

TETLP OPEN PROJECT STREAM SUMMARY

STA
2120 +00

OPEN Facility: 30" 36" MP: Compressor Station

Observers: JG, SE, AF Date: 4/10/13

Town: Smithfield County: Jefferson

Crossing Name/ID: B13-2-S2 (1-72) Recent Rain Event (date/amount): 4/12/13 <.25"

Flow Characteristics

Bank Full Width (average): 2' Flow Conditions: Flowing Subsurface Moist Channel Dry

Flow Type	Flow Velocity	Comments:
<input type="checkbox"/> Perennial <input type="checkbox"/> Intermittent	<input type="checkbox"/> Torrential <input type="checkbox"/> Mod/Slow	
<input type="checkbox"/> Interstitial <input checked="" type="checkbox"/> Ephemeral	<input type="checkbox"/> Fast <input type="checkbox"/> Eddies	<u>N/A</u>

Max Pool Depth: > 40 cm/15.8 in < 40 cm/15.8 in Max Pool Depth: N/A

Max Run Depth: N/A

Riffle and Pool Width: Same Wider Pool Wider Riffle

No flow
Chanel is insized

Channel and Bank Characteristics

Channel Substrate %:	Origin	Quality	Bank Height
<input type="checkbox"/> BLDR Slab	<input type="checkbox"/> Limestone	<u>Silted Stream Channel</u>	<u>2</u> ft
<input type="checkbox"/> Boulder	<input type="checkbox"/> Tills	<input type="checkbox"/> High	Bank Erosion
<input type="checkbox"/> Bedrock	<input type="checkbox"/> Wetlands	<input checked="" type="checkbox"/> Moderate	L R
<u>2</u> Cobble x	<input checked="" type="checkbox"/> Hardpan	<input type="checkbox"/> Normal	<input type="checkbox"/> None- Some
<u>26</u> Gravel x	<input type="checkbox"/> Sandstone	<input type="checkbox"/> Free	<input checked="" type="checkbox"/> Moderate
<input type="checkbox"/> Sand	<input type="checkbox"/> Rip/Rap	Embeddedness	<input type="checkbox"/> High-Severe
<input type="checkbox"/> Silt Mud x	<input type="checkbox"/> Lacustrine	<input type="checkbox"/> Extensive	
<u>10</u> Clay Hardpan x	<input type="checkbox"/> Shale	<input checked="" type="checkbox"/> Moderate <u>(Bottom b/w flow 1+2)</u>	
<input type="checkbox"/> Peat-Muck	<input type="checkbox"/> Coal Fines	<input type="checkbox"/> Normal	
<input type="checkbox"/> Artificial		<input type="checkbox"/> None	
<u>65</u> Woody/Leaf Debris x			
<u>2</u> Fine Detritus x			

Embedded Riffle/Run: Yes

Stream Cover

Instream Cover (presence 0-3 [ranges 0, 1-33%, 33-66%, 66-100%])	Instream Total Cover	Canopy Cover
<input type="checkbox"/> Undercut Bank	<input type="checkbox"/> Boulders	<input checked="" type="checkbox"/> 90-100% Closed
<input type="checkbox"/> Overhanging Veg.	<input type="checkbox"/> Backwater	<input type="checkbox"/> 70-90%
<input type="checkbox"/> Shallows (slow moving)	<input type="checkbox"/> Aquatic Macrophytes	<input type="checkbox"/> 45-70%
<input type="checkbox"/> Rootmats	<input checked="" type="checkbox"/> Logs or Woody Debris	<input type="checkbox"/> 10-45%
<u>1</u> Rootwads		<input type="checkbox"/> 0-10% Open

Stream Morphology and Riparian Zone

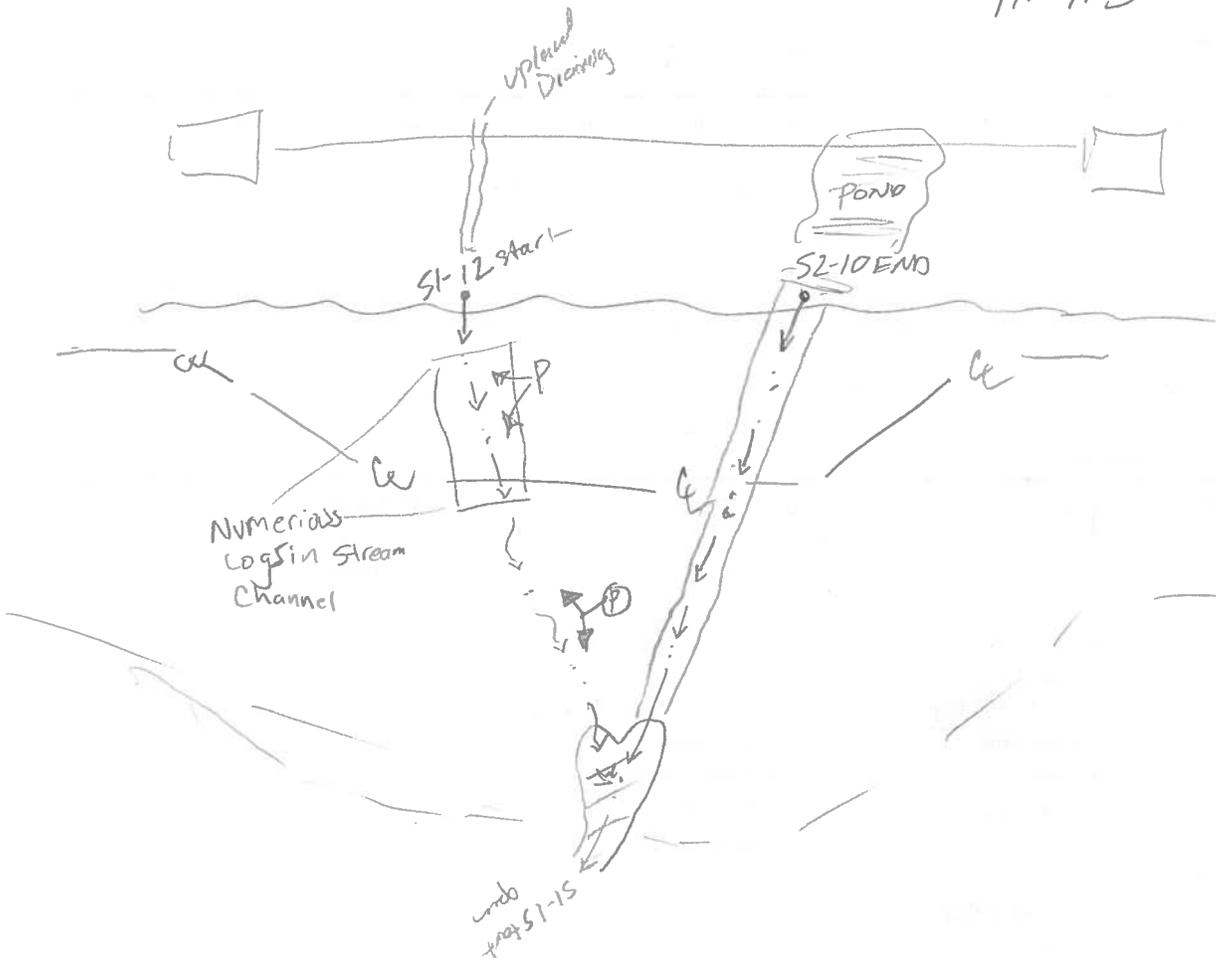
Sinuosity	Gradient (estimate)	Riparian Zone (Left/Right)	Flood Plain Quality
<input type="checkbox"/> High	<input type="checkbox"/> Flat (0.5/100 ft)	L R	<input checked="" type="checkbox"/> Forested
<input type="checkbox"/> Mod	<input checked="" type="checkbox"/> Mod Flat	<input checked="" type="checkbox"/> Wide >50 m	<input type="checkbox"/> Shrub or old field
<input checked="" type="checkbox"/> Low	<input type="checkbox"/> Mod (2/100 ft)	<input type="checkbox"/> Mod 10-50 m	<input type="checkbox"/> Hay field
<input type="checkbox"/> None	<input type="checkbox"/> Mod Severe	<input type="checkbox"/> Narrow 5-10 m	<input type="checkbox"/> Active Pasture
	<input type="checkbox"/> Severe (10/100 ft)	<input type="checkbox"/> Very Narrow <5	<input type="checkbox"/> Row crops
# of Bends <u>0.5</u>			<input type="checkbox"/> Development

Stream Ecology and Associated Wildlife Comments (i.e. marcos, salamanders, fish):

STREAM SKETCH

STA: 2120+00

4/16/13



Checklist:

-
-
-
-
-
-

Stream ID# = BB-52-(1-129)

North arrow.

Detailed sketch of stream (Riffle, Run, Pool).

Natural and man-made features – roads, culverts, outcrops, structures, etc.

Photo locations.

Location of important wildlife sign.

**TETLP OPEN PROJECT
STREAM SUMMARY**

B13-2-52

OPEN Facility: 30" 36" MP: 2120+00 Compressor Station
 Observers: AF JGA SE Date: 4/17/13
 Town: Smithfield County: Jefferson
 Crossing Name/ID: B13-2-52 Recent Rain Event (date/amount): 4/12 < 1/4"

Flow Characteristics

Bank Full Width (average): 6' Flow Conditions: Flowing Subsurface Moist Channel Dry

<u>Flow Type</u>	<u>Flow Velocity</u>	<u>Comments:</u>
<input type="checkbox"/> Perennial <input checked="" type="checkbox"/> Intermittent	<input type="checkbox"/> Torrential <input checked="" type="checkbox"/> Mod/Slow	
<input type="checkbox"/> Interstitial <input type="checkbox"/> Ephemeral	<input type="checkbox"/> Fast <input type="checkbox"/> Eddies	

Max Pool Depth: > 40 cm/15.8 in < 40 cm/15.8 in Max Pool Depth: N/A
 Max Run Depth: 1"
 Riffle and Pool Width: Same Wider Pool Wider Riffle

Channel and Bank Characteristics

<u>Channel Substrate %:</u>	<u>Origin</u>	<u>Quality</u>	<u>Bank Height</u>
<input type="checkbox"/> BLDR Slab	<input type="checkbox"/> Limestone	<i>Silted Stream Channel</i>	<u>2</u> ft
<input type="checkbox"/> Boulder	<input type="checkbox"/> Tills	<input type="checkbox"/> High	Bank Erosion
<input type="checkbox"/> Bedrock	<input type="checkbox"/> Wetlands	<input type="checkbox"/> Moderate	L R
<u>15</u> Cobble x	<input type="checkbox"/> Hardpan	<input checked="" type="checkbox"/> Normal	<input checked="" type="checkbox"/> None- Some
<u>40</u> Gravel x	<input type="checkbox"/> Sandstone	<input type="checkbox"/> Free	<input type="checkbox"/> Moderate
<u>15</u> Sand x	<input type="checkbox"/> Rip/Rap	<i>Embeddedness</i>	<input type="checkbox"/> High-Severe
<u>20</u> Silt Mud x	<input checked="" type="checkbox"/> Lacustrine	<input type="checkbox"/> Extensive	
<input type="checkbox"/> Clay Hardpan	<input type="checkbox"/> Shale	<input type="checkbox"/> Moderate	
<input type="checkbox"/> Peat-Muck	<input type="checkbox"/> Coal Fines	<input checked="" type="checkbox"/> Normal	
<input type="checkbox"/> Artificial		<input type="checkbox"/> None	
<u>5</u> Woody/Leaf Debris x			
<u>5</u> Fine Detritus x			

Embedded Riffle/Run: N/A

Stream Cover

<u>Instream Cover</u> (presence 0-3 [ranges 0, 1-33%, 33-66%, 66-100%])	<u>Instream Total Cover</u>	<u>Canopy Cover</u>
<input type="checkbox"/> Undercut Bank	<input type="checkbox"/> Boulders	<input type="checkbox"/> 90-100% Closed
<input type="checkbox"/> Overhanging Veg.	<input type="checkbox"/> Backwater	<input type="checkbox"/> 70-90%
<input type="checkbox"/> Shallows (slow moving)	<input type="checkbox"/> Aquatic Macrophytes	<input checked="" type="checkbox"/> 45-70%
<input type="checkbox"/> Rootmats	<input checked="" type="checkbox"/> Logs or Woody Debris	<input type="checkbox"/> 10-45%
<input checked="" type="checkbox"/> Rootwads	<input type="checkbox"/> Extensive 25-75%	<input type="checkbox"/> 0-10% Open
	<input type="checkbox"/> High 25-75%	
	<input checked="" type="checkbox"/> Mod. 5-25%	
	<input type="checkbox"/> Low <5%	

Stream Morphology and Riparian Zone

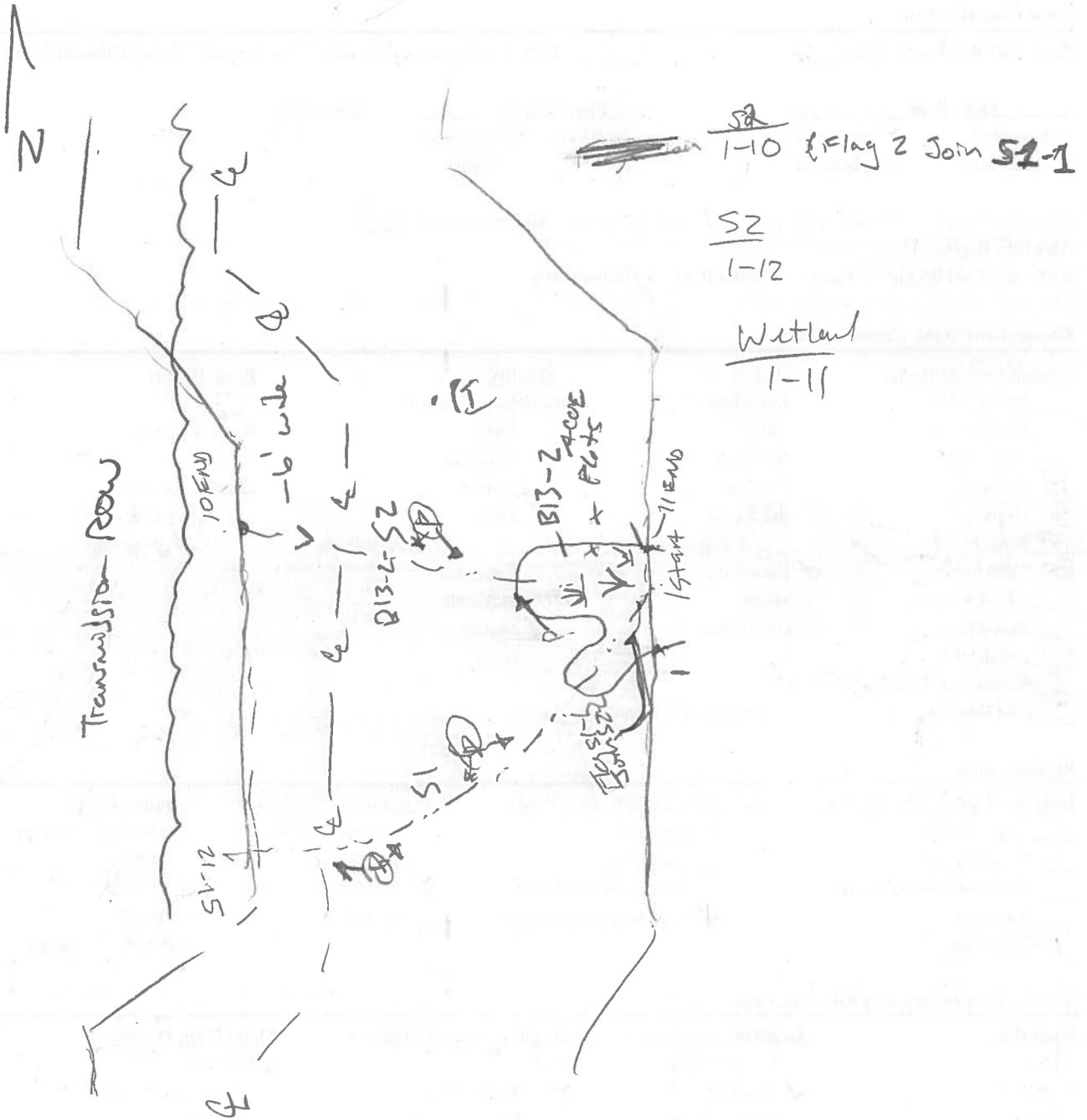
<u>Sinuosity</u>	<u>Gradient (estimate)</u>	<u>Riparian Zone (Left/Right)</u>	<u>Flood Plain Quality</u>
<input type="checkbox"/> High	<input type="checkbox"/> Flat (0.5/100 ft)	L R	<input checked="" type="checkbox"/> Forested
<input type="checkbox"/> Mod	<input checked="" type="checkbox"/> Mod Flat	<input checked="" type="checkbox"/> Wide >50 m	<input type="checkbox"/> Shrub or old field
<input type="checkbox"/> Low	<input type="checkbox"/> Mod (2/100 ft)	<input type="checkbox"/> Mod 10-50 m	<input type="checkbox"/> Hay field
<input checked="" type="checkbox"/> None	<input type="checkbox"/> Mod Severe	<input type="checkbox"/> Narrow 5-10 m	<input type="checkbox"/> Active Pasture
	<input type="checkbox"/> Severe (10/100 ft)	<input type="checkbox"/> Very Narrow <5	<input type="checkbox"/> Row crops
# of Bends <u>0</u>			<input type="checkbox"/> Development

Stream Ecology and Associated Wildlife Comments (i.e. marcos, salamanders, fish):

Caddis fly larvae

STREAM SKETCH

2120400
4/17/13



~~SZ~~
1-10 {Flag 2 Join **SZ-1**

SZ
1-12

Wetland
1-11

Checklist:

- Stream ID# = B13-2-SZ
- North arrow.
- Detailed sketch of stream (Riffle, Run, Pool).
- Natural and man-made features – roads, culverts, outcrops, structures, etc.
- Photo locations.
- Location of important wildlife sign.



Primary Headwater Habitat Evaluation Form

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

23

SITE NAME/LOCATION TETLP's OPEN Project
 SITE NUMBER B13-2-S1 RIVER BASIN Ohio River East DRAINAGE AREA (mi²) 0.48
 LENGTH OF STREAM REACH (ft) 113 LAT. 40.24954 LONG. -80.83834 RIVER CODE _____ RIVER MILE _____
 DATE 4/16/13 SCORER J. Gravel, S. Everette COMMENTS surveyed 273' total, 113' within proposed ROW

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

STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
 MODIFICATIONS:

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	_____
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	65
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	2
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	2	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	10
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	21	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	_____

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 2 (A) 12 (B) 5
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 0

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 0.6

HHEI Metric Points

Substrate Max = 40

17

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

This information must also be completed

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

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

COMMENTS upland forest with existing transmission line ROW nearby to the west

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

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

COMMENTS ephemeral stream

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

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

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - Yes No QHEI Score N/A (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

- WWH Name: Trib to Piney Fork Distance from Evaluated Stream _____
 CWH Name: _____ Distance from Evaluated Stream _____
 EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Dillonvale, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Jefferson Township / City: Smithfield

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 4/12/13 Quantity: <0.25"

Photograph Information: Photo Index

Elevated Turbidity? (Y/N): N Canopy (% open): 0-10

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

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

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

Ephemeral stream flowing to the east with abundant woody debris in the stream channel.

FLOW 



Primary Headwater Habitat Evaluation Form

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

38

SITE NAME/LOCATION TETLP's OPEN Project
 SITE NUMBER B13-2-S2 RIVER BASIN Ohio River East DRAINAGE AREA (mi²) 0.04
 LENGTH OF STREAM REACH (ft) 126 LAT. 40.2499 LONG. -80.8385 RIVER CODE _____ RIVER MILE _____
 DATE 4/17/13 SCORER A. Finamore, J. Gravel COMMENTS surveyed 295' total, 126' within proposed ROW

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

STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
 MODIFICATIONS:

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	20
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	5
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	40	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	15	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	_____

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15 (A) 12 (B) 6

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: _____ TOTAL NUMBER OF SUBSTRATE TYPES: _____

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

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

COMMENTS no pools, consistent run at 2.54 cm MAXIMUM POOL DEPTH (centimeters): 0

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 1.8

HHEI Metric Points

Substrate Max = 40

18

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

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

COMMENTS upland forest with existing transmission line ROW nearby to the west

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

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

COMMENTS intermittent stream

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - Yes No QHEI Score N/A (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

WWH Name: Trib to Piney Fork Distance from Evaluated Stream _____
 CWH Name: _____ Distance from Evaluated Stream _____
 EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Dillonvale, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Jefferson Township / City: Smithfield

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 4/12/13 Quantity: <0.25"

Photograph Information: See Photo Index

Elevated Turbidity? (Y/N): N Canopy (% open): 30-55

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

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

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

Comments Regarding Biology: Caddis fly larvae

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

Intermittent stream flowing to the east from existing transmission right of way through a wetland pocket.

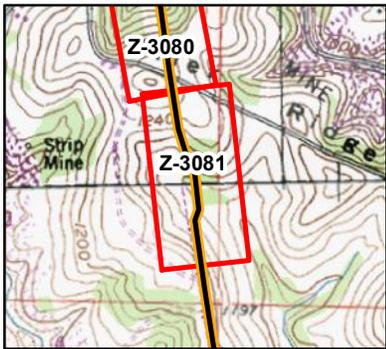
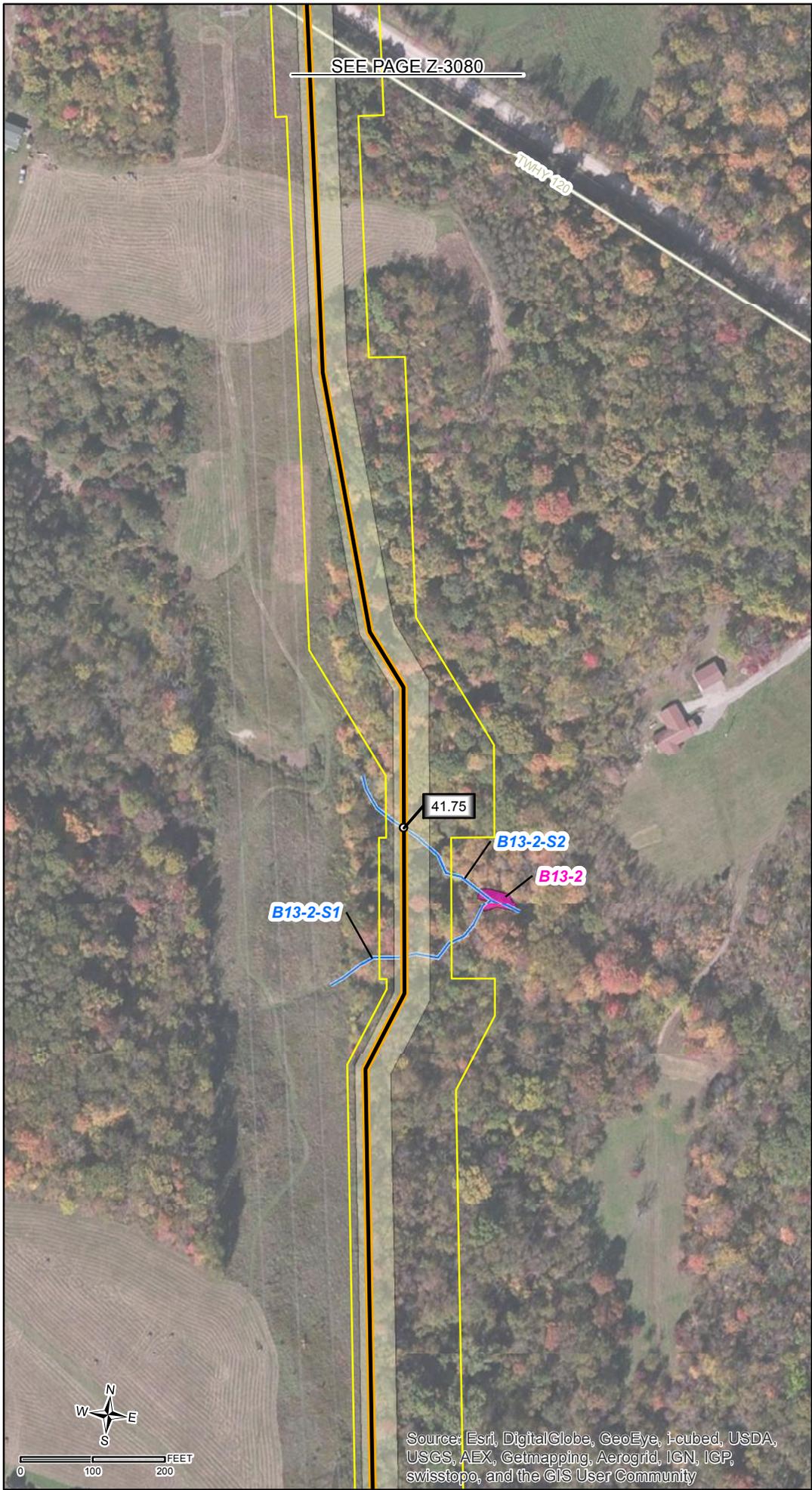
FLOW 

**OPEN 30" Mainline Waterbody Photographs
Jefferson County, Ohio**

**Smithfield Township MP 41.76
B13-2-S1, S2**

Photo 1	Photo 2
	
Photo 3	Photo 4
	<p data-bbox="1166 1339 1222 1371">N/A</p>

Photo 1: Ephemeral stream 1, looking upstream to the west
Photo 2: Ephemeral stream 1, looking downstream to the east
Photo 3: Intermittent stream 2 intersecting ephemeral stream 1, looking NE



LEGEND

- MILE POST
- PROPOSED PIPELINE
- PROPOSED ACCESS ROAD
- DELINEATED STREAM
- DELINEATED WATERBODY EDGE
- EXISTING ROAD CENTERLINE
- DELINEATED WATERBODY
- DELINEATED WETLAND
- PROPOSED PERMANENT EASEMENT
- PROPOSED CONSTRUCTION WORKSPACE
- MUNICIPALITY BOUNDARY

Data Sources: ESRI, Spectra, TRC, Hatch Mott MacDonald

Projection: NAD83, StatePlane
Ohio NorthFIPS 3401
US Survey Feet

Spectra Energy Partners.
Texas Eastern Transmission, LP
5408 Weatherford Court, Houston, TX 77056-6518 713.927.5400

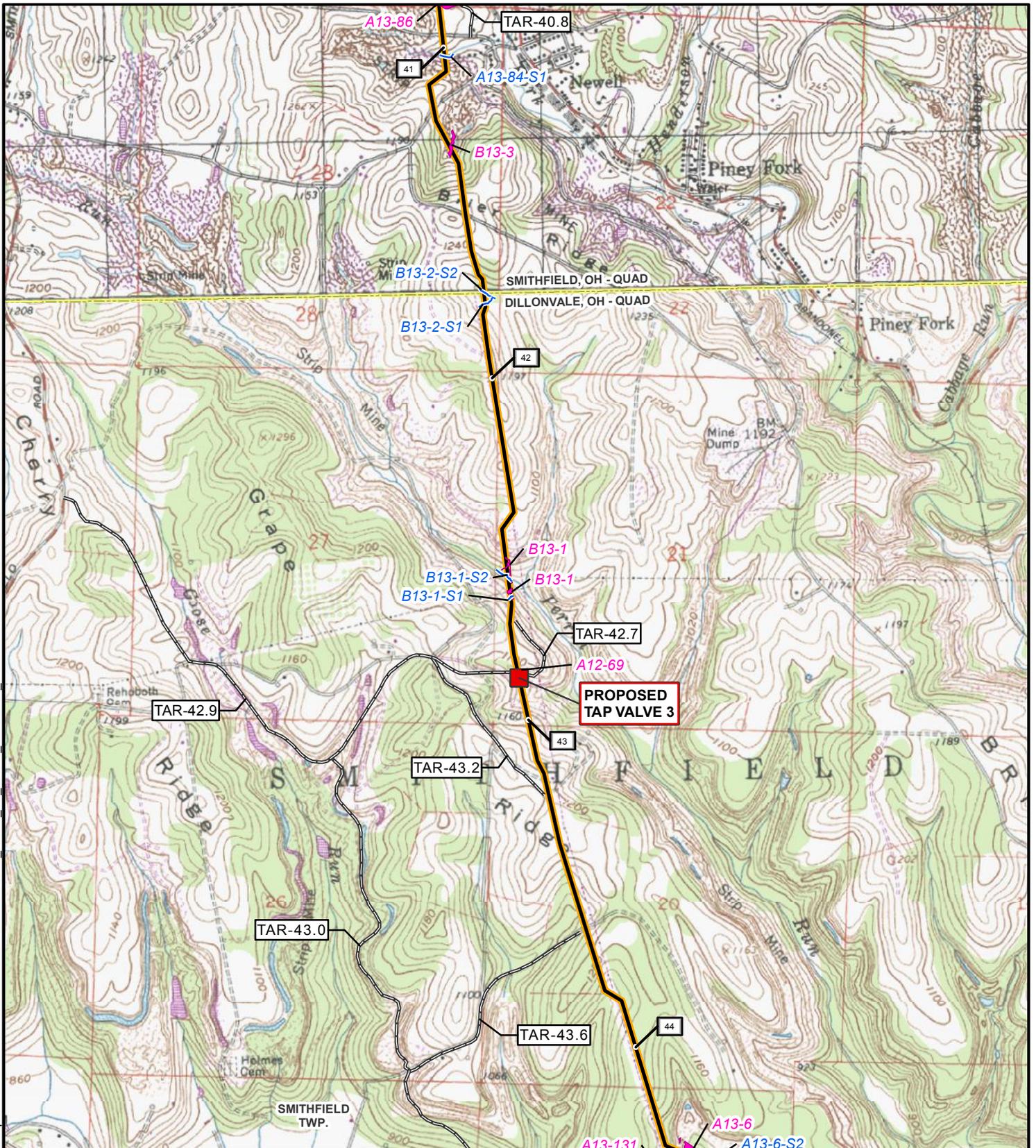
Spectra Natural Gas Pipeline
2015 OPEN Project
Proposed 30in. Line NO. 73

Natural Resource Maps
Map Z-3081

Hatch Mott MacDonald
Created: 02/19/2014

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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- | | | | |
|---------------------------------|-------------------------|----------------------------|-----------------------------|
| MILE POST | DELINEATED WETLAND | PROPOSED M&R STATION | PROPOSED COMPRESSOR STATION |
| PROPOSED PIPELINE | DELINEATED WATERBODY | PROPOSED REGULATOR STATION | MUNICIPALITY BOUNDARY |
| PROPOSED ACCESS ROAD | PROPOSED STAGING AREA | PROPOSED TAP VALVE | COUNTY BOUNDARY |
| EXISTING TEXAS EASTERN PIPELINE | PROPOSED MAINLINE VALVE | USGS QUADRANGLE BOUNDARY | |
| DELINEATED STREAM CENTERLINE | | | |



**TITLE: OPEN PROJECT
DELINEATED STREAMS & WETLANDS - USGS QUAD MAP**

LOC.: JEFFERSON COUNTY, OHIO REV. 0

CKD. BY: HMMHOL ENG. DATE: 02/2014 W.O.

DRN. BY: HMMHOL SCALE: 1" = 2000' DWG. NO. Z-2013



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I.G.