
N	
	ample 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)	ase explain:
Additional comments/description of pollution impacts:	
BANK Stability LOW	
ID number. Include appropriate field data sh         Fish Observed? (Y/N)         N         Voucher? (Y/N)         Salamanders Observed?	ellections optional. NOTE: all voucher samples must be labeled with the site eets from the Primary Headwater Habitat Assessment Manual) erved? (Y/N) N Voucher? (Y/N) N Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF Include important landmarks and other features of interest for site wetland	
FLOW	black pipe
herb	
PHWH Forr	m Pago - 2
October 24, 2002 Revision	Save as pdf Reset Form

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

AECOM Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS		
Client Name:	Site Location:	Project No.	
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126	
		1	
Stream 083			
Date:			

# <image>

## Date: June 10, 2020 Description:

Stream 083

June 10, 2020 Description:

Ephemeral

Ephemeral Stream

Facing Upstream

Ephemeral

Ephemeral Stream

Facing Downstream





AEP

Crooksville-North Newark 138 kV Transmission Line	60
Rebuild Project	60
Rebuild Project	60

0616110, 0618779, 60616126



Stream 084 Small Drainage Warmwater Stream				
ChieEPA Primary Headwater Habitat Evaluation Form 36				
HHEI Score (sum of metrics 1, 2, 3) :	<u> </u>			
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
hh-aeh-20200609-01 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.10				
LENGTH OF STREAM REACH (ft)       200       LAT.       39.97505       LONG.       -82.31160       RIVER CODE       RIVER MILE       0.0         DATE       06/09/20       SCORER       AEH       COMMENTS       intermittent				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction				
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	₹Y			
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes				
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HEI etric			
	bints			
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         20%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%         Sub	ostrate			
	x = 40			
GRAVEL (2-64 mm) [9 pts] 35% MUCK [0 pts] 0%	6			
SAND (<2 mm) [6 pts]				
Bldr Slabs, Boulder, Cobble, Bedrock	+ B			
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4				
	l Depth x = 30			
> 30 centimeters [20 pts]	x - 30			
> 22.5 - 30 cm [30 pts]         < 5 cm [5 pts]	5			
COMMENTS MAXIMUM POOL DEPTH (Inches): 3.00				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Ba	nkfull			
	/idth ax=30			
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2.00	5			
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆				
RIPARIAN WIDTH       FLOODPLAIN QUALITY         L_R       (Per Bank)       L_R       (Most Predominant per Bank)       L_R				
Wide >10m Mature Forest, Wetland Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial				
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 (Ephemeral)				
None $1.0$ $2.0$ $3.0$ 0.5 $1.5$ $2.5$ $>3$				
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)         Flat (0.5 ft/100 ft)         Moderate (2 ft/100 ft)         Moderate to Severe				

ADDITIONAL STREAM INFORMATION (This Information Must Also b	e 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: Claylick Creek	Distance from Evaluated Stream 0.00
	RE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford	IRCS Soil Map Page: NRCS Soil Map Stream Order
County: Licking Townshi	p / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	06/05/20 Quantity: 0.73
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open): 80%	
	ample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, pl	ease explain:
Additional comments/description of pollution impacts:	
BANK Stability LOW	
ID number. Include appropriate field data s         Fish Observed? (Y/N)         N         Voucher? (Y/N)         N	ollections optional. NOTE: all voucher samples must be labeled with the site heets from the Primary Headwater Habitat Assessment Manual) erved? (Y/N) N Voucher? (Y/N) N Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
DRAWING AND NARRATIVE DESCRIPTION O	F STREAM REACH (This <u>must</u> be completed):
	ite evaluation and a narrative description of the stream's location
FLOW	pem wetland
Ś '	shrubs
	$\sim \sim \sim$
	grass path
	woods
PHWH For October 24, 2002 Revision	rm Page - 2 Save as pdf Reset Form

AECOM	lmagine it. Delivered.			
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Client Name:

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Stream 084	
Date:	WHATSAESE AND
June 9, 2020 Description:	
Intermittent	A TO DE CARE AND
Small Drainage	
Warmwater Stream	
Facing Upstream	





AEP

Crooksville-North Newark 138 kV Transmission Line
Rebuild Project

60616110, 60618779, 60616126



Stream 085 Small Drainage Warmwater Stream				
ChieFPA Primary Headwater Habitat Evaluation Form 46				
HHEI Score (sum of metrics 1, 2, 3) :				
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
hh-aeh-20200609-02         SITE NUMBER         RIVER BASIN         Muskingum         DRAINAGE AREA (mi²)         0.10           LENGTH OF STREAM REACH (ft)         200         LAT.         39.97569         LONG.         -82.31160         RIVER CODE         RIVER MILE         9.5	_			
LENGTH OF STREAM REACH (ft) 200 LAT. 39.97569 LONG82.31160 RIVER CODE RIVER MILE 9.5 DATE 66/09/20 SCORER AEH COMMENTS INTERMITTENT, Claylick Creek				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ıs			
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY	(			
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes				
TYPE PERCENT TYPE PERCENT ME	IEI tric			
BLDR SLABS [16 pts]         0%         ✓         SILT [3 pt]         40%         POI           BOULDER (>256 mm) [16 pts]         0%         Image: Constraint of the state of the	ints			
BEDROCK [16 pt] FINE DETRITUS [3 pts] Max	strate = 40			
GRAVEL (2-64 mm) [9 ptc]         35%         MUCK [0 ptc]         0%				
SAND (<2 mm) [6 pts]	<b>D</b>			
Total of Percentages of 10.00% (A) Substrate Percentage 100% (B) A +	В			
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4				
	Depth = 30			
> 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5 pts]				
> 10 - 22.5 cm [25 pts]       NO WATER OR MOIST CHANNEL [0 pts]       24	5			
COMMENTS MAXIMUM POOL DEPTH (Inches): 5.00				
······································	kfull			
= 3.0  m - 4.0  m (> 9' 7'' - 13') [25  pts]	dth c=30			
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 3.00	·			
This information <u>must</u> also be completed				
RIPARIAN ZONE AND FLOODPLAIN QUALITY       NOTE: River Left (L) and Right (R) as looking downstream         RIPARIAN WIDTH       FLOODPLAIN QUALITY				
L R (Per Bank) L R (Most Predominant per Bank) L R U Wide >10m Mature Forest, Wetland Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial				
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop				
None Fenced Pasture Mining or Construction				
<b>FLOW REGIME</b> (At Time of Evaluation) (Check ONLY one box):				
Image: Stream Flowing       Image: Stream Flo				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):				
None         1.0         2.0         3.0           0.5         1.5         2.5         >3				
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)         Flat to Moderate         Moderate (2 ft/100 ft)         Moderate to Severe         Severe (10 ft/100 ft)				

ADDITIONAL STREAM INFORMATION (This Information Must Also be Comple	ted):
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Ye	es, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name: EWH Name: _ Claylick Creek	Distance from Evaluated Stream Distance from Evaluated Stream 0.00
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER	
USGS Quadrangle Name: NRCS Soil	Map Page: NRCS Soil Map Stream Order
County: Licking Township / City:	Newark
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation: 06/05/20	Quantity: 0.73
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open):80%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no.	or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mɑ/l) pH (S	S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N)	ain:
Additional comments/description of pollution impacts:	
BANK Stability LOW	MODERATE V HIGH
ID number.       Include appropriate field data sheets from         Fish Observed? (Y/N)       N         Voucher? (Y/N)       N         Salamanders Observed? (Y/N)       N         Aquatic Macroinver	N
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Voucher? (Y/N) Salamanders Observed? (Y/N)	the Primary Headwater Habitat Assessment Manual) /N) N Voucher? (Y/N) N
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvert	the Primary Headwater Habitat Assessment Manual) /N) N Voucher? (Y/N) N
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvert	the Primary Headwater Habitat Assessment Manual) /N) N Voucher? (Y/N) N
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvert	the Primary Headwater Habitat Assessment Manual) /N) N Voucher? (Y/N) N voucher? (Y/N) N voucher? (Y/N) N
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinver Comments Regarding Biology:	the Primary Headwater Habitat Assessment Manual) /N) N Voucher? (Y/N) N V
Performed? (Y/N): (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Y/ Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinve Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STRE	the Primary Headwater Habitat Assessment Manual) /N) N Voucher? (Y/N) N V
Performed? (Y/N): (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/ Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinve Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STRE	the Primary Headwater Habitat Assessment Manual) /N) N Voucher? (Y/N) N V
Performed? (Y/N): (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/ Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinve Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STRE	the Primary Headwater Habitat Assessment Manual) /N) N Voucher? (Y/N) N V
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Y/) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinve Comments Regarding Biology: Orments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF STREE Include important landmarks and other features of interest for site evaluat	the Primary Headwater Habitat Assessment Manual) /N) N Voucher? (Y/N) N V

Reset Form Save as pdf

AECOM	Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS		
Client Name: AEP		Site Location: Crooksville-North Newark 138 kV Transmission Line Rebuild Project	<b>Project No.</b> 60616110, 60618779, 60616126	



## Stream 085 Date: June 9, 2020 Description: Intermittent Small Drainage Warmwater Stream Facing Downstream





**Client Name:** 

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line 60 Rebuild Project 60
----------------------------------------------------------------------------



Stream 086 Small Drainage Warmwater Stream			
ChieEPA Primary Headwater Habitat Evaluation Form 35			
HHEI Score (sum of metrics 1, 2, 3) :			
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project			
hh-aeh-20200609-03         SITE NUMBER         RIVER BASIN         Muskingum         DRAINAGE AREA (mi²)         0.01			
LENGTH OF STREAM REACH (ft)       200       LAT.       39.97635       LONG.       -82.31219       RIVER CODE       RIVER MILE       0.01         DATE       06/09/20       SCORER       AEH       COMMENTS       pIntermittent			
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			
TYPE PERCENT TYPE PERCENT	HHEI Ietric		
BLDR SLABS [16 pts]         0%         ✓         SILT [3 pt]         60%         P           BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%         20%<	oints		
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	ubstrate lax = 40		
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%			
GRAVEL (2-64 mm) [9 pts]       20%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	15		
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B		
Bidr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 3			
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth			
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): N > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	lax = 30		
	45		
	15		
COMMENTS MAXIMUM POOL DEPTH (Inches): 3.00			
	Bankfull Width		
$ \begin{array}{ c c c c c } &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \end{array} \qquad $	/lax=30		
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2.00	5		
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆			
RIPARIAN WIDTH FLOODPLAIN QUALITY			
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage			
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial			
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop			
None Fenced Pasture Mining or Construction			
FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools, no flow (Intermittent)			
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)			
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) (C</u> heck ONLY one box):			
None $7$ 1.0 $2.0$ $3.0$ 0.5 $1.5$ $2.5$ $3$			
STREAM GRADIENT ESTIMATE			
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100 ft)			

ADDITIONAL STREAM INFORMATION (This Information Must Also	o be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name: Claylick Creek	Distance from Evaluated Stream 0.01
	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Licking Town	ship / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): <u>Y</u> Date of last precipitation:	06/05/20 Quantity: 0.73
Photograph Information:	/
Elevated Turbidity? (Y/N): Canopy (% open):	
	b sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N)	, please explain:
Additional comments/description of pollution impacts:	
BANK Stability LOW	
BIOTIC EVALUATION	
Ν	
Performed? (Y/N): (If Yes, Record all observations. Vouche	er collections optional. NOTE: all voucher samples must be labeled with the site
	a sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders (	Dbserved? (Y/N) N Voucher? (Y/N) N
Frogs or Ladpoles Observed? (Y/N) N Voucher? (Y/N) N Aqua	atic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION	I OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features herbs	evaluation and a narrative description of the stream's location
TIEDS	
$\langle \lambda \rangle$	Shrubs
	herb
FLOW	
S	hrubs
0	
	street
PHWH October 24, 2002 Revision	Form Page - 2 Save as pdf Reset Form

AECOM Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS
Client Name:	Site Location: Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line 60616110, Rebuild Project 60618779, 6061612
I	
Stars and 00/	
Stream 086	
Date:	
Date:	
Date: June 9, 2020	
Date: June 9, 2020 Description:	
Date:       June 9, 2020       Description:       Intermittent	

# Stream 086 Date: June 9, 2020 Description: Intermittent Small Drainage Warmwater Stream Facing Downstream



## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project



Stream 087 Modified Small Drainage Warmwater Stream	n			
ChieEPA Primary Headwater Habitat Evaluation Form 49				
HHEI Score (sum of metrics 1, 2, 3) :				
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
hh-aeh-20200609-04         SITE NUMBER         RIVER BASIN         Muskingum         DRAINAGE AREA (mi²)         0.08           LENGTH OF STREAM REACH (ft)         200         LAT.         39.97731         LONG.         -82.31283         RIVER CODE         RIVER MILE         0.07				
LENGTH OF STREAM REACH (ft) 200 LAT. 39.97731 LONG82.31283 RIVER CODE RIVER MILE 0.07 DATE 06/09/20 SCORER AEH COMMENTS Intermittent				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions			
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER				
MODIFICATIONS: culverted				
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes				
TYPE PERCENT TYPE PERCENT N	HHEI Netric			
BLDR SLABS [16 pts] 0% SILT [3 pt] 40%	Points			
LILI FINE DELRITUS I3 DISI	ubstrate			
COBBLE (65-256 mm) [12 pts] 35% CLAY or HARDPAN [0 pt]	/lax = 40			
GRAVEL (2-64 mm) [9 pts]       20%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	19			
Total of Percentages of 35.00% (A) Substrate Percentage 100% (B)	A + B			
Bidr Slabs, Boulder, Cobble, Bedrock Total NUMBER OF SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4				
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft)</i> evaluation reach at the time of Po	ool Depth			
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	/lax = 30			
> 22.5 - 30 cm [30 pts]       < 5 cm [5 pts]	25			
	25			
	Demlefell			
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width			
= 3.0  m - 4.0  m (> 9' 7" - 13') [25  pts] $ = 3.0  m (> 9' 7" - 4' 8") [20  pts]$	Max=30			
COMMENTSAVERAGE BANKFULL WIDTH (Feet): 3.00	5			
This information must also be completed           RIPARIAN ZONE AND FLOODP LAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆				
RIPARIAN WIDTH FLOODPLAIN QUALITY				
L R (Per Bank)       L R (Most Predominant per Bank)       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial				
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop				
None Fenced Pasture Mining or Construction				
COMMENTS				
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)				
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)				
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) _(C</u> heck <i>ONLY</i> one box):				
None 1.0 2.0 3.0				
0.5 1.5 2.5 >3				
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)         Flat to Moderate         Moderate (2 ft/100 ft)         Moderate to Severe	1			

ADDITIONAL STREAM INFORMATION (This Information	<u>ı Must Also</u>	be Completed):			
QHEI PERFORMED? - Yes 🗸 No QHEI	Score	(If Yes, Atta	ach Completed QH	El Form)	
DOWNSTREAM DESIGNATED USE(S)			_		
WWH Name:			T	Evaluated Stream	
CWH Name: Claylick Creek			Τ	valuated Stream	0.07
				valuated Stream	0.07
MAPPING: ATTACH COPIES OF MAPS, INCLUD	ING THE <u>EN</u>	<u>TIRE</u> WATERSHEI	DAREA. CLEARLY	MARK THE SITE LO	DCATION
USGS Quadrangle Name: Glenford		NRCS Soil Map F	Page: NR	CS Soil Map Stream	Order
County: Licking	Towns	hip / City:Newar	k		
MISCELLANEOUS					
Base Flow Conditions? (Y/N): Y Date of last precip	itation:	06/05/20	Quantity:	0.73	
Photograph Information:					
Elevated Turbidity? (Y/N): Canopy (% oper	n): <b>85%</b>	0			
Were samples collected for water chemistry? (Y/N):	(Note lab	sample no. or id.	and attach results)	Lab Number:	
Field Measures: Temp (°C) Dissolved Oxygen	(ma/l)	pH (S.U.)	Conductiv	rity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N)	If not,	please explain:			
Additional comments/description of pollution impacts:					
BANK Stability	LOW	м		HIGH	
Performed? (Y/N): _N (If Yes, Record all observation ID number. Include appropria Fish Observed? (Y/N) N Sala Frogs or Tadpoles Observed? (Y/N) N Sala Comments Regarding Biology:	iate field data amanders Ol	sheets from the Pr bserved? (Y/N)		abitat Assessment Ma N	nual)
DRAWING AND NARRATIVE DESC	RIPTION	OF STREAM F	PEACH (This n	nust be complet	
Include important landmarks and other features of					-
		5			
				wetland	
FLOW	AT				
	-6A				
	$\sim$				
	G	ass path		herb	
				L	
		1			
October 24, 2002 Revision	PHWH F	orm Page - 2			
			Save as ndf	Reset	

#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

Stream 087 Date:

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

June 9, 2020 **Description:** Intermittent Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 087

Date:

June 9, 2020

#### **Description:**

Intermittent

Modified Small Drainage Warmwater Stream

Facing Downstream





## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 



Stream 088 Ephemeral Stream				
ChieEPA Primary Headwater Habitat Evaluation Form 27				
HHEI Score (sum of metrics 1, 2, 3) :				
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
hh-aeh-20200609-05         SITE NUMBER         RIVER BASIN         Muskingum         DRAINAGE AREA (mi²)         0.01           LENGTH OF STREAM REACH (ft)         LAT.         39.98030         LONG.         -82.31396         RIVER CODE         RIVER MILE         0.12	4			
DATE 06/09/20 SCORER AEH COMMENTS Ephemeral				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	5			
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY				
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	_			
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				
BLDR SLABS [16 pts]         0%         I         SILT [3 pt]         60%         Point				
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%         Subst				
COBBLE (65-256 mm) [12 pts] 40% CLAY or HARDPAN [0 pt] 0%	= 40			
GRAVEL (2-64 mm) [9 pts]       0%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	' I			
Total of Percentages of 40.00% (A) Substrate Percentage 100% (B) A + I	B			
Bldr Slabs, Boulder, Cobble, Bedrock TOTOTAL NUMBER OF SUBSTRATE TYPES: 2				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool D	Depth			
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	= 30			
> 22.5 - 30 cm [30 pts]       ✓       < 5 cm [5 pts]				
COMMENTS MAXIMUM POOL DEPTH (Inches): 1.00				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bank				
= 2 + 0.0  meters  (> 13') [30  pts] = 2 + 0.0  m (> 3' 3'' - 4' 8'') [15  pts]  Wide = 3.0  m - 4.0  m (> 9' 7'' - 13') [25  pts]  Wide = 4.0  m (<=3' 3'') [5  pts]  Wide = 4.0  m (<=3' 3'') [5  pts]				
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 1.00 5				
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆				
RIPARIAN WIDTH FLOODPLAIN QUALITY				
Wide >10m Mature Forest, Wetland Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Field				
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop				
None     Fenced Pasture     Mining or Construction       COMMENTS				
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):				
Stream Flowing       Moist Channel, isolated pools, no flow (Intermittent)         Subsurface flow with isolated pools (Interstitial)       Dry channel, no water (Ephemeral)         COMMENTS_				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):				
None         1.0         2.0         3.0           ✓         0.5         1.5         2.5         >3				
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100 ft)				

QHEI PERFORMED? - Yes Yes No QHEI Score (If Yes, Att   DOWNSTREAM DESIGNATED USE(S)   WWH Name:		
WWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream 0.1	
WWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream 0.1	
EWH Name:       Claylick Creek         MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE         USGS Quadrangle Name:       Glenford         NRCS Soil Map         County:       Iicking    Township / City:	Distance from Evaluated Stream 0.1	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE         USGS Quadrangle Name:         Glenford         NRCS Soil Map         County:             Iicking    Township / City:	ED AREA. CLEARLY MARK THE SITE LOCATIO	
USGS Quadrangle Name: Glenford NRCS Soil Map County: Iicking Township / City: Newa		ON
County: Licking Township / City: Newa	Page: NRCS Soil Map Stream Order	
County: Licking Township / City:		
County: Township / City:	ark	
MISCELLANEOUS		
· · · · · · · · · · · · · · · · · · ·	1	
Base Flow Conditions? (Y/N): Date of last precipitation: 06/05/20	Quantity: <b>0.73</b>	
Photograph Information:		
Elevated Turbidity? (Y/N): Canopy (% open): <b>75%</b>		
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	. and attach results) Lab Number:	
Field Measures: Temp (°C) Dissolved Oxygen (mq/I) pH (S.U.)	Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:		
Additional comments/description of pollution impacts:		
BANK Stability LOW M		
N       Voucher? (Y/N)       N       Salamanders Observed? (Y/N)         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       Aquatic Macroinvertebra         Comments Regarding Biology:	Voucher? (Y/N) N ates Observed? (Y/N) N Voucher? (Y/N)	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM	REACH (This <u>must</u> be completed):	
Include important landmarks and other features of interest for site evaluation a	and a narrative description of the stream's log	cation
nd	<u> </u>	strear
		$\rightarrow$
		$\setminus$
FLOW		$\langle \rangle$
PHWH Form Page - 2		_

## PHOTOGRAPHIC RECORD **STREAMS**

#### **Client Name:**

Stream 088 Date:

June 9, 2020 **Description:** 

Ephemeral

Ephemeral Stream

Facing Upstream

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

## Project No.



Stream 088	
Date:	and the second
June 9, 2020	
Description:	
Ephemeral	
Ephemeral Stream	
Facing Downstream	
	3 HAR IN LANCA
	A BAR AND

## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project



Stream 089 Modified Ephemeral Stream				
<b>ChieFPA</b> Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 28				
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
hh-aeh-20200609-06 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.0				
LENGTH OF STREAM REACH (ft) 200 LAT. 39.98049 LONG82.31404 RIVER CODE RIVER MILE 0.	11			
DATE 06/09/20 SCORER AEH COMMENTS Ephemeral				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru				
STREAM CHANNEL       Image: None / Natural Channel       Image: Recovering       Image: Recent or No Recovering         MODIFICATIONS:       disturbed from transmission line	VERY			
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes				
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric			
TYPE         PERCENT         TYPE         PERCENT           BLDR SLABS [16 pts]         0%         I         SILT [3 pt]         80%	Points			
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         20%           BEDROCK [16 pt]         0%         EINE DETRITUS [3 pts]         0%	Substrate			
BEDROCK         [16 pt]         0%         FINE DETRITUS         [3 pts]         0%           COBBLE         (65-256 mm)         [12 pts]         0%         CLAY or HARDPAN         [0 pt]         0%	Max = 40			
GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0%	8			
SAND (<2 mm) [6 pts]				
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B			
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2				
	Pool Depth			
evaluation. Avoid plunge pools from road culverts or storm water pipes)       (Check ONLY one box):         > 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]	Max = 30			
<ul> <li>&gt; 22.5 - 30 cm [30 pts]</li> <li>&gt; 10 - 22.5 cm [25 pts]</li> <li>NO WATER OR MOIST CHANNEL [0 pts]</li> </ul>	15			
COMMENTS MAXIMUM POOL DEPTH (Inches): 2.00				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull			
= > 4.0  meters (> 13') [30  pts] = > 1.0  m - 1.5  m (> 3' 3" - 4' 8") [15  pts] = > 3.0  m - 4.0  m (> 9' 7" - 13') [25  pts] $ = ≤ 1.0  m (<=3' 3") [5  pts]$	Width Max=30			
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 1.00	5			
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆				
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L R (Per Bank)     L R (Most Predominant per Bank)     L R				
Wide >10m Mature Forest, Wetland Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial				
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	)			
None Fenced Pasture Mining or Construction				
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):				
Stream Flowing       Moist Channel, isolated pools, no flow (Intermittent)         Subsurface flow with isolated pools (Interstitial)       Dry channel, no water (Ephemeral)				
COMMENTS				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0				
✓ 0.5 1.5 2.5 >3				
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100 ft)	) ft)			

QHEI PERFORMED? - Yes 🖌 No QHEI Score	(If Yes, Attao	ch Completed QHEI	Form)	
		Distance from Du		
WWH Name: CWH Name:		Distance from Ev Distance from Eva		
EWH Name: Claylick Creek		Distance from Eva		0.11
MAPPING: ATTACH COPIES OF MAPS, INCLUDING TH	E ENTIRE WATERSHED	AREA. CLEARLY	MARK THE SITE LO	
USGS Quadrangle Name: Glenford	NRCS Soil Map Pa	age: NRCS	S Soil Map Stream	Order
County: Licking T	ownship / City:	(		
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Date of last precipitation:	06/05/20	Quantity:	0.73	
Photograph Information:				
Elevated Turbidity? (Y/N): Canopy (% open):	90%			
Were samples collected for water chemistry? (Y/N): (No	te lab sample no. or id. a	nd attach results) L	ab Number:	
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.)	Conductivity	y (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N)	not, please explain:			
Additional comments/description of pollution impacts: BANK Stability LOW	и 🖌 мс	DERATE	HIGH	
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Vo ID number. Include appropriate field Fish Observed? (Y/N) N Voucher? (Y/N) N Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPT Include important landmarks and other features of interest	data sheets from the Printers Observed? (Y/N) Naquatic Macroinvertebrate	EACH (This mu	itat Assessment Ma	nual) Y/N) <mark>N</mark> ted):
FLOW	bes underground			
PH October 24, 2002 Revision	WH Form Page - 2	Save as pdf	Reset	Form

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

Stream 089 Date:

June 9, 2020 **Description:** 

Ephemeral

Stream

Modified Ephemeral

Facing Upstream

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126





Date: June 9, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream

Facing Downstream





## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

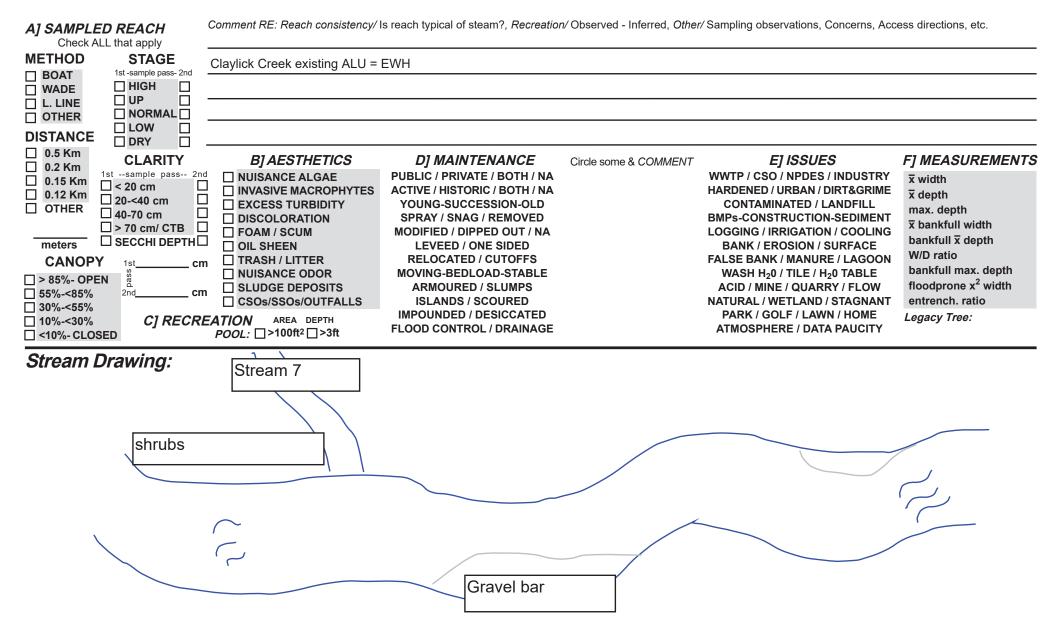
AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project



Stream 090	War	mwater Habitat-Good
<b>ChieEPA</b>	Qualitative Habitat Evaluation Index and Use Assessment Field Sheet	<b>QHEI Score:</b> 55.0
Stream & Location: AEP-Crooks	ville-North Newark 138 kV Transmission Line Rebuild Project	<i>RM:</i> <u>8.6</u> <i>Date:</i> 6_/ 9_/ 20_
s-aeh-20200609-07 / Claylick C		
River Code:		/8_2.3156 Office verified location □
BEST TYPES POOL RIFFL	substrate TYPE BOXES; e every type present Check O E OTHER TYPES POOL RIFFLE ORIGIN	NE (Or 2 & average) QUALITY
	□       HARDPAN [4]       □       □       LIMESTONE [1]         □       DETRITUS [3]       15       □       TILLS [1]         □       MUCK [2]       □       □       HARDPAN [0]         □       SILT [2]       40       □       HARDPAN [0]         □       ARTIFICIAL [0]       □       SANDSTONE [0]         □       (Score natural substrates; ignore       RIP/RAP [0]         4 or more [2]       sludge from point-sources)       LACUSTURINE [0]         3 or less [0]       SHALE [-1]         □       COAL FINES [-2]	HEAVY [-2] SILT MODERATE [-1] MODERATE [-1] FREE [1] ■ FREE [1] ■ MODERATE [-1] MODERATE [-1] ■ MODERATE [-1]
<ul> <li>quality; 3-Highest quality in moderate of</li> </ul>		of highest large         Check ONE (Or 2 & average)           pools.         EXTENSIVE >75% [11]           RS [1]         MODERATE 25-75% [7]           FES [1]         SPARSE 5-<25% [3]
		20
3] CHANNEL MORPHOLOGY         SINUOSITY       DEVELOPME         HIGH [4]       EXCELLENT         MODERATE [3]       GOOD [5]         X LOW [2]       FAIR [3]         NONE [1]       POOR [1]         Comments		Channel Maximum 20
River right looking downstream RIF		TY B CONSERVATION TILLAGE [1] CONSERVATION TILLAGE [1] CONSTRUCTION [0] Indicate predominant land use(s) past 100m riparian. Riparian
Comments		Maximum 10
Check ONE ( <i>ONLY</i> !) Check □ > 1m [6]	/ RUN QUALITY         HANNEL WIDTH         CONE (Or 2 & average)         DIDTH > RIFFLE WIDTH [2]         DIDTH = RIFFLE WIDTH [1]         VIDTH = RIFFLE WIDTH [1]         DIDTH < RIFFLE WIDTH [1]	TAL [-1] TENT [-2] Recreation Potential <i>Primary Contact</i> <i>Secondary Contact</i> (circle one and comment on back)
of riffle-obligate species: RIFFLE DEPTH RUI ⊠ BEST AREAS > 10cm [2] □ MAXIM	es; Best areas must be large enough to support a Check ONE (Or 2 & average). N DEPTH NUM > 50cm [2] STABLE (e.g., Cobble, Boulder) [2] NUM < 50cm [1] MOD. STABLE (e.g., Large Gravel) [1] UNSTABLE (e.g., Fine Gravel, Sand) [0]	A population NO RIFFLE [metric=0] FLE / RUN EMBEDDEDNESS NONE [2] LOW [1] MODERATE [0] EXTENSIVE [-1] Maximum 8
· · · · ·	VERY LOW - LOW [2-4] %POOL:	%GLIDE: Gradient
	MODERATE [6-10]	%RIFFLE: Maximum 10
EPA 4520		06/16/06



herb	
------	--

AECOM Imagine it. Delivered. PHOTOGRAPHIC RECORD STREAMS
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**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project







## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

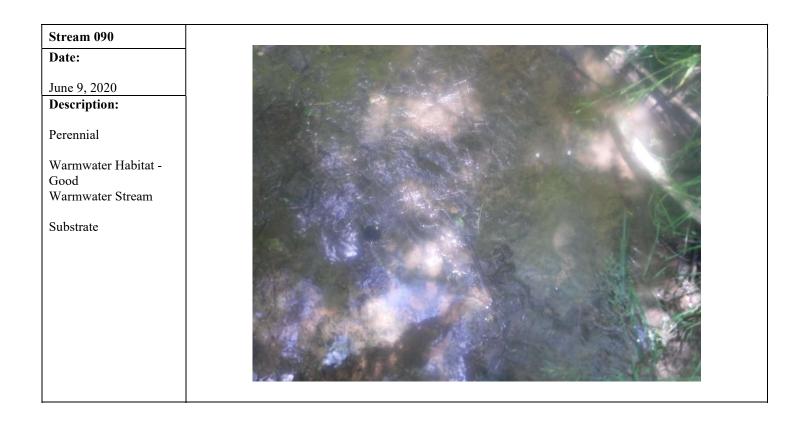
AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110,

60618779, 60616126



Stream 091 Small Drainage Warmwater Stream				
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form 66				
HHEI Score (sum of metrics 1, 2, 3) :				
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
hh-aeh-20200609-08       SITE NUMBER       RIVER BASIN       Muskingum       DRAINAGE AREA (mi²)       0.72         LENGTH OF STREAM REACH (ft)       200       LAT       39.98505       LONG       -82.31550       RIVER CODE       RIVER MILE       0.0				
LENGTH OF STREAM REACH (ft)       200       LAT.       39.98505       LONG.       -82.31550       RIVER CODE       RIVER MILE       0.0         DATE       06/09/20       SCORER       AEH       COMMENTS       Intermittent				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ons			
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER				
MODIFICATIONS:				
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes				
TYPE PERCENT TYPE PERCENT	HEI etric			
BLDR SLABS [16 pts] 0% SILT [3 pt] 40% PC	oints			
BEDROCK [16 pt] 0% Sub	ostrate x = 40			
COBBLE (65-256 mm) [12 pts] 25% CLAY or HARDPAN [0 pt] 0%	x = 40			
GRAVEL (2-64 mm) [9 pts]       30%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	6			
Total of Percentages of 25.00% (A) Substrate Percentage 100% (B) A	+ B			
Bldr Slabs, Boulder, Cobble, Bedrock 10070 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Poo	l Depth			
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	x = 30			
✓ > 22.5 - 30 cm [30 pts]				
	30			
COMMENTS MAXIMUM POOL DEPTH (Inches): 10.00				
	inkfull /idth			
$ = 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \leq 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] $	ax=30			
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 6.00	20			
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream				
RIPARIAN WIDTH FLOODPLAIN QUALITY				
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial				
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop				
None Fenced Pasture Mining or Construction				
COMMENTS				
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing         Moist Channel, isolated pools, no flow (Intermittent)				
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)				
None         1.0         2.0         3.0           0.5         1.5         2.5         >3				
STREAM GRADIENT ESTIMATE				
Flat (0.5 ft/100 ft) Flat to Moderate Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)				

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name: Claylick Creek	Distance from Evaluated Stream 0.00
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	DAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Licking Township / City: Newar	k
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:06/05/20	Quantity:
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mq/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION         Performed? (Y/N):       N         (If Yes, Record all observations. Voucher collections optiona ID number. Include appropriate field data sheets from the Pr Voucher? (Y/N)         Fish Observed? (Y/N)       N         Salamanders Observed? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N         Voucher? (Y/N)       N         Aquatic Macroinvertebra         Comments Regarding Biology:	imary Headwater Habitat Assessment Manual)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM F	
Include important landmarks and other features of interest for site evaluation ar	nd a narrative description of the stream's location
FLOW	
gravel b	ar
PHWH Form Page - 2	
October 24, 2002 Revision	Save as pdf Reset Form

#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

Stream 091       Date:       June 9, 2020       Description:
June 9, 2020 Description:
Description:
Description:
Intermittent
Small Drainage
Sinan Dianage
Warmwater Stream
Facing Upstream

#### Stream 091

Date:

June 9, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Downstream





Crooksville-North Newark 138 kV Transmission Line Rebuild Project



Stream 092 Modified Ephemeral Stream				
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): 29				
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
hh-aeh-20200609-09 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.4	0			
LENGTH OF STREAM REACH (ft) 200 LAT. 39.98626 LONG82.31619 RIVER CODE RIVER MILE 0.0				
DATE 06/09/20 SCORER AEH COMMENTS Ephemeral				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	ctions			
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECENT OR NO RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECENT OR NO RECENT OR NO	VERY			
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI			
	Metric Points			
BOULDER (>256 mm) [16 pts]				
BEDROCK [16 pt]	Substrate Max = 40			
✓       COBBLE (65-256 mm) [12 pts]       45%       □       CLAY or HARDPAN [0 pt]       0%         ✓       GRAVEL (2-64 mm) [9 pts]       40%       □       MUCK [0 pts]       0%				
SAND (<2 mm) [6 pts]	24			
Total of Percentages of 45.00% (A) Substrate Percentage 100% (B)	A + B			
Bldr Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 TOTAL NUMBER OF SUBSTRATE TYPES: 3				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth			
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max = 30			
> 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5 pts]				
> 10 - 22.5 cm [25 pts]	0			
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull			
= 2 + 0  meters  (> 13') [30  pts] = 2 + 0  m (> 3' 3'' - 4' 8'') [15  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5	Width Max=30			
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 3.00	5			
This information must also be completed				
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY 차NOTE: River Left (L) and Right (R) as looking downstream ☆				
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L_R_(Per Bank)     L_R_(Most Predominant per Bank)				
Wide >10m Mature Forest, Wetland Conservation Tillage				
Field Field				
Narrow <5m         Residential, Park, New Field         Open Pasture, Row Crop				
None     Fenced Pasture     Mining or Construction     COMMENTS				
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):				
Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)				
COMMENTS				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):				
None         1.0         2.0         3.0           ✓         0.5         1.5         2.5         >3				
STREAM GRADIENT ESTIMATE				
Flat (0.5 ft/100 ft) Flat to Moderate Index Moderate (2 ft/100 ft) Moderate to Severe Index Severe (10 ft/100	ft)			

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name:	_ Distance from Evaluated Stream
EWH Name: Claylick Creek	Distance from Evaluated Stream 0.01
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map I	Page: NRCS Soil Map Stream Order
County: Licking Township / City:	rk
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation: 06/05/20	Quantity:0.73
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open): 60%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) PH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:	imary Headwater Habitat Assessment Manual)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM I Include important landmarks and other features of interest for site evaluation at FLOW Include important landmarks and other features of interest for site evaluation at Shrubs BHWH Form Page - 2	
October 24, 2002 Revision PHWH Form Page - 2	Save as adf
	Save as pdf Reset Form

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## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 







## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project



Stream 093 Small Drainage Warmwater Stream	ı
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form	39
HHEI Score (sum of metrics 1, 2, 3) :	33
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
hh-aeh-20200609-10 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (1	
LENGTH OF STREAM REACH (ft)       200       LAT.       39.98998       LONG.       -82.31740       RIVER CODE       RIVER M         DATE       06/09/20       SCORER       AEH       COMMENTS       Intermittent	/IILE <b>0.06</b>
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for	
STREAM CHANNEL       Inone / Natural Channel       Recovered       Recovering       Recent or No         MODIFICATIONS:       Inone / Natural Channel       Inone / Natural Channel       Inone / Natural Channel       Inone / Natural Channel	J RECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE bo	oxes
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI   Metric
TYPE         PERCENT         TYPE         PERCENT           BLDR SLABS [16 pts]         0%         I         SILT [3 pt]         50%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         30%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts]         0%         CLAY or HARDPAN [0 pt]         0%	Max = 40
GRAVEL (2-64 mm) [9 pts]       20%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	9
Bldr Slabs, Boulder, Cobble, Bedrock	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
<ol> <li>Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):</li> </ol>	f Pool Depth Max = 30
> 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]         NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS MAXIMUM POOL DEPTH (Inches): 7	.00
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
= 2.0  meters  (> 13') [30  pts] = 2.0  m - 1.5  m (> 3' 3" - 4' 8") [15  pts] = 2.0  m - 1.5  m (> 3' 3" - 4' 8") [15  pts] = 2.0  m (<=3' 3") [5  pts] = 2.0  m (<=3' 3") [5	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2	00 5
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	nታ
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L_R     (Per Bank)     L_R     (Most Predominant per Bank)     L_R	
Wide >10m Mature Forest, Wetland Conservation Till	-
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, R	
None     Fenced Pasture     Mining or Constr       COMMENTS	uction
<b>FLOW REGIME</b> (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Moist Channel, isolated pools, no flow (Interstitial) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	nittent)
COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None         1.0         2.0         3.0           0.5         1.5         2.5         >3	
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)         Flat to Moderate         Moderate (2 ft/100 ft)         Moderate to Severe	e (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also	o be Completed):			
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attac	ch Completed Q	HEI Form)	
DOWNSTREAM DESIGNATED USE(S)				
WWH Name:		_ Distance from	Evaluated Stream	
CWH Name:		Distance from	Evaluated Stream	
EWH Name: Claylick Creek		Distance from	Evaluated Stream0.	.06
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE EI	NTIRE WATERSHED	AREA. CLEAR	LY MARK THE SITE LOCAT	ION
USGS Quadrangle Name:	NRCS Soil Map Pa		RCS Soil Map Stream Orde	۶r
County: Licking Towns	ship / City:Newark	2		
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Y Date of last precipitation:	06/05/20	Quantity:	0.73	
Photograph Information:				
Elevated Turbidity? (Y/N): Canopy (% open): 60°	%			
Were samples collected for water chemistry? (Y/N): (Note la	b sample no. or id. a	nd attach result	s) Lab Number:	
	pH (S.U.)	Conduct	tivity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N)	, please explain:			
Additional comments/description of pollution impacts:	_			
BANK Stability LOW	МС		HIGH	
Performed? (Y/N):N (If Yes, Record all observations. Voucher ID number. Include appropriate field dat Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders O Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aqua Comments Regarding Biology:		nary Headwater I	Habitat Assessment Manual)	N
DRAWING AND NARRATIVE DESCRIPTION	OF STREAM R	EACH (This	<u>must</u> be completed)	:
Include important landmarks and other features of interest fo	r site evaluation and	d a narrative de	scription of the stream's l	ocation
herb				/
shrubs			$\bigcirc$	
	$\bigcirc$		$\bigcirc$	road
				$\neg$
junk shrubs			/	
ag field			1	
	Form Page - 2			
October 24, 2002 Revision	ugo - 2	Save as pd	If Reset Fo	rm

#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

## Date: June 9, 2020 **Description:**

Intermittent

Stream 093

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 093

Date:

June 9, 2020

**Description:** 

Intermittent

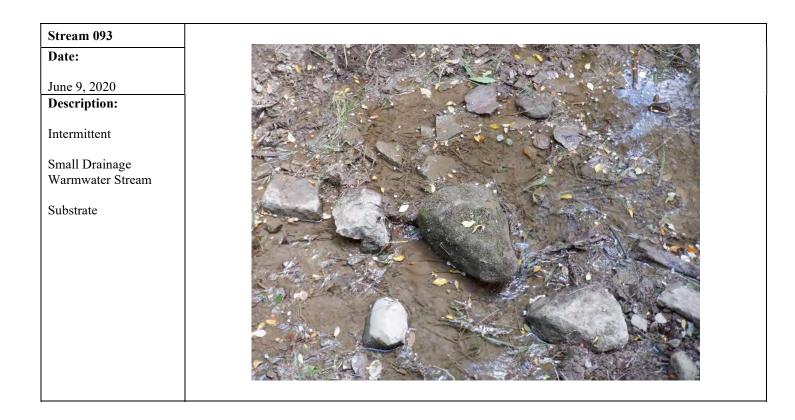
Small Drainage Warmwater Stream

Facing Downstream

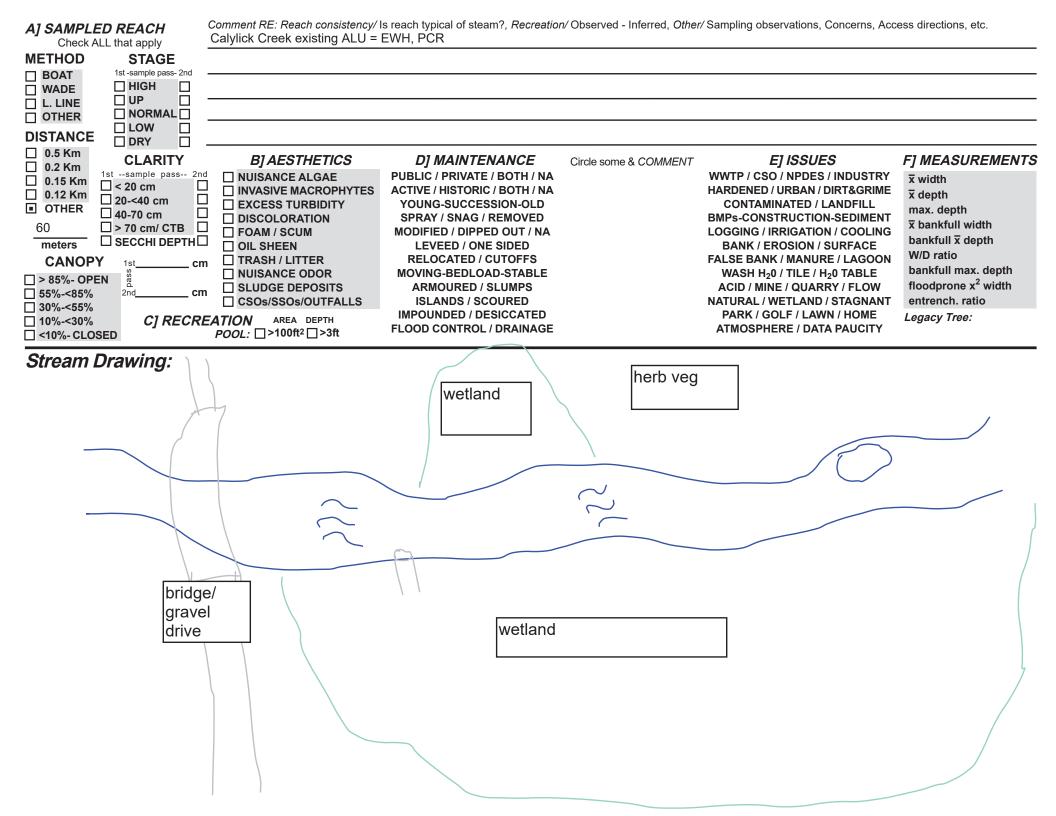




Crooksville-North Newark 138 kV Transmission Line
Rebuild Project



Stream 094		Warmwater H	labitat-Excellent
<b>ChieEPA</b>	Qualitative Habitat Evaluation and Use Assessment Figure 1		HEI Score: 72.5
Stream & Location: s-jbl-20200	604-10 (Claylick Creek)	RM:	8.1 _ <b>Date:</b> 6 / 4 / 20
AEP Crooksville-North Newark		e & Affiliation: AEH, JE 1 <b>9.:</b> 39.9928 /82	BLAECOM
BEST TYPES         POOL RIFFL           BLDR /SLABS [10]	Substrate TYPE BOXES; every type present DTHER TYPES HARDPAN [4] DETRITUS [3] MUCK [2] SILT [2] SILT [2] Comparison of the states: innore	Check ONE (Or 2 ORIGIN LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0]	& average) QUALITY HEAVY [-2] MODERATE [-1] Substrate
	3 or less [0]	LACUSTURINE [0] LACUSTURINE [0] LACUSTURINE [0] LACUSTURINE [0] LACUSTURINES [-2]	<sup>3</sup> 3 <sup>™</sup> NORMAL [0] 20 <sup>™</sup> NONE [1]
quality; 3-Highest quality in moderate o	1] <u>1</u> ROOTWADS [1] <u>0</u> AQU	or in small amounts of highes n deep or fast water, large	Check ONE (Or 2 & average)  EXTENSIVE >75% [11]  MODERATE 25-75% [7]  SPARSE 5-<25% [3]  NEARLY ABSENT <5% [1]  Cover Maximum 14
14			20
3] CHANNEL MORPHOLOGY C         SINUOSITY       DEVELOPMEI         □ HIGH [4]       □ EXCELLENT [         □ MODERATE [3]       ⊠ GOOD [5]         ⊠ LOW [2]       □ FAIR [3]         □ NONE [1]       □ POOR [1]         Comments	7] □ NONE [6] □ ⊠ RECOVERED [4] □	STABILITY HIGH [3] MODERATE [2] LOW [1]	Channel Maximum 20
River right looking downstream RIF	E > 50m [4] DERATE 10-50m [3] ROW 5-10m [2] Y NARROW < 5m [1] Contemportation of the second	PLAIN QUALITY MP [3] D FIELD [2] PARK, NEW FIELD [1] URE [1] Indica	- /
Check ONE (ONLY!)         Check           □ > 1m [6]         ⊠ POOL W           ⊠ 0.7-<1m [4]	IANNEL WIDTH     CURRE       ONE (Or 2 & average)     Check       IDTH > RIFFLE WIDTH [2]     TORRENTIAL       IDTH = RIFFLE WIDTH [1]     VERY FAST [1]       IDTH < RIFFLE WIDTH [0]	INTERMITTENT [-2]	Recreation Potential Primary Contact Secondary Contact (circle one and comment on back) Pool / Current Maximum 12
of riffle-obligate species: RIFFLE DEPTH RUI ⊠ BEST AREAS > 10cm [2] ⊠ MAXIM	A DEPTH IUM > 50cm [2] IUM < 50cm [1] IUM < 50cm [1] IUM < 50cm [2] IUM < 50cm [1] IUM <	e). STRATE RIFFLE / RI Boulder) [2] ge Gravel) [1] ravel. Sand) [0] X	
	MODERATE [6-10]	POOL: 25.00 %GLIE RUN: 35.00 %RIFFL	



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Client Name:	Site Location:	Project No.	
		60616110	

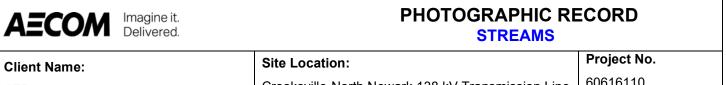
Crooksville-North Newark 138 kV Transmission Line Rebuild Project

	Stream 094	
ľ	Date:	
	June 4, 2020	
Ī	Description:	
	Perennial	
	Warmwater Habitat –	
	Excellent	
	Claylick Creek	
	Facing Upstream	
		A.
		St.

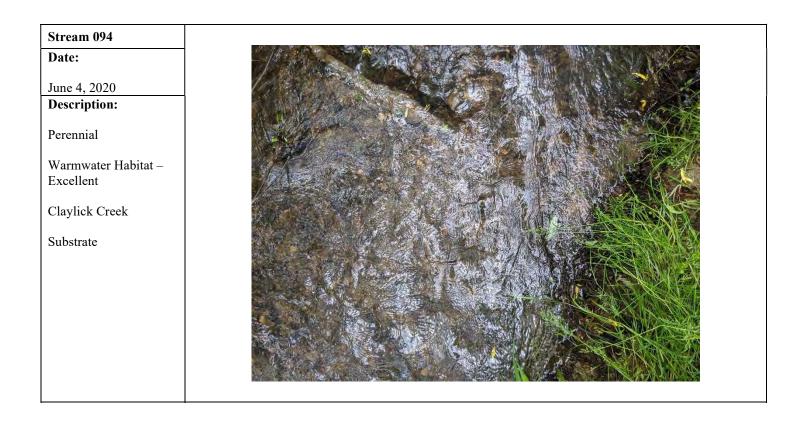


Stream 094	
Date:	2
June 4, 2020	
Description:	
Perennial	No.
Warmwater Habitat – Excellent	
Claylick Creek	
Facing Downstream	





Crooksville-North Newark 138 kV Transmission Line Rebuild Project



Stream 095 Modified Small Drainage Warmwater Stream			
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form 55	1		
HHEI Score (sum of metrics 1, 2, 3) :			
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project			
s-jbl-20200605-02 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.40			
LENGTH OF STREAM REACH (ft) 200 LAT. 39.99445 LONG82.31913 RIVER CODE RIVER MILE 0.07 DATE 06/05/20 SCORER AEH, JBL COMMENTS intermittent			
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ons		
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER			
MODIFICATIONS: Cow pasture			
	HEI etric		
Image: Second	oints		
BEDROCK 16 pt 0% LILE FINE DETRUUS 13 pts 0%	ostrate x = 40		
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	x = 40		
GRAVEL (2-64 mm) [9 pts]       10%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	0		
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B) A	+ B		
Bldr Slabs, Boulder, Cobble, Bedrock 6 6 TOTAL NUMBER OF SUBSTRATE TYPES: 6 4			
	l Depth		
evaluation. Avoid plunge pools from road culverts or storm water pipes)       (Check ONLY one box):       Ma         > 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]	x = 30		
<ul> <li>&gt; 22.5 - 30 cm [30 pts]</li> <li>&gt; 10 - 22.5 cm [25 pts]</li> <li>NO WATER OR MOIST CHANNEL [0 pts]</li> </ul>	25		
COMMENTS MAXIMUM POOL DEPTH (Inches): 7.00			
	nkfull		
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] W	/idth ax=30		
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 6.00	20		
This information must also be completed			
This information must also be completed         RIPARIAN ZONE AND FLOODPLAIN QUALITY       \$ NOTE: River Left (L) and Right (R) as looking downstream         RIPARIAN WIDTH       FLOODPLAIN QUALITY         FLOODPLAIN QUALITY       FLOODPLAIN QUALITY       FLOODPLAIN QUALITY			
L R       (Per Bank)       L R       (Most Predominant per Bank)       L R         Wide >10m       Mature Forest, Wetland       Conservation Tillage			
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Field			
Narrow <5m     Residential, Park, New Field     Open Pasture, Row Crop			
None Fenced Pasture Mining or Construction			
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):			
Image: Stream Flowing       Moist Channel, isolated pools, no flow (Intermittent)         Image: Subsurface flow with isolated pools (Interstitial)       Image: Stream Flowing         Image: COMMENTS_       Image: Stream Flowing			
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0			
0.5 1.5 2.5 >3			
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)         Flat (0.5 ft/100 ft)         Image: Stream of the strea			

ADDITIONAL STREAM INFORMA	TION (This Information Must Also b	e Completed):		
QHEI PERFORMED? -	Yes No QHEI Score	(If Yes, Attach Comple	ted QHEI Form)	
DOWNSTREAM DESIG	NATED USE(S)		_	
WWH Name:		Distance	e from Evaluated Stream	_
CWH Name:		_ Distance	from Evaluated Stream _	
EWH Name: Claylick Creek		Distance	from Evaluated Stream	0.07
MAPPING: ATTACH CO	PIES OF MAPS, INCLUDING THE ENTI	RE WATERSHED AREA. C	LEARLY MARK THE SITE I	
USGS Quadrangle Name:	rd N	IRCS Soil Map Page:	NRCS Soil Map Stream	m Order
County: Licking	Townshi	p / City:		
MISCELLANEOUS				
Base Flow Conditions? (Y/N):		<b>)6/04/20</b> Quan	tity: 0.75	
Photograph Information: 94118 u	pstream, 94119 downstream, 94120	substrates		
Elevated Turbidity? (Y/N):	Canopy (% open): <b>40%</b>			
Nere samples collected for water	chemistry? (Y/N): (Note lab s	ample no. or id. and attach	results) Lab Number:	
Field Measures: Temp (°C)	Dissolved Oxygen (mg/l)	pH (S.U.)	onductivity (µmhos/cm)	
ls the sampling reach representati	ve of the stream (Y/N)	ease explain:		
Additional comments/description	of pollution impacts:			
BANK Stability	LOW	MODERATE	HIG	н
	number. Include appropriate field data s ucher? (Y/N) N Salamanders Obs N) N Voucher? (Y/N) N Aquatic	N	er? (Y/N)	N
none observed				
1				
	NARRATIVE DESCRIPTION O		This must be compl	otod):
		-		-
dge/access	ks and other features of interest fo <u>r s</u>	ow pasture	ve description of the stre	am's location
d				
		trees	$\neg$	3
				$\sum$
				Gull
FLOW				-
\  \  \		tree	es	
) )	(hnb)			
	_ '`_			
	SI	or and		
·	Sharp	2	cow pasture	
October 24, 2002, Revision	PHWH For	rm Page - 2		
October 24, 2002 Revision		Save a	s pdf Rese	t Form

A <b>ECOM</b>	lmagine it. Delivered.
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#### PHOTOGRAPHIC RECORD STREAMS

**Client Name:** 

Stream 095

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project **Project No.** 60616110, 60618779, 60616126

Date:
June 5, 2020
Description:
Intermittent
Modified Small
Drainage Warmwater
Stream
Facing Upstream



#### Stream 095

Date:

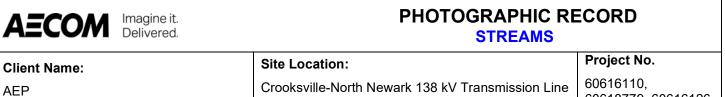
June 5, 2020

Description:

Intermittent

Modified Small Drainage Warmwater Stream





Crooksville-North Newark 138 kV Transmission Line Rebuild Project

60616110, 60618779, 60616126



Stream 096 Ephemeral Stream	
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form <b>29</b>	1
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20200605-01 SITE NUMBER 01 RIVER BASIN Muskingum DRAINAGE AREA (mi <sup>2</sup> ) 0.09	
LENGTH OF STREAM REACH (ft) 200 LAT. 39.99998 LONG82.32139 RIVER CODE RIVER MILE 0.40	
DATE 06/05/20 SCORER AEH, JBL COMMENTS Ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructio	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	Y
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HEI etric
	ints
BOULDER (>256 mm) [16 pts]         0%         I         LEAF PACK/WOODY DEBRIS [3 pts]         25%           BEDROCK [16 pt]         0%         I         FINE DETRITUS [3 pts]         0%         Sub	strate
	x = 40
GRAVEL (2-64 mm) [9 pts]     5%     MUCK [0 pts]     0%       SAND (<2 mm) [6 pts]	9
Bldr Slabs, Boulder, Cobble, Bedrock	+ B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
	l Depth x = 30
> 30 centimeters [20 pts]	
> 22.5 - 30 cm [30 pts]         < 5 cm [5 pts]	5
COMMENTS MAXIMUM POOL DEPTH (Inches): 3.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Ba	nkfull
	idth x=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2.00	5
This information <u>must</u> also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream	
RIPARIAN WIDTHFLOODPLAIN QUALITYL R(Per Bank)L RL R(Most Predominant per Bank)L R	
Wide >10m I Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing    Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) (C</u> heck ONLY one box):	
None     1.0     2.0     3.0       0.5     1.5     2.5     >3	
STREAM GRADIENT ESTIMATE	
Image: Stream Gradient EStimate       Image: Stream Gradient EStimate         Image: Stream Gradient EStimate       Image: Stream Gradient EStimate	

ADDITIONAL STREAM INFORMATION (This Information	on Must Also	be Completed):			
QHEI PERFORMED? - Yes 🖌 No QHE	I Score	(If Yes, Atta	ch Completed QHEI	Form)	
DOWNSTREAM DESIGNATED USE(S)					
WWH Name:			_ Distance from Ev	aluated Stream	
CWH Name: _			Distance from Eva	aluated Stream _	
EWH Name: Claylick Creek			Distance from Eva	aluated Stream	0.40
MAPPING: ATTACH COPIES OF MAPS, INCLU	DING THE <u>EN</u>	<u>TIRE</u> WATERSHEI	AREA. CLEARLY	MARK THE SITE L	OCATION
USGS Quadrangle Name:		NRCS Soil Map F	age: NRCS	S Soil Map Stream	Order
County: Licking	Townsh	nip / City:	in		
MISCELLANEOUS					
Base Flow Conditions? (Y/N): Date of last prec	ipitation:	06/04/20	Quantity:	0.00	
Photograph Information: 991 - 994					
Elevated Turbidity? (Y/N): Canopy (% op					
Were samples collected for water chemistry? (Y/N):	(Note lab	sample no. or id. a	and attach results) L	ab Number:	
Field Measures: Temp (°C) Dissolved Oxyge		pH (S.U.)	Conductivity	/ (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N)	۲ If not, μ	olease explain:			
Additional comments/description of pollution impacts:					
BANK Stability	LOW	M		HIGH	
D, un company					
Fish Observed? (Y/N) N Voucher? (Y/N) N Sa Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N Comments Regarding Biology:	alamanders Ob I) N Aquation	oserved? (Y/N) N c Macroinvertebrat	Voucher? (Y/N) es Observed? (Y/N)		Y/N) <b>N</b>
none observed					
DRAWING AND NARRATIVE DES	CRIPTION	OF STREAM F	REACH (This <u>mu</u>	<u>ist</u> be comple	ted):
Include important landmarks and other features	of interest for	site evaluation ar	d a narrative descri	iption of the strea	m's location
1					
$\sim$					
FLOW					
		wetlan	4		
pods		weiian	<u> </u>		
L L					
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October 24, 2002, Pavision	PHWH F	orm Page - 2			
October 24, 2002 Revision			Save as pdf	Reset	Form

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### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

Stream 096 Date:

June 5, 2020 **Description:** 

Ephemeral

Ephemeral Stream

Facing Upstream

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No.

60616110, 60618779, 60616126





AECOM Imagine it. Delivered.	PHOTOGRAPHIC RE STREAMS	PHOTOGRAPHIC RECORD STREAMS		
Client Name:	Site Location:	Project No.		
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126		
Stream 096				
Date:				
June 5, 2020				
Description:				
Ephemeral		1201		
	AND A REAL STREET			
Ephemeral Stream		1/ 1/		
Substrate				
		CX15		
		E BREAK		
	CORPORT A MARINE			
	Contra - The United	the second se		
	A COMPANY AND A COMPANY AND A COMPANY	and the second second		

Stream 097 Ephemeral Stream	
<b>ChieFPA</b> Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):	20
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
site NAME/LOCATION ALL GROUNDER ROTATION AND REAL AND REA	05
LENGTH OF STREAM REACH (ft) 200 LAT. 40.00276 LONG82.32298 RIVER CODE RIVER MILE 0	
DATE 06/04/20 SCORER AEH, JBL COMMENTS Ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING CUIVERTED	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric
TYPE         PERCENT         TYPE         PERCENT           BLDR SLABS [16 pts]         0%         I         SILT [3 pt]         55%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
BEDROCK         [16 pt]         0%         Image: Fine detritus         [3 pts]         0%           COBBLE (65-256 mm) [12 pts]         0%         CLAY or HARDPAN [0 pt]         0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 40% MUCK [0 pts] 0%	15
SAND (<2 mm) [6 pts]         0%         ARTIFICIAL [3 pts]         0%	
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft)</i> evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]           ✓         NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull Width
= > 4.0  meters  (> 13') [30  pts] = > 1.0  m - 1.5  m (> 3' 3" - 4' 8") [15  pts] = > 3.0  m - 4.0  m (> 9' 7" - 13') [25  pts] = ≤ 1.0  m (<=3' 3") [5  pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2.00	5
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆           RIPARIAN WIDTH         FLOODPLAIN QUALITY         FLOODPLAIN QUALITY	
LR (Per Bank) LR (Most Predominant per Bank) LR	
Wide >10m Mature Forest, Wetland Conservation Tillage	
	n
	۲
None     Fenced Pasture     Mining or Construction       COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Subsurface flow with isolated pools (Interstitial)	
COMMENTS_	
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) (Check ONLY one box)</u> :	
None         1.0         2.0         3.0           ✓         0.5         1.5         2.5         >3	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate Moderate Moderate (2 ft/100 ft) Moderate to Severe (10 ft/10	0 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Als	o be Completed):		
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach	Completed QHEI Forr	n)
DOWNSTREAM DESIGNATED USE(S)			
WWH Name:		Distance from Evaluat	ed Stream
CWH Name:		Distance from Evaluate	
EWH Name: Claylick Creek		Distance from Evaluate	ed Stream 0.54
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE E	NTIRE WATERSHED A	REA. CLEARLY MAR	THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Pag	e: NRCS Soi	Map Stream Order
County: Licking Town	ship / City:		
MISCELLANEOUS			
Base Flow Conditions? (Y/N): Date of last precipitation:	06/03/20	Quantity: 0.75	
Photograph Information:			
Elevated Turbidity? (Y/N): Canopy (% open): 40	%		
Were samples collected for water chemistry? (Y/N): (Note la	ab sample no. or id. and	d attach results) Lab Ni	umber:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.)	Conductivity (µm	hos/cm)
Is the sampling reach representative of the stream $(Y/N)$ If no	t, please explain:		
	, <u> </u>		
Additional comments/description of pollution impacts:			· · · · · · · · · · · · · · · · · · ·
BANK Stability	мор		HIGH
		<b>V</b>	
Performed? (Y/N): (If Yes, Record all observations. Vouch ID number. Include appropriate field da Fish Observed? (Y/N) N Salamanders Frogs or Tadpoles Observed? (Y/N) N Salamanders Comments Regarding Biology: none observed		ary Headwater Habitat As Voucher? (Y/N)	
DRAWING AND NARRATIVE DESCRIPTION		ACH (This must b	a completed):
Include important landmarks and other features of interest for			
	/		
gravel pad			
herb			wooded
veg			
	$\square$		
FLOW -			
gravel drive			
giarei airre			
-			
roadway			
Toadway			
	Form Page - 2		
October 24, 2002 Revision	s	Save as pdf	<b>Reset Form</b>

AECOM	Imagine it. Delivered.		PHOTOGRAPHIC RE STREAMS	ECORD
Client Name:		Site Location:		Project No.

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

60616110, 60618779, 60616126

Stream 097				
Date:		SCHOOL ST		
June 4, 2020				
Description:			and the second	N
Ephemeral		Contraction of the second		
Ephemeral Stream				
Facing Upstream		Carl I		
				No. A. S.
	a sin	A STA		
	自己的社会			
				MANA PARA
			Mr. Di	

# Stream 097 Date: June 4, 2020 Description: Ephemeral Ephemeral Stream Facing Downstream



AECOM Imagine Deliver	t. PHOTOGRAPHIC RE STREAMS	CORD
Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126
Stream 097		
Date:		Cart 1
June 4, 2020		Ala 2
Description:	Contraction of the second	Sec. 1

Description: Ephemeral Ephemeral Stream Substrate

Stream 098 Small Drainage Warmwater Stream	n
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form	65
HHEI Score (sum of metrics 1, 2, 3)	
SITE NAME/LOCATION       AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project         s-jbl-20200604-09       SITE NUMBER       RIVER BASIN       Muskingum       DRAINAGE AREA	0.28
	(mi²) 0.38 MILE 0.16
DATE 06/04/20 SCORER AEH, JBL COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" fo	r Instructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR N MODIFICATIONS:	O RECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE b	oxes
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.           TYPE         PERCENT         TYPE         PERCENT	Metric
BLDR SLABS [16 pts]         0%         SILT [3 pt]         25%           BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%	Points
BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%           COBBLE (65-256 mm) [12 pts]         30%         CLAY or HARDPAN [0 pt]         0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]       30%       CLAY or HARDPAN [0 pt]       0%         GRAVEL (2-64 mm) [9 pts]       40%       MUCK [0 pts]       0%	25
SAND (<2 mm) [6 pts]	23
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
<ol> <li>Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):</li> </ol>	f Pool Depth Max = 30
<ul> <li>&gt; 30 centimeters [20 pts]</li> <li>&gt; 22.5 - 30 cm [30 pts]</li> <li>&gt; 5 cm - 10 cm [15 pts]</li> <li>&lt; 5 cm [5 pts]</li> </ul>	
> 10 - 22.5 cm [25 pts]	25
COMMENTS MAXIMUM POOL DEPTH (Inches):	2.00
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] / > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
= 3.0  m - 4.0  m (> 9' 7" - 13') [25  pts] $ = 3.0  m (<=3' 3") [5  pts] $ $ = 1.0  m (<=3' 3") [5  pts]$	Max=30
	1.00
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstreat RIPARIAN WIDTH FLOODPLAIN QUALITY	m☆
L R (Per Bank) L R (Most Predominant per Bank) L R	
Moderate 5-10m Immature Forest, Shrub or Old	-
Field     Open Pasture, F       Narrow <5m	Row Crop
None Fenced Pasture Mining or Const	ruction
<ul> <li>FLOW REGIME (At Time of Evaluation) (Check ONLY one box):</li> <li>Stream Flowing</li> <li>Subsurface flow with isolated pools (Interstitial)</li> <li>Moist Channel, isolated pools, no flow (Interstitial)</li> </ul>	mittent)
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         3.0	
STREAM GRADIENT ESTIMATE	

QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Atta	ch Completed QHEI For	m)	
DOWNSTREAM DESIGNATED USE(S)			
WWH Name:	<ul> <li>Distance from Evalua</li> <li>Distance from Evaluat</li> </ul>	_	
EWH Name: Claylick Creek	_ Distance from Evaluat		
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	AREA. CLEARLY MAR	K THE SITE LOCATION	
USGS Quadrangle Name: Hanover NRCS Soil Map F		il Map Stream Order	
County: Licking Township / City: Frank	-		
MISCELLANEOUS			
Base Flow Conditions? (Y/N): Date of last precipitation: 06/03/20	Quantity: 0.7	5	
Photograph Information:			
Elevated Turbidity? (Y/N): N Canopy (% open): 60%			_
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id.	and attach results) I ah N	umber:	
Field Measures:     Temp (°C)     Dissolved Oxygen (mg/l)     pH (S.U.)	Conductivity (µr		_
Y Y			_
Is the sampling reach representative of the stream (Y/N) If not, please explain:		· · · · · · · · · · · · · · · · · · ·	1
Additional comments/description of pollution impacts: BANK Stability LOW M	DDERATE	нідн 🖌	
BIOTIC EVALUATION			
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N			site
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra Comments Regarding Biology: none observed		Voucher? (Y/N)	]
DRAWING AND NARRATIVE DESCRIPTION OF STREAM F	EACH (This must	he completed):	•
Include important landmarks and other features of interest for site evaluation a			
wetland			
Wetialiu			wood
			led
	$\langle \rangle$	$\mathcal{A}$	ed
FLOW		Z	ed
FLOW Wetland			ed
			ed
			ed
mowed			ed
wetland	Save as pdf	Reset Form	ed

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

AECOM	Imagine it. Delivered.	PHOTOGRAPHIC RE STREAMS	ECORD	
Client Name:		Site Location:	Project No.	
AEP		Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126	
Stream 098				
Date:			18 2500	
June 4, 2020				
Description:			a la de se	

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 098 Date:

June 4, 2020 **Description:** 

Intermittent

Small Drainage Warmwater Stream





### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No. 60616110, 60618779, 60616126



Stream 099 Small Drainage Warmwater Stream				
ChiefPA Primary Headwater Habitat Evaluation Form 47				
HHEI Score (sum of metrics 1, 2, 3) :	<u> </u>			
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
s-jbl-20200604-08 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.17				
LENGTH OF STREAM REACH (ft)       200       LAT.       40.01083       LONG.       -82.33227       RIVER CODE       RIVER MILE       0.16         DATE       06/04/20       SCORER       AEH,JBL       COMMENTS       intermittent, NHD mapped				
DATE       06/04/20       SCORER       AEH,JBL       COMMENTS       intermittent, NHD mapped         NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction				
STREAM CHANNEL       Image: None / Natural Channel       Image: Recovered       Image: Recovering       Image: Recovering	Y			
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes				
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HEI etric			
	ints			
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%         Sub	strate			
	c = 40			
GRAVEL (2-64 mm) [9 pts] 35% MUCK [0 pts] 0%	7			
SAND (<2 mm) [6 pts]				
Bldr Slabs, Boulder, Cobble, Bedrock	+ B			
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5				
	Depth			
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	. – 30			
> 22.5 - 30 cm [30 pts]       < 5 cm [5 pts]	5			
COMMENTS MAXIMUM POOL DEPTH (Inches): 5.00				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bai	nkfull			
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] W	idth x=30			
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTSAVERAGE BANKFULL WIDTH (Feet): 2.00	5			
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream☆				
RIPARIAN WIDTHFLOODPLAIN QUALITYL R (Per Bank)L R (Most Predominant per Bank)L R				
Wide >10m Mature Forest, Wetland Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial				
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop				
None Fenced Pasture Mining or Construction				
FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools, no flow (Intermittent)				
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)				
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) _(C</u> heck <i>ONLY</i> one box):				
None         1.0         2.0         3.0           0.5         1.5         2.5         >3				
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)         Flat to Moderate         Moderate (2 ft/100 ft)         Moderate to Severe				

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed	<u>ed):</u>
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes	s, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name: Claylick Creek	Distance from Evaluated Stream 0.86
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER	RSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Hanover NRCS Soil N	Map Page: NRCS Soil Map Stream Order
County: Licking Township / City:	ranklin
MISCELLANEOUS	
Base Flow Conditions? (Y/N): n Date of last precipitation: 06/03/20	Quantity: 0.75
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open): 90%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. of	or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mq/l) pH (S.	U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain	in:
Additional comments/description of pollution impacts:	
BANK Stability LOW	
ID number. Include appropriate field data sheets from t         Fish Observed? (Y/N)         N         Voucher? (Y/N)         N         Salamanders Observed? (Y/I)	
DRAWING AND NARRATIVE DESCRIPTION OF STRE	AM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluati	· <u> </u>
fence pasture	
FLOW	
herb veg	
	bridge/access to farm

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## AECOM Imagine it. Delivered.

### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

Stream 099 Date:

June 4, 2020 **Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

#### Stream 099

Date:

June 4, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





## PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line	60
Rebuild Project	60
Rebuild Project	00

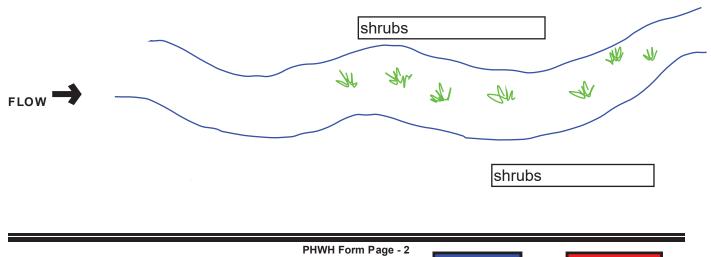
Project No. 0616110, 0618779, 60616126



Stream 100 Small Drainage Warmwater Stream				
ChieEPA Primary Headwater Habitat Evaluation Form 36				
HHEI Score (sum of metrics 1, 2, 3) :				
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
s-jbl-20200604-06         SITE NUMBER         RIVER BASIN         Muskingum         DRAINAGE AREA (mi²)         0.07           LENGTH OF STREAM REACH (ft)         200         LAT.         40.01589         LONG.         -82.33836         RIVER CODE         RIVER MILE         0.72				
DATE 06/04/20 SCORER AEH, JBL COMMENTS Intermittent				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ions			
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	ERY			
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes				
TYPE PERCENT TYPE PERCENT N	HHEI Ietric			
BLDR SLABS [16 pts]         0%         I         SILT [3 pt]         50%         I           BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         10%         10%	oints			
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0% St	ubstrate lax = 40			
□       COBBLE (65-256 mm) [12 pts]       10%       □       CLAY or HARDPAN [0 pt]       0%         □       ✓       GRAVEL (2-64 mm) [9 pts]       30%       □       MUCK [0 pts]       0%				
SAND (<2 mm) [6 pts]	16			
Total of Percentages of 10.00% (A) Substrate Percentage 100% (B)	A + B			
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4				
	ool Depth			
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	lax = 30			
<ul> <li>&gt; 22.5 - 30 cm [30 pts]</li> <li>&gt; 10 - 22.5 cm [25 pts]</li> <li>NO WATER OR MOIST CHANNEL [0 pts]</li> </ul>	15			
COMMENTS MAXIMUM POOL DEPTH (Inches): 3.00				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull			
	Width /lax=30			
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2.00	5			
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆				
RIPARIAN WIDTHFLOODPLAIN QUALITYL R(Per Bank)L RL R(Most Predominant per Bank)L R				
Wide >10m Mature Forest, Wetland Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial				
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop				
None     Fenced Pasture     Mining or Construction       COMMENTS				
<b>FLOW REGIME</b> (At Time of Evaluation) (Check ONLY one box):				
Stream Flowing       Moist Channel, isolated pools, no flow (Intermittent)         Subsurface flow with isolated pools (Interstitial)       Dry channel, no water (Ephemeral)         COMMENTS				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0				
0.5 ✓ 1.5   2.5   >3				
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)         Flat (0.5 ft/100 ft)         Moderate (2 ft/100 ft)         Moderate to Severe				

ADDITIONAL STREAM INFORMATION (This Information Must Als	o be Completed):			
QHEI PERFORMED? - Yes 🗸 No QHEI Score	(If Yes, Attach Co	mpleted QHEI Form	)	
WWH Name:		tance from Evaluate		
CWH Name:	_	ance from Evaluated		0
	Dist	ance from Evaluated		0
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE E	NTIRE WATERSHED ARE	A. CLEARLY MARK	THE SITE LOCATI	ON
USGS Quadrangle Name: Hanover	NRCS Soil Map Page:	NRCS Soil	Map Stream Order	
County: Licking Town	ship / City:			
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Date of last precipitation:	06/03/20	Quantity: 0.75		
Photograph Information:				
Elevated Turbidity? (Y/N): Canopy (% open):	6			
Were samples collected for water chemistry? (Y/N): (Note la	b sample no. or id. and at	ach results) Lab Nu	mber:	
Field Measures: Temp (°C) Dissolved Oxygen (ma/l)	pH (S.U.)	Conductivity (µmł	ios/cm)	
Is the sampling reach representative of the stream (Y/N)	, please explain:			
Additional comments/description of pollution impacts:				
BANK Stability LOW	MODER		HIGH	
BIOTIC EVALUATION				
N N				
Performed? (Y/N): (If Yes, Record all observations. Vouch ID number. Include appropriate field dat		-		with the site
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders (	Dbserved? (Y/N) N	N N	_	
	tic Macroinvertebrates Ob	oucher? (Y/N)	Voucher? (Y/N)	
Comments Regarding Biology:		N		
none observed				
DRAWING AND NARRATIVE DESCRIPTION	OF STREAM REAC	H (This <u>must</u> b	e completed):	

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



Save as pdf

**Reset Form** 

AECOM Imagine it. Delivered.		PHOTOGRAPHIC RECORD STREAMS	
Client Name:		Site Location:	Project No.
AEP		Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126
Stream 100			
Date:			A MARCHAN AND AND AND AND AND AND AND AND AND A
Datt.			
June 4, 2020			1/a Al
Description:			

Small Drainage Warmwater Stream

Intermittent

Facing Upstream



#### Stream 100 Date:

June 4, 2020 **Description:** 

Intermittent

Small Drainage Warmwater Stream





June 4, 2020

**Description:** 

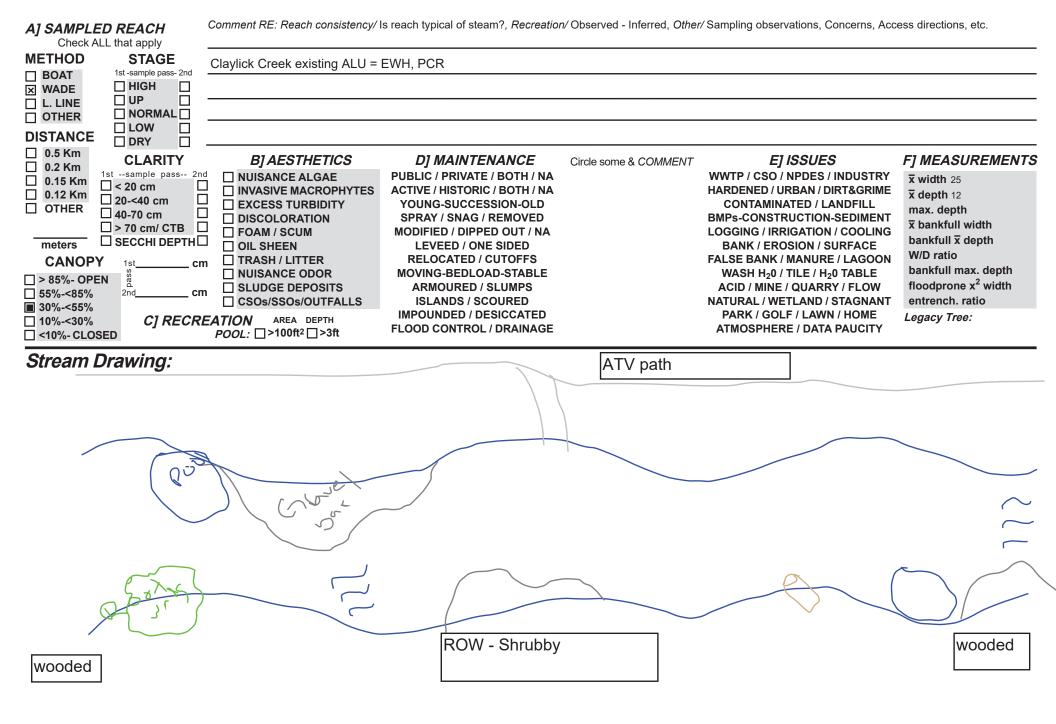
Intermittent

Small Drainage Warmwater Stream

Substrate



Stream 101		Warmwater Habitat- Good
<b>ChieEPA</b>	Qualitative Habitat Evaluation Index and Use Assessment Field Sheet	<b>X</b> QHEI Score: 67.0
Stream & Location: s-jbl-20200	)604-05 (Claylick Creek)	_ RM: 4.8 Date:6   4   20
AEP Crooksville-North Newark	Scorers Full Name & Affiliation:	AEH, JBL AECOM
River Code:		<b>18</b> 2.3442 Office verified location □
1] SUBSTRATE Check ONLY Two sestimate % or note BEST TYPES POOL RIFFL	substrate TYPE BOXES; every type present Check	ONE ( <i>Or 2 &amp; average</i> ) <b>QUALITY</b>
□       BLDR /SLABS [10]	□       HARDPAN [4]       □       LIMESTONE [1]         □       DETRITUS [3]       □       XILLS [1]         □       MUCK [2]       □       HARDPAN [0]         □       SILT [2]       15       □       HARDPAN [0]         □       ARTIFICIAL [0]       □       SANDSTONE [0]         (Score natural substrates; ignore       RIP/RAP [0]         4 or more [2] sludge from point-sources)       LACUSTURINE [0]         3 or less [0]       SHALE [-1]         □       COAL FINES [-2]	□ NONE [1]
- quality; 2- quality: 3-Highest quality in moderate of		s of highest pr, large         Check ONE (Or 2 & average)           all pools.         EXTENSIVE >75% [11]           ERS [1]         MODERATE 25-75% [7]           (TES [1]         SPARSE 5-<25% [3]
3] CHANNEL MORPHOLOGY C SINUOSITY DEVELOPMEN HIGH [4] EXCELLENT MODERATE [3] GOOD [5] LOW [2] FAIR [3] NONE [1] POOR [1] Comments		1 <i>Channel</i> Maximum 20
River right looking downstream RIF	RY NARROW < 5m [1]	ITY
oonniente		
Check ONE (ONLY!)         Check           □ > 1m [6]         ⊠ POOL W           □ 0.7-<1m [4]	Image: A constraint of the stress of the	ITIAL [-1] 1] Primary Contact Secondary Contact (circle one and comment on back) Pool /
of riffle-obligate species: RIFFLE DEPTH RUI ⊠ BEST AREAS > 10cm [2] ⊠ MAXIM	es; Best areas must be large enough to support Check ONE (Or 2 & average). N DEPTH RIFFLE / RUN SUBSTRATE RIF MUM > 50cm [2] STABLE (e.g., Cobble, Boulder) [2] MUM < 50cm [1] MOD. STABLE (e.g., Large Gravel) [1] UNSTABLE (e.g., Fine Gravel, Sand) [0]	a population □ NO RIFFLE [metric=0] FLE / RUN EMBEDDEDNESS □ NONE [2] □ LOW [1] ⊠ MODERATE [0] □ EXTENSIVE [-1] Maximum 8
DRAINAGE AREA (10.10 mi²)	VERY LOW - LOW [2-4]         %POOL: 20.00           MODERATE [6-10]         %RUN: 30.00	)%GLIDE: %RIFFLE: 50.00 Gradient Maximum 10
EPA 4520		06/16/06



## AECOM Imagine it. Delivered.

### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

Stream 101 Date:

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

June 4, 2020 **Description:** Perennial Exceptional

Warmwater Habitat

Claylick Creek

Facing Upstream





June 4, 2020 **Description:** 

Perennial

Exceptional Warmwater Habitat

Claylick Creek



AECOM Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS	
Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line	60616110,

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

60616110, 60618779, 60616126



Stream 102 Modified Small Drainage Warmwater Stream	
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form 32	
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	-
s-jbl-20200604-04         SITE NUMBER         RIVER BASIN         Muskingum         DRAINAGE AREA (mi²)         0.10           LENGTH OF STREAM REACH (ft)         200         LAT.         40.02400         LONG.         -82.34753         RIVER CODE         RIVER MILE         0.11	4
DATE 06/04/20 SCORER AEH, JBL COMMENTS Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	S
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: ATV Trail	, 
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT TYPE PERCENT TYPE PERCENT 15%	tric
BOULDER (>256 mm) [16 pts] 5% LEAF PACK/WOODY DEBRIS [3 pts] 0%	
Image: BedRock [16 pt]         10%         Image: Fine DetRitUs [3 pts]         0%         Subs           Image: COBBLE (65-256 mm) [12 pts]         30%         Image: CLAY or HABDPAN [0 pt]         0%         Max	
Image: Complete (65-256 mm) [12 pts]       30%       Image: CLAY or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0%         Image: Clay or HARDPAN [0 pt]       30%       Image: Clay or HARDPAN [0 pt]       0	,
SAND (<2 mm) [6 pts]	
Total of Percentages of 45.00% (A) Substrate Percentage 100% (B) A +	В
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 TOTAL NUMBER OF SUBSTRATE TYPES: 6	
	Depth = 30
> 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]	
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Wid	kfull 1th
$ \boxed{1.0 \text{ m} (<33,3'') [5 \text{ pts}]} $ $ > 3.0 \text{ m} - 4.0 \text{ m} (>9' 7'' - 13') [25 \text{ pts}] $ $ > 1.5 \text{ m} - 3.0 \text{ m} (>9' 7'' - 4',8'') [20 \text{ pts}] $ $ \boxed{1.0 \text{ m} (<=3',3'') [5 \text{ pts}]} $	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2.00	
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m     Residential, Park, New Field     Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
<b>FLOW REGIME</b> (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing       Moist Channel, isolated pools, no flow (Intermittent)         Subsurface flow with isolated pools (Interstitial)       Image: Comment of the second sec	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None     1.0     2.0     3.0       ✓     0.5     1.5     2.5     >3	
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)       Flat to Moderate         Moderate (2 ft/100 ft)       Moderate to Severe	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Atta	ch Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name: Claylick Creek	_ Distance from Evaluated Stream	0.11
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 L	OCATION
Hanover	age: NRCS Soil Map Stream	
County: Licking Township / City: Franklin		
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Date of last precipitation:06/03/20	Quantity: <b>0.75</b>	
Photograph Information:		
Elevated Turbidity? (Y/N): Canopy (% open): 15%		
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:	
	Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:		
Additional comments/description of pollution impacts:		
	DDERATE 🖌 HIGI	H
BIOTIC EVALUATION         Performed? (Y/N):       N       (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Print Fish Observed? (Y/N)       N         Fish Observed? (Y/N)       N       Voucher? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       Aquatic Macroinvertebrate	mary Headwater Habitat Assessment M	anual)
Comments Regarding Biology:		
none observed		
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R		
Include important landmarks and other features of interest for site evaluation and	d a narrative description of the strea	am's location
dirt	de ane	
path		-FL PL 4
FLOW		
shrubs		

PHWH Form Page - 2

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## AECOM Imagine it. Delivered.

### PHOTOGRAPHIC RECORD **STREAMS**

Client Name:

Stream 102 Date:

June 4, 2020 **Description:** 

Intermittent

Stream

Modified Small Drainage Warmwater

Facing Upstream

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No.

60616110, 60618779, 60616126







AECOM Imagine it. Delivered.	PHOTOGRAPHIC RE STREAMS	PHOTOGRAPHIC RECORD STREAMS		
Client Name:	Site Location:	Project No.		
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126		
		•		
Stream 102				
Date:		1		
June 4, 2020				
Description:				
Intermittent				
Modified Small				
Drainage Warmwater		Contra la		
Stream		state -		
Substrate				
Substrate		13. STO		
	APP STORE CONTRACTOR			
	2 the fame in the second second			
	MAN PER PARK CAN			
	The second s	A AN		

Stream 103 Modified Small Drainage Warmwater Stream	am
ChieFPA Primary Headwater Habitat Evaluation Form	0
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20200604-03 SITE NUMBER RIVER BASIN Muskinigum DRAINAGE AREA (mi²) 0.7	
LENGTH OF STREAM REACH (ft) 100 LAT. 40.03160 LONG82.35330 RIVER CODE RIVER MILE 0.0 DATE 06/04/20 SCORER AEH JBL COMMENTS Intermittent	]3
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOV	
MODIFICATIONS: road, cow pasture	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 55%	Points
BOULDER (>256 mm) [16 pts]         0%         I         LEAF PACK/WOODY DEBRIS [3 pts]         20%           BEDROCK [16 pt]         0%         I         FINE DETRITUS [3 pts]         0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 0%	Wax - 40
GRAVEL (2-64 mm) [9 pts]       10%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	10
Total of Percentages of 5.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock 6 6 70 70 100 70 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	25
> 10 - 22.5 cm [25 pts]           NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS MAXIMUM POOL DEPTH (Inches): 4.00	
3.         BANK FULL WIDTH (Measured as the average of 3-4 measurements)         (Check ONLY one box):           > 4.0 meters (> 13') [30 pts]         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2.00	5
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):         Stream Flowing         Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) (Check ONLY one box)</u> :	
None     1.0     2.0     3.0       0.5     1.5     2.5     >3	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft)       Flat to Moderate       Moderate (2 ft/100 ft)       Moderate to Severe       Severe (10 ft/100	ft)

	HEI PERFORMED?	- Yes 🖌 No	QHEI Score		(If Yes, Attac	h Completed	QHEI Form)	
D	OWNSTREAM DESI	GNATED USE(S)						
WWH Na	ame: Equality Run					Distance fro	m Evaluated Strea	am 0.03
					_		m Evaluated Strea	
EWH Na	ime:					Distance from	m Evaluated Strea	m _
M	APPING: ATTACH C	OPIES OF MAPS, I	INCLUDING THE	<u>ENTIRE</u> W	ATERSHED	AREA. CLEA	RLY MARK THE S	ITE LOCATION
USGS Quad	drangle Name: Hand	ver		NRCS	Soil Map Pa	ge:	NRCS Soil Map S	tream Order
County:	cking		Точ	vnship / Ci	y:Madisor	1		
М								
Base Flow (	Conditions? (Y/N):	Date of las	t precipitation:	06/04	l/20	Quantity:	0.75	
	Information:		<u> </u>					
	N	0	(0(	0%				
	irbidity? (Y/N):		(% Open).					
Were sampl	les collected for wate		: (Note				ults) Lab Number:_	
Field Measu	ıres: Temp (°C)	Dissolved 0	Oxygen (ma/l)	F	H (S.U.)	Condu	uctivity (µmhos/cm	)
Is the sampl	ling reach representa	tive of the stream	(Y/N) If n	ot, please	explain:	· · · · · ·		
Additional co	comments/description	i of pollution impac	cts:		MO		7	нідн
		D number. Include a	Salamanders	Observed	? (Y/N) N	Voucher? s Observed?	(Y/N) N	ner? (Y/N)
	/ed? (Y/N) N \ dpoles Observed? (Y Regarding Biology: _	V/N) N Voucher	N					
Frogs or Tac	dpoles Observed? (Y Regarding Biology: _	//N) N Voucher						
Frogs or Tac Comments F	dpoles Observed? (Y Regarding Biology: _	//N) N Voucher						
Frogs or Tac Comments F	dpoles Observed? (Y Regarding Biology: _	//N) N Voucher						
Frogs or Tac Comments F	dpoles Observed? (Y Regarding Biology: _	//N) N Voucher			REAM RE	EACH (Thi	s <u>must</u> be con	npleted):
Frogs or Tac Comments F none obse	dpoles Observed? (Y Regarding Biology: _ • <b>rved</b>	Voucher	DESCRIPTIO	N OF S		•		• •
Frogs or Tac Comments F none obse	dpoles Observed? (Y Regarding Biology: _ rrved DRAWING AND	Voucher	DESCRIPTIO	N OF S		•		• •
Frogs or Tac Comments F none obse	dpoles Observed? (Y Regarding Biology: _ rrved DRAWING AND	Voucher	DESCRIPTIO	N OF S		•		• •
Frogs or Tac Comments F none obse	dpoles Observed? (Y Regarding Biology: _ rrved DRAWING AND	Voucher	DESCRIPTIO	N OF S		•		• •
Frogs or Tac Comments F none obse	dpoles Observed? (Y Regarding Biology: _ rrved DRAWING AND	Voucher	DESCRIPTIO	N OF S		•		• •
Frogs or Tac Comments F none obse	dpoles Observed? (Y Regarding Biology: _ rrved DRAWING AND	Voucher	DESCRIPTIO	N OF S		•		• •
FLOW	dpoles Observed? (Y Regarding Biology: _ orved DRAWING AND de important landma	Voucher	DESCRIPTIO	N OF S		•		• •
Frogs or Tac Comments F none obse	dpoles Observed? (Y Regarding Biology: _ orved DRAWING AND de important landma	Voucher	DESCRIPTIO	N OF S		•		• •
FLOW	dpoles Observed? (Y Regarding Biology: _ orved DRAWING AND de important landma	Voucher	DESCRIPTIO	N OF S		•		• •
FLOW	dpoles Observed? (Y Regarding Biology: _ orved DRAWING AND de important landma	O NARRATIVE arks and other feat	DESCRIPTIO tures of interest	N OF S		•		• •
FLOW	dpoles Observed? (Y Regarding Biology: _ orved DRAWING AND de important landma	O NARRATIVE arks and other feat	DESCRIPTIO	N OF S		•		• •

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## AECOM Imagine it. Delivered.

#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

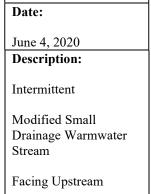
Stream 103

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126





#### Stream 103

Date:

June 4, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





AEP

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

60616110, 60618779, 60616126



Stream 104 Modified Small Drainage Warmwater	
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):	6
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20200604-02 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi <sup>2</sup> ) 0.7	8
LENGTH OF STREAM REACH (ft) 200 LAT. 40.03278 LONG82.35329 RIVER CODE RIVER MILE 3.7	
DATE 06/04/20 SCORER AEH JBL COMMENTS Equality Run, Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECENT OR	/ERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT TYPE PERCENT	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 30%	Points
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate
	Max = 40
GRAVEL (2-64 mm) [9 pts] 50% MUCK [0 pts] 0%	16
SAND (<2 mm) [6 pts]         0%         ARTIFICIAL [3 pts]         0%	
Total of Percentages of 15.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):          > 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	25
✓ > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS MAXIMUM POOL DEPTH (Inches): 5.00	
3.         BANK FULL WIDTH (Measured as the average of 3-4 measurements)         (Check ONLY one box):           > 4.0 meters (> 13') [30 pts]         > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
$2 > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7'' - 13') [25 \text{ pts}] \leq 1.0 \text{ m} (<=3' 3'') [5 \text{ pts}]$	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 4.00	15
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L R (Per Bank)     L R (Most Predominant per Bank)     L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Information Moderate (2 ft/100 ft) Moderate to Severe Information Severe (10 ft/100 ft)	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes Ves No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Licking River	Distance from Evaluated Stream 3.70
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	DAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Hanover NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Licking Township / City: Madis	on
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation: 06/04/20	Quantity:0.75
Photograph Information:	<u>_</u>
Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id.	7.00
Y	7.90 Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
	ODERATE HIGH
BIOTIC EVALUATION	
BIOTIC EVALUATION         Performed? (Y/N):       N         (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr         Fish Observed? (Y/N)       N         Voucher? (Y/N)       N         Salamanders Observed? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N         Voucher? (Y/N)       N         Aquatic Macroinvertebra         Comments Regarding Biology:         none observed	imary Headwater Habitat Assessment Manual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra Comments Regarding Biology:	imary Headwater Habitat Assessment Manual) Voucher? (Y/N) N Ites Observed? (Y/N) N Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebration Comments Regarding Biology:	Voucher? (Y/N) N tes Observed? (Y/N) N Voucher? (Y/N) N Voucher
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: none observed	Voucher? (Y/N) N tes Observed? (Y/N) N Voucher? (Y/N) N Voucher

PHWH Form Page - 2

**Reset Form** 

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**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project **Project No.** 60616110, 60618779, 60616126

RECORD

Stream 104Date:June 4, 2020Description:IntermittentWarmwater HabitatEquality Run FacingUpstream



Date: June 4, 2020	
Description:	
Intermittent	
Warmwater Habitat	
Equality Run	
Facing Downstream	



# PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No. 60616110, 60618779, 60616126



Stream 105 Modified Small Drainage Warmwater Stream	am
ChieFPA Primary Headwater Habitat Evaluation Form	51
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20200604-01 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi <sup>2</sup> ) 0.5	57
LENGTH OF STREAM REACH (ft) 200 LAT. 40.03437 LONG82.35361 RIVER CODE RIVER MILE DATE 06/04/20 SCORER AEH JBL COMMENTS Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru-	ctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	
MODIFICATIONS: road, cow pasture	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.           TYPE         PERCENT         TYPE         PERCENT	HHEI Metric
BLDR SLABS [16 pts]         0%         SILT [3 pt]         30%           BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%	Points
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]       15%       CLAY or HARDPAN [0 pt]       0%         GRAVEL (2-64 mm) [9 pts]       50%       MUCK [0 pts]       0%	40
SAND (<2 mm) [6 pts]	16
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
	Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts]       < 5 cm [5 pts]	25
COMMENTS MAXIMUM POOL DEPTH (Inches): 7.00	
3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
= 2 + 0  meters  (> 13') [30  pts] = 2 + 0  m (> 3' 3'' - 4' 8'') [15  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5  pts] = 2 + 0  m (<=3' 3'') [5	Width Max=30
✓ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS	20
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Field      Image: All of the second of the s	,
None     Image: Presidential, Park, New Field       Image: Park, New Field    <	
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) (Check ONLY one box):</u>	
None $1.0$ $2.0$ $3.0$ 0.5 $1.5$ $2.5$ $>3$	
STREAM GRADIENT ESTIMATE	
Image: Stream GRADIENT ESTIMATE         Image: Stream GRADIENT ESTIMATE <td>ft)</td>	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)         WWH Name:       Equality Run         Distance from Evaluated Stream       0.04
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: Licking Township / City: Madison
MISCELLANEOUS Base Flow Conditions? (Y/N): N Date of last precipitation: 06/03/20 Quantity: 0.75
Photograph Information:
Elevated Turbidity? (Y/N): Canopy (% open): 90%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures:       Temp (°C)       15.90       Dissolved Oxygen (ma/l)       pH (S.U.)       8.40       Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
BANK Stability LOW MODERATE HIGH
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
wetland
in out and it is a set of the set
FLOW
gravel path - no culvert
cow pasture
wetland
PHWH Form Page - 2 October 24, 2002 Revision

# AECOM Imagine it. Delivered.

# PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No. 60616110, 60618779, 60616126

Stream 105	
Date:	
June 4, 2020	
Description:	
Intermittent	States Street
Modified Small	
Drainage Warmwater	
Stream	<b>新新工作的</b>
Facing Upstream	
	EAX MADE



### Stream 105

Date:

June 4, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Downstream





AEP

Crooksville-North Newark 138 kV Transmission Line Rebuild Project 60616110, 60618779, 60616126



Stream 106 Small Drainage Warmwater Stream				
<b>ChiefPA</b> Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 50				
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
site NAME/LOCATION ALP -Crooksvine-North Newark 136 kV Transmission Line Rebuild Project s-jbl-20200603-07	3			
LENGTH OF STREAM REACH (ft) 200 LAT. 40.04780 LONG82.35434 RIVER CODE RIVER MILE 0.76				
DATE 06/03/20 SCORER aeh, jbl COMMENTS intermittent				
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions			
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	ERY			
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes				
(·····································	HHEI Netric			
BLDR SLABS [16 pts] 0% 2 SILT [3 pt] 50%	Points			
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         0%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%         \$	ubstrate			
	/lax = 40			
GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] 0%	20			
SAND (<2 mm) [6 pts]         5%         ARTIFICIAL [3 pts]         5%				
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>30.00%</b> (A) Substrate Percentage <b>100%</b> (B)	A + B			
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5				
	ool Depth			
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30			
	0.5			
✓         > 10 - 22.5 cm [25 pts]        NO WATER OR MOIST CHANNEL [0 pts]	25			
COMMENTS MAXIMUM POOL DEPTH (Inches): 6.00				
	Bankfull Width			
= 3.0  m - 4.0  m (> 9' 7'' - 13') [25  pts]	Max=30			
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 3.00	5			
This information must also be completed				
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆				
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L_R     (Per Bank)     L_R     (Most Predominant per Bank)     L_R				
Wide >10m Mature Forest, Wetland Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial				
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop				
None Fenced Pasture Mining or Construction				
COMMENTS				
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)				
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)				
COMMENTS				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0				
✓     0.5     1.5     2.5     >3				
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)       Flat to Moderate         Moderate (2 ft/100 ft)       Moderate to Severe	)			

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed	<u>d):</u>
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes,	Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)         WWH Name:         CWH Name:         EWH Name:	Distance from Evaluated Stream 0.76 Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS         USGS Quadrangle Name:         Hanover       NRCS Soil Ma         County:       Licking         Township / City:	
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/27/20	Quantity: 0.17
Photograph Information: Elevated Turbidity? (Y/N): N Canopy (% open): 60% Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or Field Measures: Temp (°C) 26.60 Dissolved Oxygen (mg/l) pH (S.U. Is the sampling reach representative of the stream (Y/N) If not, please explain:	.) 7.90 Conductivity (µmhos/cm)
Additional comments/description of pollution impacts: BANK Stability LOW	MODERATE V HIGH
BIOTIC EVALUATION	ional. NOTE: all voucher samples must be labeled with th

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

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

Woods FLOW	Shints	herb veg	Siltoci	
October 24, 2002 Revision	PHWH Form Page - 2	Save as pdf	Reset Form	

# AECOM Imagine it. Delivered.

# PHOTOGRAPHIC RECORD **STREAMS**

Client Name:

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No.

60616110, 60618779, 60616126



#### Stream 106

Date: June 3, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Downstream





AEP

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

60616110, 60618779, 60616126

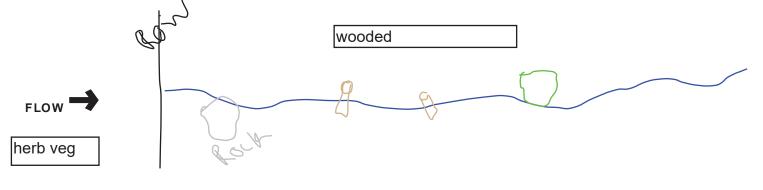


Stream 107 Ephemeral Stream				
ChieEPA Primary Headwater Habitat Evaluation Form 24				
HHEI Score (sum of metrics 1, 2, 3) :				
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project				
s-jbl-20200603-08 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.				
LENGTH OF STREAM REACH (ft)       100       LAT.       40.04995       LONG.       -82.35408       RIVER CODE       RIVER MILE       0.00000000000000000000000000000000000	23			
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions			
STREAM CHANNEL       Image: None / Natural channel       Image: Recovering       Image: Recovering	JVERY			
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes				
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric			
TYPE         PERCENT         TYPE         PERCENT           BLDR SLABS [16 pts]         0%         I         SILT [3 pt]         70%	Points			
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         10%           BEDROCK [16 pt]         0%         FINE DETRITUS [3 pts]         0%	Substrate			
□         COBBLE (65-256 mm) [12 pts]         □         CLAY or HARDPAN [0 pt]         0%	Max = 40			
GRAVEL (2-64 mm) [9 pts]       10%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	19			
Total of Percentages of 10.00% (A) Substrate Percentage 100% (B)	A + B			
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4				
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft)</i> evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check <i>ONLY</i> one box):	Pool Depth Max = 30			
> 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5 pts]				
> 10 - 22.5 cm [25 pts]	0			
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull			
$ = > 4.0 \text{ meters} (> 13') [30 \text{ pts}] > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] = > 1.0 \text{ m} - 1.5 \text{ m} (> 3' 3" - 4' 8") [15 \text{ pts}] \le 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] $	Width Max=30			
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 3.00	5			
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆				
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L_R     (Per Bank)     L_R     (Most Predominant per Bank)     L_R				
Wide >10m Mature Forest, Wetland Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial				
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	ρ			
None Fenced Pasture Mining or Construction				
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):				
Stream Flowing Subsurface flow with isolated pools (Interstitial)				
COMMENTS_				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):				
None         1.0         2.0         3.0           ✓         0.5         1.5         2.5         >3				
STREAM GRADIENT ESTIMATE				
Flat (0.5 ft/100 ft) Flat to Moderate I Moderate (2 ft/100 ft) Moderate to Severe (10 ft/10	0 ft)			

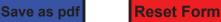
ADDITIONAL STREAM INFORMATION (This Information Must Also	o be Completed):		
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Comple	eted QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		_	
WWH Name: Lickiing River	Distanc	e from Evaluated Stream	0.23
CWH Name: _	Distance	e from Evaluated Stream	
EWH Name:	Distance	e from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE E	NTIRE WATERSHED AREA. C	LEARLY MARK THE SITE L	
USGS Quadrangle Name:	NRCS Soil Map Page:	NRCS Soil Map Stream	n Order
Licking	Madison		
County: Town	ship / City:		
MISCELLANEOUS			
Base Flow Conditions? (Y/N): Date of last precipitation:	<b>05/27/20</b> Quar	tity: 0.17	
Photograph Information:			
Elevated Turbidity? (Y/N): N Canopy (% open): 10	%		
Were samples collected for water chemistry? (Y/N): (Note la	b sample no. or id. and attach	results) Lab Number:	
	· · · · · · · · · · · · · · · · · · ·		
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) C	onductivity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N)	, please explain:		
	··· · · ·		
Additional comments/description of pollution impacts:			
BANK Stability LOW	MODERATE	HIGI	4
BIOTIC EVALUATION			
N			
Performed? (Y/N): (If Yes, Record all observations. Vouch			
ID number. Include appropriate field dat			anual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders (	Dbserved? (Y/N) N Vouch	er? (Y/N)	Ν
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqua	atic Macroinvertebrates Observ	ed? (Y/N) N Voucher?	(Y/N)
Comments Regarding Biology:			
none observed			

## 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



<b>AECOM</b> Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS	
Client Name: AEP	Site Location: Crooksville-North Newark 138 kV Transmission Line	<b>Project No.</b> 60616110, 60618779, 60616126
Γ	Rebuild Project	



# Stream 107 Date: June 3, 2020 Description: Ephemeral Ephemeral Stream Facing Downstream

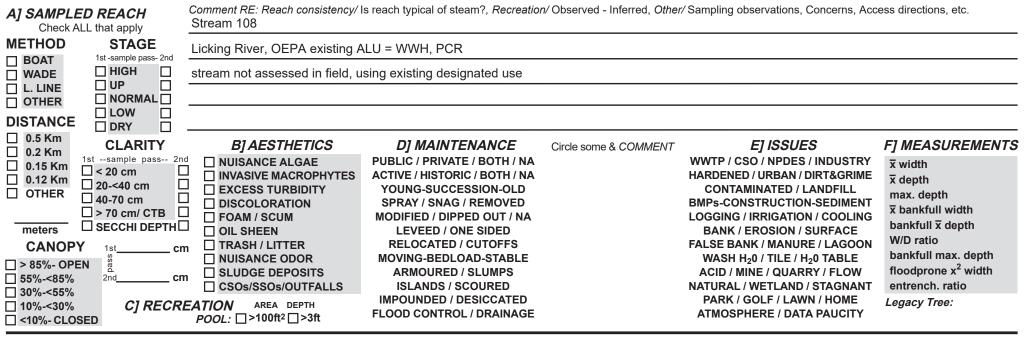


AECOM Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS	
Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126

Crooksville-North Newark 138 kV Transmission Line	60616
Rebuild Project	60618
Rebuild Project	00010

Stream 107 Date: June 3, 2020 **Description:** Ephemeral Ephemeral Stream Substrate

Stream 108		W	armwater Habitat
<b>ChicEPA</b>	Qualitative Habitat Evalu and Use Assessment F		HEI Score: 0.0
Stream & Location: S-JBL-202	00603-06, Licking River	RM:	28.1 <b>Date:</b> 6 <b>/</b> 3 <b>/</b> 20
AEP Crooksville-N. Newark	Scorers Full Nan	ne & Affiliation: Jake Lu	
River Code:			2.3544 Office verified location
1] SUBSTRATE Check ONLY Two estimate % or note		Check ONE (Or 2	
	HARDPAN [4]     DETRITUS [3]     DE	ORIGIN  LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] RIP/RAP [0] LACUSTURINE [0] SHALE [-1] COAL FINES [-2]	QUALITY HEAVY [-2] MODERATE [-1] FREE [1] EXTENSIVE [-2] MODERATE [-1] MODERATE [-1] NORMAL [0] NONE [1] UNONE [1]
21 INSTREAM COVER Indicate pr	esence 0 to 3: 0-Absent; 1-Very small amou	nts or if more common of marg	inal AMOUNT
<ul> <li>quality; 3-Highest quality in moderate of</li> </ul>	Moderate amounts, but not of highest quality r greater amounts (e.g., very large boulders bed rootwad in deep / fast water, or deep, we 0 POOLS > 70cm [2] 0 OXI 1 0 ROOTWADS [1] 0 AQ	or in small amounts of highes in deep or fast water, large	Image: Check ONE (Or 2 & average)         EXTENSIVE >75% [11]         MODERATE 25-75% [7]         SPARSE 5-<25% [3]
Comments			Maximum 🛛 🚺
stream not assessed in field			20
3] CHANNEL MORPHOLOGY C SINUOSITY DEVELOPME HIGH [4] EXCELLENT MODERATE [3] GOOD [5] LOW [2] FAIR [3] NONE [1] POOR [1] Comments	[7]	<ul> <li>STABILITY</li> <li>HIGH [3]</li> <li>MODERATE [2]</li> <li>LOW [1]</li> </ul>	Channel Maximum
stream not assessed in field			20
River right looking downstream RIF	E > 50m [4] DERATE 10-50m [3] RROW 5-10m [2] Y NARROW < 5m [1] CROW 5-10m [2] CROW 5-10m [2] CRO	D PLAIN QUALITY AMP [3] D D FIELD [2] , PARK, NEW FIELD [1] TURE [1]	CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0] MINING / CONSTRUCTION [0] ate predominant land use(s) 100m riparian. <i>Riparian</i> Maximum
stream not assessed in field			10
Check ONE ( <i>ONLY</i> !) Check	IANNEL WIDTH     CURR       CONE (Or 2 & average)     Chect       IDTH > RIFFLE WIDTH [2]     TORRENTIA       IDTH = RIFFLE WIDTH [1]     VERY FAST       IDTH < RIFFLE WIDTH [0]	INTERMITTENT [-2]	Pool / Current Maximum
stream not assessed in field			12
of riffle-obligate species: RIFFLE DEPTH RUI □ BEST AREAS > 10cm [2] □ MAXIM	es; Best areas must be large enound in the constant of the con	nge). BSTRATE RIFFLE / RI Boulder) [2] arge Gravel) [1] Gravel, Sand) [0]	Iation INO RIFFLE [metric=0] UN EMBEDDEDNESS NONE [2] LOW [1] MODERATE [0] EXTENSIVE [-1] Naximum 8
	VERY LOW - LOW [2-4] مر		
DRAINAGE AREA	MODERATE [6-10]	%POOL: %GLIE %RUN: %RIFFL	
EDA 4520			06/16/06



Stream Drawing:

# AECOM Imagine it. Delivered.

# PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No. 60616110, 60618779, 60616126

Stream 108
Date:
June 3, 2020
Description:
Perennial
Warmwater Habitat
Licking River Facing
Upstream



# Stream 108 Date: June 3, 2020 **Description:** Perennial Warmwater Habitat Licking River Facing Downstream



AECOM Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS	
Client Name:	Site Location:	Project No.
		60616110

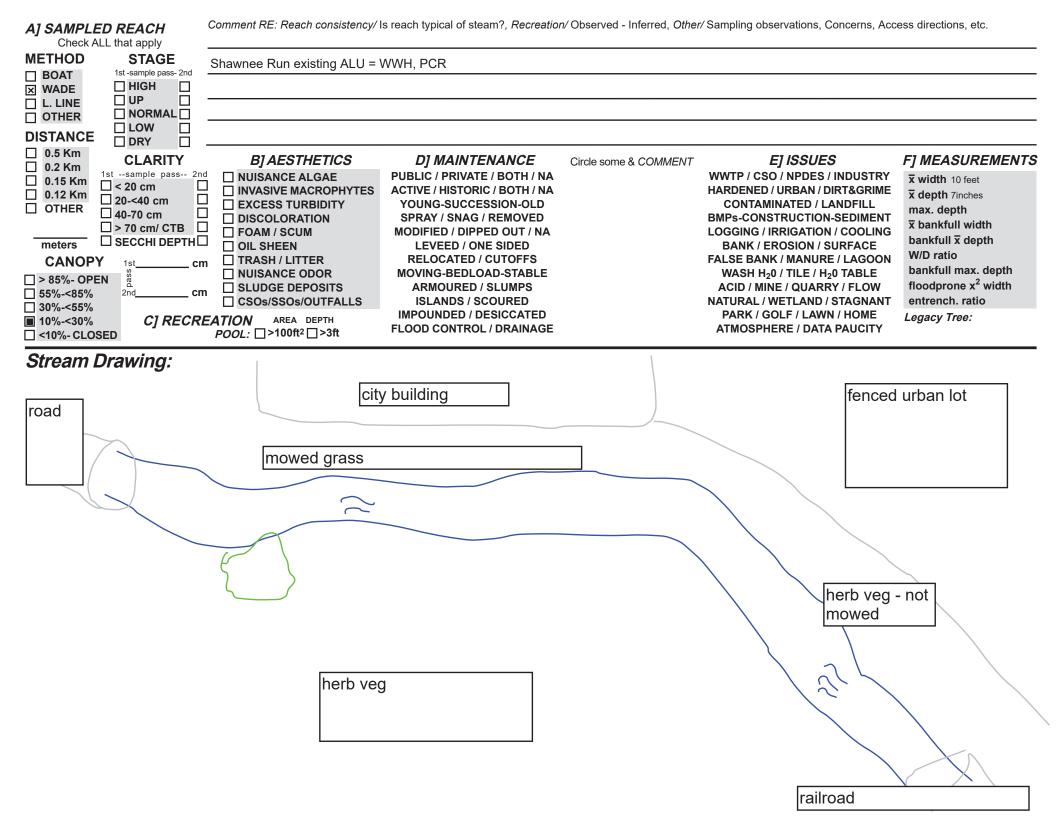
AEP

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

60616110, 60618779, 60616126



Stream 109	Warmwa	iter Habitat-Poor
CHEEPA	Qualitative Habitat Evaluation Index and Use Assessment Field Sheet	<b>QHEI Score:</b> 37.5
Stream & Location: s-jbl-20200	0603-05 (Shawnee Run)	RM: 2.9 Date:6 / 3 / 20
AEP Crooksville-North Newark	Scorers Full Name & Affiliation	
<i>River Code:</i>	<b>STORET #:</b> Lat./ Long.: 40.0609	/8_2.3542 Office verified location □
1] SUBSTRATE Check ONLY Two	substrate TYPE BOXES:	ONE (Or 2 & average)
BEST TYPES       POOL RIFFL         BLDR /SLABS [10]	OTHER TYPES POOL RIFFLE ORIGIN  HARDPAN [4]  DETRITUS [3]  MUCK [2]  ARTIFICIAL [0]  (Score natural substrates; ignore (Score natural substrates; ignore)  4 or more [2] sludge from point-sources) 3 or less [0]  ORIGIN  I LIMESTONE [1]  I LIMESTONE [1]  I LIMESTONE [1] I MUCK [2] I MUCK	QUALITY HEAVY [-2] SILT MODERATE [-1] FREE [1] C PDEON MODERATE [-1] EXTENSIVE [-2] MODERATE [-1] MODERATE [-1] MAXIMUM 20 Maximum 20
<ul> <li>quality; 3-Highest quality in moderate of</li> </ul>		G of highest r, large         Check ONE (Or 2 & average)           I pools.         EXTENSIVE >75% [11]           ERS [1]         MODERATE 25-75% [7]           'TES [1]         SPARSE 5-<25% [3]
3] CHANNEL MORPHOLOGY ⊂         SINUOSITY       DEVELOPME         □ HIGH [4]       □ EXCELLENT         □ MODERATE [3]       □ GOOD [5]         ⊠ LOW [2]       ☑ FAIR [3]         □ NONE [1]       □ POOR [1]         Comments       □		Channel Maximum 20
River right looking downstream RI	RY NARROW < 5m [1]	ITY R CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0] Indicate predominant land use(s)
Check ONE (ONLY!)         Check           □ > 1m [6]         □ POOL W           □ 0.7-<1m [4]	F / RUN QUALITY         HANNEL WIDTH         k ONE (Or 2 & average)         /IDTH > RIFFLE WIDTH [2]         /IDTH = RIFFLE WIDTH [1]         /IDTH < RIFFLE WIDTH [1]	TIAL [-1] TENT [-2] 1] Primary Contact Secondary Contact (circle one and comment on back)
of riffle-obligate species: RIFFLE DEPTH RU BEST AREAS > 10cm [2] MAXII	Ies; Best areas must be large enough to support Check ONE (Or 2 & average). N DEPTH RIFFLE / RUN SUBSTRATE RIF MUM > 50cm [2] □ STABLE (e.g., Cobble, Boulder) [2] MUM < 50cm [1] ⊠ MOD. STABLE (e.g., Large Gravel) [1] □ UNSTABLE (e.g., Fine Gravel, Sand) [0]	a population <u>NO RIFFLE [metric=0]</u> FLE / RUN EMBEDDEDNESS NONE [2] LOW [1] MODERATE [0] EXTENSIVE [-1] Maximum 8
	VERY LOW - LOW [2-4]         %POOL: 40.00           MODERATE [6-10]         %RUN: 20.00	%GLIDE: %RIFFLE: 40.00 06/16/06



AECOM Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS	
Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126
Stream 109		



Stream 109	
Date:	
June 3, 2020	
Description:	
Perennial	
Warmwater Habitat	
Shawnee Run	
Facing Downstream	

Date:

June 3, 2020 **Description:** 

Shawnee Run

Facing Upstream

Warmwater Habitat

Perennial





## PHOTOGRAPHIC RECORD STREAMS

**Client Name:** 

AEP

### Site Location:

Crooksville-North Newark 138 kV Transmission Line 60 Rebuild Project

60616110, 60618779, 60616126

Project No.



Stream 110 Small Drainage Warmwater	
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): 56	
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20200603-01 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.01	
LENGTH OF STREAM REACH (ft) 200 LAT. 40.07900 LONG82.36100 RIVER CODE RIVER MILE 0.38	
DATE 06/03/20 SCORER AEH, JBL COMMENTS Intermittent, NHD-mapped, R5UBH	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ons
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	RY
norse pasture	
	IHEI
	letric oints
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 10%	
BEDROCK [16 pt]	ıbstrate ax = 40
GRAV/EL (2-64 mm) [9 pts]         25%         MUCK [0 pts]         0%	
SAND (<2 mm) [6 pts]	16
Total of Percentages of 5.00% (A) Substrate Percentage 100% (B) A	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft</i> ) evaluation reach at the time of Pool	ol Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	ax = 30
> 22.5 - 30 cm [30 pts]	
	25
COMMENTS MAXIMUM POOL DEPTH (Inches): 6.00	
······································	ankfull Nidth
$\square > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \qquad \qquad \square \le 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \qquad \qquad \square$	lax=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 4.00	15
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY 차NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
LR (Per Bank) LR (Most Predominant per Bank) LR	
Wide >10m Mature Forest, Wetland Conservation Tillage	
None     Fenced Pasture     Mining or Construction       COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
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       3.0	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Shawnee Run	Distance from Evaluated Stream 0.38
CWH Name: _	_ Distance from Evaluated Stream _
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	DAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map P	Page: NRCS Soil Map Stream Order
County: Licking Township / City: Madiso	on
MISCELLANEOUS	Quantity 0.17
	Quantity:
Photograph Information: N Canopy (% apop): 0%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	
Field Measures: Temp (°C) Dissolved Oxygen (mq/l) PH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	ODERATE HIGH
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrat Comments Regarding Biology: none observed	imary Headwater Habitat Assessment Manual)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation an	
cow pas- ture	wetland
FLOW	
horse pasture	3
October 24, 2002 Revision PHWH Form Page - 2	Save as pdf Reset Form

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# PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

## Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126



# Stream 110 Date: June 3, 2020 **Description:** Intermittent Small Drainage Warmwater Stream Facing Downstream



# PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No. 60616110, 60618779, 60616126



Stream 111 Modified Ephemeral Stream	
<b>ChieFPA</b> Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):	19
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20200603-02SITE NUMBERRIVER BASIN Muskingum DRAINAGE AREA (mi²)	01
LENGTH OF STREAM REACH (ft) 150 LAT. 40.07893 LONG82.36050 RIVER CODE RIVER MILE 0.	
DATE 06/03/20 SCORER AEH, JBL COMMENTS Ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ictions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERIN	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT TYPE PERCENT	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 75%	Points
BOULDER (>256 mm) [16 pts]         0%         I <         LEAF PACK/WOODY DEBRIS [3 pts]         15%           BEDROCK [16 pt]         0%         I          FINE DETRITUS [3 pts]         0%	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]       10%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	9
Bldr Slabs, Boulder, Cobble, Bedrock	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft)</i> evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check <i>ONLY</i> one box):	Pool Depth Max = 30
> 30 centimeters [20 pts]       > 5 cm - 10 cm [15 pts]         > 22.5 - 30 cm [30 pts]       < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]         NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS MAXIMUM POOL DEPTH (Inches): 1.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.0 m (&lt;=3' 3") [5 pts]</li> </ul>	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTSAVERAGE BANKFULL WIDTH (Feet): 1.00	5
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY 것NOTE: River Left (L) and Right (R) as looking downstream 것	
RIPARIAN WIDTH       FLOODPLAIN QUALITY         L_R       (Per Bank)       L_R         (Most Predominant per Bank)       L_R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Field Corban or Industrial	
Image: Narrow <5m	U.
None     Fenced Pasture     Mining or Construction       COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS	
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) _(C</u> heck ONLY one box):	
None 1.0 2.0 3.0	
0.5 1.5 2.5 >3	
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)         Flat to Moderate         Moderate (2 ft/100 ft)         Moderate to Severe	0 ft)

DOWNSTREAM DESIGNATED USE(S)	(If Yes, Attach Completed QHEI Form)
WWH Name: Shawnee Run	Distance from Evaluated Stream 0.38
CWH Name:	
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Hanover	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Licking Tow	nship / City:Madison
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation:	<b>05/27/20</b> Quantity: <b>0.17</b>
Photograph Information:	
N	%
Were samples collected for water chemistry? (Y/N): (Note I	ab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N)	ot, please explain:
Additional comments/description of pollution impacts: BANK Stability LOW	MODERATE 🖌 HIGH
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders	ata sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) N Voucher? (Y/N) N uatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	
Comments Regarding Biology:	
Comments Regarding Biology:	
Comments Regarding Biology:	N OF STREAM REACH (This <u>must</u> be completed):
Comments Regarding Biology:	N OF STREAM REACH (This <u>must</u> be completed): for site evaluation and a narrative description of the stream's location
Comments Regarding Biology:	for site evaluation and a narrative description of the stream's location
Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest f	
Comments Regarding Biology:	for site evaluation and a narrative description of the stream's location
Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest f	for site evaluation and a narrative description of the stream's location
Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest f	for site evaluation and a narrative description of the stream's location
Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest f Wetland	for site evaluation and a narrative description of the stream's location
Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest f	for site evaluation and a narrative description of the stream's location
Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest f Wetland	for site evaluation and a narrative description of the stream's location
Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest f Wetland	for site evaluation and a narrative description of the stream's location
Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest f wetland FLOW rubs	for site evaluation and a narrative description of the stream's location
Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest f Wetland	for site evaluation and a narrative description of the stream's location
Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest f Wetland FLOW rubs horse pas-	for site evaluation and a narrative description of the stream's location

# AECOM Imagine it. Delivered.

# PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

Stream 111 Date:

June 3, 2020 **Description:** 

Ephemeral

Stream

Modified Ephemeral

Facing Upstream

AEP

### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126







# PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

60616110, 60618779, 60616126

Project No.



Stream 112 Modified Small Drainage Warmwater Stream	n
ChieEPA Primary Headwater Habitat Evaluation Form 32	,
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20200603-03       SITE NUMBER       RIVER BASIN       Muskingum       DRAINAGE AREA (mi²)       0.01         LENGTH OF STREAM REACH (ft)       200       LAT.       40.08207       LONG.       -82.36242       RIVER CODE       RIVER MILE       0.12	
DATE 06/03/20 SCORER AEH, JBL COMMENTS Ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	ions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	ERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Netric
BLDR SLABS [16 pts]       0%       SILT [3 pt]       75%       P         BOULDER (>256 mm) [16 pts]       0%       LEAF PACK/WOODY DEBRIS [3 pts]       5%	Points
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	ubstrate /lax = 40
COBBLE (65-256 mm) [12 pts]       0%       CLAY or HARDPAN [0 pt]       0%         GRAVEL (2-64 mm) [9 pts]       0%       0%       0%	_
SAND (<2 mm) [6 pts]	12
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
	ool Depth //ax = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
> 22.5 - 30 cm [30 pts]         < 5 cm [5 pts]	15
COMMENTS MAXIMUM POOL DEPTH (Inches): 2.00	
	Bankfull
= 3.0  m - 4.0  m (> 9' 7'' - 13') [25  pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]         COMMENTS         AVERAGE BANKFULL WIDTH (Feet): 3.00	6
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 3.00	5
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	
RIPARIAN WIDTHFLOODPLAIN QUALITYL R (Per Bank)L R (Most Predominant per Bank)L R	
Wide >10m       Mature Forest, Wetland       Conservation Tillage         Medeante 5, 10m       Immature Forest, Shrub or Old       Units of the second state	
Moderate 5-10m III minimative Polest, Shirds of Old III Urban or Industrial 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) COMMENTS	
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) _(C</u> heck ONLY one box):	
None         1.0         2.0         3.0           0.5         1.5         2.5         >3	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100 ft)	1

EWH Name:	PIES OF MAPS, INCLUDI er Date of last precipit Canopy (% open) chemistry? (Y/N): Dissolved Oxygen ( ve of the stream (Y/N) of pollution impacts: Yes, Record all observatior number. Include appropria	NG THE ENTIRE V NRC3 Township / C tation: 05/2 (Note lab samp (mo/l) If not, please	S Soil Map P ity: 7/20 le no. or id. a pH (S.U.) explain:	Page: NRCS Sc	Number:	
WWH Name: Shawnee Run CWH Name: EWH Name: MAPPING: ATTACH CO SGS Quadrangle Name: Hanov Dunty: Licking MISCELLANEOUS ase Flow Conditions? (Y/N): Y notograph Information: N evated Turbidity? (Y/N): N ere samples collected for water eld Measures: Temp (°C) the sampling reach representation ditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N): N (If in D sh Observed? (Y/N) Vo ogs or Tadpoles Observed? (Y/N)	PIES OF MAPS, INCLUDI er Date of last precipit Canopy (% open) chemistry? (Y/N): Dissolved Oxygen ( ve of the stream (Y/N) of pollution impacts: Yes, Record all observatior number. Include appropria	NG THE ENTIRE V NRC3 Township / C tation: 05/2 (Note lab samp (mo/l) If not, please	S Soil Map P ity: 7/20 le no. or id. a pH (S.U.) explain:	Distance from Evalua Distance from Evalua DAREA. CLEARLY MAR Page: NRCS Scon Quantity: 0.1 And attach results) Lab N Conductivity (µ	ted Stream	
EWH Name:	PPIES OF MAPS, INCLUDI er Date of last precipit Canopy (% open) chemistry? (Y/N): N Dissolved Oxygen ( ve of the stream (Y/N) of pollution impacts: Yes, Record all observatior number. Include appropria	NG THE ENTIRE V NRC3 Township / C tation: 05/2 (Note lab samp (mo/l) If not, please	S Soil Map P ity: 7/20 le no. or id. a pH (S.U.) explain:	Distance from Evalua DAREA. CLEARLY MAR Page: NRCS Scon Quantity: 0.1 And attach results) Lab N Conductivity (µ	Ited Stream	
MAPPING: ATTACH CO SGS Quadrangle Name: Hanov bunty: Licking MISCELLANEOUS ase Flow Conditions? (Y/N): Y notograph Information: N evated Turbidity? (Y/N): N ere samples collected for water eld Measures: Temp (°C) the sampling reach representativ ditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N): N up to be the served? (Y/N) to ogg or Tadpoles Observed? (Y/N)	er Date of last precipit Canopy (% open) Chemistry? (Y/N): Dissolved Oxygen ( ve of the stream (Y/N)  of pollution impacts: Yes, Record all observatior number. Include appropria	NRC3     Township / C     tation: 05/2     (Note lab samp     (Mote lab samp     (mq/l)     If not, please	S Soil Map P ity: 7/20 le no. or id. a pH (S.U.) explain:	AREA. CLEARLY MAR Page: NRCS Scon Quantity:0.1 and attach results) Lab N	RK THE SITE LOC oil Map Stream C 7 Number: mhos/cm)	
SGS Quadrangle Name: Hanov bunty: Licking MISCELLANEOUS ase Flow Conditions? (Y/N): Y notograph Information: N evated Turbidity? (Y/N): N ere samples collected for water eld Measures: Temp (°C) the sampling reach representation ditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N): N (If ID sh Observed? (Y/N) Vo ogs or Tadpoles Observed? (Y/N)	er Date of last precipit Canopy (% open) Chemistry? (Y/N): Dissolved Oxygen ( ve of the stream (Y/N)  of pollution impacts: Yes, Record all observatior number. Include appropria	NRC3     Township / C     tation: 05/2     (Note lab samp     (Mote lab samp     (mq/l)     If not, please	S Soil Map P ity: 7/20 le no. or id. a pH (S.U.) explain:	Page:NRCS SconQuantity:0.1	oil Map Stream C	
SGS Quadrangle Name: Dunty: Licking MISCELLANEOUS ase Flow Conditions? (Y/N): Y notograph Information: N evated Turbidity? (Y/N): N ere samples collected for water eld Measures: Temp (°C) the sampling reach representation dditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N): N (If ' ID sh Observed? (Y/N) Vo ogs or Tadpoles Observed? (Y/N)	Date of last precipit Canopy (% open) chemistry? (Y/N): Dissolved Oxygen ( ve of the stream (Y/N) Y of pollution impacts: pof pollution impacts: Yes, Record all observatior number. Include appropria	Township / C tation: 05/2 ): 60% (Note lab samp (mq/l) If not, please	Madisc         7/20         le no. or id. a         pH (S.U.)         explain:	Quantity:0.1	7 Number: mhos/cm)	
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MISCELLANEOUS ase Flow Conditions? (Y/N): Y hotograph Information: N evated Turbidity? (Y/N): N ere samples collected for water eld Measures: Temp (°C) the sampling reach representative dditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N): N (If in ID sh Observed? (Y/N) Voogs or Tadpoles Observed? (Y/N)	Canopy (% open) chemistry? (Y/N): N Dissolved Oxygen ( ve of the stream (Y/N) of pollution impacts: Yes, Record all observatior number. Include appropria	itelion:	le no. or id. a pH (S.U.)	and attach results) Lab N	Number: mhos/cm)	
ase Flow Conditions? (Y/N): Y notograph Information: N evated Turbidity? (Y/N): N ere samples collected for water eld Measures: Temp (°C) the sampling reach representation dditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N): N U ogs or Tadpoles Observed? (Y/N)	Canopy (% open) chemistry? (Y/N): N Dissolved Oxygen ( ve of the stream (Y/N) of pollution impacts: Yes, Record all observatior number. Include appropria	itelion:	le no. or id. a pH (S.U.)	and attach results) Lab N	Number: mhos/cm)	
evated Turbidity? (Y/N):N ere samples collected for water eld Measures: Temp (°C) the sampling reach representation dditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N):N (If ID sh Observed? (Y/N) N Vo ogs or Tadpoles Observed? (Y/N)	chemistry? (Y/N): N Dissolved Oxygen ( ve of the stream (Y/N) of pollution impacts: Yes, Record all observation number. Include appropria	(Note lab samp /mɑ/l) If not, please	pH (S.U.)	Conductivity (µ	mhos/cm)	
evated Turbidity? (Y/N): ere samples collected for water eld Measures: Temp (°C) the sampling reach representation dditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N):N (If ID sh Observed? (Y/N) N Vo ogs or Tadpoles Observed? (Y/N)	chemistry? (Y/N): N Dissolved Oxygen ( ve of the stream (Y/N) of pollution impacts: Yes, Record all observation number. Include appropria	(Note lab samp /mɑ/l) If not, please	pH (S.U.)	Conductivity (µ	mhos/cm)	
eld Measures: Temp (°C) the sampling reach representation dditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N): N (If ID sh Observed? (Y/N) N Vo ogs or Tadpoles Observed? (Y/N)	Dissolved Oxygen ( ve of the stream (Y/N) of pollution impacts: Yes, Record all observatior number. Include appropria	If not, please	pH (S.U.)	Conductivity (µ	mhos/cm)	
eld Measures: Temp (°C) the sampling reach representation dditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N): N (If ID sh Observed? (Y/N) N Vo ogs or Tadpoles Observed? (Y/N)	Dissolved Oxygen ( ve of the stream (Y/N) of pollution impacts: Yes, Record all observatior number. Include appropria	If not, please	explain:			
the sampling reach representation dditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N): (If 	Y ve of the stream (Y/N) of pollution impacts: Yes, Record all observation number. Include appropria	If not, please	explain:			
dditional comments/description of ANK Stability BIOTIC EVALUATION erformed? (Y/N): N (If ID sh Observed? (Y/N) Vo ogs or Tadpoles Observed? (Y/N)	of pollution impacts: Yes, Record all observatior number. Include appropria	LOW 🖌		DDERATE	HIGH	
ANK Stability BIOTIC EVALUATION erformed? (Y/N): N ID sh Observed? (Y/N) Vo ogs or Tadpoles Observed? (Y/N)	Yes, Record all observatior number. Include appropria		МС	ODERATE	HIGH	
ANK Stability BIOTIC EVALUATION erformed? (Y/N): N ID sh Observed? (Y/N) Vo ogs or Tadpoles Observed? (Y/N)	Yes, Record all observatior number. Include appropria		МС		HIGH	
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erformed? (Y/N): N (If ID sh Observed? (Y/N) Vo ogs or Tadpoles Observed? (Y/N	number. Include appropria	ns. Voucher collec			L	
erformed? (Y/N): N (If ID sh Observed? (Y/N) Vo ogs or Tadpoles Observed? (Y/N	number. Include appropria	ns. Voucher collec				
sh Observed? (Y/N) N Vo ogs or Tadpoles Observed? (Y/N	number. Include appropria	ns. Voucher collec				
sh Observed? (Y/N) N Vo ogs or Tadpoles Observed? (Y/N			tions optional	. NOTE: all voucher sam	ples must be labe	eled with the s
ogs or Tadpoles Observed? (Y/N		ate field data sheets	from the Pri	mary Headwater Habitat A	Assessment Manu	ual)
ogs or Tadpoles Observed? (Y/N	ucher? (Y/N) N Salar	manders Observe	d? (Y/N) N	Voucher? (Y/N)		N
mments Regarding Biology	N) N Voucher? (Y/N)	N Aquatic Mac	roinvertebrat	tes Observed? (Y/N)	Voucher? (Y/	N)
one observed						
	NARRATIVE DESCR			EACH (This must	be complete	d);
Include important landmar		interest for site e	valuation an	d a narrative descriptio	on of the stream	's location
	ole/start			cow path		
of stre	ero ero	ded		e la companya de la compa		
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		PHWH Form P	200 - 2			

AECOM Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS		
Client Name:	Site Location:	Project No.	
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126	
Stream 112			
Date:		and the second	
June 3, 2020		A A A A A A A A A A A A A A A A A A A	
Description:			
Intermittent		Nº Ar	
		A Star	
Modified Small			
Drainage Warmwater			
Stream		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Facing Upstream		C. A. Sand	
		1 Anna	
A.	A CARLEN CONTRACTOR		
<u>.</u>		Contraction of the	
	BARRIE WALLER		

## Stream 112 Date:

June 3, 2020 Description:

2 courprise

Intermittent

Modified Small Drainage Warmwater Stream

Facing Downstream





# PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No. 60616110, 60618779, 60616126

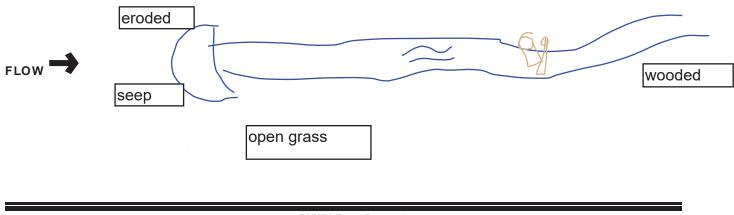


Stream 113 Modified Small Drainage Warmwater Stream	m					
ChieEPA Primary Headwater Habitat Evaluation Form 33						
HHEI Score (sum of metrics 1, 2, 3) :						
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project						
s-jbl-20200603-04 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.01						
LENGTH OF STREAM REACH (ft) 80 LAT. 40.09084 LONG82.37339 RIVER CODE RIVER MILE 0.38 DATE 06/03/20 SCORER AEH, JBL COMMENTS intermittent						
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions					
MODIFICATIONS: Cow Pasture						
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes						
TYPE DERCENT TYPE DERCENT	HHEI Metric					
BLDR SLABS [16 pts] 0% SILT [3 pt] 65%	Points					
BEDROCK [16 pt] 0% S	Substrate Max = 40					
COBBLE (65-256 mm) [12 pts]						
GRAVEL (2-64 mm) [9 pts]       10%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	13					
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B					
Bildr Slabs, Boulder, Cobble, Bedrock Bedrock 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4						
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of P	ool Depth					
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts]  > 5 cm - 10 cm [15 pts]	Max = 30					
<ul> <li>&gt; 22.5 - 30 cm [30 pts]</li> <li>&gt; 10 - 22.5 cm [25 pts]</li> <li>NO WATER OR MOIST CHANNEL [0 pts]</li> </ul>	15					
COMMENTS MAXIMUM POOL DEPTH (Inches); 2.00	15					
	Damkfull					
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width					
$ \begin{array}{ c c c c c } > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7'' - 13') [25 \text{ pts}] \\ \hline \\ > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7'' - 4' 8'') [20 \text{ pts}] \\ \end{array} $	Max=30					
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2.00	5					
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY · · · · 아이지는: River Left (L) and Right (R) as looking downstream☆						
RIPARIAN WIDTH FLOODPLAIN QUALITY						
Wide >10m Mature Forest, Wetland Conservation Tillage						
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Field						
Narrow <5m     Residential, Park, New Field     Open Pasture, Row Crop						
None Fenced Pasture Mining or Construction						
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):						
Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)						
COMMENTS						
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):						
None         1.0         2.0         3.0           ✓         0.5         1.5         2.5         >3						
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)	t)					

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed	<u>):</u>						
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, A	Attach Completed QHEI Form)						
DOWNSTREAM DESIGNATED USE(S)							
WWH Name: Shawnee Run	_ Distance from Evaluated Stream 0.38						
CWH Name: _	_ Distance from Evaluated Stream _						
EWH Name:	Distance from Evaluated Stream						
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSH							
USGS Quadrangle Name: NRCS Soil Ma							
County: Licking Township / City:	dison						
MISCELLANEOUS Base Flow Conditions? (Y/N): Date of last precipitation: Photograph Information:	Quantity: 0.17						
Elevated Turbidity? (Y/N): Canopy (% open): 50%							
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:							
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) PH (S.U.) Conductivity (µmhos/cm)							
Y	,,						
Is the sampling reach representative of the stream (Y/N) If not, please explain:							
Additional comments/description of pollution impacts:							
BANK Stability LOW	MODERATE V HIGH						
BIOTIC EVALUATION							
Performed? (Y/N): (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the	onal. NOTE: all voucher samples must be labeled with the site Primary Headwater Habitat Assessment Manual)						
	N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N						
Comments Regarding Biology:							
none observed							

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

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



Save as pdf

#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

Stream 113 Date:

June 3, 2020 **Description:** 

Intermittent

Stream

Modified Small Drainage Warmwater

Facing Upstream

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126





Date:

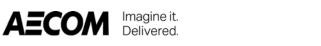
June 3, 2020 **Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Downstream





#### PHOTOGRAPHIC RECORD STREAMS

**Client Name:** 

AEP

#### Site Location:

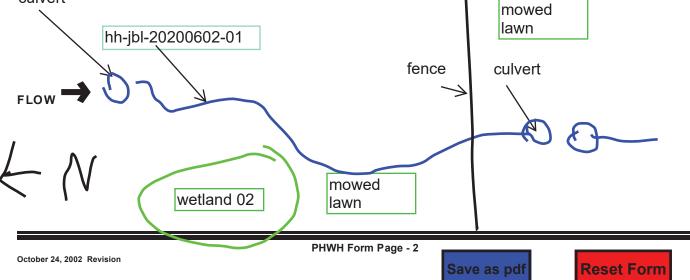
Crooksville-North Newark 138 kV Transmission Line Rebuild Project

**Project No.** 60616110, 60618779, 60616126



Stream 114 Modified Small Drainage Warmwater Stre	eam
ChieEPA Primary Headwater Habitat Evaluation Form	5
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild	
hh-jbl-20200602-02 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.50	
LENGTH OF STREAM READH (ft) 200 LAT. 40.09287 LONG82.41512 RIVER CODE RIVER MILE 1.14	4
DATE 06/02/20 SCORER jbl,aeh COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOV	ERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
	Metric Points
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 5%	Substrate
BEDROCK 116 pti 0% LILE FINE DETRUUS 13 ptsi 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	15
SAND (<2 mm) [6 pts]         25%         ARTIFICIAL [3 pts]         10%	
Total of Percentages of 5.00% (A) Substrate Percentage 95% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 6	
	ool Depth
> 30 centimeters [20 pts]	Max = 30
<ul> <li>&gt; 22.5 - 30 cm [30 pts]</li> <li>&gt; 10 - 22.5 cm [25 pts]</li> <li>NO WATER OR MOIST CHANNEL [0 pts]</li> </ul>	15
COMMENTS MAXIMUM POOL DEPTH (Inches): 4.00	
	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width Max=30
$ \begin{array}{ c c c c c } > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline \\ > 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") [20 \text{ pts}] \\ \hline \end{array} $	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 3.00	5
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
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 (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	
0.5 1.5 2.5 >3	
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)       Flat to Moderate         Moderate (2 ft/100 ft)       Moderate to Severe	t)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)         WWH Name:       North Fork Licking River         CWH Name:       Distance from Evaluated Stream         EWH 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: Licking Township / City: Newark
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/20/20 Quantity: 0.01
Photograph Information: 3 photos, upstream, downsteam and substrate
Elevated Turbidity? (Y/N): N Canopy (% open): 80% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Y
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Overall Stability of BOTH Stream Banks (check one): Stable Moderately Stable Unstable
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 Salamanders Observed? (Y/N) N Voucher? (Y/
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
culvert



AECOM	Imagine it. Delivered	PHOTOGRAPHIC RECORD	
	Delivered.	STREAMS	

**Client Name:** 

Stream 114

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

**Project No.** 60616110,

60618779, 60616126

#### Date: June 2, 2020 Description: Intermittent Modified Small Drainage Warmwater Stream Facing Upstream



#### Stream 114

**Date:** June 2, 2020

Description:

Intermittent

Modified Small Drainage Warmwater Stream

Facing Downstream





#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No. 60616110, 60618779, 60616126



Stream 115 Small Drainage Warmwater	Stream
<b>ChieFPA</b> Primary Headwater Habitat Evaluation Form	57
HHEI Score (sum of metrics 1, 2, 3) :	57
SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild	
hh-jbl-20200602-03 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	
LENGTH OF STREAM READ H (ft) 100 LAT. 40.09700 LONG82.40400 RIVER CODE RIVER MILE	0.03
DATE 06/02/20 SCORER jbl,aeh COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru-	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC MODIFICATIONS:	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric
TYPE         PERCENT         TYPE         PERCENT           BLDR SLABS [16 pts]         0%         ✓         SILT [3 pt]         30%	Points
BOULDER (>256 mm) [16 pts] 10% LEAF PACK/WOODY DEBRIS [3 pts] 5%	Substrate
Image: BEDROCK [16 pt]         0%         Image: FINE DETRITUS [3 pts]         0%           Image: COBBLE (65-256 mm) [12 pts]         25%         Image: CLAY or HARDPAN [0 pt]         0%	Max = 40
GRAVEL (2-64 mm) [9 pts]       30%       MUCK [0 pts]       0%         SAND (<2 mm) [6 nts]	17
Total of Percentages of 35.00% (A) Substrate Percentage 100% (B)	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth ( <i>Measure the maximum pool depth within the 61 meter (200 ft)</i> evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check <i>ONLY</i> one box):	Pool Depth Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
> 22.5 - 30 cm [30 pts]       < 5 cm [5 pts]	25
COMMENTS MAXIMUM POOL DEPTH (Inches): 6.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
<ul> <li>&gt; 4.0 meters (&gt; 13') [30 pts]</li> <li>&gt; 3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> <li>&gt; 1.0 m (&lt;=3' 3") [5 pts]</li> </ul>	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS       AVERAGE BANKFULL WIDTH (Feet):       4.00	15
This information <u>must</u> also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	
RIPARIAN WIDTH     FLOODPLAIN QUALITY       L R (Per Bank)     L R (Most Predominant per Bank)     L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cr	ор
None Fenced Pasture Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	_
Stream Flowing Moist Channel, isolated pools, no flow (Intermittent Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	)
COMMENTS_	1
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None $\checkmark$ 1.0     2.0     3.0       0.5     1.5     2.5     >3	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe	00 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attach Completed QHEI Form)
JOWNSTREAM DESIGNATED USE(S)         WWH Name:       North Fork Licking River       Distance from Evaluated Stream       0.72         CWH Name:       Distance from Evaluated Stream       Distance from Evaluated Stream         EWH Name:       Distance from Evaluated Stream       Output
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Newark NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Licking Township / City: Newark
MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 04/20/20 Quantity: 0.01
Photograph Information: 3 photos, upstream, downsteam and substrate
Elevated Turbidity? (Y/N): N Canopy (% open): 80%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Additional comments/description of pollution impacts:         Overall Stability of BOTH Stream Banks (check one):       Stable         Moderately Stable       Unstable
Overall Stability of BOTH Stream Banks (check one):       Stable       Moderately Stable       Unstable         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       Salamanders Observed? (Y/N)       N       Voucher? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N       Aquatic Macroinvertebrates Observed? (Y/N)       N       Voucher? (Y/N)         Comments Regarding Biology:

PHWH Form Page - 2

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**Reset Form** 

October 24, 2002 Revision

AECOM	Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project **Project No.** 60616110, 60618779, 60616126

 Stream 115

 Date:

 June 2, 2020

 Description:

 Intermittent

 Small Drainage Warmwater Stream

 Facing Upstream

# Stream 115 Date: June 2, 2020 Description: Intermittent Small Drainage Warmwater Stream Facing Downstream



#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

60616110, 60618779, 60616126

Project No.



Stream 116 Ephemeral Strea	ım
ChieEPA Primary Headwater Habitat Evaluation Form 26	٦
HHEI Score (sum of metrics 1, 2, 3) :	
SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild	
hh-jbl-20200602-04 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.20	
LENGTH OF STREAM REACH (ft)         150         LAT.         40.09700         LONG.         -82.40400         RIVER CODE         RIVER MILE         0.03	
DATE 06/02/20 SCORER jbl,aeh COMMENTS Ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	RY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	IHEI
	letric oints
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 10%	ıbstrate
	ax = 40
GRAVEL (2-64 mm) [9 pts] 35% MUCK [0 pts] 0%	16
SAND (<2 mm) [6 pts]	
Bldr Slabs, Boulder, Cobble, Bedrock	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
	ol Depth ax = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	37 - 20
> 22.5 - 30 cm [30 pts]         ✓         < 5 cm [5 pts]	5
COMMENTS MAXIMUM POOL DEPTH (Inches): 1.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	ankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Vidth  ax=30
$ = 25.0 \text{ m} (2.9 \text$	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2.00	5
This information <u>must</u> also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTHFLOODPLAIN QUALITYL R (Per Bank)L R (Most Predominant per Bank)L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
FLOW REGIME (At Time of Evaluation)       (Check ONLY one box):         Stream Flowing       Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of ben <u>ds per 61 m (200 ft) of channel) (Check ONLY one box)</u>	
None         1.0         2.0         3.0           0.5         1.5         2.5         >3	
STREAM GRADIENT ESTIMATE	
Image: Stream GRADIENT ESTIMATE         Image: Stream GRADIENT ESTIMATE <td></td>	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Atta	ach Completed QHEI Form)	
OOWNSTREAM DESIGNATED USE(S)         WWH Name:       North Fork Licking River         CWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream	0.72
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE L	OCATION
USGS Quadrangle Name: Newark NRCS Soil Map I	Page: NRCS Soil Map Stream	Order
County: Licking Township / City: Newar	rk	
MISCELLANEOUS Base Flow Conditions? (Y/N):_Y Date of last precipitation:04/20/20	Quantity: <b>0.01</b>	
Photograph Information: 3 photos, upstream, downsteam and substrate		
Elevated Turbidity? (Y/N): N Canopy (% open): 80%		
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id.	and attach results) Lab Number:	
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:		
Additional comments/description of pollution impacts:		
	itely Stable Vinstable	
	I. NOTE: all voucher samples must be la imary Headwater Habitat Assessment Ma Voucher? (Y/N)	abeled with the site
Overall Stability of BOTH Stream Banks (check one):       Stable       Moderation         BIOTIC EVALUATION         Performed? (Y/N):       N       (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr         Fish Observed? (Y/N)       N       Voucher? (Y/N)       N       Salamanders Observed? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N       Aquatic Macroinvertebra         Comments Regarding Biology:	II. NOTE: all voucher samples must be la imary Headwater Habitat Assessment Ma Voucher? (Y/N) N ites Observed? (Y/N) N Voucher? (	ted):

ſ

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AECOM Imagine it. Delivered.	PHOTOGRAPHIC RECORD STREAMS		
Client Name:	Site Location:	Project No.	
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110, 60618779, 60616126	
Stream 116			
Date:			
June 2, 2020			
Description:		the state	
Ephemeral			

Ephemeral Stream Facing Upstream



# Stream 116Date:June 2, 2020Description:EphemeralEphemeral StreamFacing Downstream



#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No. 60616110, 60618779, 60616126



Stream 117		Warmwater Habitat
<b>ChieEPA</b>	Qualitative Habitat Evaluation Index and Use Assessment Field Sheet	<b>QHEI Score:</b> 0.0
Stream & Location: S-J	BL-20200602-01, North Fork Licking River	RM: 23.4 Date:6 / 2 / 20
Stream 117	Scorers Full Name & Affiliation:	Jake Lubbers, AECOM
River Code:	<i>STORET #:Lat./ Long.:</i> 40.0929	<b>/8</b> 2.4151 Office verified location □
1] SUBSTRATE Check ON	ILY Two substrate TYPE BOXES:	DNE ( <i>Or 2 &amp; average</i> )
DECT TVDEC		
BLDR /SLABS [10]           BOULDER [9]           COBBLE [8]           GRAVEL [7]           SAND [6]           BEDROCK [5]	DL RIFFLE       HARDPAN [4]       LIMESTONE [1]         D DETRITUS [3]       TILLS [1]         D DETRITUS [3]       HARDPAN [0]         D DETRITUS [2]       HARDPAN [0]         D SILT [2]       HARDPAN [0]         D ARTIFICIAL [0]       SANDSTONE [0]         SCORE natural substrates; ignore       RIP/RAP [0]         DES:       4 or more [2]       sludge from point-sources)	HEAVY [-2] SILT MODERATE [-1] NORMAL [0] FREE [1] MODERATE [-1] MODERATE [-1]
Comments	□ 3 or less [0] □ SHALE [-1] □ COAL FINES [-2]	LI NONE [1]
stream not assessed in field		
2] INSTREAM COVER	ndicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more commo	on of marginal AMOUNT
quality; 3-Highest quality in m         diameter log that is stable, we         0       UNDERCUT BANKS [1         0       OVERHANGING VEGE         0       SHALLOWS (IN SLOW)	TATION [1] 0 ROOTWADS [1] 0 AQUATIC MACROPHY	Iarge         Check ONE (Or 2 & average)           pools.         EXTENSIVE >75% [11]           IRS [1]         MODERATE 25-75% [7]           TES [1]         SPARSE 5-<25% [3]
0 ROOTMATS [1] Comments		Cover
stream not assessed in field		Maximum 20
	<b>OGY</b> Check ONE in each category ( <i>Or 2 &amp; average</i> )	
-	OPMENT CHANNELIZATION STABILITY	
□ HIGH [4]       □ EXCI         □ MODERATE [3]       □ GOO         □ LOW [2]       □ FAIR         □ NONE [1]       □ POO         Comments       □	[3]	Channel Maximum
stream not assessed in field		20
4] BANK EROSION AND River right looking downstream EROSION I NONE / LITTLE [3] I MODERATE [2] I HEAVY / SEVERE [1]	<b>RIPARIAN ZONE</b> Check ONE in each category for EACH BANK (O         RIPARIAN WIDTH       FLOOD PLAIN QUALI         WIDE > 50m [4]       FOREST, SWAMP [3]         MODERATE 10-50m [3]       SHRUB OR OLD FIELD [2]         NARROW 5-10m [2]       RESIDENTIAL, PARK, NEW FIELD         VERY NARROW < 5m [1]	TY R CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0] [1] Indicate predominant land use(s) past 100m riparian. Riparian
Comments		Maximum 0.00
stream not assessed in field		10
🗌 0.7-<1m [4]	CHANNEL WIDTH       CURRENT VELOCITY         Check ONE (Or 2 & average)       Check ALL that apply         POOL WIDTH > RIFFLE WIDTH [2]       TORRENTIAL [-1]       SLOW [1]         POOL WIDTH = RIFFLE WIDTH [1]       VERY FAST [1]       INTERSTI         POOL WIDTH < RIFFLE WIDTH [0]	FIAL [-1]         TENT [-2]             Primary Contact         Secondary Contact         (circle one and comment on back)             Pool /
Comments stream not assessed in field	al riffica. Post areas must be large apough to support	
of riffle-obligate spe RIFFLE DEPTH	RUN DEPTH RIFFLE / RUN SUBSTRATE RIFI	FLE / RUN EMBEDDEDNESS
	□ MAXIMUM > 50cm [2] □ STABLE (e.g., Cobble, Boulder) [2] □ MAXIMUM < 50cm [1] □ MOD. STABLE (e.g., Large Gravel) [1]	
BEST AREAS < 5cm	UNSTABLE (e.g., Large Gravel) [1]	LOW [1] MODERATE [0]
[metric=0] Comments stream not assessed in field		
DRAINAGE AREA	(mi)         UVERY LOW - LOW [2-4]         %POOL:           Imit MODERATE [6-10]         %RUN:	%GLIDE: Gradient %RIFFLE: Maximum 10

AJ SAMPLED REACH Check ALL that apply	Comment RE: Reach consistency/ Stream 117	Is reach typical of steam?, <i>Recreatior</i>	n/ Observed - Inferred, Other	∕ Sampling observations, Concerns, Acc	ess directions, etc.
METHOD STAGE 1st -sample pass- 2nd	North Fork Licking River, OEP	A existing ALU = WWH, PCR			
UNADE HIGH UP	stream not assessed in field, u	ising existing designated use			
□ 0.5 Km □ 0.2 Km CLARITY	B] AESTHETICS	D] MAINTENANCE	Circle some & COMMENT	E] ISSUES	F] MEASUREMENTS
□       0.15 Km         □       0.12 Km         □       0.12 Km         □       20-<40 cm	Invasive macrophytes  Invasive macrophytes  Excess turbidity  Discoloration  Foam / scum	PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE		WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	$\overline{x}$ width $\overline{x}$ depth max. depth $\overline{x}$ bankfull width bankfull $\overline{x}$ depth W/D ratio bankfull max. depth floodprone $x^2$ width entrench. ratio <i>Legacy Tree:</i>

Stream Drawing:

#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

#### Stream 117 Date: June 2, 2020

**Description:** 

Perennial

Warmwater Habitat

North Fork Licking River

Facing Upstream





Date:

June 2, 2020

**Description:** 

Perennial

Warmwater Habitat

North Fork Licking River

Facing Downstream



#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126



Stream 118 Small Drainage Warmwater Stream				
<b>ChieEPA</b> Primary Headwater Habitat Evaluation Form 35				
HHEI Score (sum of metrics 1, 2, 3) :	<u> </u>			
SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild				
s-aeh-20200921-01 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.01				
LENGTH OF STREAM READ H (ft) 200 LAT. 40.09100 LONG82.41500 RIVER CODE RIVER MILE 0.2 DATE 06/02/20 SCORER jbl,aeh COMMENTS Ephemeral	_			
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructio				
STREAM CHANNEL       NONE / NATURAL CHANNEL       RECOVERED       RECOVERING       RECENT OR NO RECOVER         MODIFICATIONS:       RECOVERED       RECOVERING       RECENT OR NO RECOVER	Υ.			
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes				
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HEI etric			
	oints			
BOULDER (>256 mm) [16 pts]         0%         LEAF PACK/WOODY DEBRIS [3 pts]         5%           BEDROCK [16 pt]         0%         Image: Construction of the second	strate			
	x = 40			
GRAVEL (2-64 mm) [9 pts]       20%       MUCK [0 pts]       0%         SAND (<2 mm) [6 pts]	5			
SAND (<2 mm) [6 pts]				
Bldr Slabs, Boulder, Cobble, Bedrock	+ B			
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 3				
	l Depth x = 30			
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	- <b></b>			
> 22.5 - 30 cm [30 pts]         < 5 cm [5 pts]	o 📗			
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Ba	nkfull			
> 4.0 meters (> 13') [30 pts]       > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]       W	idth x=30			
✓ > 3.0 m (× 9 7 - 13) [25 pts] ✓ > 1.5 m - 3.0 m (× 9 7 7 - 4' 8") [20 pts]				
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 7.00 7.00 2	20			
This information must also be completed           RIPARIAN ZONE AND FLOODPLAIN QUALITY         ☆NOTE: River Left (L) and Right (R) as looking downstream				
RIPARIAN WIDTH FLOODPLAIN QUALITY				
L R (Per Bank) L R (Most Predominant per Bank) L R U Wide >10m Mature Forest, Wetland Conservation Tillage				
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial				
Narrow <5m I 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)  COMMENTS				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0				
0.5 1.5 2.5 >3				
STREAM GRADIENT ESTIMATE         Flat (0.5 ft/100 ft)         Flat to Moderate         Moderate (2 ft/100 ft)         Moderate to Severe				

QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attach Completed QHEI Form)   DOWNSTREAM DESIGNATED USE(S)   WWH Name: North Fork Licking River   Distance from Evaluated Stream   CWH Name:   Distance from Evaluated Stream   MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIC   USGS Quadrangle Name:   Newark   NGCS Soil Map Page:   County:   Licking   Township / City:   NisCELLANEOUS   Base Flow Conditions? (Y/N):   Y   Date of last precipitation:   09/13/20   Quantity:   1.67   Photograph Information:   3 Photos, upstream, downsteam and substrate   Elevated Turbidity? (Y/N):   N   Canopy (% open):   20%      Were samples collected for water chemistry? (Y/N): N N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (*C) Dissolved Oxygen (mg/h) P (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) Y I not, please explain: Overall Stability of BOTH Stream Banks (check one): Stable Moderately Stable Moderately Stable Unstable
WWH Name:       North Fork Licking River       Distance from Evaluated Stream       0.21         CWH Name:       Distance from Evaluated Stream       Distance from Evaluated Stream       0.21         EWH Name:       Distance from Evaluated Stream       Distance from Evaluated Stream       0.21         WWH Name:       Distance from Evaluated Stream       Distance from Evaluated Stream       0.21         WWH Name:       Distance from Evaluated Stream       Distance from Evaluated Stream       0.21         WWH Name:       NRCS Soil Map Page:       NRCS Soil Map Stream Order         County:       Licking       Township / City:       Newark         MISCELLANEOUS       Base Flow Conditions? (Y/N):       N       Canopy (% open):       20%         Were samples collected for water chemistry? (Y/N):       N       Canopy (% open):       20%         Were samples collected for water chemistry? (Y/N):       N       (Note lab sample no. or id. and attach results) Lab Number:
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 LOCATIC         USGS Quadrangle Name:       Newark         NRCS Soil Map Page:       NRCS Soil Map Stream Order         County:       Licking         Township / City:       Newark         MISCELLANEOUS         Base Flow Conditions? (Y/N):       Y         Date of last precipitation:       09/13/20         Quantity:       1.67         Photograph Information:       3 photos, upstream, downsteam and substrate         Elevated Turbidity? (Y/N):       N         Canopy (% open):       20%         Were samples collected for water chemistry? (Y/N):       N         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:
EWH Name:       Distance from Evaluated Stream         MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIC         USGS Quadrangle Name:       Newark         NRCS Soil Map Page:       NRCS Soil Map Stream Order         County:       Licking         Township / City:       Newark         MISCELLANEOUS         Base Flow Conditions? (Y/N):       Y         Date of last precipitation:       09/13/20         Quantity:       1.67         Photograph Information:       3 photos, upstream, downsteam and substrate         Elevated Turbidity? (Y/N):       N         Canopy (% open):       20%         Were samples collected for water chemistry? (Y/N):       N         (Note lab sample no. or id. and attach results) Lab Number:       Field Measures:         Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)         Is the sampling reach representative of the stream (Y/N)       If not, please explain:
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIC         USGS Quadrangle Name: Newark         NRCS Soil Map Page: NRCS Soil Map Stream Order         County: Licking         Township / City: Newark         MISCELLANEOUS         Base Flow Conditions? (Y/N): Y         Date of last precipitation: 09/13/20         Quantity: 1.67         Photograph Information: 3 photos, upstream, downsteam and substrate         Elevated Turbidity? (Y/N): N         Canopy (% open): 20%         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)         Phot, peace and plant in pacta:         Overall Stability of BOTH Stream Banks (check one): Stable       Moderately Stable       Unstable         BIOTIC EVALUATION         Performed? (Y/N): N       (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled v         Disolved of Stable       Moderately Stable       Unstable       ID number.         BIOTIC EVALUATION         Performed? (
USGS Quadrangle Name: Newark NRCS Soil Map Page: NRCS Soil Map Stream Order County: Licking Township / City: Newark MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/13/20 Quantity: 1.67 Photograph Information: 3 photos, upstream, downsteam and substrate Elevated Turbidity? (Y/N): N Canopy (% open): 20% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Overall Stability of BOTH Stream Banks (check one): Stable Moderately Stable Unstable BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled w ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) N V
County:       Licking       Township / City:       Newark         MISCELLANEOUS       Base Flow Conditions? (Y/N):       Y       Date of last precipitation:       09/13/20       Quantity:       1.67         Photograph Information:       3 photos, upstream, downsteam and substrate         Elevated Turbidity? (Y/N):       N       Canopy (% open):       20%         Were samples collected for water chemistry? (Y/N):       N       (Note lab sample no. or id. and attach results) Lab Number:         Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)         Is the sampling reach representative of the stream (Y/N)       Y       If not, please explain:
County.         MISCELLANEOUS         Base Flow Conditions? (Y/N): Y         Date of last precipitation:       09/13/20       Quantity:       1.67         Photograph Information:       3 photos, upstream, downsteam and substrate         Elevated Turbidity? (Y/N):       N       Canopy (% open):       20%         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/1)       pH (S.U.)       Conductivity (µmhos/cm)         Is the sampling reach representative of the stream (Y/N)       Y       If not, please explain:
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/13/20 Quantity: 1.67 Photograph Information: 3 photos, upstream, downsteam and substrate Elevated Turbidity? (Y/N): N Canopy (% open): 20% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Coverall Stability of BOTH Stream Banks (check one): Stable Moderately Stable V Unstable BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NO TE: all voucher samples must be labeled v ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) N Vouche
Deter Hein Conduction:       (Hr, H)
Elevated Turbidity? (Y/N): N Canopy (% open): 20% Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Additional comments/description of pollution impacts: Overall Stability of BOTH Stream Banks (check one): Stable Moderately Stable V Unstable BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled w ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) N Voucher? (Y
Were samples collected for water chemistry? (Y/N):       N       (Note lab sample no. or id. and attach results) Lab Number:         Field Measures:       Temp (°C)       Dissolved Oxygen (mg/l)       pH (S.U.)       Conductivity (µmhos/cm)         Is the sampling reach representative of the stream (Y/N)       Y       If not, please explain:       Conductivity (µmhos/cm)         Additional comments/description of pollution impacts:
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:
Field Measures:       Temp (°C)       Dissolved Oxygen (mq/l)       pH (S.U.)       Conductivity (µmhos/cm)         Is the sampling reach representative of the stream (Y/N)       Y       If not, please explain:
Additional comments/description of pollution impacts:         Overall Stability of BOTH Stream Banks (check one):       Stable       Moderately Stable       Unstable         BIOTIC EVALUATION         Performed? (Y/N):       N       (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled w ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)         Fish Observed? (Y/N)       N       Salamanders Observed? (Y/N)       N       Voucher? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N       Aquatic Macroinvertebrates Observed? (Y/N)       N       Voucher? (Y/N)
Additional comments/description of pollution impacts:         Overall Stability of BOTH Stream Banks (check one):       Stable       Moderately Stable       Unstable         BIOTIC EVALUATION         Performed? (Y/N):       N       (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled w ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)         Fish Observed? (Y/N)       N       Salamanders Observed? (Y/N)       N       Voucher? (Y/N)       N         Frogs or Tadpoles Observed? (Y/N)       N       Voucher? (Y/N)       N       Aquatic Macroinvertebrates Observed? (Y/N)       N       Voucher? (Y/N)
Overall Stability of BOTH Stream Banks (check one): Stable       Moderately Stable       Unstable         BIOTIC EVALUATION         Performed? (Y/N):       N       (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled w ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)         Fish Observed? (Y/N)       N       Voucher? (Y/N)       N       Vou
Overall Stability of BOTH Stream Banks (check one): Stable       Moderately Stable       Unstable         BIOTIC EVALUATION         Performed? (Y/N):       N       (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled w ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)         Fish Observed? (Y/N)       N       Voucher? (Y/N)       N       Vou
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled w ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y
none observed
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's loc
etland
trees
FLOW

October 24, 2002 Revision

PHWH Form Page - 2

Save as pdf Reset Form

#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

Stream 118 Date:

Intermittent

Small Drainage Warmwater Stream

Facing Upstream

September 21, 2020 **Description:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

#### Stream 118

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Downstream





#### PHOTOGRAPHIC RECORD **STREAMS**

**Client Name:** 

AEP

#### Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No. 60616110, 60618779, 60616126

Stream 118 Date: September 21, 2020 **Description:** Intermittent Small Drainage Warmwater Stream Substrate

APPENDIX E

POND PHOTOLOG AND HABITAT PHOTOLOG

#### PHOTOGRAPHIC RECORD PONDS

**Client Name:** 

AEP

Pond 01 Date:

June 11, 2020 **Description:** 

Facing East

#### Site Location:

Crooksville-Newark 138 kV Transmission Line Rebuild Project

#### Project No.

60616110, 60618779, 60616126







#### PHOTOGRAPHIC RECORD PONDS

**Client Name:** 

AEP

#### Site Location:

Crooksville-Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126







**Client Name:** 

AEP

#### Site Location:

Crooksville-Newark 138 kV Transmission Line Rebuild Project

60616110, 60618779, 60616126

Pond 06 Date: October 08, 2020 **Description:** Facing West



# AECOM

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#### PHOTOGRAPHIC RECORD PONDS

**Client Name:** 

AEP

#### Site Location:

Crooksville-Newark 138 kV Transmission Line Rebuild Project

#### Project No.

60616110, 60618779, 60616126







AEP

#### Site Location:

Crooksville-Newark 138 kV Transmission Line Rebuild Project

60616110, 60618779, 60616126





#### PHOTOGRAPHIC RECORD PONDS

**Client Name:** 

AEP

#### Site Location:

Crooksville-Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

# Pond 12 Date: June <u>10, 2020</u> **Description:** Facing Southwest





#### PHOTOGRAPHIC RECORD PONDS

**Client Name:** 

AEP

Pond 14 Date:

June 9, 2020 **Description:** 

Facing West

#### Site Location:

Crooksville-Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126





#### PHOTOGRAPHIC RECORD PONDS

**Client Name:** 

AEP

#### Site Location:

Crooksville-Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126



#### Pond 17

Date:

September 21, 2020 **Description:** 

Facing West



#### PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

#### AEP

Photo 1

#### Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126



# Photo 2 Date: October 8, 2020 **Description:** Old field habitat along ROW near proposed structure 7 Facing East

#### Date: September 22, 2020 Description:

Old field habitat near proposed structure 3

Facing East

#### PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

#### AEP

Photo 3

#### Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

Date: June 11, 2020 **Description:** Successional hardwood woodland habitat between proposed structures 13 and 14

Facing West



#### Photo 4

Date:

October 8, 2020 **Description:** 

Successional hardwood woodland habitat near structure 17

Facing South



#### PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

October 07, 2020 **Description:** 

Old field habitat between proposed structures 27 and 28

Facing North

#### AEP

Photo 5 Date:

#### Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110,

60618779, 60616126





Date:

October 7, 2020 **Description:** 

View of Pasture/Hay field identified as potential northern harrier habitat near proposed structure 34

Facing Northwest



#### PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

#### AEP

#### Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126

# Photo 7 Date: June 2, 2020 **Description:** Pasture/Hay field habitat at proposed structure 53 Facing Northwest



#### PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

AECOM Imagine it. Delivered.

#### AEP

Site Location:

Crooksville-Newark 138 kV Transmission Line Rebuild Project

**Project No.** 60616110, 60618779, 60616126





# PHOTOGRAPHIC RECORD

HABITAT

#### **Client Name:**

ΑΞϹΟΜ

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AEP

### Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126





# PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

### AEP

124

Photo 13 Date:

June 10, 2020 **Description:** 

Facing East

Scrub-shrub habitat near proposed structure

### Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126



# Photo 14 Date: June 10, 2020 **Description:** Landscaped area habitat near proposed structure 132 Facing Southwest

# PHOTOGRAPHIC RECORD HABITAT

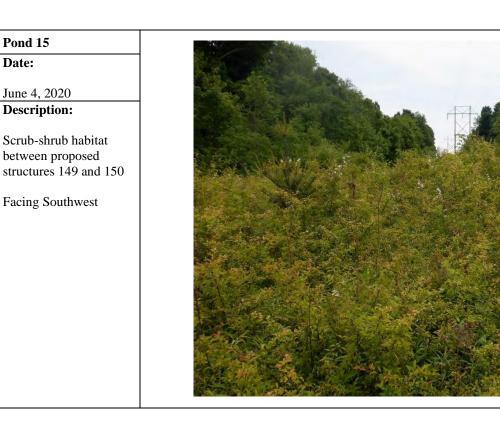
**Client Name:** 

AEP

### Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126



### Photo 16

Date:

June 4, 2020 **Description:** 

Scrub-shrub and successional hardwood woodland habitat near proposed structure 164

Facing North



# PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

AEP

Photo 17 Date:

June 3, 2020 **Description:** 

Facing South

View of Pasture/Hay field identified as potential northern harrier habitatalocated between proposed structures 170 and 173

### Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126



### Photo 18 Date:

June 3, 2020 **Description:** 

Successional hardwood woodland habitat near proposed structure 175

Facing East



# PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

#### AEP

189

Photo 19 Date:

June 3, 2020 **Description:** 

View of potential northern harrier habitat as a Pasture/Hay field near proposed structure

Facing South

## Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126



### Photo 20

Date:

#### June 3, 2020

**Description:** 

Successional hardwood woodland habitat near proposed structure 194

Facing South



# PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

#### AEP

Photo 21 Date:

June 2, 2020 **Description:** 

Facing West

Landscaped area habitat between proposed structure 207 and 208

# Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126



### Photo 22

#### Date:

### June 2, 2020 **Description:**

Old field and

successional hardwood woodland habitat near proposed structure 210

Facing East



# PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

AEP

### Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126



## Photo 24

Date:

June 2, 2020 **Description:** 

View of potential northern harrier grassland habitat between proposed structure 144 and 143

Facing South



# PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

AEP

### Site Location:

Crooksville-Newark 138 kV Transmission Line **Rebuild Project** 

Project No. 60616110, 60618779, 60616126



# Photo 26

Date:

#### June 5, 2020 **Description:**

View of potential northern harrier grassland habitat between structures 81 and 82

Facing Southeast



# ΑΞϹΟΜ

#### lmagine it. Delivered.

# PHOTOGRAPHIC RECORD HABITAT

**Client Name:** 

AEP

Photo 27 Date:

October 7, 2020 **Description:** 

View of potential northern harrier grassland habitat located between structures 34 and 35

Facing Southeast

## Site Location:

Crooksville-Newark 138 kV Transmission Line Rebuild Project **Project No.** 60616110, 60618779, 60616126



### Photo 28

### Date:

## October 8, 2020

#### **Description:**

View of old field habitat located at proposed structure 19. Area is adjacent to industrial/mining activities and nearby water features lack sufficient cover.

Facing North



APPENDIX F

AGENCY CORRESPONDENCE

# Ohio Department of Natural Resources



MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

**Office of Real Estate** John Kessler, Chief 2045 Morse Road – Bldg. E-2 Columbus, OH 43229 Phone: (614) 265-6621 Fax: (614) 267-4764

November 20, 2019

Jason Tucker AECOM 525 Vine Street Cincinnati, Ohio 45202

Re: 19-862; Crooksville-North Newark 138 kV Transmission Line Rebuild Project

**Project:** The proposed project involves rebuilding approximately 31.6 miles of transmission line within an existing 100-foot right-of-way (ROW) from Crooksville, Ohio at the Crooksville Station heading northwest toward North Newark Station.

Location: The proposed project is located in Perry Township, Muskingum County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

**Natural Heritage Database**: The Natural Heritage Database has no records at or within a onemile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

#### Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project is within the range of the Indiana bat (Myotis sodalis), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carva ovata*), shellbark hickory (Carya laciniosa), bitternut hickory (Carya cordiformis), black ash (Fraxinus nigra), green ash (Fraxinus pennsylvanica), white ash (Fraxinus americana), shingle oak (Quercus imbricaria), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus* americana), eastern cottonwood (Populus deltoides), silver maple (Acer saccharinum), sassafras (Sassafras albidum), post oak (Quercus stellata), and white oak (Quercus alba). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the sheepnose (*Plethobasus cyphyus*), a state endangered and federally endangered mussel, the fanshell (*Cyprogenia stegaria*), a state endangered and federally endangered mussel, the snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel, the rabbitsfoot (*Quadrula cylindrica cylindrica*), a state endangered and federally threatened mussel, the Ohio pigtoe (*Pleurobema cordatum*), a state endangered mussel, the long-solid (*Fusconaia maculata maculata*), a state endangered mussel, the sharp-ridged pocketbook (*Lampsilis ovata*), a state endangered mussel, the black sandshell (*Ligumia recta*), a state threatened mussel, the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel, and the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact these species.

The project is within the range of the northern madtom (*Noturus stigmosus*), a state endangered fish, the paddlefish (*Polyodon spathula*) a state threatened fish, the mountain madtom (*Noturus eleutherus*), a state threatened fish, and the channel darter (*Percina copelandi*), a state threatened fish. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact these species.

The project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), a state endangered species and a federal species of concern Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size to provide suitable habitat, this project is not likely to impact this species.

The project is also within the range of the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species. This species is found in areas of sandy soils that are associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding

depressions. Due to the location, and the type of habitat present at the project site, and within the vicinity of the project area, this project is not likely to impact this species. The project is within the range of the northern harrier (*Circus cyaneus*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community %20Contact%20List\_8\_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or <u>Sarah.Tebbe@dnr.state.oh.us</u> if you have questions about these comments or need additional information.

Mike Pettegrew Environmental Services Administrator (Acting) From:Ohio, FW3 <ohio@fws.gov>Sent:Friday, December 11, 2020 3:14 PMTo:Hanner, AudreyCc:nathan.reardon@dnr.state.oh.us; Parsons, KateSubject:[EXTERNAL] AEP Crooksville-North Newark 138 kV Transmission Line Rebuild, Perry/Muskingum/Licking Counties, Ohio



UNITED STATES DEPARTMENT OF THE INTERIOR U.S. Fish and Wildlife Service Ecological Services Office 4625 Morse Road, Suite 104 Columbus, Ohio 43230 (614) 416-8993 / Fax (614) 416-8994



#### TAILS# 03E15000-2021-TA-0439

#### Dear Ms. Hanner,

The U.S Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

<u>Federally Threatened and Endangered Species</u>: The endangered **Indiana bat** (*Myotis sodalis*) and threatened **northern long-eared bat** (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees  $\geq 3$  inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: Should the proposed project site contain trees  $\geq 3$  inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees  $\geq 3$  inches dbh cannot be avoided, we recommend removal of any trees  $\geq 3$  inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see <a href="http://www.fws.gov/midwest/endangered/mammals/nleb/index.html">http://www.fws.gov/midwest/endangered/mammals/nleb/index.html</a>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, a summer presence/absence survey may be conducted for Indiana bats. If Indiana bats are not detected during the survey, then tree clearing may occur at any time of the year. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Ohio Field Office. Surveyors must have a valid federal permit. Please note that in Ohio summer mist net surveys may only be conducted between June 1 and August 15.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (<u>https://epa.ohio.gov/portals/47/facts/ohio\_wetlands.pdf</u>). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,

Patrice Ashfield Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW Kate Parsons, ODNR-DOW APPENDIX G

SOIL MAP UNITS AND DESCRIPTIONS WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT



		TRANSMISSION LINE REBUILD PROJE			Hydric
Soil Series	Map Unit Symbol	Map Unit Description	Topographic Setting	Hydric	Component (%)
Alford	AfB	Alford silt loam, 2 to 6 percent slopes; Alford silt loam, 1 to 8 percent slopes	benches, coves, ridges, rises on terraces, hills	No	NA
	AfC	Alford silt loam, 8 to 15 percent slopes	Settingbenches, coves, ridges, rises on terraces, hillsbenches, coves, ridgesridges, valleysknolls on till plains, ridges on till plains, valleys on till plainsridges, valleysknolls on till plains, ridges on till plainsridges on till plainsspoil piles on ridges on hillsspoil piles on ridges on hillsspoil piles on ridges on hillsspoil piles on ridges on hillsspoil piles on ridges on hillsreclaimed lands on ridges on hillsreclaimed lands on hillslopes on hillsreclaimed lands on hillslopes on hillsreclaimed lands on hillslopes on hillsreclaimed lands on hillslopes on hillsbreaks on terraces, 	No	NA
	AfC2	Alford silt loam, 6 to 12 percent slopes, eroded	SettingHydricbenches, coves, ridges, rises on terraces, hillsNobenches, coves, ridgesNobenches, coves, ridgesNoridges, valleysNoknolls on till plains, ridges on till plains, valleys on till plainsNoridges on till plains, ridges on till plainsNospoil piles on ridges on hillsNospoil piles on ridges on hillsYesspoil piles on ridges on hillsNoreclaimed lands on ridges on hillsYesreclaimed lands on hillslopes on hillsNofidges, knollsNohills, ridges, knollsNohills on kamesNobreaks on terraces, knolls on kamesNoridges on till plains, till plains on till plainsNoridges on till plainsNoridges on hillsNoridges on hillsNohills, ridgesNo <t< td=""><td>No</td><td>NA</td></t<>	No	NA
Amanda	AmC2	Amanda silt loam, 6 to 12 percent slopes, eroded	ridges on till plains,	No	NA
	BgB	Berks channery silt loam, 2 to 6 percent slopes	ridges	No	NA
Berks	BgD	Berks channery silt loam, 15 to 25 percent slopes	Topographic SettingHydrI siltbenches, coves, ridges, rises on terraces, hillsNobenches, coves, ridgesNodedridges, valleysNodedridges, valleysNodedridges, valleysNodedridges on till plains, 	No	NA
	Bhk4D	Bethesda channery silt loam, 8 to 25 percent slopes, unreclaimed, highwall	hills	Yes	Typic Epiaquents (1)
	Bhk4F	Bethesda channery silt loam, 25 to 70 percent slopes, unreclaimed, highwall		No	NA
	BhPXF	Bethesda-Pits, surface mine complex, 25 to 70 percent slopes, unreclaimed	70 spoil piles	No	NA
Bethesda	Bhs4D	Bethesda channery silt loam, 8 to 25 percent slopes, unreclaimed		Yes	Typic Epiaquents (1)
	Bhs4F	Bethesda channery silt loam, 25 to 70 percent slopes, unreclaimed		No	NA
	Bhv1B	Bethesda silt loam, 0 to 8 percent slopes, reclaimed		Yes	Typic Epiaquents (1)
	Bhv1D	Bethesda silt loam, 8 to 25 percent slopes, reclaimed	opes: opes: Alford siltbenches, coves, ridges, rises on terraces, hillsNocent slopesbenches, coves, ridgesNoslopes, erodedridges, valleysNocent slopes,knolls on till plains, ridges on till plainsNopercent slopesridges on till plains, ridges on till plainsNoo 25 percentspoil piles on ridges on hillsNofor 25 percentspoil piles on ridges on hillsNoghwallspoil piles on ridges on hillsNoo 25 percentspoil piles on ridges on 	Typic Epiaquents (1)	
	BrC	Brownsville channery silt loam, 6 to 12 percent slopes	ridges, knolls	No	NA
	BrD	Brownsville channery silt loam, 12 to 18 percent slopes hills, ridges, kno		No	NA
Brownsville	BrE	Brownsville channery silt loam, 18 to 25 percent slopes	hills	No	NA
	BrF	Brownsville channery silt loam, 25 to 35 percent slopes	hills	No	NA
	BrG	Brownsville channery silt loam, 35 to 70 percent slopes	hills	No	NA
	BvF	Brownsville silt loam, 40 to 70 percent slopes	hills	No	NA
	ChC2	Chili loam, 6 to 12 percent slopes, eroded	SettingIbenches, coves, ridges, rises on terraces, hillsibenches, coves, ridgesibenches, coves, ridgesidridges, valleysdridges, valleyssridges on till plains, ridges on till plainssridges on till plains, 	No	NA
Chili	ChD2	Chili loam, 12 to 18 percent slopes, eroded		No	NA
	ChE2	Chili loam, 18 to 25 percent slopes, eroded		No	NA
	CkB	Cincinnati silt loam, 1 to 8 percent slopes	ridges, rises on terraces, hills       No         benches, coves, ridges       No         ridges, valleys       No         knolls on till plains, ridges on till plains, valleys on till plains       No         s       ridges       No         hillslopes on hills       No         spoil piles on ridges on hills       Yes         spoil piles on ridges on hills       Yes         reclaimed lands on ridges on hills       Yes         ridges, knolls       No         t       nidges, knolls       No         t       nidges, knolls       No         t       nills, ridges, knolls       No         tt       hills       No	No	NA
Cincinnati	CkC2	Cincinnati silt loam, 6 to 12 percent slopes, eroded; Cincinnati silt loam, 8 to 15 percent slopes, eroded		No	NA
Clarksburg	CmC2	Clarksburg silt loam, 6 to 12 percent slopes, eroded	hills	No	NA
	CoB	Coshocton silt loam, 2 to 6 percent slopes	ridges on hills	No	NA
Coshocton	CoC2	Coshocton silt loam, 6 to 12 percent slopes, eroded	ridges on hills	No	NA
Coshoolon	CoD2	Coshocton silt loam, 12 to 18 percent slopes, eroded	to 70 percentspoil piles on ridges on hillsent slopes,reclaimed lands on ridges on hillssent slopes,reclaimed lands on hillslopes on hillsto 12 percentridges, knollsto 12 percenthills, ridges, knollsto 18 percenthills, ridges, knollsto 25 percenthillsto 35 percenthillsto 70 percenthillsto 70 percenthillsses, erodedbreaks on terraces, knolls on kamespes, erodedbreaks on terracespes, erodedbreaks on terracespes, erodedbreaks on terracespes, erodedbreaks on terracespes, or till plainsridges on till plainspercent slopes, o 15 percentridges on till plains, till plains on till plainscent slopes, cent slopes,ridges on hillscent slopes, cent slopes,nills, ridgesridges on hillsridges on hillsrecent slopes, cent slopes,nills, ridgesrecent slopesnills, ridges on hillsrecent slopesnills, ridges on hillsrecent slopesnillsides on hillsrecent slopesnillsides on hills	No	NA
	CsD	Coshocton silt loam, 15 to 25 percent slopes			NA
Dekalb	DkD	Dekalb loam, 15 to 25 percent slopes	-		NA
	DmF	Dekalb loam, 40 to 70 percent slopes, very stony	hills	No	NA



Soil Series	Map Unit Symbol	Map Unit Description	Topographic Setting	Hydric	Hydric Component (%)
Dumps	Ds	Dumps, mine	ridges	Unranked	NA
Enoch	EnE	Enoch shaly clay loam, 20 to 40 percent slopes	depressions	Yes	Poorly drained soils (5)
Euclid	EuA	Euclid silt loam, rarely flooded	depressions	Yes	Luray (15)
Fairpoint	FbD	Fairpoint channery clay loam, 8 to 25 percent slopes	reclaimed lands on ridges on hills	Yes	Unnamed (5)
	FcA	Fitchville silt loam, 0 to 2 percent slopes	lake terraces	Yes	Luray (10)
Fitchville	FcB	Fitchville silt loam, 2 to 6 percent slopes	It to 40 percent slopes       depressions       Yes         arely flooded       depressions       Yes         arely flooded       depressions       Yes         arely flooded       reclaimed lands on ridges on hills       Yes         b 2 percent slopes       lake terraces       Yes         c 3 percent slopes       depressions, drainageways       Yes         c 3 percent slopes       depressions, drainageways       Yes         c 3 percent slopes       terraces, kames       No         c 5 percent slopes       ridges on hills       No         c 6 percent slopes       depressions       Yes         c 8 percent slopes       depressions       Yes         c 8 percent slopes       ridges on hills, knolls       No         c 6 percent slopes       ridges on hills, knolls       No         d silt loams, 15 to 25       nills       No         opes       ridges on till plains, knolls on till plains, knolls on till plains, hills on lake plains, flooded       No	Yes	Luray (5)
1 Iterivine	FtA	Fitchville silt loam, 0 to 3 percent slopes		Yes	Luray (15)
Fox	FoD2	Fox gravelly loam, 12 to 18 percent slopes, eroded	terraces, kames	No	NA
Frankstown- Mertz	FrB	Frankstown variant-Mertz complex, 2 to 6 percent slopes, very stony	_		NA
Gilpin	GdC	Gilpin silt loam, 8 to 15 percent slopes	ridges on hills	No	NA
Glenford	GfB	Glenford silt loam, 2 to 6 percent slopes	depressions	Yes	Luray (5)
Gleniord	GnB	Glenford silt loam, 1 to 8 percent slopes	depressions	Yes	Luray (10)
Guernsey	GnC2	Guernsey silt loam, 6 to 12 percent slopes, eroded	ridges, hills	No	NA
	GwC	Guernsey-Westmoreland silt loams, 8 to 15 percent slopes		No	NA
Guernsey- Westmoreland	GwD	Guernsey-Westmoreland silt loams, 15 to 25 percent slopes	on hills, benches on	No	NA
	Cuernsey-Westmoreland silt loams 25 to 40		No	NA	
Homewood- Westmoreland	HaD2	Homewood-Westmoreland silt loams, 15 to 25 percent slopes, eroded		No	NA
	HoB	Homewood silt loam, 2 to 6 percent slopes	knolls on till plains	No	NA
Homewood	HoC2	Homewood silt loam, 6 to 12 percent slopes, eroded	ridges on till plains, hills on till plains, hills	No	NA
	HoD2	Homewood silt loam, 12 to 18 percent slopes, eroded		No	NA
	HoE2	Homewood silt loam, 18 to 25 percent slopes, eroded	18 to 25 percent	No	NA
Keene	KeB	Keene silt loam, 3 to 8 percent slopes	ridges on uplands	No	NA
Killbuck	Kk	Killbuck silt loam, frequently flooded	flood plains	Yes	Killbuck (100)
NIIDUCK	Km	Killbuck silt loam, frequently flooded	opes         depressions         Yes         Li           opes         depressions         Yes         Lu           opes,         ridges, hills         No         Image: Second Secon	Killbuck (85)	
Lindside	Lk	Lindside silt loam, 0 to 3 percent slopes, occasionally flooded	flood plains on valleys	Yes	Melvin (5)
Luray	Lu	Luray silty clay loam	silty clay loam flats on lake plains, depressions on lake plains, flats on Yes terraces, depressions		Luray (100)
Medway	Md	Medway silt loam, occasionally flooded	flood plains	Yes	Sloan (5)
	Мс	Melvin silt loam, thin solum, frequently ponded, 0 to 3 percent slopes	flood plains on valleys	Yes	Melvin (90)
Melvin	Me	Melvin silt loam, 0 to 3 percent slopes, frequently flooded	flood plains on valleys	Yes	Melvin (85)



		I RANSMISSION LINE REBUILD PROJE		ĺ	I le coluit o
Soil Series	Map Unit Symbol	Map Unit Description	Topographic Setting	Hydric	Hydric Component (%)
	MeC	Mentor silt loam, gravelly substratum, 8 to 15 percent slopes	benches on terraces	No	NA
Mentor	MnB	Mentor silt loam, 2 to 6 percent slopes	lake terraces	Yes	Luray (5)
	MnC2	Mentor silt loam, 6 to 12 percent slopes, eroded	terraces, hills	No	NA
	MnD2	Mentor silt loam, 12 to 18 percent slopes, eroded	terraces, hills	No	NA
Mertz	MrE	Mertz very cherty silt loam, 18 to 35 percent slopes, very stony	hills	No	NA
Newark	Ne	Newark silt loam, 0 to 3 percent slopes, frequently flooded	flood plains on valleys	Yes	Melvin (5)
	NeC2	Negley loam, 6 to 12 percent slopes, eroded	on till plains	No	NA
Negley	NeD2	Negley loam, 12 to 18 percent slopes, eroded	terraces, kames	No	NA
	NeE	Negley loam, 18 to 25 percent slopes	nt slopes, erodedterraces, kamesNoercent slopesterracesNoercent slopes, odedflood plains on valleysYesnio Till Plain, 0 to 2 esoutwash plains, outwash plains, terracesNonio Till Plain, 2 to 6 esoutwash terraces, stream terraces, outwash plainsNoent slopes, erodeddrainageways on terraces, kamesNoent slopes, erodeddrainageways on terraces, kamesNox, 0 to 3 percentdrainageways on terraces, knolls on terracesNox, 6 to 12 percentflood plains on valleysYesencent slopes, odedflood plains on valleysYes	No	NA
	NeF	Negley loam, 25 to 70 percent slopes	SettingHydric15benches on terracesNo1ake terracesYesodedterraces, hillsNoodedterraces, hillsNoodedterraces, hillsNoenthillsNoflood plains on valleysYesdedterraces, kames, knolls on till plainsNodedterraces, kamesNodedterraces, kamesNodedterraces, kamesNoflood plains on valleysYesoutwash plains, outwash plains, terracesNooutwash plains, outwash plainsNoodeddrainageways on terraces, kamesNoodeddrainageways on terraces, kanesNoodeddrainageways on terraces, knolls on terracesNoodeddrainageways on terracesNoflood plains on valleysYesodeddrainageways on terracesNoflood plains on valleysYesodeddrainageways on terracesNoflood plains on valleysYesodedflood plains on valleysYesodedflats on lake plains, depressions on lake plains, flats on terracesNoon terracesonYesflood plains, flats on terracesYesflood plains, flats on terracesYesflood plains, flats on terracesYesflood plains, flats on terracesNosdepressions on lake plains, flats on terr	No	NA
Nolin	No	Nolin silt loam, 0 to 3 percent slopes, occasionally flooded		Yes	Melvin (5)
	OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	outwash plains,	No	NA
	ОсВ	Ockley silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	stream terraces,	No	NA
Ockley	OcC2			No	NA
	OeA	Ockley-Urban land complex, 0 to 3 percent draws		Yes	Westland (5)
	OeC	Ockley-Urban land complex, 6 to 12 percent slopes	terraces, knolls on	No	NA
Orrville	Or	Orrville silt loam, 0 to 3 percent slopes, occasionally flooded	flood plains on valleys	Yes	Melvin (5)
Parke	PaC2	Parke silt loam, 6 to 12 percent slopes, eroded		No	NA
Pits	Pg	Pits, gravel	SettingHydric15benches on terracesNo1ake terracesYes1dedterraces, hillsNo1dedterraces, hillsNo1dedterraces, hillsNo1dedterraces, hillsNo1dedflood plains on valleysYes1dflood plains on valleysYes1dterraces, kames, knolls on till plainsNo1dterraces, kamesNo1dterraces, kamesNo1dterracesNo1dterracesNo1dterraces, kamesNo1dterracesNo1dterraces, kamesNo1ddrainageways on terraces, kamesNo1ddrainageways on terraces, knolls on terraces, knolls on terracesNo1ddrainageways on terraces, knolls on terraces, knollsNo1ddrainageways on terraces, knollsNo1dMAUnranked1dNAUnranked1dNAUnranked1dhills, ridges, knollsNo1dhillsNo1dhillsNo1dhillsNo1dhillsNo1dhillsNo1dhillsNo1dhillsNo1dhillsNo1dhillsNo1dhillsNo1dhillsNo1dhills<	NA	
116	Pmi	Pits, mine		Unranked	NA
	RgC	Rigley fine sandy loam, 6 to 12 percent slopes	-		NA
Rigley	RgD	Rigley fine sandy loam, 12 to 18 percent slopes	SettingHbenches on terracesIlake terraces, hillsIterraces, hillsIflood plains on valleysIflood plains on valleysIterraces, kames, knolls on till plainsIterraces, kames, knolls on till plainsIterraces, kames, knolls on till plainsIterraces, kamesIflood plains on valleysIflood plains on valleysIoutwash plains, outwash plains, terracesIoutwash plains, outwash plainsIdrainageways on terraces, kamesIdrainageways on terracesIflood plains on valleysIflood plains on valleysIdrainageways on terracesIflood plains on valleysIflood plains on lake plains, flats on terraces, depressions on terracesflood plains, river valleysIflood plains, river valleysIflood plainsIdepressionsIflood plainsIflood plainsIflood plainsIflood plainsIflood plainsIflood plainsIflood plainsI <td< td=""><td>No</td><td>NA</td></td<>	No	NA
	RgE	Rigley fine sandy loam, 18 to 25 percent slopes	SettingHydric5benches on terracesNo1ake terracesYesedterraces, hillsNo1edterraces, hillsNo1edterraces, hillsNo1edflood plains on valleysYes1edflood plains on valleysYes1edterraces, kames, knolls on till plainsNo1etrraces, kamesNo1etrraces, kamesNo1etrraces, kamesNo1etrraces, kamesNo1etrracesNo1etrracesNo1etrracesNo1etrracesNo1etrracesNo1etrracesNo1etrracesNo1etrracesNo1etrracesNo1etrraces, kamesNo1etrraces, kamesNo<	NA	
Rigley- Coshocton	RhE	Rigley-Coshocton complex, 18 to 25 percent slopes		No	NA
Sebring	Se	Sebring silt loam	depressions on lake plains, flats on terraces, depressions	Yes	Sebring (100)
Shoals	Sh	Shoals silt loam, 0 to 2 percent slopes, occasionally flooded	YE YE		Sloan (8)
Stonelick	St	Stonelick loam, occasionally flooded	flood plains	No	NA
Tituoville	TsB	Titusville silt loam, 2 to 6 percent slopes	depressions	Yes	poorly drained soils (10)
Titusville	TsC2	Titusville silt loam, 6 to 12 percent slopes, eroded	draws	Yes	poorly drained soils (5)
Udorthents	Uf	Udorthents, loamy	NA	No	NA
Water	W	Water	NA	Unranked	NA
Wellston	WhB	Wellston silt loam, 1 to 8 percent slopes	ridges, benches	No	NA



Map Unit           Soil Series         Symbol		Topographic Setting	Hydric	Hydric Component (%)	
	WhC	Wellston silt loam, 8 to 15 percent slopes	ridges on uplands	No	NA
Westmore	WkB	Westmore silt loam, 1 to 8 percent slopes	ridges on hills	No	NA
westinore	WkC	Westmore silt loam, 8 to 15 percent slopes	onSettingHydrent slopesridges on uplandsNoent slopesridges on hillsNoent slopesridges on hillsNoercent slopesridges on hillsNoercent slopeshills on uplandsNoercent slopeshills on uplandsNoercent slopeshills on uplandsNoercent slopeshills on uplandsNoercent slopeshillsNocent slopes,hillsNons, 15 to 25hillsNodhillsNons, 40 to 70hillsNons, 25 to 40hillsNons, 15 to 25hillsNons, 25 to 40hillsNons, 25 to 40hillsNons, 25 to 40hillsNons, 25 to 40hillsNons, 25 to 40hillsNodhillsNo	No	NA
	WmC	Westmoreland silt loam, 8 to 15 percent slopes	hills on uplands	No	NA
	WmD	Westmoreland silt loam, 15 to 25 percent slopes	hills on uplands	No	NA
Westmoreland	WmE	Westmoreland silt loam, 25 to 35 percent slopes	hills on uplands	No	NA
	WnE	Westmoreland loam, 20 to 40 percent slopes, very bouldery	eland loam, 20 to 40 percent slopes, bills	No	NA
	WrD2	Westmoreland-Guernsey silt loams, 15 to 25 hills		No	NA
	WrE2	Westmoreland-Guernsey silt loams, 25 to 40 percent slopes, eroded	hills	No	NA
Westmoreland -Guernsey	WsF	Westmoreland-Guernsey silt loams, 40 to 70 percent slopes	hills	No	NA
	WuD2	Westmoreland-Guernsey silt loams, 15 to 25 percent slopes, eroded	hills	No	NA
	WuE2	Westmoreland-Guernsey silt loams, 25 to 40 percent slopes, eroded	hills	No	NA
Zanesville	ZnB	Zanesville silt loam, 1 to 8 percent slopes	ridges	No	NA
Zanesville	ZnC	Zanesville silt loam, 8 to 15 percent slopes	es ridges on hills opes hills on uplands opes hills on uplands opes hills on uplands opes hills on uplands opes, hills 25 hills 40 hills 70 hills 25 hills 40 hills 25 nills 40 hills	No	NA

NA = Not Applicable or Not Available

APPENDIX H

NWI DISPOSITION SUMMARY TABLE WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT



#### APPENDIX H NWI DISPOSITION SUMMARY TABLE WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR

			J PROJECT SURVET CORRID	
NWI			Related Field Inventoried	
Code	NWI Description	Figure 2	Resource (Wetland ID/Stream ID)	Comments
PEM1A	Palustrine, Emergent, Persistent, Temporary Flooded	2L	Wetland 017	Wetland extends outside study corridor
PEM1A	Palustrine, Emergent, Persistent, Temporary Flooded	2W	Wetland 045	Wetland extends outside study corridor
PEM1A	Palustrine, Emergent, Persistent, Temporary Flooded	2AD, 2AE	Wetland 061	Sample point Upland 064 indicates majority of NWI- mapped wetland is upland
PEM1A	Palustrine, Emergent, Persistent, Temporary Flooded	2AX	Wetland 083a	Wetland extends outside study corridor
PEM1A	Palustrine, Emergent, Persistent, Temporary Flooded	2BK	No inventoried resources noted	Aerial mapping and nearby sample point Upland 098 documented agricultural field
PEM1A	Palustrine, Emergent, Persistent, Temporary Flooded	2BK	No inventoried resources noted	Aerial mapping and nearby sample point Upland 098 documented agricultural field
PEM1C	Palustrine, Emergent, Persistent, Seasonally Flooded	2AX	Wetland 083a, Wetland 083b, Wetland 084 and Stream 094	Wetlands extend outside study area
PFO1A	Palustrine, Forested, Broad- Leaved Deciduous, Temporary Flooded	2AK	No inventoried resources noted	Adjacent to Wetland 069, sample point Upland 072 documented upland conditions
PFO1A	Palustrine, Forested, Broad- Leaved Deciduous, Temporary Flooded	2BW	No inventoried resources noted	Mapped NWI boundary touches survey corridor boundary, does not extend into survey corridor
PFO1A	Palustrine, Forested, Broad- Leaved Deciduous, Temporary Flooded	2BW	No inventoried resources noted	Mapped NWI boundary touches survey corridor boundary, does not extend into survey corridor
PFO1A	Palustrine, Forested, Broad- Leaved Deciduous, Temporary Flooded	2BW, 2BX	No inventoried resources noted	Mapped NWI boundary touches survey corridor boundary, does not extend into survey corridor
PFO1A	Palustrine, Forested, Broad- Leaved Deciduous, Temporary Flooded	2BV, 2BW	No inventoried resources noted	Sample point Upland 106 indicates upland conditions
PSS1/E M1C	Palustrine, Scrub-Shrub, Broad- Leaved Deciduous, Emergent, Persistent, Seasonally Flooded	2B, 2C	Wetland 009abc	Wetland extends outside study corridor
PSS1C	Palustrine, Scrub-Shrub, Broad- Leaved Deciduous, Seasonally Flooded	2AD	Wetland 060	Wetland extends outside study corridor
PUBF	Palustrine, Unconsolidated Bottom, Semipermanently Flooded	2G	Pond 01	Pond extends outside study corridor
PUBF	Palustrine, Unconsolidated Bottom, Semipermanently Flooded	2K	Wetland 015	Wetland extends outside study corridor
PUBFx	Palustrine, Unconsolidated Bottom, Semipermanently Flooded, Excavated	2AS, 2AT	Pond 12	Entire pond boundary delineated within survey corridor
PUBGh	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Diked/Impounded	20	Pond 08	Pond extends outside study corridor
PUBGh	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Diked/Impounded	2AW, 2AX	Pond 14	Pond extends outside study corridor



APPENDIX H					
NWI DISPOSITION SUMMARY TABLE WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV					
TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR					

			J FROJECT SORVET CORRID	
NWI Code	NWI Description	Figure 2	Related Field Inventoried Resource (Wetland ID/Stream ID)	Comments
PUBGh	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Diked/Impounded	2BS	Pond 16	Pond extends outside study corridor
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	21	No inventoried resources noted	Mapped NWI boundary touches survey corridor boundary, does not extend into survey corridor
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	2J	No inventoried resources noted	No pond conditions noted within active hay field/pasture
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	2J	Pond 04	Pond extends outside study corridor
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	2J	Pond 04	Pond extends outside study corridor
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	2J	Pond 05	Pond extends outside study corridor
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	2J	No inventoried resources noted	Obvious pond boundaries on aerial do not intersect this portion of survey corridor
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	2T	Pond 10 and Wetland 034b	Pond extends outside study corridor
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	2AS	Pond 11	Pond extends outside study corridor
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	2BW, 2BX	Wetland 106ab	Wetland extends outside study corridor
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	2BW, 2BX	Pond 17	Pond extends outside study corridor
R2UBH	Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded	2A	Stream 001 (Moxahala Creek)	Stream extends outside survey corridor
R2UBH	Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded	2B	Stream 001 (Moxahala Creek)	Stream extends outside survey corridor
R2UBH	Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded	2C	Stream 001 (Moxahala Creek)	Stream extends outside survey corridor
R2UBH	Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded	2W, 2X	Stream 046 (Turkey Run)	Stream extends outside survey corridor
R2UBH	Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded	2AD	Stream 056 (Jonathan Creek)	Stream extends outside survey corridor
R2UBH	Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded	2BJ	Stream 108 (Licking River)	Stream extends outside survey corridor
R2UBH	Riverine, Lower Perennial, Unconsolidated bottom, Permanently flooded	2BW, 2BX	Stream 117 (North Fork Licking River)	Stream extends outside survey corridor
R3UBH	Riverine, Upper Perennial, Unconsolidated bottom, Permanently flooded	2BD	Stream 101 (Claylick Creek)	Stream extends outside survey corridor
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2D	Stream 005 (Snake Run)	Stream extends outside survey corridor



#### APPENDIX H NWI DISPOSITION SUMMARY TABLE WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR

			J PROJECT SURVEY CORRID		
NWI			Related Field Inventoried		
Code	NWI Description	Figure 2	Resource (Wetland ID/Stream ID)	Comments	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2E, 2F	Stream 007	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	21	Stream 013	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2L	Wetland 017	Wetland extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2M	Stream 018	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2R	Stream 032	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2Z, 2AA	Stream 050	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2AH, 2AI	Stream 064	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2AM, 2AN	Stream 074	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2AT	Stream 082 (Wise Run)	Stream extends outside survey corridor, mapped in field slightly off NWI mapping	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2AU	Stream 085 (Claylick Creek) and Wetland 079	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2AW	Stream 090 and Stream 091 (Claylick Creek)	Confluence of 2 streams mapped as one, streams extend outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2AY	Stream 095 and Wetland 087	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2BA, 2BB	Stream 098 and Wetland 089	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2BB	Stream 099	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2BG	Stream 105 and Wetland 095	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2BI	Stream 106	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2BT	Stream 114	Stream extends outside survey corridor	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2BR	No inventoried resources noted	Fully vegetated upland drainage feature present	
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	2BW, 2BV	No inventoried resources noted	Within residential yard, maintained lawn	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2A	Stream 001 (Moxahala Creek)	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2A	Stream 001 (Moxahala Creek)	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2F, 2G	Stream 008 (Burley Run)	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2L	Stream 016 (Buckeye Fork)	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	20	Stream 023 (Butcherknife Creek)	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2P, 2Q	Stream 027 and Stream 028	Streams extend outside survey corridor	



APPENDIX H				
NWI DISPOSITION SUMMARY TABLE WITHIN THE CROOKSVILLE-NORTH NEWARK 138 KV				
TRANSMISSION LINE REBUILD PROJECT SURVEY CORRIDOR				

NWI Code	NWI Description	Figure 2	Related Field Inventoried Resource (Wetland ID/Stream ID)	Comments	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2U	Stream 042, Wetland 040	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2U	No inventoried resources noted	Field delineated stream boundaries do not intersect survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2Y	Stream 049	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2AK	Stream 071 (Valley Run)	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2AN	Wetland 074a	mapped NWI/NHD Wise Run was field delineated to the northeast	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2AN	Wetland 074b	Wetland extends outside survey corridor; mapped NWI/NHD Wise Run is field delineated to the northeast	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2AW	Stream 090 (Claylick Creek)	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2AX	Wetland 085	Wetland extends outside survey corridor; mapped NWI/NHD Claylick Creek was field delineated to the south	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2BF	Stream 104 (Equality Run)	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2BL	Stream 109 (Shawnee Run)	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2BO	Stream 110	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2BO	Stream 110	Stream extends outside survey corridor	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	2BQ	Pond 15	Pond extends outside survey corridor	

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# Case No(s). 21-1206-EL-BLN

Summary: Notice Letter of Notification Part 10 electronically filed by Hector Garcia-Santana on behalf of AEP Ohio Transmission Company, Inc.