

**VIA EMAIL**

January 29, 2021

Mr. David Baldrige  
Chief, South Branch Regulatory Division  
U.S. Army Corps of Engineers  
Louisville District  
600 Dr. Martin Luther King, Jr. Place  
Louisville, Kentucky 40202  
David.E.Baldrige@usace.army.mil  
CELRL.Door.To.The.Corps@usace.army.mil

**Subject: Request for Jurisdictional Determination – DRAFT  
Old Heady Property  
Jefferson County, Kentucky  
Redwing Project No.: 20-236**

Dear Mr. Baldrige:

On behalf of Sunshine Builders, LLC, RES Kentucky, LLC dba Redwing (Redwing) is pleased to submit this Request for Jurisdictional Determination to the U.S. Army Corps of Engineers (USACE) for the approximately 55-acre project site located on the north side of Old Heady Road, immediately West of I-265 in Jefferson County, Kentucky (Figure 1). This report describes the location, extent, and characteristics of waters/wetlands that were delineated within the project boundary.

The project site consists primarily of upland mixed-age woods, maintained open field and old field habitat (Figure 2). Based on the water/wetland delineation, jurisdictional features on the site include six intermittent streams totaling 3,138 linear feet and one open water pond measuring 0.716 acre. The non-jurisdictional water/wetland features identified on site include 23 ephemeral streams totaling 2,611 linear feet (Figure 3). These ephemeral streams are considered non-jurisdictional features under the Navigable Waters Protection Rule (NWPR 2020). No wetlands were identified on site.

## METHODOLOGY

Redwing wetland scientists conducted a delineation of the site on January 11, 2021. The wetland delineation was accomplished through documentation of the presence/absence of hydric soils, wetland hydrology, and hydrophytic vegetation according to the Routine On-Site Determination Method, as defined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (April 2012). The presence of open waters, such as streams and ponds, within the project boundary was determined based on ordinary high water mark (OHWM), defined bed and bank features, and flow regime.

## RESULTS

Based on the water/wetland delineation, jurisdictional features on site include:

- six jurisdictional intermittent streams totaling 3,138 linear feet (0.406 acre)
- one open water pond measuring 0.716 acre

Non-jurisdictional water/wetland features identified during the field assessment include 23 ephemeral streams totaling 2,611 linear feet (0.097 acre). No wetlands were present. Wetland determination data were formally collected at four data points within the project boundary (Figure 3) and are attached as Appendix A. The quality of intermittent streams was assessed using Rapid Bioassessment Protocol (RBP) methodology established by the U.S. Environmental Protection Agency (USEPA). The RBP forms are provided as Appendix B. An Approved Jurisdictional Determination Form is provided as Appendix C. The results of the water/wetland delineation are summarized in Table 1 (attached), depicted on Figure 3, and discussed below.

**Intermittent Stream:** Six intermittent streams were identified during the field assessment. All of them generally flow eastward and contribute flow to downstream navigable waters via Shinks Branch, Chenoweth Run, and Floyds Fork. Thus, they are considered to be under USACE jurisdiction.

Intermittent Stream 1 is three to seven feet wide with silt, sand, gravel, cobble and bedrock substrate. During the field assessment, Intermittent Stream 1 had flowing water at depths of up to six inches. One RBP point was assessed along Intermittent Stream 1 with a score of 104 which characterizes it as "Poor" quality.

Intermittent Stream 2 is approximately seven feet wide with silt, sand, gravel, cobble, boulders and bedrock substrate. During the field assessment, Intermittent Stream 2 had flowing water at depths of up to six inches. Two RBP points were assessed along Intermittent Stream 2 with a score of 115 and 110 which characterizes it as "Poor" quality.

Intermittent Stream 3 is three to five feet wide with silt, sand, gravel and cobble substrate. During the field assessment, Intermittent Stream 3 had flowing water at depths less than six inches. One RBP point was assessed along Intermittent Stream 3 with a score of 100 which characterizes it as “Poor” quality.

Intermittent Stream 4 is two to four feet wide with silt, sand, gravel and cobble substrate. During the field assessment, Intermittent Stream 4 had flowing water at depths less than six inches. One RBP point was assessed along Intermittent Stream 4 with a score of 115 which characterizes it as “Poor” quality.

Intermittent Stream 5 is three to six feet wide with silt, sand, gravel, cobble and bedrock substrate. During the field assessment, Intermittent Stream 5 had flowing water at depths less than six inches. One RBP point was assessed along Intermittent Stream 5 with a score of 98 which characterizes it as “Poor” quality.

Intermittent Stream 6 is two to five feet wide with silt, sand, gravel and cobble substrate. During the field assessment, Intermittent Stream 6 had flowing water at depths less than six inches. One RBP point was assessed along Intermittent Stream 6 with a score of 66 which characterizes it as “Poor” quality.

**Ephemeral Streams:** A total of 23 ephemeral streams were identified within the project boundary. The ephemeral streams are approximately one to two feet wide with bank heights ranging from one to two feet. The substrates consist primarily of silt with scattered gravel and cobble. Only shallow isolated standing pools of water were observed within the banks of the ephemeral streams during the field assessment, confirming that they only flow in direct response to precipitation. Thus, they are considered non-jurisdictional features under the NWPR.

**Wetlands:** No wetlands were identified on the site during the field assessment.

General site characteristics of soil, hydrology, and vegetation for the project are discussed below.

**Soils:** The USDA Soil Survey Geographic Database for Jefferson County, Kentucky maps the site as being underlain primarily by Beasley silt loam, Crider silt loam, Nicholson silt loam, and Shrouts silt loam (Figure 4). None of these soils are listed on the Hydric Soil List for Jefferson County, Kentucky. No hydric soil indicators were observed on site.

**Hydrology:** The main sources of hydrology to the site include direct precipitation and surface runoff from adjacent areas. The site is not located within the 100-year floodplain (Figure 5). No wetland hydrology indicators were observed at the four wetland data point locations.

**Vegetation:** The project boundary consists primarily of mixed-age upland woods, maintained open field, and old field habitat (Figure 2). No wetland plant communities were observed.

Common species in the upland woods habitat include: eastern red cedar (*Juniperus virginiana*), bush honeysuckle (*Lonicera maackii*), chinkapin oak (*Quercus muehlenbergii*), white oak (*Quercus alba*) and shagbark hickory (*Carya ovata*). These species are listed as upland (UPL) and facultative upland (FACU), in the *National Wetland Plant List: Eastern Mountain and Piedmont Final Regional Wetland Plant List – 2018, Version 3.4* (NWPL).

Common species in the maintained open field habitat include: tall fescue (*Schedonorus arundinaceus*), yellow foxtail (*Setaria pumila*), nodding foxtail (*Setaria faberi*), broomsedge (*Andropogon virginicus*), and white clover (*Trifolium repens*). These species are listed as UPL, FACU, and facultative (FAC) in the NWPL.

Common species in the old field habitat include: eastern red cedar, tall fescue, yellow foxtail, nodding foxtail, broomsedge, Johnson grass (*Sorghum halepense*), multiflora rose (*Rosa multiflora*), and green ash (*Fraxinus pennsylvanica*). These species are listed as UPL, FACU, and FAC in the NWPL.

**Open Water:** Open Water Pond 1 is located in the south-central portion of the site. It measures 0.716 acre with an estimated maximum depth of eight feet and a primarily silt substrate. Pond 1 is hydrologically supplied by surface water and flows directly discharged from Intermittent Stream 5. The pond outlets to Intermittent Stream 6 via a culvert located in the southwest corner of the pond. This feature is considered jurisdictional based on its immediate downstream connection to Intermittent Stream 6.

## CONCLUSION

This water/wetland delineation identified six jurisdictional intermittent streams totaling 3,138 linear feet (0.406 acre) and one open water pond measuring 0.716 acre within the project boundary. The non-jurisdictional water/wetland features identified during the field assessment include 23 ephemeral streams totaling 2,611 linear feet (0.097 acre). As the USACE holds final authority over determinations of the extent and location of jurisdictional waters/wetlands, we respectfully request USACE verification of delineated water/wetland boundaries and issuance of an Approved Jurisdictional Determination for the property.

We appreciate your review of this request. Please contact Rich Fangman or Ronald Thomas at (502) 625-3009 with any questions regarding this report or the overall project.

Sincerely,

**DRAFT**

Richard J. Fangman  
Project Manager I

**DRAFT**

Ronald L. Thomas  
Senior Project Manager

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cc: Mr. Damon Garrett – Sunshine Builders, LLC

Attachments: Table  
Figures  
Photographs  
Appendix A: Wetland Determination Data Forms  
Appendix B: Rapid Bioassessment Protocol Form  
Appendix C: Approved Jurisdictional Determination Form (Interim)

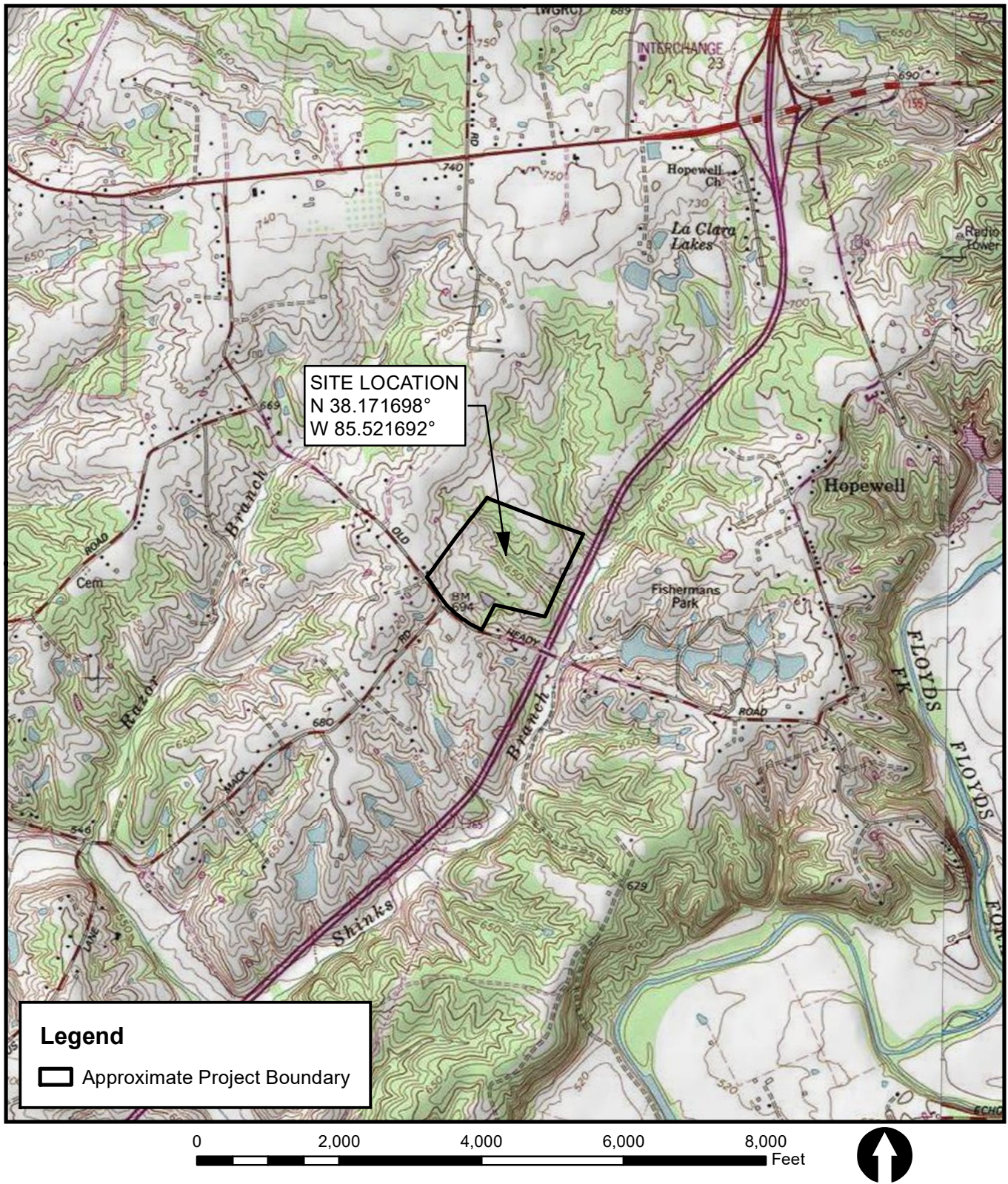
# TABLE

**Table 1: Water/Wetland Summary  
Old Heady Property  
Jefferson County, Kentucky  
Redwing Project: 20-236**

<b>Feature</b>	<b>Stream Length (feet)</b>	<b>Stream Width (feet)</b>	<b>Area (acres)</b>	<b>Federal Status</b>
Intermittent Stream 1	175	5	0.020	Jurisdictional
Intermittent Stream 2	1,789	7	0.287	Jurisdictional
Intermittent Stream 3	102	4	0.009	Jurisdictional
Intermittent Stream 4	458	3	0.032	Jurisdictional
Intermittent Stream 5	365	4.5	0.038	Jurisdictional
Intermittent Stream 6	249	3.5	0.020	Jurisdictional
<b>Intermittent Stream Total</b>	<b>3,138</b>		<b>0.406</b>	
Ephemeral Stream 1	84	1	0.002	Non-Jurisdictional
Ephemeral Stream 2	289	2	0.013	Non-Jurisdictional
Ephemeral Stream 3	21	1.5	0.001	Non-Jurisdictional
Ephemeral Stream 4	412	2	0.019	Non-Jurisdictional
Ephemeral Stream 5	175	1.5	0.006	Non-Jurisdictional
Ephemeral Stream 6	94	2	0.004	Non-Jurisdictional
Ephemeral Stream 7	26	2.5	0.001	Non-Jurisdictional
Ephemeral Stream 8	38	1.5	0.001	Non-Jurisdictional
Ephemeral Stream 9	111	1.5	0.004	Non-Jurisdictional
Ephemeral Stream 10	120	1.5	0.004	Non-Jurisdictional
Ephemeral Stream 11	169	1.5	0.006	Non-Jurisdictional
Ephemeral Stream 12	97	1	0.002	Non-Jurisdictional
Ephemeral Stream 13	76	1.5	0.003	Non-Jurisdictional
Ephemeral Stream 14	139	1.5	0.005	Non-Jurisdictional
Ephemeral Stream 15	81	1.5	0.003	Non-Jurisdictional
Ephemeral Stream 16	167	1.5	0.006	Non-Jurisdictional
Ephemeral Stream 17	120	1	0.003	Non-Jurisdictional
Ephemeral Stream 18	65	1.5	0.002	Non-Jurisdictional
Ephemeral Stream 19	45	2	0.002	Non-Jurisdictional
Ephemeral Stream 20	95	2	0.004	Non-Jurisdictional
Ephemeral Stream 21	21	1	0.000	Non-Jurisdictional
Ephemeral Stream 22	31	2	0.001	Non-Jurisdictional
Ephemeral Stream 23	135	1.5	0.005	Non-Jurisdictional
<b>Ephemeral Stream Total</b>	<b>2,611</b>		<b>0.097</b>	
Open Water 1	---	---	0.716	Jurisdictional
<b>Jurisdictional Open Water Total</b>	<b>---</b>	<b>---</b>	<b>0.716</b>	
<b>Jurisdictional Features Total</b>	<b>3,138</b>		<b>1.122</b>	

# FIGURES

Source: USGS 7.5-minute Topographic Map - Jeffersontown and Fisherville, Kentucky Quadrangle.



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OLD HEADY PROPERTY  
JEFFERSON COUNTY, KENTUCKY



SITE LOCATION MAP

REVISED DATE: 01-22-21 | DRAWN BY: ZTT

FIGURE 1

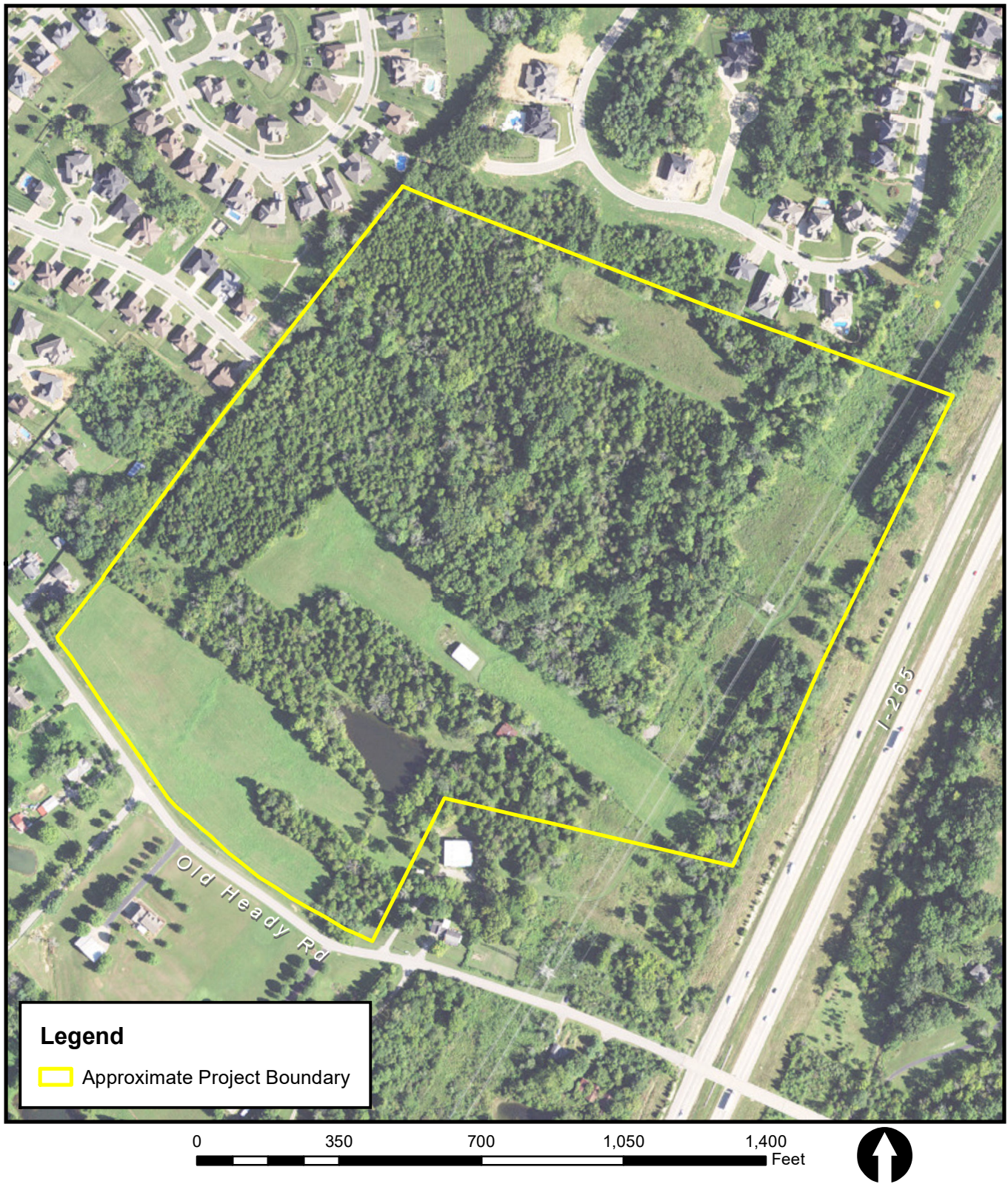
Received April 19, 2021

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21-ZONE-00016



Source: Aerial - kyraster.ky.gov (2018).



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**Legend**

 Approximate Project Boundary

OLD HEADY PROPERTY  
JEFFERSON COUNTY, KENTUCKY



AERIAL PHOTOGRAPH MAP

REVISED DATE: 01-22-21

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FIGURE 2

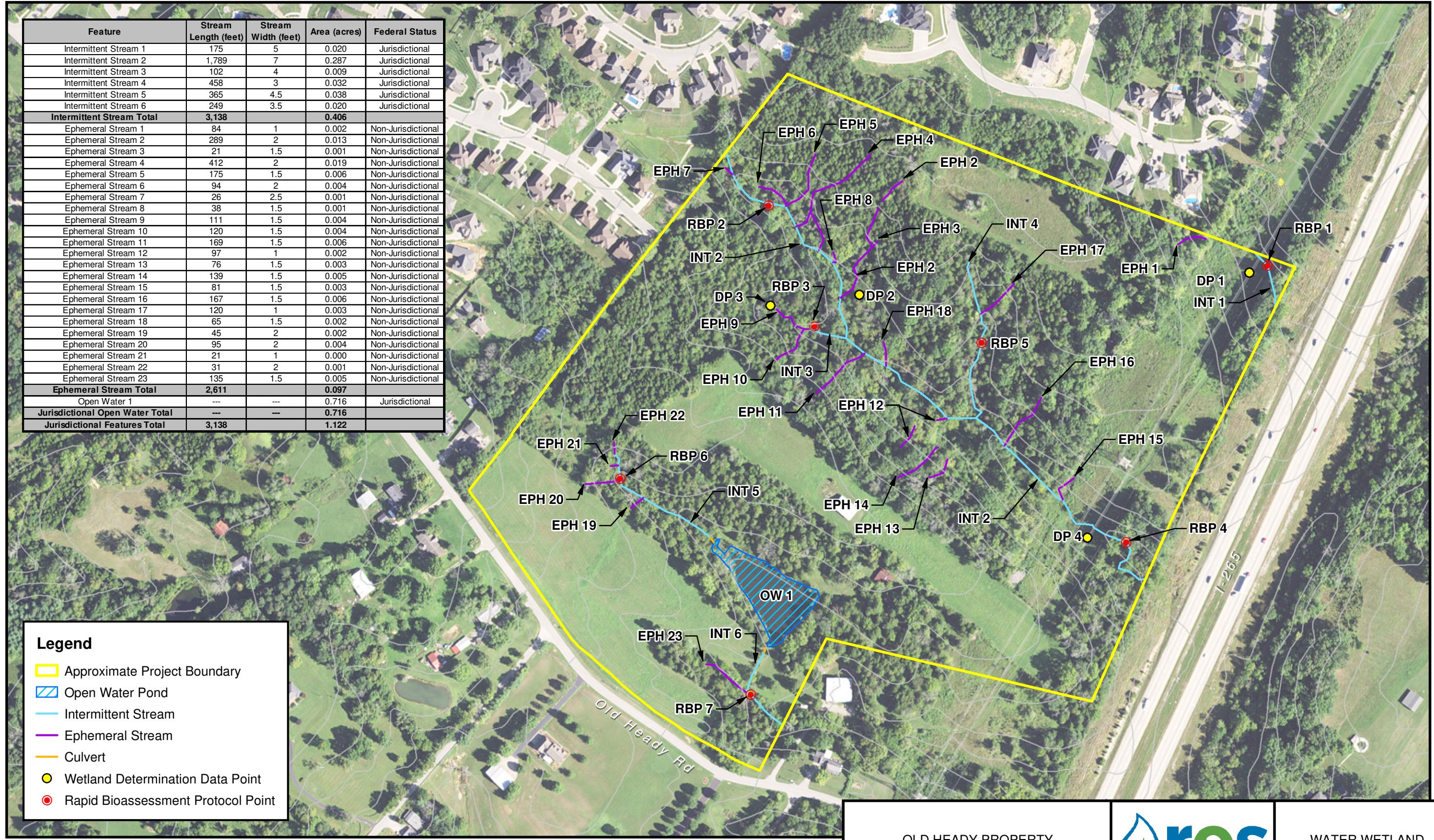
Received April 19, 2021

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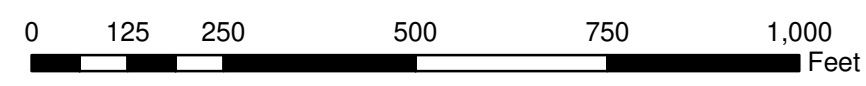
Source: Aerial - kyraster.ky.gov (2019).

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Ephemeral Stream 20	95	2	0.004	Non-Jurisdictional
Ephemeral Stream 21	21	1	0.000	Non-Jurisdictional
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Ephemeral Stream 23	135	1.5	0.005	Non-Jurisdictional
<b>Ephemeral Stream Total</b>	<b>2,611</b>		<b>0.097</b>	
Open Water 1	---	---	0.716	Jurisdictional
<b>Jurisdictional Open Water Total</b>	<b>---</b>	<b>---</b>	<b>0.716</b>	
<b>Jurisdictional Features Total</b>	<b>3,138</b>		<b>1.122</b>	

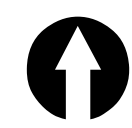


**Legend**

- Approximate Project Boundary
- Open Water Pond
- Intermittent Stream
- Ephemeral Stream
- Culvert
- Wetland Determination Data Point
- Rapid Bioassessment Protocol Point



NOTE: JURISDICTIONAL WATER/WETLAND BOUNDARIES WERE DELINEATED AND SURVEYED BY RES WETLAND SCIENTISTS ON JANUARY 11, 2021. THESE BOUNDARIES HAVE NOT BEEN VERIFIED BY THE U.S. ARMY CORPS OF ENGINEERS. USE OF THIS MAP IS FOR PRELIMINARY PLANNING PURPOSES ONLY.



OLD HEADY PROPERTY  
JEFFERSON COUNTY, KENTUCKY

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WATER WETLAND  
LOCATION MAP

FIGURE 3

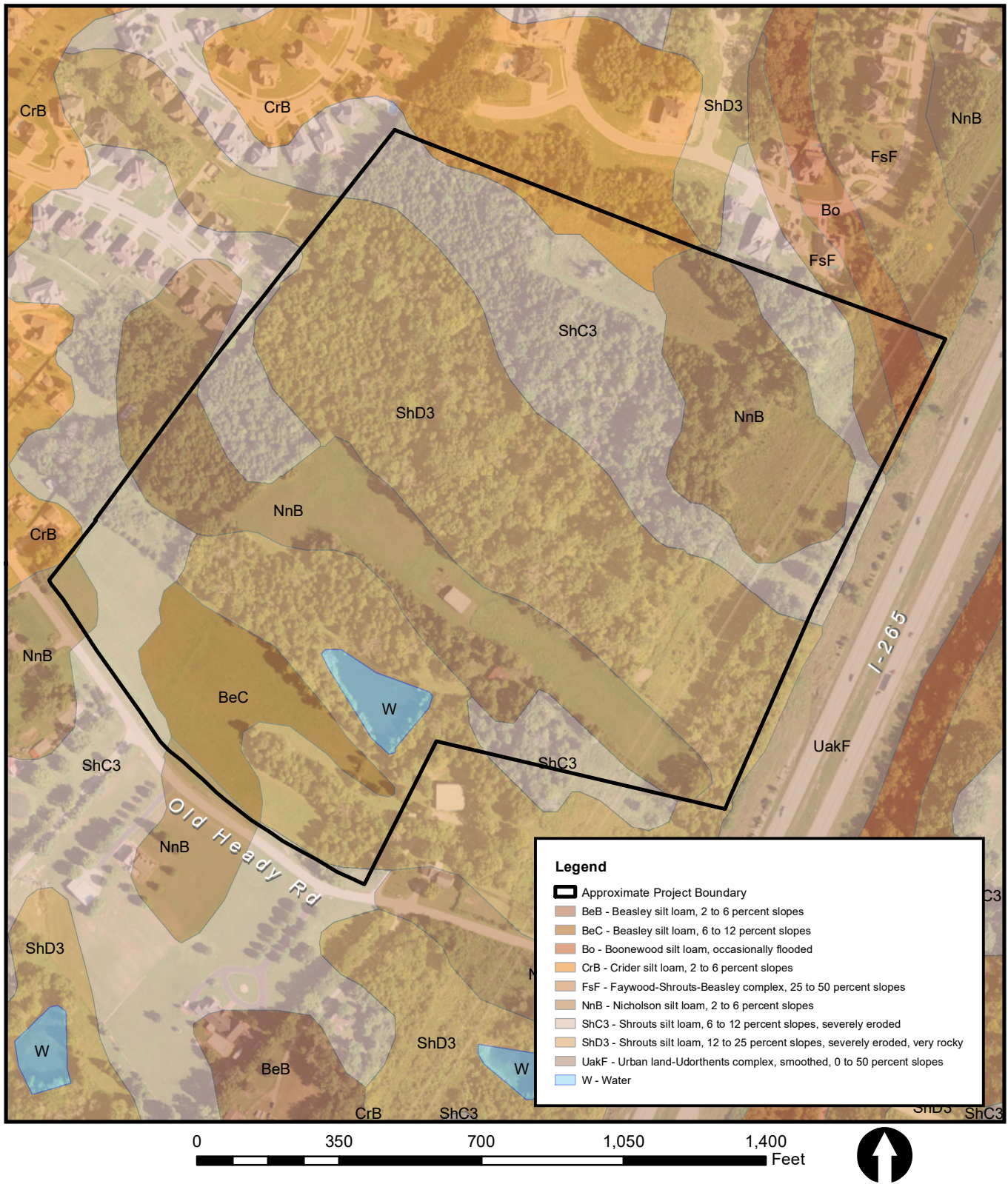
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Source: Aerial - kyraster.ky.gov (2018); Soil Survey Geographic (SSURGO) database for Jefferson County, Kentucky (2008).



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OLD HEADY PROPERTY  
JEFFERSON COUNTY, KENTUCKY



SOIL SURVEY MAP

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FIGURE 4

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Source: Aerial - kyraster.ky.gov (2018); FEMA National Flood Hazard Layer (NFHL) (2015).



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OLD HEADY PROPERTY  
JEFFERSON COUNTY, KENTUCKY



FEMA FLOODPLAIN MAP

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FIGURE 5

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# PHOTOGRAPHS



Photograph 1: General view of the upland mixed-age woods found throughout the site. This habitat is dominated by trees/shrubs such as white oak, bush honeysuckle, eastern red cedar. January 11, 2021.



Photograph 2: General view of the maintained open field habitat located throughout the site. January 11, 2021.



Photograph 3: General view of the old field habitat located throughout the site. January 11, 2021.



Photograph 4: Open Water Pond 1 is located in the south-central portion of the site. January 11, 2021.



Photograph 5: Downstream view of Ephemeral Stream 11. This is a representative view of the on-site ephemeral streams. These streams did not have flowing water at the time of the field assessment. January 11, 2021.



Photograph 6: Downstream view of Intermittent Stream 2 in the central portion of the site. Downstream waters continue off site and flow under I-265 and into Shinks Branch. January 11, 2021.



**APPENDIX A**

**WETLAND DETERMINATION DATA FORMS**

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Old Heady Property City/County: Louisville/Jefferson Sampling Date: 1/11/21  
 Applicant/Owner: Sunshine Builders, LLC State: Kentucky Sampling Point: DP1  
 Investigator(s): R. Fangman/Z. Triplett Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): side slope Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR or MLRA) LRR N Lat.: 38.172456 Long.: -85.518250 Datum: \_\_\_\_\_  
 Soil Map Unit Name: FsF - Faywood-Shrouds-Beasley complex, 25 to 50 percent slopes NWI Classification: \_\_\_\_\_  
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in remarks)

### SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>      No      </u> Hydric soil present? <u>      No      </u> Wetland hydrology present? <u>      No      </u>	<b>Is the Sampled Area within a Wetland?</b> <u>      No      </u>
---------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------

Remarks: (Explain alternative procedures here or in a separate report.)  
 Upland data point

### HYDROLOGY

Wetland Hydrology Indicators		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface water present? Yes <u>      </u> No <u>  X  </u> Depth (inches): <u>  N/A  </u> Water table present? Yes <u>      </u> No <u>  X  </u> Depth (inches): <u>  &gt;14  </u> Saturation present? Yes <u>      </u> No <u>  X  </u> Depth (inches): <u>  &gt;14  </u> (includes capillary fringe)	<b>Wetland hydrology present?</b> <u>      No      </u>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Four Strata) -- Use scientific names of plants**

**Sampling Point: DP1**

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	<i>Schedonorus arundinaceus</i>	40	Yes	FACU
2	<i>Setaria faberi</i>	20	Yes	UPL
3	<i>Sorghum halepense</i>	20	Yes	FACU
4	<i>Setaria pumila</i>	10	No	FAC
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Woody Vine Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_

FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_

FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_

FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_

UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_

Column totals \_\_\_\_\_ (A) \_\_\_\_\_ (B)

Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**

\_\_\_\_ 1 - Rapid test for hydrophytic vegetation

\_\_\_\_ 2 - Dominance test is >50%

\_\_\_\_ 3 - Prevalence index is ≤3.0\*

\_\_\_\_ 4 - Morphological adaptations\* (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_ Problematic hydrophytic vegetation\* (explain)

\*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Four Vegetation Strata**

**Tree** - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** - All woody vines greater than 3.28 ft in height.

**Hydrophytic vegetation present?** No

Remarks: (Include photo numbers here or on a separate sheet)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	2.5Y 3/3	100					silty clay	
6-14	10YR 4/3	60	2.5Y 5/3	40	C	M	silty clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains - <sup>2</sup>Location: PL=Lining, M=Matrix

**Hydric Soil Indicators:**

**Indicators for Problematic Hydric Soils:**

- |                                                                   |                                                                                |                                                              |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------|
| <input type="checkbox"/> Histisol (A1)                            | <input type="checkbox"/> Dark Surface (S7)                                     | <input type="checkbox"/> 2 cm Muck (A10) ( <b>MLRA 147</b> ) |
| <input type="checkbox"/> Histic Epipedon (A2)                     | <input type="checkbox"/> Polyvalue Below Surface (S9) ( <b>MLRA 147, 148</b> ) | <input type="checkbox"/> Coast Prairie Redox (A16)           |
| <input type="checkbox"/> Black Histic (A3)                        | <input type="checkbox"/> Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )       | <input type="checkbox"/> ( <b>MLRA 147, 148</b> )            |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                    | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                              | <input type="checkbox"/> Piedmont Floodplain Soils (F19)     |
| <input type="checkbox"/> Stratified Layers (A5)                   | <input type="checkbox"/> Depleted Matrix (F3)                                  | <input type="checkbox"/> ( <b>MLRA 136, 147</b> )            |
| <input type="checkbox"/> 2 cm Muck (A10) ( <b>LRR N</b> )         | <input type="checkbox"/> Redox Dark Surface (F6)                               | <input type="checkbox"/> Very Shallow Dark Surface (TF12)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)        | <input type="checkbox"/> Depleted Dark Surface (F7)                            | <input type="checkbox"/> Other (Explain in Remarks)          |
| <input type="checkbox"/> Thick Dark Surface (A12)                 | <input type="checkbox"/> Redox Depressions (F8)                                |                                                              |
| <input type="checkbox"/> Sandy Muck Mineral (S1) ( <b>LRR,N</b> ) | <input type="checkbox"/> Iron-Manganese Masses (F12) ( <b>LRR N</b> )          |                                                              |
| <input type="checkbox"/> ( <b>MLRA 147, 148</b> )                 | <input type="checkbox"/> ( <b>MLRA 136</b> )                                   |                                                              |
| <input type="checkbox"/> Sandy Gley Matrix (S4)                   | <input type="checkbox"/> Umbric Surface (F13) ( <b>MLRA 136, 122</b> )         |                                                              |
| <input type="checkbox"/> Sandy Redox (S5)                         | <input type="checkbox"/> Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> )   |                                                              |
| <input type="checkbox"/> Stripped Matrix (S6)                     | <input type="checkbox"/> Red Parent Material ( F21) ( <b>MLRA 127, 147</b> )   |                                                              |

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?       No      

Remarks:

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Old Heady Property City/County: Louisville/Jefferson Sampling Date: 1/11/21  
 Applicant/Owner: Sunshine Builders, LLC State: Kentucky Sampling Point: DP2  
 Investigator(s): R. Fangman/Z. Triplett Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1  
 Subregion (LRR or MLRA) LRR N Lat.: 38.172253 Long.: -85.521867 Datum: \_\_\_\_\_  
 Soil Map Unit Name: ShD3 - Shrouts silt loam, 12 to 25 percent slopes, severely eroded, very rocky NWI Classification: \_\_\_\_\_  
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in remarks)

### SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>      No      </u> Hydric soil present? <u>      No      </u> Wetland hydrology present? <u>      No      </u>	<b>Is the Sampled Area within a Wetland?</b> <u>      No      </u>
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Remarks: (Explain alternative procedures here or in a separate report.)  
 Upland data point

### HYDROLOGY

Wetland Hydrology Indicators	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface water present? Yes <u>      </u> No <u>  X  </u> Depth (inches): <u>  N/A  </u> Water table present? Yes <u>      </u> No <u>  X  </u> Depth (inches): <u>  &gt;14  </u> Saturation present? Yes <u>      </u> No <u>  X  </u> Depth (inches): <u>  &gt;14  </u> (includes capillary fringe)	<b>Wetland hydrology present?</b> <u>      No      </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Four Strata) -- Use scientific names of plants**

**Sampling Point: DP2**

<u>Tree Stratum</u>		Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	<i>Juniperus virginiana</i>		40	Yes	FACU
2	<i>Ulmus americana</i>		30	Yes	FACW
3	<i>Fraxinus pennsylvanica</i>		15	No	FACW
4	<i>Betula nigra</i>		10	No	FACW
5					
6					
7					
8					
9					
10					
			95	=	Total Cover

<u>Sapling/Shrub Stratum</u>		Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	<i>Lonicera maackii</i>		60	Yes	UPL
2					
3					
4					
5					
6					
7					
8					
9					
10					
			60	=	Total Cover

<u>Herb Stratum</u>		Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	<i>Lonicera maackii</i>		10	Yes	UPL
2	<i>Carex blanda</i>		5	Yes	FAC
3	<i>Euonymus fortunei</i>		3	No	UPL
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
			18	=	Total Cover

<u>Woody Vine Stratum</u>		Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1					
2					
3					
4					
5					
			0	=	Total Cover

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 40.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_

FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_

FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_

FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_

UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_

Column totals \_\_\_\_\_ (A) \_\_\_\_\_ (B)

Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**

\_\_\_\_ 1 - Rapid test for hydrophytic vegetation

\_\_\_\_ 2 - Dominance test is >50%

\_\_\_\_ 3 - Prevalence index is ≤3.0\*

\_\_\_\_ 4 - Morphological adaptations\* (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_ Problematic hydrophytic vegetation\* (explain)

\*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Four Vegetation Strata**

**Tree** - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** - All woody vines greater than 3.28 ft in height.

**Hydrophytic vegetation present?** No

Remarks: (Include photo numbers here or on a separate sheet)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 4/3	100					silty clay loam	
4-14	2.5Y 6/4	100					silty clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains - <sup>2</sup>Location: PL=Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> Histisol (A1)</li> <li><input type="checkbox"/> Histic Epipedon (A2)</li> <li><input type="checkbox"/> Black Histic (A3)</li> <li><input type="checkbox"/> Hydrogen Sulfide (A4)</li> <li><input type="checkbox"/> Stratified Layers (A5)</li> <li><input type="checkbox"/> 2 cm Muck (A10) (LRR N)</li> <li><input type="checkbox"/> Depleted Below Dark Surface (A11)</li> <li><input type="checkbox"/> Thick Dark Surface (A12)</li> <li><input type="checkbox"/> Sandy Muck Mineral (S1) (LRR,N MLRA 147, 148)</li> <li><input type="checkbox"/> Sandy Gley Matrix (S4)</li> <li><input type="checkbox"/> Sandy Redox (S5)</li> <li><input type="checkbox"/> Stripped Matrix (S6)</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Dark Surface (S7)</li> <li><input type="checkbox"/> Polyvalue Below Surface (S9) (MLRA 147, 148)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)</li> <li><input type="checkbox"/> Loamy Gleyed Matrix (F2)</li> <li><input type="checkbox"/> Depleted Matrix (F3)</li> <li><input type="checkbox"/> Redox Dark Surface (F6)</li> <li><input type="checkbox"/> Depleted Dark Surface (F7)</li> <li><input type="checkbox"/> Redox Depressions (F8)</li> <li><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N MLRA 136)</li> <li><input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)</li> <li><input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)</li> <li><input type="checkbox"/> Red Parent Material ( F21) (MLRA 127, 147)</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)</li> <li><input type="checkbox"/> Coast Prairie Redox (A16)</li> <li><input type="checkbox"/> (MLRA 147, 148)</li> <li><input type="checkbox"/> Piedmont Floodplain Soils (F19)</li> <li><input type="checkbox"/> (MLRA 136, 147)</li> <li><input type="checkbox"/> Very Shallow Dark Surface (TF12)</li> <li><input type="checkbox"/> Other (Explain in Remarks)</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<p><b>Restrictive Layer (if observed):</b></p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric soil present? <u>      No      </u></p>
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Remarks:

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Old Heady Property City/County: Louisville/Jefferson Sampling Date: 1/11/21  
 Applicant/Owner: Sunshine Builders, LLC State: Kentucky Sampling Point: DP3  
 Investigator(s): R. Fangman/Z. Triplett Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR or MLRA) LRR N Lat.: 38.172167 Long.: -85.522690 Datum: \_\_\_\_\_  
 Soil Map Unit Name: ShD3 - Shrouts silt loam, 12 to 25 percent slopes, severely eroded, very rocky NWI Classification: \_\_\_\_\_  
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in remarks)

### SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>No</u> Hydric soil present? <u>No</u> Wetland hydrology present? <u>No</u>	<b>Is the Sampled Area within a Wetland?</b> <u>No</u>
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Remarks: (Explain alternative procedures here or in a separate report.)  
 Upland data point

### HYDROLOGY

Wetland Hydrology Indicators	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface water present? Yes _____ No <u>X</u> Depth (inches): <u>N/A</u> Water table present? Yes _____ No <u>X</u> Depth (inches): <u>&gt;14</u> Saturation present? Yes _____ No <u>X</u> Depth (inches): <u>&gt;14</u> (includes capillary fringe)	<b>Wetland hydrology present?</b> <u>No</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**VEGETATION (Four Strata) -- Use scientific names of plants**

**Sampling Point: DP3**

<u>Tree Stratum</u>		Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	<i>Juniperus virginiana</i>		40	Yes	FACU
2	<i>Fraxinus pennsylvanica</i>		20	Yes	FACW
3	<i>Juglans nigra</i>		20	Yes	FACU
4					
5					
6					
7					
8					
9					
10					
			80	=	Total Cover

<u>Sapling/Shrub Stratum</u>		Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	<i>Lonicera maackii</i>		40	Yes	UPL
2	<i>Cornus florida</i>		10	Yes	FACU
3					
4					
5					
6					
7					
8					
9					
10					
			50	=	Total Cover

<u>Herb Stratum</u>		Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	<i>Glechoma hederacea</i>		20	Yes	FACU
2	<i>Microstegium vimineum</i>		20	Yes	FAC
3	<i>Carex blanda</i>		10	No	FAC
4	<i>Ligustrum sinense</i>		10	No	FACU
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
			60	=	Total Cover

<u>Woody Vine Stratum</u>		Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1					
2					
3					
4					
5					
			0	=	Total Cover

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 28.57% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_

FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_

FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_

FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_

UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_

Column totals \_\_\_\_\_ (A) \_\_\_\_\_ (B)

Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**

\_\_\_\_ 1 - Rapid test for hydrophytic vegetation

\_\_\_\_ 2 - Dominance test is >50%

\_\_\_\_ 3 - Prevalence index is ≤3.0\*

\_\_\_\_ 4 - Morphological adaptations\* (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_ Problematic hydrophytic vegetation\* (explain)

\*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Four Vegetation Strata**

**Tree** - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** - All woody vines greater than 3.28 ft in height.

**Hydrophytic vegetation present?** No

Remarks: (Include photo numbers here or on a separate sheet)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 4/3	100					silty clay	
4-14	10YR 5/4	100					silty clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains - <sup>2</sup>Location: PL=Lining, M=Matrix

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils:</b>	
<input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Muck Mineral (S1) (LRR,N <b>MLRA 147, 148)</b> <input type="checkbox"/> Sandy Gley Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Polyvalue Below Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N <b>MLRA 136)</b> <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material ( F21) (MLRA 127, 147)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) <input type="checkbox"/> Coast Prairie Redox (A16) <b>(MLRA 147, 148)</b> <input type="checkbox"/> Piedmont Floodplain Soils (F19) <b>(MLRA 136, 147)</b> <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	<p>*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</p>

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	Hydric soil present? <u>    No    </u>
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Remarks:

## WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: Old Heady Property City/County: Louisville/Jefferson Sampling Date: 1/11/21  
 Applicant/Owner: Sunshine Builders, LLC State: Kentucky Sampling Point: DP4  
 Investigator(s): R. Fangman/Z. Triplett Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR or MLRA) LRR N Lat.: 38.170497 Long.: -85.519718 Datum: \_\_\_\_\_  
 Soil Map Unit Name: ShD3 - Shrouts silt loam, 12 to 25 percent slopes, severely eroded, very rocky NWI Classification: \_\_\_\_\_  
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in remarks)

### SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>No</u> Hydric soil present? <u>No</u> Wetland hydrology present? <u>No</u>	<b>Is the Sampled Area within a Wetland?</b> <u>No</u>
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Remarks: (Explain alternative procedures here or in a separate report.)  
 Upland data point

### HYDROLOGY

Wetland Hydrology Indicators		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b>				
Surface water present?	Yes <u>      </u>	No <u>  X  </u>	Depth (inches): <u>  N/A  </u>	<b>Wetland hydrology present?</b> <u>  No  </u>
Water table present?	Yes <u>      </u>	No <u>  X  </u>	Depth (inches): <u>  &gt;14  </u>	
Saturation present? (includes capillary fringe)	Yes <u>      </u>	No <u>  X  </u>	Depth (inches): <u>  &gt;14  </u>	

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Four Strata) -- Use scientific names of plants**

**Sampling Point: DP4**

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0 =	Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0 =	Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	<i>Schedonorus arundinaceus</i>	80	Yes	FACU
2	<i>Carex blanda</i>	10	No	FAC
3	<i>Sorghum halepense</i>	10	No	FACU
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		100 =	Total Cover	

Woody Vine Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0 =	Total Cover	

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_

FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_

FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_

FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_

UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_

Column totals \_\_\_\_\_ (A) \_\_\_\_\_ (B)

Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**

\_\_\_ 1 - Rapid test for hydrophytic vegetation

\_\_\_ 2 - Dominance test is >50%

\_\_\_ 3 - Prevalence index is ≤3.0\*

\_\_\_ 4 - Morphological adaptations\* (provide supporting data in Remarks or on a separate sheet)

\_\_\_ Problematic hydrophytic vegetation\* (explain)

\*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Definitions of Four Vegetation Strata**

**Tree** - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** - All woody vines greater than 3.28 ft in height.

**Hydrophytic vegetation present?** No

Remarks: (Include photo numbers here or on a separate sheet)

**SOIL**

**Sampling Point: DP4**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	10YR 4/3	80	10YR 5/4	20	C	M	silty clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains - <sup>2</sup>Location: PL=Lining, M=Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils:
<input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) ( <b>LRR N</b> ) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Muck Mineral (S1) ( <b>LRR,N MLRA 147, 148</b> ) <input type="checkbox"/> Sandy Gley Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Polyvalue Below Surface (S9) ( <b>MLRA 147, 148</b> ) <input type="checkbox"/> Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) ( <b>LRR N MLRA 136</b> ) <input type="checkbox"/> Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) <input type="checkbox"/> Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) <input type="checkbox"/> Red Parent Material ( F21) ( <b>MLRA 127, 147</b> )
	<input type="checkbox"/> 2 cm Muck (A10) ( <b>MLRA 147</b> ) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> ( <b>MLRA 147, 148</b> ) <input type="checkbox"/> Piedmont Floodplain Soils (F19) <input type="checkbox"/> ( <b>MLRA 136, 147</b> ) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
	*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	Hydric soil present? <u>    No    </u>
---------------------------------------------------------------------------------	----------------------------------------

Remarks:

**APPENDIX B**


**RAPID BIOASSESSMENT PROTOCOL FORMS**

### High Gradient Bioassessment Stream Visit Sheet

<b>STREAM NAME:</b> Intermittent Stream 1			<b>LOCATION:</b> Old Heady Property																																																								
<b>STATION #:</b> RBP 1			<b>COUNTY:</b> Jefferson		<b>PROJECT:</b> 20-236																																																						
<b>INVESTIGATORS:</b> R. Fangman/ Z. Triplett			<b>DATE:</b> 1/11/2021	<b>TIME:</b> 9:41	<b>AM</b> <input checked="" type="checkbox"/> <b>PM</b> <input type="checkbox"/>																																																						
Verify Site LAT/LONG vs GPS    Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			<b>CANOPY COVER::</b>		<b>STREAM TYPE:</b>																																																						
			Fully Exposed (0-25%) <input checked="" type="checkbox"/>	Perennial <input type="checkbox"/>																																																							
			Partially Exposed (25-50%) <input type="checkbox"/>	Ephemeral <input type="checkbox"/>																																																							
			Partially Shaded (50-75%) <input type="checkbox"/>	Intermittent <input checked="" type="checkbox"/>																																																							
			Fully Shaded (75-100%) <input type="checkbox"/>																																																								
			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 15%;"></th> <th style="width: 15%;">Station</th> <th style="width: 15%;">Downstream</th> <th style="width: 15%;">Upstream</th> <th style="width: 15%;"></th> <th style="width: 15%;"></th> </tr> <tr> <td><b>LAT</b></td> <td>38.172507</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>LONG</b></td> <td>-85.518081</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				Station	Downstream	Upstream			<b>LAT</b>	38.172507					<b>LONG</b>	-85.518081																																								
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	Now	Past 24 hours																																																									
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<b>INSTREAM FEATURES</b>		<b>HYDRAULIC STRUCTURES</b>	<b>STREAM FLOW</b>	<b>RIPARIAN VEGETATION</b>																																																							
Stream Width	3-7 ft	Dams <input type="checkbox"/>	Dry <input type="checkbox"/>	Trees <input checked="" type="checkbox"/>	Herbaceous <input checked="" type="checkbox"/>																																																						
Maximum Depth	0.5 ft	Bridge Abutments <input type="checkbox"/>	Pooled <input type="checkbox"/>	Grasses <input checked="" type="checkbox"/>	Shrubs <input type="checkbox"/>																																																						
Reach Length	50 m	Island <input type="checkbox"/>	Low <input type="checkbox"/>	Dom. Tree/Shrub Taxa:																																																							
Discharge	cfs	Waterfalls <input type="checkbox"/>	High <input type="checkbox"/>	white oak																																																							
		Other: <input type="checkbox"/>	Normal <input checked="" type="checkbox"/>	sugar maple																																																							
				shagbark hickory																																																							
<b>Riffle/Run/Pool Sequence</b> (No. Sampled in Reach)    ___ Riffle ___ Run ___ Pool																																																											
<b>P-CHEM</b> Instrument Used: _____    Date Calibrated: _____																																																											
Temp(°F) _____    D.O. (mg/l) _____    %Saturation _____    pH(S.U.) _____    Cond. (µS/cm) _____    Turb. _____																																																											

Substrate Characterization												
Substrate	Est.	P.C.	Riffle	15	%	Run	70	%	Pool	15	%	Reach Total
Silt/Clay (<0.06 mm/0.002 in)			X			X			X			
Sand (0.06–2 mm/0.002–0.08 in)			X			X			X			
Gravel (2–64 mm/0.08–2.52 in)			X			X			X			
Cobble (64–256 mm/2.52–10.08 in)			X			X			X			
Boulders (>256 mm/10.08 in)												
Bedrock			X			X			X			

NOTES/COMMENTS:			
<b>Bluegrass Bioregion (High Gradient Assessments)</b>		<b>Headwater (&lt;5.0 mi<sup>2</sup>)</b>	<b>Wadeable (&gt;5.0 mi<sup>2</sup>)</b>
Fully Supporting	(Excellent)	156-200	130-200
Supporting but Threatened and Partially Supporting	(Average)	142-155	114-129
Not Supporting	(Poor)	0-141	0-113
Kentucky Division of Water's "Methods for Assessing Habitat in Wadeable Waters" (2011) (Revision 1)			



Project Name: Old Heady Property		Stream Name: Intermittent Stream 1																		
RBP High Gradient Habitat																				
Habitat Parameter	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Epifaunal Substrate/ Available Cover  7  Score	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).					40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).					20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.					Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
2. Embeddedness  12  Score	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.					Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.					Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.					Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.				
3. Velocity/Depth Regime  8  Score	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)					Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).					Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).					Dominated by 1 velocity/ depth regime (usually slow-deep).				
4. Sediment Deposition  14  Score	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.					Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.					Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.					Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.				
5. Channel Flow Status  14  Score	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.					Water fills >75% of the available channel; or <25% of channel substrate is exposed.					Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.					Very little water in channel and mostly present as standing pools.				
6. Channel Alteration  17  Score	Channelization or dredging absent or minimal; stream with normal pattern.					Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present.					Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.					Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.				
7. Frequency of Riffles (or bends)  9  Score	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.					Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.					Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.					Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.				
8. Bank Stability  4 LB 7 RB  Score	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.					Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.					Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.					Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.				
9. Vegetative Protection  3 LB 3 RB  Score	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.					70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.					50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.					Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.				
10. Riparian Vegetative Zone Width  3 LB 3 RB  Score	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.					Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.					Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.					Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.				
Total Score  104	NOTES/COMMENTS: Poor Quality																			




### High Gradient Bioassessment Stream Visit Sheet

<b>STREAM NAME:</b> Intermittent Stream 2			<b>LOCATION:</b> Old Heady Property		
<b>STATION #:</b> RBP 2			<b>COUNTY:</b> Jefferson		<b>PROJECT:</b> 20-236
<b>INVESTIGATORS:</b> R. Fangman/ Z. Triplett			<b>DATE:</b> 1/11/2021	<b>TIME:</b> 11:15	<b>AM</b> <input checked="" type="checkbox"/> <b>PM</b> <input type="checkbox"/>
Verify Site LAT/LONG vs GPS    Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			<b>CANOPY COVER::</b>		<b>STREAM TYPE:</b>
			Fully Exposed (0-25%) <input type="checkbox"/>	Perennial <input type="checkbox"/>	
			Partially Exposed (25-50%) <input type="checkbox"/>	Ephemeral <input type="checkbox"/>	
			Partially Shaded (50-75%) <input type="checkbox"/>	Intermittent <input checked="" type="checkbox"/>	
			Fully Shaded (75-100%) <input checked="" type="checkbox"/>		
<b>LAT</b>	38.172897				
<b>LONG</b>	-85.522723				
<b>WEATHER</b>			<b>LOCAL WATERSHED FEATURES (Predominant Surrounding Land Use):</b>		
<b>Now</b>			<b>Past 24 hours</b>		
Has there been a scouring rain in the last 14 days?			Heavy rain <input type="checkbox"/>		
Yes <input type="checkbox"/>			Steady rain <input type="checkbox"/>		
No <input checked="" type="checkbox"/>			Intermittent showers <input type="checkbox"/>		
			Clear/sunny <input type="checkbox"/>		
			Cloudy <input checked="" type="checkbox"/>		
			Surface Mining <input type="checkbox"/>	Construction <input type="checkbox"/>	Forest <input checked="" type="checkbox"/>
			Deep Mining <input type="checkbox"/>	Commercial <input type="checkbox"/>	Pasture/Grazing <input type="checkbox"/>
			Oil Wells <input type="checkbox"/>	Industrial <input type="checkbox"/>	Silviculture <input type="checkbox"/>
			Land Disposal <input type="checkbox"/>	Row Crops <input type="checkbox"/>	Urban Runoff/ Storm Sewers <input checked="" type="checkbox"/>
			Residential <input checked="" type="checkbox"/>		
<b>INSTREAM FEATURES</b>		<b>HYDRAULIC STRUCTURES</b>	<b>STREAM FLOW</b>	<b>RIPARIAN VEGETATION</b>	
Stream Width	6-10 ft	Dams <input type="checkbox"/>	Dry <input type="checkbox"/>	Trees <input checked="" type="checkbox"/>	Herbaceous <input checked="" type="checkbox"/>
Maximum Depth	0.4 ft	Bridge Abutments <input type="checkbox"/>	Pooled <input type="checkbox"/>	Grasses <input type="checkbox"/>	Shrubs <input checked="" type="checkbox"/>
Reach Length	50 m	Island <input type="checkbox"/>	Low <input type="checkbox"/>	Dom. Tree/Shrub Taxa:	
Discharge	cfs	Waterfalls <input type="checkbox"/>	High <input type="checkbox"/>	green ash	
		Other: <input type="checkbox"/>	Normal <input checked="" type="checkbox"/>	Eastern red cedar	
				bush honeysuckle	
				hackberry	
<b>Riffle/Run/Pool Sequence</b> (No. Sampled in Reach)    ___ Riffle ___ Run ___ Pool					
<b>P-CHEM</b> Instrument Used: _____    Date Calibrated: _____					
Temp(°F) _____    D.O. (mg/l) _____    %Saturation _____    pH(S.U.) _____    Cond. (µS/cm) _____    Turb. _____					

Substrate Characterization												
Substrate	Est.	P.C.	Riffle	20	%	Run	50	%	Pool	30	%	Reach Total
Silt/Clay (<0.06 mm/0.002 in)			X			X			X			
Sand (0.06–2 mm/0.002–0.08 in)			X			X			X			
Gravel (2–64 mm/0.08–2.52 in)			X			X			X			
Cobble (64–256 mm/2.52–10.08 in)			X			X			X			
Boulders (>256 mm/10.08 in)			X			X			X			
Bedrock			X			X			X			

NOTES/COMMENTS:				
	<b>Bluegrass Bioregion (High Gradient Assessments)</b>		<b>Headwater (&lt;5.0 mi<sup>2</sup>)</b>	<b>Wadeable (&gt;5.0 mi<sup>2</sup>)</b>
Fully Supporting	(Excellent)		156-200	130-200
Supporting but Threatened and Partially Supporting	(Average)		142-155	114-129
Not Supporting	(Poor)		0-141	0-113
Kentucky Division of Water's "Methods for Assessing Habitat in Wadeable Waters" (2011) (Revision 1)				




Project Name: Old Heady Property		Stream Name: Intermittent Stream 2																		
RBP High Gradient Habitat																				
Habitat Parameter	Condition Category																			
	Optimal					Suboptimal					Marginal			Poor						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Epifaunal Substrate/ Available Cover  12  Score	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).					40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).					20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.			Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.						
2. Embeddedness  7  Score	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.					Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.					Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.			Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.						
3. Velocity/Depth Regime  13  Score	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)					Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).					Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).			Dominated by 1 velocity/ depth regime (usually slow-deep).						
4. Sediment Deposition  6  Score	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.					Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.					Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.			Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.						
5. Channel Flow Status  10  Score	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.					Water fills >75% of the available channel; or <25% of channel substrate is exposed.					Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.			Very little water in channel and mostly present as standing pools.						
6. Channel Alteration  18  Score	Channelization or dredging absent or minimal; stream with normal pattern.					Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present.					Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.			Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.						
7. Frequency of Riffles (or bends)  11  Score	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.					Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.					Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.			Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.						
Left/Right Bank	10 9					8 7 6					5 4 3			2 1						
8. Bank Stability  3 LB 3 RB  Score	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.					Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.					Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.			Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.						
9. Vegetative Protection  8 LB 8 RB  Score	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.					70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.					50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.			Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.						
10. Riparian Vegetative Zone Width  8 LB 8 RB  Score	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.					Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.					Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.			Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.						
Total Score  115	NOTES/COMMENTS: Poor Quality																			

### High Gradient Bioassessment Stream Visit Sheet

<b>STREAM NAME:</b> Intermittent Stream 3				<b>LOCATION:</b> Old Heady Property			
<b>STATION #:</b> RBP 3				<b>COUNTY:</b> Jefferson		<b>PROJECT:</b> 20-236	
<b>INVESTIGATORS:</b> R. Fangman/ Z. Triplett				<b>DATE:</b> 1/11/2021		<b>TIME:</b> 11:30	<b>AM</b> <input checked="" type="checkbox"/> <b>PM</b> <input type="checkbox"/>
Verify Site LAT/LONG vs GPS    Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>				<b>CANOPY COVER::</b>		<b>STREAM TYPE:</b>	
		<b>Station</b>		<b>Downstream</b>		<b>Upstream</b>	
<b>LAT</b>		38.172015					
<b>LONG</b>		-85.522278					
				Fully Exposed (0-25%) <input type="checkbox"/>		Perennial <input type="checkbox"/>	
				Partially Exposed (25-50%) <input type="checkbox"/>		Ephemeral <input type="checkbox"/>	
				Partially Shaded (50-75%) <input type="checkbox"/>		Intermittent <input checked="" type="checkbox"/>	
				Fully Shaded (75-100%) <input checked="" type="checkbox"/>			
<b>WEATHER</b>				<b>LOCAL WATERSHED FEATURES (Predominant Surrounding Land Use):</b>			
		<b>Now</b>		<b>Past 24 hours</b>			
Has there been a scouring rain in the last 14 days?		<input type="checkbox"/>		<input type="checkbox"/>		Heavy rain <input type="checkbox"/>	
		<input type="checkbox"/>		<input type="checkbox"/>		Steady rain <input type="checkbox"/>	
		<input type="checkbox"/>		<input type="checkbox"/>		Intermittent showers <input type="checkbox"/>	
Yes <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		Clear/sunny <input type="checkbox"/>	
No <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		Cloudy <input type="checkbox"/>	
				Surface Mining <input type="checkbox"/>		Construction <input type="checkbox"/>	
				Deep Mining <input type="checkbox"/>		Commercial <input type="checkbox"/>	
				Oil Wells <input type="checkbox"/>		Industrial <input type="checkbox"/>	
				Land Disposal <input type="checkbox"/>		Row Crops <input type="checkbox"/>	
				Residential <input checked="" type="checkbox"/>		Forest <input checked="" type="checkbox"/>	
						Pasture/Grazing <input type="checkbox"/>	
						Silviculture <input type="checkbox"/>	
						Urban Runoff/ Storm Sewers <input checked="" type="checkbox"/>	
<b>INSTREAM FEATURES</b>		<b>HYDRAULIC STRUCTURES</b>		<b>STREAM FLOW</b>		<b>RIPARIAN VEGETATION</b>	
Stream Width    3-5 ft		Dams <input type="checkbox"/>		Dry <input type="checkbox"/>		Trees <input checked="" type="checkbox"/> Herbaceous <input checked="" type="checkbox"/>	
Maximum Depth    0.2 ft		Bridge Abutments <input type="checkbox"/>		Pooled <input type="checkbox"/>		Grasses <input type="checkbox"/> Shrubs <input checked="" type="checkbox"/>	
Reach Length    50 m		Island <input type="checkbox"/>		Low <input type="checkbox"/>		Dom. Tree/Shrub Taxa:	
Discharge _____ cfs		Waterfalls <input type="checkbox"/>		High <input type="checkbox"/>		pin oak _____	
		Other: <input type="checkbox"/>		Normal <input checked="" type="checkbox"/>		bush honeysuckle _____	
						flowering dogwood _____	
						Eastern red cedar _____	
<b>Riffle/Run/Pool Sequence</b>				(No. Sampled in Reach)    _____ Riffle    _____ Run    _____ Pool			
<b>P-CHEM</b>				Instrument Used: _____    Date Calibrated: _____			
Temp(°F) _____		D.O. (mg/l) _____		%Saturation _____		pH(S.U.) _____	
						Cond. (µS/cm) _____	
						Turb. _____	

Substrate Characterization												
Substrate	Est.	P.C.	Riffle	10	%	Run	80	%	Pool	10	%	Reach Total
Silt/Clay (<0.06 mm/0.002 in)			X			X			X			
Sand (0.06–2 mm/0.002–0.08 in)			X			X			X			
Gravel (2–64 mm/0.08–2.52 in)			X			X			X			
Cobble (64–256 mm/2.52–10.08 in)			X			X			X			
Boulders (>256 mm/10.08 in)												
Bedrock												

<b>NOTES/COMMENTS:</b>			
	<b>Bluegrass Bioregion (High Gradient Assessments)</b>	<b>Headwater (&lt;5.0 mi<sup>2</sup>)</b>	<b>Wadeable (&gt;5.0 mi<sup>2</sup>)</b>
Fully Supporting	(Excellent)	156-200	130-200
Supporting but Threatened and Partially Supporting	(Average)	142-155	114-129
Not Supporting	(Poor)	0-141	0-113
Kentucky Division of Water's "Methods for Assessing Habitat in Wadeable Waters" (2011) (Revision 1)			




Project Name: Old Heady Property		Stream Name: Intermittent Stream 3																		
RBP High Gradient Habitat																				
Habitat Parameter	Condition Category																			
	Optimal					Suboptimal					Marginal			Poor						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Epifaunal Substrate/ Available Cover  8  Score	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).					40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).					20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.			Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.						
2. Embeddedness  7  Score	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.					Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.					Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.			Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.						
3. Velocity/Depth Regime  6  Score	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)					Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).					Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).			Dominated by 1 velocity/ depth regime (usually slow-deep).						
4. Sediment Deposition  11  Score	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.					Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.					Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.			Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.						
5. Channel Flow Status  7  Score	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.					Water fills >75% of the available channel; or <25% of channel substrate is exposed.					Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.			Very little water in channel and mostly present as standing pools.						
6. Channel Alteration  18  Score	Channelization or dredging absent or minimal; stream with normal pattern.					Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present.					Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.			Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.						
7. Frequency of Riffles (or bends)  5  Score	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.					Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.					Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.			Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.						
8. Bank Stability  4 LB 4 RB  Score	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.					Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.					Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.			Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.						
9. Vegetative Protection  7 LB 7 RB  Score	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.					70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.					50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.			Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.						
10. Riparian Vegetative Zone Width  8 LB 8 RB  Score	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.					Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.					Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.			Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.						
Total Score  100	NOTES/COMMENTS: Poor Quality																			

### High Gradient Bioassessment Stream Visit Sheet

<b>STREAM NAME:</b> Intermittent Stream 2			<b>LOCATION:</b> Old Heady Property		
<b>STATION #:</b> RBP 4			<b>COUNTY:</b> Jefferson		<b>PROJECT:</b> 20-236
<b>INVESTIGATORS:</b> R. Fangman/ Z. Triplett			<b>DATE:</b> 1/11/2021	<b>TIME:</b> 2:15	<b>AM</b> <input type="checkbox"/> <b>PM</b> <input checked="" type="checkbox"/>
Verify Site LAT/LONG vs GPS    Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			<b>CANOPY COVER::</b>		<b>STREAM TYPE:</b>
			Fully Exposed (0-25%) <input type="checkbox"/>	Perennial <input type="checkbox"/>	
			Partially Exposed (25-50%) <input checked="" type="checkbox"/>	Ephemeral <input type="checkbox"/>	
			Partially Shaded (50-75%) <input type="checkbox"/>	Intermittent <input checked="" type="checkbox"/>	
			Fully Shaded (75-100%) <input type="checkbox"/>		
<b>LAT</b>	38.170468				
<b>LONG</b>	-85.519359				
<b>WEATHER</b>			<b>LOCAL WATERSHED FEATURES (Predominant Surrounding Land Use):</b>		
<b>Now</b>			<b>Past 24 hours</b>		
Has there been a scouring rain in the last 14 days?			Heavy rain <input type="checkbox"/>		
			Steady rain <input type="checkbox"/>		
			Intermittent showers <input type="checkbox"/>		
Yes <input type="checkbox"/>			Clear/sunny <input type="checkbox"/>		
No <input checked="" type="checkbox"/>			Cloudy <input checked="" type="checkbox"/>		
			Surface Mining <input type="checkbox"/>	Construction <input type="checkbox"/>	Forest <input checked="" type="checkbox"/>
			Deep Mining <input type="checkbox"/>	Commercial <input type="checkbox"/>	Pasture/Grazing <input type="checkbox"/>
			Oil Wells <input type="checkbox"/>	Industrial <input type="checkbox"/>	Silviculture <input type="checkbox"/>
			Land Disposal <input type="checkbox"/>	Row Crops <input type="checkbox"/>	Urban Runoff/ Storm Sewers <input checked="" type="checkbox"/>
			Residential <input checked="" type="checkbox"/>		
<b>INSTREAM FEATURES</b>		<b>HYDRAULIC STRUCTURES</b>	<b>STREAM FLOW</b>	<b>RIPARIAN VEGETATION</b>	
Stream Width	3-7 ft	Dams <input type="checkbox"/>	Dry <input type="checkbox"/>	Trees <input checked="" type="checkbox"/>	Herbaceous <input checked="" type="checkbox"/>
Maximum Depth	0.5 ft	Bridge Abutments <input type="checkbox"/>	Pooled <input type="checkbox"/>	Grasses <input checked="" type="checkbox"/>	Shrubs <input checked="" type="checkbox"/>
Reach Length	50 m	Island <input type="checkbox"/>	Low <input type="checkbox"/>	Dom. Tree/Shrub Taxa:	
Discharge	cfs	Waterfalls <input type="checkbox"/>	High <input type="checkbox"/>	sycamore	
		Other: <input type="checkbox"/>	Normal <input checked="" type="checkbox"/>	eastern red cedar	
				white oak	
				sugar maple	
<b>Riffle/Run/Pool Sequence</b> (No. Sampled in Reach)    ___ Riffle ___ Run ___ Pool					
<b>P-CHEM</b> Instrument Used: _____    Date Calibrated: _____					
Temp(°F) _____    D.O. (mg/l) _____    %Saturation _____    pH(S.U.) _____    Cond. (µS/cm) _____    Turb. _____					

Substrate Characterization												
Substrate	Est.	P.C.	Riffle	20	%	Run	50	%	Pool	30	%	Reach Total
Silt/Clay (<0.06 mm/0.002 in)			X			X			X			
Sand (0.06–2 mm/0.002–0.08 in)			X			X			X			
Gravel (2–64 mm/0.08–2.52 in)			X			X			X			
Cobble (64–256 mm/2.52–10.08 in)			X			X			X			
Boulders (>256 mm/10.08 in)												
Bedrock												


NOTES/COMMENTS:				
<b>Bluegrass Bioregion (High Gradient Assessments)</b>		<b>Headwater (&lt;5.0 mi<sup>2</sup>)</b>	<b>Wadeable (&gt;5.0 mi<sup>2</sup>)</b>	
Fully Supporting	(Excellent)	156-200	130-200	
Supporting but Threatened and Partially Supporting	(Average)	142-155	114-129	
Not Supporting	(Poor)	0-141	0-113	
Kentucky Division of Water's "Methods for Assessing Habitat in Wadeable Waters" (2011) (Revision 1)				

Project Name: Old Heady Property		Stream Name: Intermittent Stream 2																		
RBP High Gradient Habitat																				
Habitat Parameter	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Epifaunal Substrate/ Available Cover  12  Score	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).					40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).					20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.					Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
2. Embeddedness  7  Score	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.					Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.					Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.					Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.				
3. Velocity/Depth Regime  10  Score	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)					Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).					Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).					Dominated by 1 velocity/ depth regime (usually slow-deep).				
4. Sediment Deposition  11  Score	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.					Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.					Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.					Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.				
5. Channel Flow Status  15  Score	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.					Water fills >75% of the available channel; or <25% of channel substrate is exposed.					Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.					Very little water in channel and mostly present as standing pools.				
6. Channel Alteration  18  Score	Channelization or dredging absent or minimal; stream with normal pattern.					Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present.					Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.					Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.				
7. Frequency of Riffles (or bends)  13  Score	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.					Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.					Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.					Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.				
8. Bank Stability  4 LB 4 RB  Score	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.					Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.					Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.					Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.				
9. Vegetative Protection  5 LB 5 RB  Score	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.					70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.					50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.					Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.				
10. Riparian Vegetative Zone Width  3 LB 3 RB  Score	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.					Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.					Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.					Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.				
Total Score  110	NOTES/COMMENTS: Poor Quality																			

### High Gradient Bioassessment Stream Visit Sheet

<b>STREAM NAME:</b> Intermittent Stream 4				<b>LOCATION:</b> Old Heady Property			
<b>STATION #:</b> RBP 5				<b>COUNTY:</b> Jefferson		<b>PROJECT:</b> 20-236	
<b>INVESTIGATORS:</b> R. Fangman/ Z. Triplett				<b>DATE:</b> 1/11/2021		<b>TIME:</b> AM <input type="checkbox"/> PM <input type="checkbox"/>	
Verify Site LAT/LONG vs GPS    Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>				<b>CANOPY COVER::</b>		<b>STREAM TYPE:</b>	
				Fully Exposed (0-25%) <input type="checkbox"/>		Perennial <input type="checkbox"/>	
				Partially Exposed (25-50%) <input type="checkbox"/>		Ephemeral <input type="checkbox"/>	
				Partially Shaded (50-75%) <input type="checkbox"/>		Intermittent <input checked="" type="checkbox"/>	
				Fully Shaded (75-100%) <input checked="" type="checkbox"/>			
		<b>Station</b>	<b>Downstream</b>	<b>Upstream</b>			
<b>LAT</b>	38.171913						
<b>LONG</b>	-85.520725						
<b>WEATHER</b>				<b>LOCAL WATERSHED FEATURES (Predominant Surrounding Land Use):</b>			
		<b>Now</b>	<b>Past 24 hours</b>				
Has there been a scouring rain in the last 14 days?		<input type="checkbox"/>	<input type="checkbox"/>	Heavy rain <input type="checkbox"/>	Surface Mining <input type="checkbox"/>	Construction <input type="checkbox"/>	Forest <input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	Steady rain <input type="checkbox"/>	Deep Mining <input type="checkbox"/>	Commercial <input type="checkbox"/>	Pasture/Grazing <input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	Intermittent showers <input type="checkbox"/>	Oil Wells <input type="checkbox"/>	Industrial <input type="checkbox"/>	Silviculture <input type="checkbox"/>
Yes <input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	Clear/sunny <input type="checkbox"/>	Land Disposal <input type="checkbox"/>	Row Crops <input type="checkbox"/>	Urban Runoff/ Storm Sewers <input type="checkbox"/>
No <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Cloudy <input type="checkbox"/>	Residential <input checked="" type="checkbox"/>		
<b>INSTREAM FEATURES</b>		<b>HYDRAULIC STRUCTURES</b>		<b>STREAM FLOW</b>	<b>RIPARIAN VEGETATION</b>		<b>CHANNEL ALTERATIONS</b>
Stream Width	2-4	ft	Dams <input type="checkbox"/>	Dry <input type="checkbox"/>	Trees <input checked="" type="checkbox"/>	Herbaceous <input checked="" type="checkbox"/>	Dredging <input type="checkbox"/>
Maximum Depth	0.2	ft	Bridge Abutments <input type="checkbox"/>	Pooled <input type="checkbox"/>	Grasses <input type="checkbox"/>	Shrubs <input checked="" type="checkbox"/>	Channelization <input type="checkbox"/>
Reach Length	25	m	Island <input type="checkbox"/>	Low <input type="checkbox"/>	Dom. Tree/Shrub Taxa:		(Full) <input type="checkbox"/> (Partial) <input type="checkbox"/>
Discharge		cfs	Waterfalls <input type="checkbox"/>	High <input type="checkbox"/>	bush honeysuckle		white oak
			Other: <input type="checkbox"/>	Normal <input checked="" type="checkbox"/>	Eastern red cedar		
<b>Riffle/Run/Pool Sequence</b>		(No. Sampled in Reach)		___ Riffle ___ Run ___ Pool			
<b>P-CHEM</b>							
Instrument Used:				Date Calibrated:			
Temp(°F)	_____	D.O. (mg/l)	_____	%Saturation	_____	pH(S.U.)	_____
						Cond. (µS/cm)	_____
						Turb.	_____

Substrate Characterization												
Substrate	Est.	P.C.	Riffle	20	%	Run	70	%	Pool	10	%	Reach Total
Silt/Clay (<0.06 mm/0.002 in)			X			X			X			
Sand (0.06–2 mm/0.002–0.08 in)			X			X			X			
Gravel (2–64 mm/0.08–2.52 in)			X			X			X			
Cobble (64–256 mm/2.52–10.08 in)			X			X			X			
Boulders (>256 mm/10.08 in)												
Bedrock												

NOTES/COMMENTS:				
<b>Bluegrass Bioregion (High Gradient Assessments)</b>	<b>Headwater (&lt;5.0 mi<sup>2</sup>)</b>	<b>Wadeable (&gt;5.0 mi<sup>2</sup>)</b>		
Fully Supporting	(Excellent)	156-200		130-200
Supporting but Threatened and Partially Supporting	(Average)	142-155		114-129
Not Supporting	(Poor)	0-141		0-113
Kentucky Division of Water's "Methods for Assessing Habitat in Wadeable Waters" (2011) (Revision 1)				

Project Name: Old Heady Property		Stream Name: Intermittent Stream 4																		
RBP High Gradient Habitat																				
Habitat Parameter	Condition Category																			
	Optimal					Suboptimal					Marginal			Poor						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Epifaunal Substrate/ Available Cover  8  Score	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).					40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).					20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.			Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.						
2. Embeddedness  10  Score	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.					Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.					Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.			Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.						
3. Velocity/Depth Regime  6  Score	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)					Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).					Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).			Dominated by 1 velocity/ depth regime (usually slow-deep).						
4. Sediment Deposition  12  Score	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.					Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.					Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.			Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.						
5. Channel Flow Status  10  Score	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.					Water fills >75% of the available channel; or <25% of channel substrate is exposed.					Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.			Very little water in channel and mostly present as standing pools.						
6. Channel Alteration  18  Score	Channelization or dredging absent or minimal; stream with normal pattern.					Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present.					Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.			Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.						
7. Frequency of Riffles (or bends)  9  Score	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.					Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.					Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.			Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.						
Left/Right Bank	10 9					8 7 6					5 4 3			2 1						
8. Bank Stability  5 LB 5 RB  Score	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.					Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.					Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.			Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.						
9. Vegetative Protection  8 LB 8 RB  Score	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.					70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.					50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.			Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.						
10. Riparian Vegetative Zone Width  8 LB 8 RB  Score	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.					Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.					Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.			Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.						
Total Score  115	NOTES/COMMENTS: Poor Quality																			




### High Gradient Bioassessment Stream Visit Sheet

<b>STREAM NAME:</b> Intermittent Stream 5				<b>LOCATION:</b> Old Heady Property			
<b>STATION #:</b> RBP 6				<b>COUNTY:</b> Jefferson		<b>PROJECT:</b> 20-236	
<b>INVESTIGATORS:</b> R. Fangman/ Z. Triplett				<b>DATE:</b> 1/11/2021		<b>TIME:</b> 3:56	<b>AM</b> <input type="checkbox"/> <b>PM</b> <input checked="" type="checkbox"/>
Verify Site LAT/LONG vs GPS    Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>				<b>CANOPY COVER::</b>		<b>STREAM TYPE:</b>	
		<b>Station</b>		<b>Downstream</b>		<b>Upstream</b>	
<b>LAT</b>		38.170885					
<b>LONG</b>		-85.524064					
				Fully Exposed (0-25%) <input type="checkbox"/>		Perennial <input type="checkbox"/>	
				Partially Exposed (25-50%) <input type="checkbox"/>		Ephemeral <input type="checkbox"/>	
				Partially Shaded (50-75%) <input type="checkbox"/>		Intermittent <input checked="" type="checkbox"/>	
				Fully Shaded (75-100%) <input checked="" type="checkbox"/>			
<b>WEATHER</b>				<b>LOCAL WATERSHED FEATURES (Predominant Surrounding Land Use):</b>			
		<b>Now</b>		<b>Past 24 hours</b>			
Has there been a scouring rain in the last 14 days?		<input type="checkbox"/>		<input type="checkbox"/>		Heavy rain <input type="checkbox"/>	
		<input type="checkbox"/>		<input type="checkbox"/>		Steady rain <input type="checkbox"/>	
		<input type="checkbox"/>		<input type="checkbox"/>		Intermittent showers <input type="checkbox"/>	
Yes <input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		Clear/sunny <input type="checkbox"/>	
No <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		Cloudy <input type="checkbox"/>	
		Surface Mining <input type="checkbox"/>		Construction <input type="checkbox"/>		Forest <input checked="" type="checkbox"/>	
		Deep Mining <input type="checkbox"/>		Commercial <input type="checkbox"/>		Pasture/Grazing <input checked="" type="checkbox"/>	
		Oil Wells <input type="checkbox"/>		Industrial <input type="checkbox"/>		Silviculture <input type="checkbox"/>	
		Land Disposal <input type="checkbox"/>		Row Crops <input type="checkbox"/>		Urban Runoff/ Storm Sewers <input type="checkbox"/>	
		Residential <input type="checkbox"/>					
<b>INSTREAM FEATURES</b>		<b>HYDRAULIC STRUCTURES</b>		<b>STREAM FLOW</b>		<b>RIPARIAN VEGETATION</b>	
Stream Width    3-6 ft		Dams <input type="checkbox"/>		Dry <input type="checkbox"/>		Trees <input checked="" type="checkbox"/> Herbaceous <input checked="" type="checkbox"/>	
Maximum Depth    0.2 ft		Bridge Abutments <input type="checkbox"/>		Pooled <input type="checkbox"/>		Grasses <input type="checkbox"/> Shrubs <input checked="" type="checkbox"/>	
Reach Length    50 m		Island <input type="checkbox"/>		Low <input type="checkbox"/>		Dom. Tree/Shrub Taxa:	
Discharge _____ cfs		Waterfalls <input type="checkbox"/>		High <input type="checkbox"/>		eastern red cedar _____	
		Other: <input type="checkbox"/>		Normal <input checked="" type="checkbox"/>		black walnut _____	
						green ash _____	
						sugar maple _____	
<b>Riffle/Run/Pool Sequence</b>				(No. Sampled in Reach)    _____ Riffle    _____ Run    _____ Pool			
<b>P-CHEM</b>				Instrument Used: _____    Date Calibrated: _____			
Temp(°F) _____		D.O. (mg/l) _____		%Saturation _____		pH(S.U.) _____	
						Cond. (µS/cm) _____	
						Turb. _____	

Substrate Characterization												
Substrate	Est.	P.C.	Riffle	10	%	Run	80	%	Pool	10	%	Reach Total
Silt/Clay (<0.06 mm/0.002 in)			X			X			X			
Sand (0.06–2 mm/0.002–0.08 in)			X			X			X			
Gravel (2–64 mm/0.08–2.52 in)			X			X			X			
Cobble (64–256 mm/2.52–10.08 in)			X			X			X			
Boulders (>256 mm/10.08 in)												
Bedrock			X			X			X			

NOTES/COMMENTS:			
	<b>Bluegrass Bioregion (High Gradient Assessments)</b>	<b>Headwater (&lt;5.0 mi<sup>2</sup>)</b>	<b>Wadeable (&gt;5.0 mi<sup>2</sup>)</b>
Fully Supporting	(Excellent)	156-200	130-200
Supporting but Threatened and Partially Supporting	(Average)	142-155	114-129
Not Supporting	(Poor)	0-141	0-113
Kentucky Division of Water's "Methods for Assessing Habitat in Wadeable Waters" (2011) (Revision 1)			




Project Name: Old Heady Property		Stream Name: Intermittent Stream 5																		
RBP High Gradient Habitat																				
Habitat Parameter	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Epifaunal Substrate/ Available Cover  7  Score	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).					40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).					20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.					Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
2. Embeddedness  8  Score	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.					Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.					Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.					Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.				
3. Velocity/Depth Regime  6  Score	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)					Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).					Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).					Dominated by 1 velocity/ depth regime (usually slow-deep).				
4. Sediment Deposition  8  Score	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.					Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.					Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.					Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.				
5. Channel Flow Status  8  Score	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.					Water fills >75% of the available channel; or <25% of channel substrate is exposed.					Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.					Very little water in channel and mostly present as standing pools.				
6. Channel Alteration  17  Score	Channelization or dredging absent or minimal; stream with normal pattern.					Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present.					Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.					Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.				
7. Frequency of Riffles (or bends)  8  Score	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.					Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.					Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.					Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.				
8. Bank Stability  4 LB 4 RB  Score	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.					Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.					Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.					Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.				
9. Vegetative Protection  8 LB 8 RB  Score	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.					70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.					50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.					Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.				
10. Riparian Vegetative Zone Width  6 LB 6 RB  Score	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.					Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.					Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.					Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.				
Total Score  98	NOTES/COMMENTS: Poor Quality																			

### High Gradient Bioassessment Stream Visit Sheet

<b>STREAM NAME:</b> Intermittent Stream 6				<b>LOCATION:</b> Old Heady Property			
<b>STATION #:</b> RBP 7				<b>COUNTY:</b> Jefferson		<b>PROJECT:</b> 20-236	
<b>INVESTIGATORS:</b> R. Fangman/ Z. Triplett				<b>DATE:</b> 1/11/2021		<b>TIME:</b> 4:20	<b>AM</b> <input type="checkbox"/> <b>PM</b> <input checked="" type="checkbox"/>
Verify Site LAT/LONG vs GPS    Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>				<b>CANOPY COVER::</b>		<b>STREAM TYPE:</b>	
				Fully Exposed (0-25%) <input type="checkbox"/>		Perennial <input type="checkbox"/>	
				Partially Exposed (25-50%) <input type="checkbox"/>		Ephemeral <input type="checkbox"/>	
				Partially Shaded (50-75%) <input checked="" type="checkbox"/>		Intermittent <input checked="" type="checkbox"/>	
				Fully Shaded (75-100%) <input type="checkbox"/>			
		<b>Station</b>	<b>Downstream</b>	<b>Upstream</b>			
<b>LAT</b>	38.169314						
<b>LONG</b>	-85.522824						
<b>WEATHER</b>				<b>LOCAL WATERSHED FEATURES (Predominant Surrounding Land Use):</b>			
		<b>Now</b>		<b>Past 24 hours</b>			
Has there been a scouring rain in the last 14 days?	<input type="checkbox"/>	<input type="checkbox"/>	Heavy rain	Surface Mining <input type="checkbox"/>	Construction <input type="checkbox"/>	Forest <input checked="" type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	Steady rain	Deep Mining <input type="checkbox"/>	Commercial <input type="checkbox"/>	Pasture/Grazing <input checked="" type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	Intermittent showers	Oil Wells <input type="checkbox"/>	Industrial <input type="checkbox"/>	Silviculture <input type="checkbox"/>	
Yes <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clear/sunny	Land Disposal <input type="checkbox"/>	Row Crops <input type="checkbox"/>	Urban Runoff/ Storm Sewers <input type="checkbox"/>	
No <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Cloudy	Residential <input checked="" type="checkbox"/>			
<b>INSTREAM FEATURES</b>		<b>HYDRAULIC STRUCTURES</b>		<b>STREAM FLOW</b>		<b>RIPARIAN VEGETATION</b>	
Stream Width	2-5 ft	Dams	<input type="checkbox"/>	Dry	<input type="checkbox"/>	Trees <input checked="" type="checkbox"/>	Herbaceous <input checked="" type="checkbox"/>
Maximum Depth	0.2 ft	Bridge Abutments	<input type="checkbox"/>	Pooled	<input type="checkbox"/>	Grasses <input checked="" type="checkbox"/>	Shrubs <input checked="" type="checkbox"/>
Reach Length	25 m	Island	<input type="checkbox"/>	Low	<input type="checkbox"/>	Dom. Tree/Shrub Taxa:	
Discharge	_____ cfs	Waterfalls	<input type="checkbox"/>	High	<input type="checkbox"/>	eastern red cedar	hackberry
		Other:	<input type="checkbox"/>	Normal	<input checked="" type="checkbox"/>	sycamore	sugar maple
<b>Riffle/Run/Pool Sequence</b>				(No. Sampled in Reach)    _____ Riffle    _____ Run    _____ Pool			
<b>P-CHEM</b>				Instrument Used: _____ Date Calibrated: _____			
Temp(°F)	_____	D.O. (mg/l)	_____	%Saturation	_____	pH(S.U.)	_____
						Cond. (µS/cm)	_____
						Turb.	_____

Substrate Characterization												
Substrate	Est.	P.C.	Riffle	10	%	Run	80	%	Pool	10	%	Reach Total
Silt/Clay (<0.06 mm/0.002 in)				X			X			X		
Sand (0.06–2 mm/0.002–0.08 in)				X			X			X		
Gravel (2–64 mm/0.08–2.52 in)				X			X			X		
Cobble (64–256 mm/2.52–10.08 in)				X			X			X		
Boulders (>256 mm/10.08 in)												
Bedrock												

NOTES/COMMENTS:				
<b>Bluegrass Bioregion (High Gradient Assessments)</b>		<b>Headwater (&lt;5.0 mi<sup>2</sup>)</b>	<b>Wadeable (&gt;5.0 mi<sup>2</sup>)</b>	
Fully Supporting	(Excellent)	156-200	130-200	
Supporting but Threatened and Partially Supporting	(Average)	142-155	114-129	
Not Supporting	(Poor)	0-141	0-113	
Kentucky Division of Water's "Methods for Assessing Habitat in Wadeable Waters" (2011) (Revision 1)				



Project Name: Old Heady Property		Stream Name: Intermittent Stream 6																		
RBP High Gradient Habitat																				
Habitat Parameter	Condition Category																			
	Optimal					Suboptimal					Marginal			Poor						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Epifaunal Substrate/ Available Cover  5  Score	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).					40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).					20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.			Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.						
2. Embeddedness  7  Score	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.					Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.					Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.			Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.						
3. Velocity/Depth Regime  5  Score	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)					Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).					Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).			Dominated by 1 velocity/ depth regime (usually slow-deep).						
4. Sediment Deposition  8  Score	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.					Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.					Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.			Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.						
5. Channel Flow Status  6  Score	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.					Water fills >75% of the available channel; or <25% of channel substrate is exposed.					Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.			Very little water in channel and mostly present as standing pools.						
6. Channel Alteration  10  Score	Channelization or dredging absent or minimal; stream with normal pattern.					Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present.					Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.			Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.						
7. Frequency of Riffles (or bends)  5  Score	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.					Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.					Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.			Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.						
8. Bank Stability  4 LB 4 RB  Score	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.					Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.					Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.			Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.						
9. Vegetative Protection  4 LB 4 RB  Score	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.					70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.					50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.			Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.						
10. Riparian Vegetative Zone Width  1 LB 3 RB  Score	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.					Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.					Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.			Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.						
Total Score  66	NOTES/COMMENTS: Poor Quality																			

**APPENDIX C**

**APPROVED JURISDICTIONAL DETERMINATION  
FORM (INTERIM)**

**I. ADMINISTRATIVE INFORMATION**

Completion Date of Approved Jurisdictional Determination (AJD): 1/29/2021

ORM Number:

Associated JDs: N/A

Review Area Location<sup>1</sup>: State/Territory: Kentucky City: Louisville County/Parish/Borough: Jefferson

Center Coordinates of Review Area: Latitude 38.171698° Longitude -85.521692°

**II. FINDINGS**

**A. Summary:** Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A or describe rationale.
- There are “navigable waters of the United States” within Rivers and Harbors Act jurisdiction within the review area (complete table in Section II.B).
- There are “waters of the United States” within Clean Water Act jurisdiction within the review area (complete appropriate tables in Section II.C).
- There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in Section II.D).

**B. Rivers and Harbors Act of 1899 Section 10 (§ 10)<sup>2</sup>**

§ 10 Name	§ 10 Size		§ 10 Criteria	Rationale for § 10 Determination
N/A.	N/A.	N/A	N/A.	N/A.

**C. Clean Water Act Section 404**

Territorial Seas and Traditional Navigable Waters ((a)(1) waters): <sup>3</sup>				
(a)(1) Name	(a)(1) Size		(a)(1) Criteria	Rationale for (a)(1) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Tributaries ((a)(2) waters):				
(a)(2) Name	(a)(2) Size		(a)(2) Criteria	Rationale for (a)(2) Determination
Intermittent 1	175	linear feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year.	Intermittent Stream 1 is three to seven feet wide with silt, sand, gravel, cobble and bedrock substrate. During the January 11, 2021 site visit the channel contained flowing and pooled water which indirectly contribute to an (a)(1) water.
Intermittent 2	1,789	linear feet	(a)(2) Intermittent tributary contributes	Intermittent Stream 2 is approximately seven feet wide with silt, sand, gravel, cobble, boulders and bedrock substrate. During the January 11, 2021 site

<sup>1</sup> Map(s)/figure(s) are attached to the AJD provided to the requestor.

<sup>2</sup> If the navigable water is not subject to the ebb and flow of the tide or included on the District’s list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.

<sup>3</sup> A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD Form.

Tributaries ((a)(2) waters):			
(a)(2) Name	(a)(2) Size	(a)(2) Criteria	Rationale for (a)(2) Determination
		surface water flow directly or indirectly to an (a)(1) water in a typical year.	visit the channel contained flowing and pooled water which indirectly contribute to an (a)(1) water.
Intermittent 3	102	linear feet (a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year.	Intermittent Stream 3 is three to five feet wide with silt, sand, gravel and cobble substrate. During the January 11, 2021 site visit the channel contained flowing and pooled water which indirectly contribute to an (a)(1) water.
Intermittent 4	458	linear feet (a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year.	Intermittent Stream 4 is two to four feet wide with silt, sand, gravel and cobble substrate. During the January 11, 2021 site visit the channel contained flowing and pooled water which indirectly contribute to an (a)(1) water.
Intermittent 5	365	linear feet (a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year.	Intermittent Stream 5 is three to six feet wide with silt, sand, gravel, cobble and bedrock substrate. During the January 11, 2021 site visit the channel contained flowing and pooled water which indirectly contribute to an (a)(1) water.
Intermittent 6	249	linear feet (a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year.	Intermittent Stream 6 is two to five feet wide with silt, sand, gravel and cobble substrate. During the January 11, 2021 site visit the channel contained flowing and pooled water which indirectly contribute to an (a)(1) water.

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):			
(a)(3) Name	(a)(3) Size	(a)(3) Criteria	Rationale for (a)(3) Determination
Pond 1	0.716	acre(s) (a)(3) Lake/pond or impoundment of a jurisdictional water contributes surface water flow directly or indirectly to an	Pond 1 has a presumed maximum depth of eight feet with a silt substrate. Pond 1 is connected to downstream (a)(1) waters via Intermittent Stream 6.

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):				
(a)(3) Name	(a)(3) Size		(a)(3) Criteria	Rationale for (a)(3) Determination
			(a)(1) water in a typical year.	
N/A.	N/A.	N/A.	N/A.	N/A.

Adjacent wetlands ((a)(4) waters):				
(a)(4) Name	(a)(4) Size		(a)(4) Criteria	Rationale for (a)(4) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

#### D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12)): <sup>4</sup>				
Exclusion Name	Exclusion Size		Exclusion <sup>5</sup>	Rationale for Exclusion Determination
Ephemeral 1	84	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 1 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 1 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 2	289	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 2 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 2 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 3	21	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 3 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 3 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 4	412	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 4 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 4 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 5	175	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 5 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 5 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 6	94	linear feet	(b)(3) Ephemeral feature, including an ephemeral	Eph 6 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field

<sup>4</sup> Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.

<sup>5</sup> Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.



Excluded waters ((b)(1) – (b)(12)): <sup>4</sup>				
Exclusion Name	Exclusion Size	Exclusion <sup>5</sup>	Rationale for Exclusion Determination	
			stream, swale, gully, rill, or pool.	assessment. Eph 6 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 7	26	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 7 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 7 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 8	38	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 8 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 8 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 9	111	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 9 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 9 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 10	120	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 10 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 10 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 11	169	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 11 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 11 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 12	97	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 12 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 12 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 13	76	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 13 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 13 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 14	139	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 14 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 14 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 15	81	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 15 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 15 is a (b)(3) water and is therefore excluded from the rule.

Excluded waters ((b)(1) – (b)(12)): <sup>4</sup>				
Exclusion Name	Exclusion Size	Exclusion <sup>5</sup>	Rationale for Exclusion Determination	
Ephemeral 16	167	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 16 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 16 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 17	120	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 17 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 17 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 18	65	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 18 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 18 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 19	45	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 19 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 19 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 20	95	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 20 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 20 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 21	21	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 21 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 21 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 22	31	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 22 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 22 is a (b)(3) water and is therefore excluded from the rule.
Ephemeral 23	135	linear feet	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool.	Eph 23 only contains surface water flowing or pooling in direct response to precipitation and had no flow in the channel during the field assessment. Eph 23 is a (b)(3) water and is therefore excluded from the rule.

### III. SUPPORTING INFORMATION

A. **Select/enter all resources** that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

Information submitted by, or on behalf of, the applicant/consultant: [Request for Jurisdictional Determination for Sunrise Builders, LLC](#)

This information is sufficient for purposes of this AJD.

Rationale: N/A

- Data sheets prepared by the Corps: Title(s) and/or date(s).
- Photographs: Aerial and Other: site photographs January 11, 2021
- Corps site visit(s) conducted on: Date(s).
- Previous Jurisdictional Determinations (AJDs or PJDs): ORM Number(s) and date(s).
- Antecedent Precipitation Tool: provide detailed discussion in Section III.B.
- USDA NRCS Soil Survey: SSURGO, Jefferson County, Kentucky (2008).
- USFWS NWI maps: Title(s) and/or date(s).
- USGS topographic maps: 1:24,000 – Jeffersontown, Kentucky Quadrangle.

**Other data sources used to aid in this determination:**

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	N/A.
State/Local/Tribal Sources	N/A.
Other Sources	N/A.

**B. Typical year assessment(s):** N/A or provide typical year assessment for each relevant data source used to support the conclusions in the AJD.

**C. Additional comments to support AJD:** N/A or provide additional discussion as appropriate.