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January 18, 2011

Via Hand Delivery

Ms. Renee Jenkins
Public Utilities Commission of Ohio
180 East Broad Street
Columbus, Ohio 43215

RE: City of Hamilton and American Municipal Power, Inc.,
Meldahl Hydro Project: Motion for Waiver
Case No. 10-2440-EL-BTX (Transmission Line)
Case No. 10-2439-EL-BSB (Substation)

Dear Ms. Jenkins:

Pursuant to O.A.C. 4906-1-03 and O.A.C. 4906-5-04(B), the City of Hamilton and American Municipal Power, Inc. ("Applicants") hereby request partial waivers of certain O.A.C. 4906-15-06(F) and O.A.C. 4906-15-07 requirements as they relate to the alternative transmission route and substation. As set forth in the enclosed motion for waiver and memorandum in support, good cause exists for granting such waivers.

I have enclosed two original duplicates and twenty copies of the motion and the memorandum in support for placement in each of the case files. I have also enclosed an extra copy of the motion and memorandum in support; please date-stamp and return this copy in the enclosed envelope. If you have any questions, please feel free to contact me at 614-761-2688 or abott@bottlawgroup.com or you may contact John Bentine at 614-334-6121 or jbentine@cwslaw.com.

Respectfully,

April R. Bott
on behalf of Applicants

Enclosures

BEFORE THE OHIO POWER SITING BOARD

In the Matter of City of Hamilton	:	
and American Municipal Power, Inc.	:	
for a Certificate of Environmental	:	
Compatibility and Public Need for a	:	**Case No. 10-2440-EL-BTX**
138 kV Transmission Line	:	**Case No. 10-2439-EL-BSB**
and Substation Project in	:	
Franklin and Washington Townships,	:	
Clermont County, Ohio	:	

MOTION FOR WAIVER

Pursuant to O.A.C. 4906-1-03 and O.A.C. 4906-5-04(B), the City of Hamilton ("Hamilton") and American Municipal Power, Inc. ("AMP"), co-licensees of the Meldahl Hydroelectric Project's FERC License and as agents for and on behalf of Meldahl Project owner Meldahl LLC, (collectively "Applicants") move the Ohio Power Siting Board for a waiver of certain requirements of O.A.C. 4906-15. Specifically, while Applicants intend to provide fully developed information for its preferred transmission route and substation, Applicants request a waiver of certain O.A.C. 4906-15-06(F) and 4906-15-07 requirements for the alternative transmission route and substation. Further, because Applicants need to submit applications within the next few months, Applicants respectfully request that a waiver be granted no later than January 31, 2011. For the reasons set forth in the attached Memorandum in Support, good cause exists to grant the requested waiver.

Respectfully submitted on behalf of the Applicants,

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* Per electronic authorization

MEMORANDUM IN SUPPORT

I. BACKGROUND AND SELECTION PROCESS

The Applicants are developing a new hydroelectric power generating facility on the Ohio River at the existing Meldahl Locks and Dam ("Meldahl Project") near Augusta, Kentucky. As currently licensed, the Project will have a nameplate capacity of approximately 105 MW. The Federal Energy Regulatory Commission issued a license for the development, construction and operation of the Meldahl Project in 2008 (FERC Project No. 12667). The project license is now held jointly by the Applicants, and the project is currently under construction near Augusta, Kentucky.

Shortly, the Applicants intend to submit an application to construct a 138 kV electric transmission line from the Meldahl Project, across the Ohio River just upstream of the existing Meldahl Locks and Dam at Ohio River Mile 436.2, to an existing 345 kV Zimmer-Spurlock transmission line in Clermont County, Ohio, approximately two miles inland from the Ohio-side landing of the river crossing. Applicants also intend to submit an application to construct an accompanying substation to interconnect the new 138 kV transmission line with the existing 345 kV Zimmer-Spurlock transmission line (collectively "OPSB Applications").

In conjunction with the transmission and substation development, the Applicants engaged the engineering firm of MWH Americas, Inc. ("MWH") to perform a transmission line route and substation site selection study. *See*, Attachment A. Based on the MWH study, a preferred transmission line route and substation site and a viable alternative transmission line route and substation site have been identified as required by O.A.C. 4906-5-04. In identifying the preferred and alternative transmission line routes, MWH evaluated the following criteria: length and area of each corridor; length of each corridor adjacent to existing roads and utility rights of way; length of

woodlands crossed; number of properties crossed; number of streams crossed; number of roads crossed and number of buildings in near distances. Based on these criteria, MWH identified Route 7 as the preferred route and Route 3 as the alternative route. Attachment A at 2-12.

With respect to the substation site, MWH evaluated the following criteria: location in conjunction with existing 345 kV line; access from existing roads; clear areas (without the need for extensive woodland clearing); appropriate drainage; relationship to the proposed transmission lines and location away from existing residences. Based on these criteria, MWH identified SS-4 as the preferred substation site and SS-2 as the alternative substation. Attachment A at 5-12.

II. REQUEST FOR WAIVER

Concurrent with the MWH study, the Applicants engaged EA Engineering, Science and Technology, Inc. ("EA") to perform the studies and analyses required by O.A.C. Chapter 4906-15. Based on coordination with the primacy agencies, Applicants seek two specific waivers with respect to the alternative route and substation, as set forth below. O.A.C. 4906-1-03 and 4906-5-04(B) allow the Board or the Administrative Law Judge to waive the requirement of fully developed information for the alternative route and substation for good cause shown. As explained, there is good cause to support Applicants' waiver request.

A. O.A.C. 4906-15-06(F) Partial Waiver for the Alternative Route and Substation

O.A.C. 4906-15-06(F) requires Applicants to perform cultural resource studies for both the preferred and alternative routes. The Applicants retained OVAI to perform these studies, and OVAI performed field investigations and Phase I testing on the routes and substations in October 2010. The Applicants and OVAI thereafter met with Dave Snyder, Ohio Historic Preservation Office ("SHPO"), to discuss the findings and to develop the scope of the next step in the investigation.

On November 10, 2010, Mr. Snyder sent an electronic correspondence to EA expressing SHPO's opinion that OVAI should not conduct any additional archaeological testing on the alternative route. *See*, Attachment B (Boltz Affidavit and Snyder E-Mail). Mr. Snyder noted that he was concerned additional ground disturbance could result in the unnecessary destruction of archaeological materials. Id. Mr. Snyder agreed that Route 7 and the associated SS-4 substation site are superior from a historic preservation perspective. Id. In that regard, Mr. Snyder stated: "If there is a viable route, I would prefer not to conduct archaeological investigations that could destroy portions of sites only to show that the shorter, viable route is in fact viable." Id.

All work performed by EA and OVAI demonstrate that Route 7 and SS-4 are both viable and superior to Route 3 and associated SS-2. *See*, Attachment B. Further, nothing identified to date would disqualify Route 7 from consideration or detract from the archeological benefits of utilizing Route 7 and SS-4 as the preferred route and substation. Applicants recognize that, in the event the preferred route and substation are removed from consideration, additional historic preservation work will need to be performed relative to the alternate route and substation location. However, in concert with Mr. Snyder's determination, Applicants seek to avoid any unnecessary ground disturbance.

Applicants respectfully request a limited waiver of O.A.C. 4906-15-06(F) for the alternative route and substation for any additional ground disturbance or shovel testing unless or until Route 7 and/or SS-4 are eliminated as viable options. All studies and conclusions developed to date by OVAI, including preliminary Phase I work on Route 3 and SS-2, will still be submitted to support the OPSB Applications.

B. O.A.C. 4906-15-07 Partial Waiver for the Alternative Route and Substation

O.A.C. 4906-15-07 requires Applicants to perform ecological impact analyses associated with threatened and endangered species, including the Indiana Bat. In August 2010, Jackson Environmental, on behalf of the Applicants, performed a Bat Species inventory (including a mist net survey) on Route 7 after obtaining approval from the U.S. Fish and Wildlife Service and the Ohio DNR, Division of Wildlife. *See*, Attachment C. However, Jackson could not complete a bat inventory on the alternative route because the permissible season for such surveys ended before a survey on the alternative route was ready to be conducted.

On November 10, 2010, after review of Jackson's report, the U.S. Fish and Wildlife Service confirmed that "no Indiana Bats were captured during the survey. Therefore, no further action regarding the Indiana Bat is required for this proposed project." *See*, Attachment D. Based on the Jackson study and concurrence from U.S. Fish and Wildlife, Applicants request a waiver only for additional bat surveys associated with the alternative transmission route. No Indiana Bats were found during the initial survey on Route 7, and Routes 3 and 7 are in such close proximity to each other (less than 1.5 miles) and encounter similar environments that the Route 7 findings are representative of habitats and migration patterns along Route 3.

If Applicants do not receive a waiver, Applicants will be required to postpone filing of the OPSB Applications since the season for such surveys does not commence again until March 2011. Since the preferred Route 7 appears viable and since the surveying conducted indicated no presence of Indiana bats, it would be wasteful to delay Applicants' ability to file the OPSB Applications at the earliest possible date. Such early filing is important to Applicants' needs to have a transmission line and substation operational in a timeframe that dovetails with construction of the Meldahl Project's generating facilities.

III. CONCLUSION

Performing additional ground disturbing cultural investigations and bat studies will add time, expense, and burden for the Applicants as well as property owners along the alternative route and substation. And, performance of such additional cultural studies would run counter to the recommendations of SHPO. Given the close proximity of the preferred and alternative routes, it is highly unlikely that any data collected from environmental and ecological studies conducted on the alternatives would differ from the data collected on the preferred route and site. As such, Applicants request that, pursuant to O.A.C. 4906-1-03 and 4906-5-04(B), a waiver be granted for certain specific requirements of O.A.C. 4906-15-06(F) and O.A.C. 4906-15-07 as explained herein.

Respectfully submitted on behalf of the Applicants,

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* Per electronic authorization

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing pleading was served upon the following persons via hand delivery on January 19th, 2011:

Ohio Attorney General
Public Utilities Section
180 E. Broad Street
Columbus, Ohio 43215
Attention: Duane Luckey

With a courtesy copy to:

Ohio Power Siting Board
180 E. Broad Street
Columbus, Ohio 43215
Attention: Kim Wissman

Ohio Power Siting Board
180 E. Broad Street
Columbus, Ohio 43215
Attention: Klaus Lambeck

Counsel for Applicants

Attachment A

MELDAHL HYDROELECTRIC PROJECT

FERC PROJECT NO. 12667

TRANSMISSION LINE AND SUBSTATION SITE AND ROUTE SELECTION STUDY

Prepared by

MWH

December 2010

for

The City of Hamilton, Ohio &
American Municipal Power

***** Privileged and Confidential ****

MELDAHL HYDROELECTRIC PROJECT

TRANSMISSION LINE SUBSTATION
SITE AND ROUTE SELECTION STUDY

TABLE OF CONTENTS

1.0 INTRODUCTION

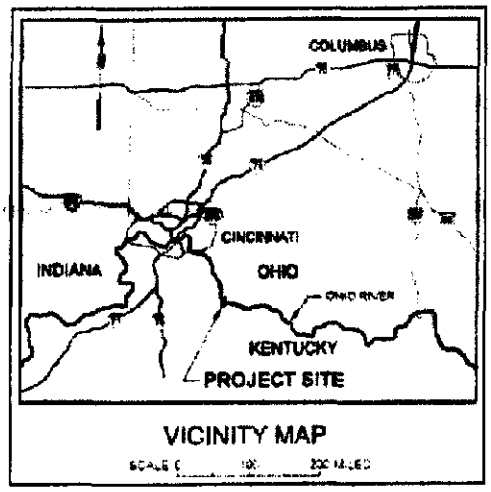
This report presents the results of the transmission line and substation site and route selection study conducted by MWH for the Meldahl Hydroelectric Project (Project) on behalf of the Project developers and licensees, the City of Hamilton (COH) and American Municipal Power, Inc. (AMP). The purpose of the 138 kV transmission line and substation is for the interconnection of the Project with an existing 345 kV transmission line in the PJM regional transmission organization. The existing 345 kV line is owned and operated by Duke Energy (Duke), Dayton Electric Power and Light (DEPL), American Electric Power Corp. (AEP), and East Kentucky Power Cooperative (EKPC).

The objective of the study was to identify, evaluate and make recommendations regarding the relative desirability of the potential transmission line routes and substation sites for interconnection of the Project. A total of ten (10) possible transmission line corridors between the Project and the existing Zimmer-Spurlock 345 kV transmission line (Z-S T-Line) along with five (5) possible substation sites adjacent to the existing Z-S T-Line were developed and evaluated as part of this study. Environmental and technical data were used to evaluate the routes and sites for impacts on sensitive land uses, natural habitats, and other environmental features. The routes and sites were also evaluated from a technical viewpoint in terms of structural requirements due to terrain and topography, constructability, and costs. Two routes, one preferred and one alternate, were ultimately selected based upon the evaluations documented in this study.

This study was developed in a manner that satisfies the requirements of the Ohio Administrative Code (O.A.C.) Section 4906-15-03 for two separate applications to the Ohio Power Siting Board (OPSB) for Certificates of Environmental Compatibility and Public Need. The first application is for the proposed 138kV Meldahl transmission line and the second is for the proposed Meldahl interconnecting substation.

2.0 PROJECT INFORMATION

The Meldahl Hydroelectric Project will be located on the Ohio River in Bracken County, Kentucky on the south side of the existing Captain Anthony Meldahl Locks and Dam, which is owned and operated by the U.S. Army Corps of Engineers. The Project location is shown in the vicinity map.



VICINITY MAP

The powerhouse will consist of three (3) horizontal bulb turbine hydroelectric generating units with a capacity of approximately 35 MW each. Construction of the powerhouse has been approved under FERC Project No. 12667. Cofferdam construction has commenced and the Project is scheduled to enter commercial operation in 2014. To support this commercial operation date, construction of the new transmission line and substation is scheduled to start in late 2012 and be completed in 2013.

Currently, the FERC-licensed transmission line calls for approximately five (5) miles of 138 kV single circuit line from the powerhouse to a new switching station that would provide a connection to East Kentucky Power Cooperative's (EKPC) Boone-Spurlock 138 kV transmission line in Kentucky. The Owner recently completed a life-cycle analysis[1] of various interconnection options, including both the existing licensed route to EKPC as well as the proposed PJM route, and determined that the PJM route offers the greatest benefit to the Project.

The proposed transmission line from the Project to the Z-S T-line will require a crossing of the Ohio River and an overland run to connect with the existing 345 kV line, which essentially run parallel to the river at this location. The new 138 kV line will be owned, maintained and operated by the Owner. Also, a new substation will need to be constructed in Clermont County, Ohio at the point of interconnection with the existing Z-S T-line. The substation will include 138 kV and 345 kV circuit breakers, electrical buses, switching equipment and four (4) single phase 138/345 kV step-up autotransformers (one (1) for each phase plus a spare). Ownership of the substation will be decided based upon further discussions between the Owner and the Z-S T-line owners. The estimated cost for proposed substation is $12 million.

3.0 ROUTE AND SITE SELECTION

3.1 ROUTE AND SITE SELECTION CRITERIA

In anticipation of the application process, the Owner and MWH met, discussed, and agreed on the criteria to be followed in identifying and evaluating potential sites and routes. These criteria were based on the OPSB guidelines and standard transmission line routing practices and experience on previous projects. The following major criteria were established for the site and route selection study with the purpose of minimizing adverse environmental impacts and maximizing constructability:

- Minimize proximity to residences and other sensitive land uses (parks, preserves, historical sites, recreation areas, schools, churches, hospitals, cemeteries, etc.);
- Minimize contact with streams, water bodies and wetlands;
- Minimize woodlot clearing and contact with forested areas and sensitive natural habitats;

[1] "Meldahl Hydroelectric Project, Transmission Line Alternatives Study – Life Cycle Analysis" by MWH, August 2010

- Maximize use of flat parcels of land for construction of substation and transmission line and avoid areas where terrain or drainage would interfere with substation and transmission line construction and maintenance;
- Maximize use of existing linear corridors by following existing transmission lines, railroads, or roads to extent possible, or follow section or fence lines and avoid crossing the middle of cultivated fields;
- Minimize overall route length and number of route angles (keep transmission line as straight as possible);
- Minimize crossings of public roads and railroads;
- Maximize opportunity for an economical and technically feasible tie-in with the existing transmission line;
- Locate the substation site near an existing road so that it is readily accessible for construction and maintenance, and to minimize the time and effort required for restoration of service;
- Minimize clear views of substation and transmission line from potential viewers;
- Locate the transmission lines parallel to the contours of the land to the extent possible;
- In rough and hilly terrain, maintain alignments that change direction in line with the scale of the topographic change;
- Avoid alignments that are perpendicular to the basic topography to the extent possible;
- Cross hills at oblique angles to contours rather than at right angles wherever possible; and
- Attempt to route lines along edges of valleys and along existing tree lines.

Further, the corridors were selected to avoid, to the extent possible, constraints described by the OPSB and to minimize impacts where constraints could not be avoided.

A corridor width of 300 feet was chosen for the preliminary routing. The actual right-of-way (ROW) width for a 138 kV transmission line ranges between 100 ft to 125 ft. The larger corridor width was selected to provide extra space to allow sufficient room to avoid obstructions encountered during the detailed transmission line design process, if necessary.

Potential substation sites were also located along the existing Z-S T-line. Substation sites were located, to the extent possible, on non-wooded flat land, away from streams and tributaries, and near existing roads to minimize the need to build new access roads. Five different substation sites were initially identified in conjunction with the ten transmission line routes.

3.2 INITIAL TRANSMISSION LINE ROUTE SELECTION

The selection of an acceptable transmission line corridor requires consideration of the line's length in order to minimize line losses and costs, the corridor's topography and accessibility for ease of construction and line maintenance, the impacts on local, private, and public property owners, and the impacts to the environment including woodlands, wetlands, cultural and historical sites as well as wildlife habitat, in particular protected species.

Initially, ten possible transmission line corridors from the Project to the existing Z-S T-line were identified. The lines tied into five separate proposed substation sites. The routes and substation sites are shown in **Exhibit 1**. Each route is described in a brief narrative below.

Each of the ten corridors originate at the Project site on the Kentucky side of the Ohio River, cross the river using either the downstream or upstream river crossing, and then tie into the Z-S T-line at one of the five proposed substation locations. Each of the ten routes are described below:

Route 1 crosses the Ohio River approximately 1,600 ft downstream from the Project and once on the Ohio side of the river near Main Street (Hwy 52), travels in a NW direction to Neville Penn Schoolhouse Road near the Vesper Cemetery. At that point, it follows the Neville Penn Schoolhouse Road until it is approximately 800 ft from the Z-S T-Line. It then turn SE for about 1,400 ft where it enters the proposed substation site no. 1 (SS-1). The route is heavily wooded, crosses numerous properties and streams, and requires a large number of angles and turns to follow the road. Of the ten possible corridors, Route 1 is the third longest at 4.8 miles.

Route 2 utilizes the same downstream Ohio River crossing as Route 1 and follows the same corridor as Route 1 until reaching Hwy 52. At Hwy 52, it then turns east for about 2,200 ft until turning north. It crosses woodlands until reaching an unnamed secondary road and then follows this secondary road for approximately 3,000 ft. The route continues due north through a mixture of woodland and cleared land for another 6,000 ft where it then turns NE for 3,600 ft until entering proposed substation site no. 2 (SS-2). The route is fairly straight, requiring few angles or turns. Route 2 is approximately 3.9 miles in length.

Route 3 generally follows the same path as Route 2 except that it crosses the Ohio River approximately 1,100 ft upstream of the Project. Again, the route is a mixture of woodland and cleared fields but is fairly straight requiring few angles/turns. Route 3 is approximately 4.2 miles in length.

Route 4 crosses the Ohio River approximately 1,100 ft upstream of the Project and once on the Ohio side of the river, continues in a northerly direction crossing Hwy 52 and then turning at Bear Creek Road. The corridor follows Bear Creek Road for approximately 6,800 ft until the road turns in an easterly direction. The route continues north for approximately 2,800 ft where it enters the proposed substation site no. 3 (SS-3). This corridor is heavily wooded and crosses the most properties per mile of any corridor. Route 4 also requires numerous angles and turns to follow Bear Creek Road. Route 4 is however, only 3.3 miles in length, so it is one of the more direct routes.

Route 5 generally follows the same path to SS-3 as Route 4 except that it utilizes some cleared land east of Route 4 to avoid the properties along Bear Creek Road. This alternate route also eliminates the amount of forest clearing and eliminates numerous angles/turns along the corridor. Route 5 is approximately 3.4 miles in length.

Route 6 utilizes the same upstream river crossing as Routes 3, 4 and 5, but avoids the heavily wooded areas along Route 4 and Bear Creek Road. Once on the Ohio side of the river, it continues in a NE direction crossing Hwy 52 and Bert Reed Memorial Road and continuing through forested and agricultural land for about 9,000 ft (from Hwy 52) until it enters proposed substation site no. 4 (SS-4). Route 6 is about 2.9 miles in length, which is the shortest and most direct of all the routes considered.

Route 7 generally follows the same path to SS-4 as Route 6 except that it bears east and north for a short distance (about 2,200 ft) to avoid the need for some forest clearing. Route 7 is therefore just slightly longer than Route 6 at about 3.0 miles in length.

Route 8 also follows the same path to SS-4 as Route 7 except that it bears east and north to utilize a flatter topography and cleared land to the east. Route 8 runs approximately 400 feet east of Wood Hill Cemetery and is about 3.4 miles in length.

The corridors for **Routes 9 and 10** utilizes the same upstream river crossing as Routes 3 through 8 but turn east on the Ohio side of the river to follow the lands along the Ohio River for about 6,000 ft until reaching the town of Chilo. The corridor then turns north to follow Hwy 222. At a point on Hwy 222 approximately 3,200 ft north of Hwy 52, Route 9 turns west while Route 10 continues north.

Route 9 continues in a W-NW direction following cleared farmland, then crosses Bert Reed Memorial Road and follows the same general route to proposed substation site SS-4 as Routes 6, 7 and 8. This route attempts to take advantage of flatter topography and minimize woodland clearing but results in the longest corridor at approximately 5.0 miles.

As noted, **Route 10** follows the same path as Route 9 until it reaches the point on Hwy 222 where Route 9 turns to the west. Route 10 instead continues in a N-NE direction following Hwy 222 for approximately 1,000 ft. It then turns east, following a path south of Chilo Cemetery for approximately 2,600 ft where it then turns north and crosses Hwy 222. The route continues north after crossing Hwy 222 for approximately 3,200 ft to the proposed substation site no. 5 (SS-5). Route 10 is the only transmission line corridor that utilizes SS-5. Route 10 is approximately 4.5 miles in length.

3.3 INITIAL SUBSTATION SITE SELECTION

Substation sites require sufficient area for construction, equipment layout, operation and maintenance of the facility and must be in close proximity to the existing transmission line and towers to accomplish an economical and technically feasible connection from the new transmission line to the existing transmission line. In addition, the ideal site should be close to existing roads to make access by large maintenance vehicles safe and convenient. The site should have adequate drainage and minimize impacts on local property owners, schools and churches, historical sites, wetlands and forest habitat.

During the initial selection study of possible new substation sites, areas along the existing 345 kV Z-S T-line were investigated for connection of the ten possible transmission line corridors (Routes 1-10). An area measuring approximately 400 ft. by 400 ft. was used substation footprint for siting purposes.

Five (5) possible substations sites were selected based on the following criteria.

- The potential site is adjacent to and located on the SW side of the existing Z-S T-Line.
- Access to the site can be provided from existing roads.
- The potential sites are located at least 250 ft away from existing residences.

Each of the potential sites are described below:

Site SS-1 is at the terminal end of **Route 1** and is located approximately 1,100 ft SE of the intersection of Neville Penn Schoolhouse Road and the existing Z-S T-Line. The proposed site is located on the SW side of the existing line and will require acquisition land, clearing of woodland, and extensive grading. This site requires the construction of a permanent access road from either Neville Penn Schoolhouse Road (approx. 1,100 ft) or Burns Road (approx. 1,000 ft) to the substation although the access road could be built within the boundaries of the existing Z-S T-Line right-of-way (ROW).

Site SS-2 would service **Routes 2 and 3** and is located approximately 900 ft SE of SS-1 on the SW side of the existing Z-S T-Line. The site is adjacent/east of Burns Road and will require clearing of woodland and minimal grading. A new access road would not be required.

Site SS-3 would provide interconnection for **Routes 4 and 5** and is located approximately 1,500 ft SE of SS-2 on the SW side of the existing Z-S T-Line. The site is approximately 800 ft SE of Burns Road and will require extensive clearing of woodland, minimal grading, and construction of approximately 800 feet of new access road from Burns Road to the site. This new access road could be built within the boundaries of the existing Z-S transmission line ROW.

Site SS-4 is at the terminal end of **Routes, 6, 7, 8 and 9** and is located approximately 1,400 ft due west of the intersection of Chilo Cemetery McKendree Chapel Road the Z-S T-Line. The site is situated on the SW side of the Z-S T-Line and is approximately 1,100 ft SW of Chilo Cemetery McKendree Chapel Road. This site is located on cleared, level pasture and will not require clearing of woodland and only minimal grading. Since it is located adjacent to an existing secondary road from Chilo Cemetery McKendree Chapel Road, it will not require a new access road.

Site SS-5, which would be used for interconnection of **Route 10**, is located approximately 5,300 ft SE of the intersection of Chilo Cemetery McKendree Chapel Road and the Z-S T-Line. It is approximately 1,100 ft west of the intersection of Green Street (Hwy 222) and McKinney-Brophy-Hopewell Roads and is situated on the SW side

of the Z-S T-Line. This site will not require clearing of woodland and requires minimal grading. It will however require construction of approximately 500 feet of new access road from Hwy 222 or an 1,100 ft road from McKinney-Brophy-Hopewell Road. Property will have to be acquired for the new access road.

4.0 ROUTE AND SITE EVALUATION

Data and information for the initial phases of the study were collected from aerial photographs, topographic maps, Clermont County and National Wetlands Inventory maps, federal, state and local agencies, limited field inspections, and other public vantage points. The data collected was used to compute the following:

- Length of each corridor.
- Area of each corridor (based on 300 ft width).
- Length of corridor centerline adjacent to existing roads and utility ROW.
- Length of corridor centerline through woodland.
- Number of property crossed by the centerline.
- Number of streams crossed by the ROW.
- Numbers of roads crossed by the centerline
- Number of buildings within 100 ft, 500 ft and 1000 ft of corridor centerline.

The routes were divided into segments defined by items such as turns in the route alignments, the Ohio River banks, the Kentucky-Ohio State line, and intersections of the various routes. The segments are identified on **Exhibit 2**. Several of the routes share common segments, thus some of the segments are numbered twice.

Table 1 presents the data collected for each segment for each route. **Table 2** totals and summarizes the data, presenting it by State as well as the overall total for each route.

In order to identify the preferred and alternate routes that minimize the overall effects on environment and land use, a ranking system was used to evaluate and compare the data collected for each route. Eleven different attributes were used to rank each line with respect to one another. For each of these attributes, a scoring rationale was developed based where the route's data point fell in relation to the minimum and maximum data points from all of the routes. Specifically, the lower bound scoring value was set at the minimum value plus twenty percent of the difference between the minimum and maximum values for that data set. The upper bound scoring value was set at the minimum value plus seventy-five percent of the difference between the minimum and maximum values for that data set. These are shown graphically below:

- Lower Bound Value = Min. + 20% * (Max. – Min.)
- Upper Bound Value = Min. + 75% * (Max. – Min.)

This scoring rationale is applied uniformly to all of the attributes except the river crossing designation since there are only two choices for this attribute (upstream or downstream). Further description of each of the attributes used to rank the routes as well as the scoring rationale applied for each attribute are presented below.

Length: The total length of each corridor was evaluated based upon comparison of the route length to the minimum and maximum lengths of the potential routes considered. The scoring rationale used is presented in the following table.

Route Length (miles)	Score
0	0
3.3 or less	1
4.5 or less	5
More than 4.5	10

Corridor Area: The total area of each corridor was evaluated based upon comparison of the route area to the minimum and maximum areas of the potential routes considered. The scoring rationale used is presented in the following table.

Corridor Area (acres)	Score
0	0
121.6 or less	1
162.9 or less	5
More than 162.9	10

River Crossing: Since river crossings are unavoidable in this case, a minimum score of 5 was applied to all of the routes. The upstream river crossing tower and dead end structure on the Ohio side are located on generally clear, level ground and do not cross any major streams. In contrast, the downstream crossing will require extensive clearing on both sides of the river and will have to cross streams and wetlands on both sides of the river. As such, those routes that use the downstream crossing are assigned a score of 10 as shown in the table below.

River Crossing	Score
Upstream	5
Downstream	10

Length along Existing Roads or Utility ROW: The percentage of the length of each corridor that is along an existing road or utility ROW was evaluated based upon comparison of that percentage to the minimum and maximum percentages of the potential routes considered. The scoring rationale used is presented in the following table.

Percentage of Length Along Existing ROW	Score
100	0
35 to 99	1
12 to 34	5
Less than 12	10

Woodland Crossings: The total length of each corridor that crosses woodlands was evaluated based upon comparison of that length to the minimum and maximum lengths of the potential routes considered. The scoring rationale used is presented in the following table.

Length Crossing Woodlands (miles)	Score
0	0
1.5 or less	1
3.1 or less	5
More than 3.1	10

Stream Crossings: The number of steams crossed by each route was evaluated based upon comparison of that number to the minimum and maximum numbers of the potential routes considered. The scoring rationale used is presented in the following table.

Number of Streams Crossed	Score
0	0
11 or less	1
27 or less	5
More than 27	10

Property Crossings: The number of properties crossed by the centerline of the corridor was normalized for the different length routes by dividing the total number of properties crossed by the length of the route. In this manner, the property density is evaluated more than simply the total number of properties, which is more likely directly related to line length (and length is already scored elsewhere). The scoring rationale used is presented in the following table.

Properties Crossed Per Mile	Score
0	0
3.7 or less	1
6.6 or less	5
More than 6.6	10

Road Crossings: The number of roads crossed by the centerline of the corridor was normalized for the different length routes by dividing the total number of roads crossed

by the length of the route. In this manner, the level of infrastructure development crossed by the route is evaluated more than simply the total number of roads. The scoring rationale used is presented in the following table.

Roads Crossed Per Mile	Score
0	0
1.0 or less	1
2.0 or less	5
More than 2.0	10

Buildings Within 100 ft of Corridor: The number of buildings within 100 ft of the centerline of the corridor was normalized for the different length routes by dividing the total number of buildings by the length of the route. In this manner, the density of buildings is evaluated more than simply the total number of buildings, which can be more related to line length. The scoring rationale used is presented in the following table.

Number of Buildings Within 100 ft of the Corridor (per mile)	Score
0	0
0.1 or less	1
0.5 or less	5
More than 0.5	10

Buildings Within 500 ft of Corridor: The number of buildings within 500 ft of the centerline of the corridor was normalized for the different length routes by dividing the total number of buildings by the length of the route. In this manner, the density of buildings is evaluated more than simply the total number of buildings, which can be more related to line length. The scoring rationale used is presented in the following table.

Number of Buildings Within 500 ft of the Corridor (per mile)	Score
0	0
2.1 or less	1
5.1 or less	5
More than 5.1	10

Buildings Within 1000 ft of Corridor: The number of buildings within 1000 ft of the centerline of the corridor was normalized for the different length routes by dividing the total number of buildings by the length of the route. In this manner, the density of buildings is evaluated more than simply the total number of buildings, which can be more related to line length. The scoring rationale used is presented in the following table.

Number of Buildings Within 1000 ft of the Corridor (per mile)	Score
0	0
4.9 or less	1
11.9 or less	5
More than 11.9	10

Table 3 presents the evaluation values used to score each of the attributes for each of the routes. It also presents the maximum and minimum values for each attribute that were then used to develop the upper and lower bound values presented above and sued for scoring. Finally, the table presents the scores for each attribute on each of the routes as well as the total score for the routes.

5.0 CONCLUSION

The results of the ranking exercise are presented in the table below. The lower the total score, the more preferable the route.

Route Number	Score	Rank
1	77	10
2	39	5
3	34	2
4	63	8
5	47	6
6	35	4
7	31	1
8	34	2
9	65	9
10	60	7

While the above ranking clearly identifies a preferred and alternate route, certain criteria must be met with respect to selecting an alternate route. That is, the route must be fundamentally different than the preferred route with no more than 20% of the corridors being the same amongst the preferred and alternate routes. Therefore, the routes were subdivided into groups based upon the segments used.

Five groups were identified as shown in the table below. Route 1 is functionally different than all other routes, so it serves as its own group. Routes 2 and 3 share most of their routing in Ohio, so they form one group. As with Route 1, Route 4 is unique unto itself and therefore also forms its own group. Routes 5, 6, 7 and 8 are very similar to each other with only minor variations among them and are therefore a group. Finally, Routes 9 and 10 follow much of the same corridors and therefore form the final group.

Route Number	Group	Score	Group Rank
1	A	77	1
2	B	39	2
3	B	34	1
4	C	63	1
5	D	47	4
6	D	35	3
7	D	31	1
8	D	34	2
9	E	65	2
10	E	60	1

Within each group, each of the routes are ranked. As shown above, Routes 1, 3, 4, 7 and 10 are the preferred routes within each of the various groups. These routes serve as the 'preferred' routes within each of the groups. In order to identify the overall preferred and alternate route, each of the group preferred routes are ranked amongst each other. As shown in the table below, this identifies Route 7 and the overall preferred route and Route 3 as the alternate route. Route 10 is a distant third followed by Routes 4 and 1, respectively.

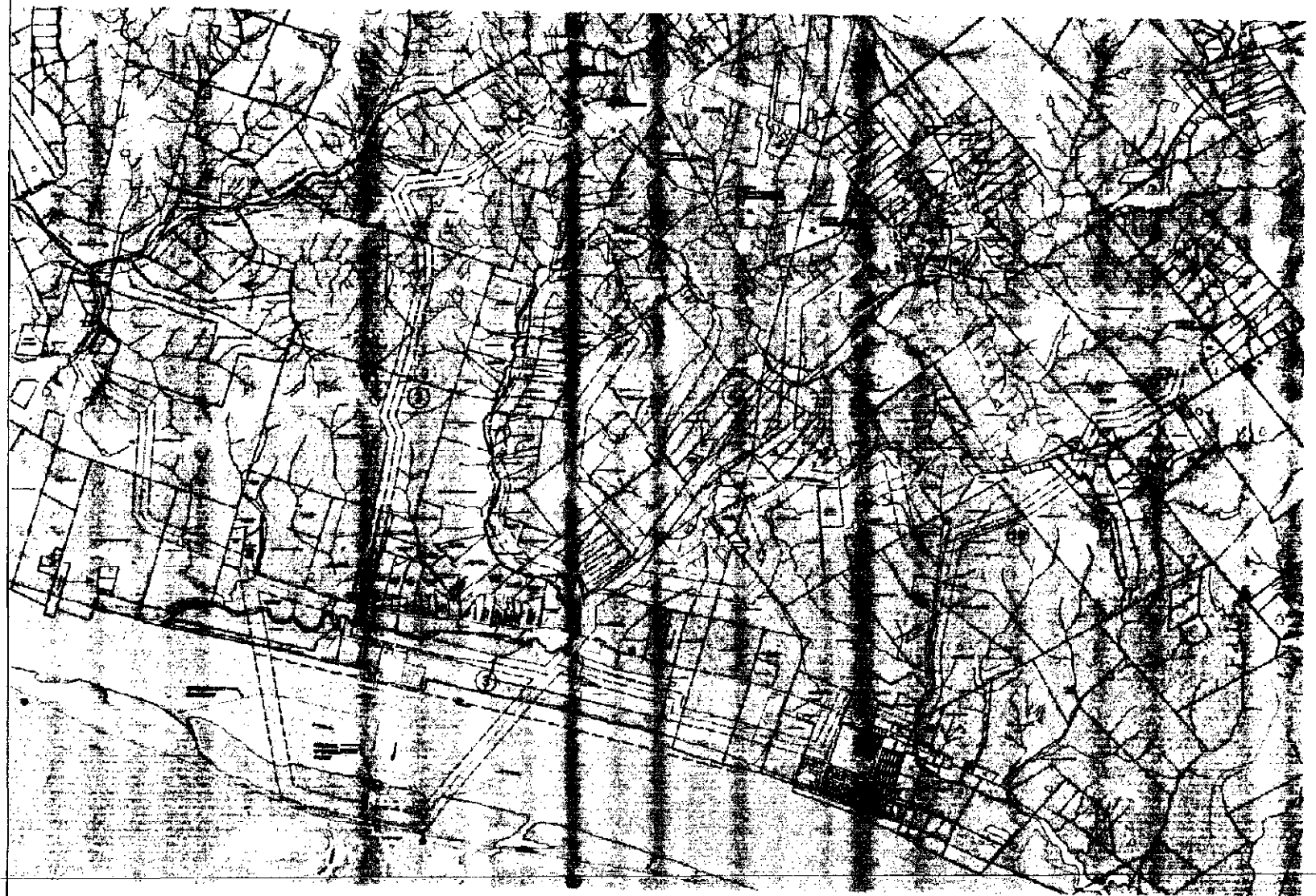
Route Number	Group	Score	Overall Rank
7	D	31	1
3	B	34	2
10	E	60	3
4	C	63	4
1	A	77	5

Of the five possible substation sites, site SS-4 is the most attractive site for the following reasons:

- Proximity to the existing secondary road precludes the need to acquire land for and to construct a new access road.
- The site is cleared pasture and would not need extensive clearing of woodland.
- The site is fairly level and would not need extensive grading for drainage.
- No existing buildings are located within 250 ft of site.
- This is the substation site for the preferred transmission line corridor (Route 7).

In closing, it must be noted that the selection study has been performed with limited field investigations. Detailed field investigations and surveys regarding items such as wetlands, protected and endangered species, cultural resources, etc. should be performed to confirm the results of this selection study. Should these studies identify issues within either the preferred or alternate corridors, this information should be input into the ranking analysis and the study revised as required.

EXHIBIT 1 – POTENTIAL 138kV TRANSMISSION CORRIDORS IN OHIO



MELDAHL HYDROELECTRIC PROJECT
FERC LICENSE # 12887

AMERICAN MUNICIPAL POWER, INC.
1111 SCHROCK ROAD, COLUMBUS, OHIO 43229

POTENTIAL
138 kV TRANSMISSION LINE
CORRIDORS IN OHIO

MMH | DATE AUGUST 2010 | Exhibit 2

EXHIBIT 2 – SEGMENT INFORMATION FOR THE POTENTIAL 138kV TRANSMISSION CORRIDORS IN OHIO

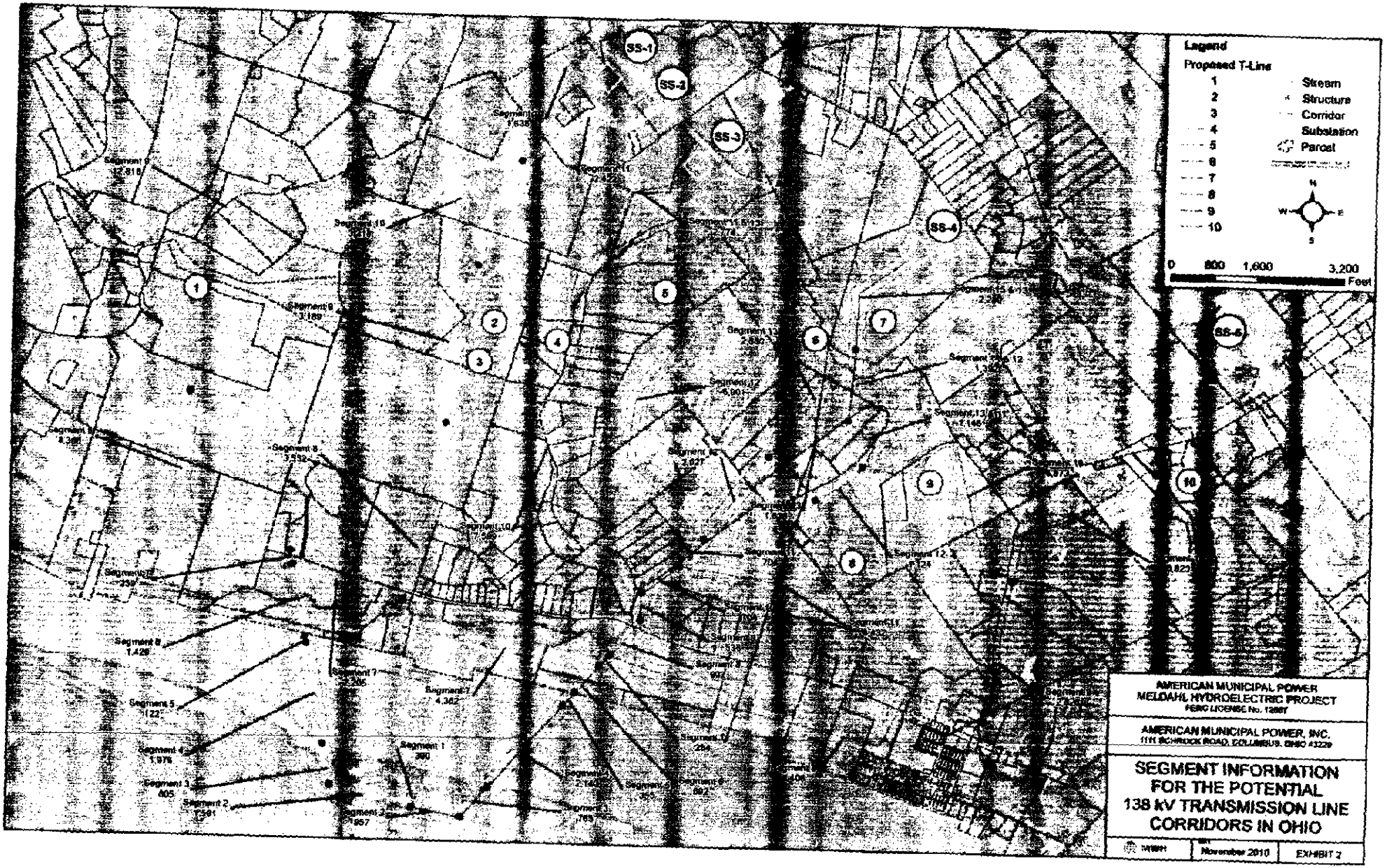

Legend
Proposed T-Line
1
2
3
4
5
6
7
8
9
10
Stream
Structure
Corridor
Substation
Parcel
N
W
E
S
0
800
1,600
3,200
Feet
SS-1
SS-2
SS-3
SS-4
SS-5
SS-6
AMERICAN MUNICIPAL POWER
MELDAHL HYDROELECTRIC PROJECT
FERC LICENSE No. 12687
AMERICAN MUNICIPAL POWER, INC.
1111 SCHROCK ROAD, COLUMBUS, OHIO 43229
SEGMENT INFORMATION
FOR THE POTENTIAL
138 kV TRANSMISSION LINE
CORRIDORS IN OHIO
November 2010
EXHIBIT 2

TABLE 1 – MELDAHL TRANSMISSION LINE CORRIDOR DATA

Table 1 - Meldahl Transmission Line Corridor Data

Route Number	Segment Number	State	Segment Length (ft)	Corridor Width (ft)	River Crossing (1=US, 2=DS)	Length Along Existing ROW (ft)	Length that crosses Woodlands (ft)	Number of Streams Crossed	Number of Properties Crossed	Number of Roads Crossed	Number of Buildings within:		
											100 ft	500 ft	1000 ft
1	1	KY	300	300		0	300	0		0	0	0	0
1	2	KY	1,591	300		0	1,591	3		0	0	0	0
1	3	KY	805	300		0	568	1		0	0	0	0
1	4	KY	1,979	300		0	-	1		0	0	0	0
1	5	OH	122	300		0	-	1		0	0	0	0
1	6	OH	1,429	300		0	1,415	2		0	0	0	3
1	7	OH	259	300		0	259	0		0	0	1	4
1	8	OH	4,366	300		0	3,333	1		1	1	3	5
1	9	OH	12,818	300		11,205	11,010	22		2	2	15	18
1	10	OH	1,638	300		0	1,638	3		1	0	1	3
1		KY	4,675			0	2,459	5	1	0	0	0	0
1		OH	20,632			11,205	17,654	29	29	4	3	20	33
1		Total	25,307	300	2	11,205	20,113	34	30	4	3	20	33
2	1	KY	300	300		0	298	0		0	0	0	0
2	2	KY	1,591	300		0	1,591	3		0	0	0	0
2	3	KY	805	300		0	568	1		0	0	0	0
2	4	KY	1,979	300		0	-	1		0	0	0	0
2	5	OH	122	300		0	-	1		0	0	0	0
2	6	OH	1,429	300		0	1,404	2		0	0	0	3
2	7	OH	2,205	300		2,205	2,205	2		0	0	0	4
2	8	OH	3,552	300		0	2,117	1		1	0	2	4
2	9	OH	3,189	300		0	585	0		0	0	0	0
2	10	OH	3,218	300		0	571	1		0	0	1	1
2	11	OH	2,422	300		2,422	613	0		2	0	4	4
2		KY	4,675			0	2,457	5	1	0	0	0	0
2		OH	16,137			4,627	7,495	7	10	3	0	7	16
2		Total	20,812	300	2	4,627	9,951	12	11	3	0	7	16

Table 1 - Meldahl Transmission Line Corridor Data

Route Number	Segment Number	State	Segment Length (ft)	Corridor Width (ft)	River Crossing (1=US, 2=DS)	Length Along Existing ROW (ft)	Length that crosses Woodlands (ft)	Number of Streams Crossed	Number of Properties Crossed	Number of Roads Crossed	Number of Buildings within:		
											100 ft	500 ft	1000 ft
3	1	KY	300	300		0	300	0		0	0	0	0
3	2	KY	957	300		0	642	0		1	0	0	0
3	3	KY	765	300		0	482	0		0	0	0	0
3	4	KY	2,148	300		0	-	1		0	0	0	0
3	5	OH	355	300		0	-	1		0	0	0	0
3	6	OH	692	300		0	343	0		0	0	0	0
3	7	OH	4,362	300		2,352	3,352	1		1	0	0	1
3	8	OH	3,552	300		0	2,117	1		1	0	2	4
3	9	OH	3,189	300		0	585	0		0	0	0	0
3	10	OH	3,218	300		0	571	1		0	0	1	1
3	11	OH	2,422	300		2,422	613	0		2	0	4	4
3		KY	4,161			0	1,424	1	1	1	0	0	0
3		OH	17,790			4,774	7,581	4	10	4	0	7	10
3		Total	21,952	300	1	4,774	9,005	5	11	5	0	7	10
4	1	KY	300	300		0	300	0		0	0	0	0
4	2	KY	957	300		0	642	0		1	0	0	0
4	3	KY	765	300		0	482	0		0	0	0	0
4	4	KY	2,140	300		0	0	1		0	0	0	0
4	5	OH	355	300		0	0	1		0	0	0	0
4	6	OH	692	300		0	343	0		0	0	0	0
4	7	OH	284	300		0	0	0		0	0	0	1
4	8	OH	902	300		0	278	1		1	0	0	2
4	9	OH	538	300		538	466	0		0	0	0	4
4	10	OH	7,599	300		7,375	4,935	7		4	2	20	22
4	11	OH	2,774	300		0	1,790	5		2	-	1	3
4		KY	4,161			0	1,424	1	1	1	0	0	0
4		OH	13,145			7,913	7,812	14	25	7	2	21	32
4		Total	17,307	300	1	7,913	9,237	15	26	8	2	21	32

Table 1 - Meldahl Transmission Line Corridor Data

Route Number	Segment Number	State	Segment Length (ft)	Corridor Width (ft)	River Crossing (1=US, 2=DS)	Length Along Existing ROW (ft)	Length that crosses Woodlands (ft)	Number of Streams Crossed	Number of Properties Crossed	Number of Roads Crossed	Number of Buildings within:		
											100 ft	500 ft	1000 ft
5	1	KY	300	300		0	300	0		0	0	0	0
5	2	KY	957	300		0	642	0		1	0	0	0
5	3	KY	765	300		0	482	0		0	0	0	0
5	4	KY	2,140	300		0	0	1		0	0	0	0
5	5	OH	355	300		0	0	1		0	0	0	0
5	6	OH	692	300		0	343	0		0	0	0	0
5	7	OH	284	300		0	0	0		0	0	0	1
5	8	OH	902	300		0	278	1		1	0	0	2
5	9	OH	538	300		538	464	0		0	0	0	4
5	10	OH	886	300		0	434	1		0	0	1	4
5	11	OH	704	300		0	0	0		0	0	0	2
5	12	OH	6,901	300		0	3,057	6		0	0	1	3
5	13	OH	2,774	300		0	1,785	5		2	0	2	4
5		KY	4,161			0	1,424	1	1	1	0	0	0
5		OH	14,037			538	6,361	14	12	3	0	4	20
5		Total	18,199	300	1	538	7,785	15	13	4	0	4	20
6	1	KY	300	300		0	300	0		0	0	0	0
6	2	KY	957	300		0	642	0		1	0	0	0
6	3	KY	765	300		0	482	0		0	0	0	0
6	4	KY	2,140	300		0	0	1		0	0	0	0
6	5	OH	355	300		0	0	1		0	0	0	0
6	6	OH	692	300		0	343	0		0	0	0	0
6	7	OH	284	300		0	0	0		0	0	0	1
6	8	OH	902	300		0	278	1		1	0	0	2
6	9	OH	538	300		538	468	0		0	0	0	4
6	10	OH	886	300		0	430	1		0	0	1	4
6	11	OH	704	300		0	0	0		0	0	0	2
6	12	OH	2,027	300		0	0	1		1	0	1	4
6	13	OH	2,680	300		0	2,579	2		0	0	1	4
6	14	OH	2,240	300		1,140	570	0		0	0	0	0
6		KY	4,161			0	1,424	1	1	1	0	0	0
6		OH	11,308			1,678	4,668	6	10	2	0	3	21
6		Total	15,470	300	1	1,678	6,092	7	11	3	0	3	21

Table 1 - Meldahl Transmission Line Corridor Data

Route Number	Segment Number	State	Segment Length (ft)	Corridor Width (ft)	River Crossing (1=US, 2=DS)	Length Along Existing ROW (ft)	Length that crosses Woodlands (ft)	Number of Streams Crossed	Number of Properties Crossed	Number of Roads Crossed	Number of Buildings within:		
											100 ft	500 ft	1000 ft
7	1	KY	300	300		0	300	0		0	0	0	0
7	2	KY	957	300		0	642	0		1	0	0	0
7	3	KY	765	300		0	482	0		0	0	0	0
7	4	KY	2,140	300		0	0	1		0	0	0	0
7	5	OH	355	300		0	0	1		0	0	0	0
7	6	OH	692	300		0	343	0		0	0	0	0
7	7	OH	284	300		0	0	0		0	0	0	1
7	8	OH	902	300		0	276	1		0	0	0	2
7	9	OH	538	300		538	466	0		0	0	0	4
7	10	OH	886	300		0	430	1		0	0	1	4
7	11	OH	704	300		0	0	0		0	0	-	2
7	12	OH	2,027	300		0	0	1		1	0	1	4
7	13	OH	1,826	300		0	462	1		0	0	3	5
7	14	OH	1,392	300		0	1,205	3		0	0	1	3
7	15	OH	2,240	300		1,140	570	0		0	0	-	-
7		KY	4,161			0	1,424	1	1	1	0	0	0
7		OH	11,847			1,678	3,751	8	11	1	0	6	25
7		Total	16,009	300	1	1,678	5,176	9	12	2	0	6	25
8	1	KY	300	300		0	300	0		0	0	0	0
8	2	KY	957	300		0	642	0		1	0	0	0
8	3	KY	765	300		0	482	0		0	0	0	0
8	4	KY	2,140	300		0	0	1		0	0	0	0
8	5	OH	355	300		0	0	1		0	0	0	0
8	6	OH	692	300		0	343	0		0	0	0	0
8	7	OH	284	300		0	0	0		0	0	0	1
8	8	OH	902	300		0	278	1		1	0	0	2
8	9	OH	538	300		538	468	0		0	0	0	4
8	10	OH	886	300		0	430	1		0	0	1	4
8	11	OH	4,432	300		0	682	1		0	0	-	4
8	12	OH	1,124	300		954	254	0		1	0	1	4
8	13	OH	1,146	300		0	902	2		0	0	2	4
8	14	OH	1,392	300		0	1,205	3		0	0	1	3
8	15	OH	2,240	300		1,140	570	0		0	0	0	0
8		KY	4,161			0	1,424	1	1	1	0	0	0
8		OH	13,992			2,632	5,131	9	12	2	0	5	26
8		Total	18,153	300	1	2,632	6,555	10	13	3	0	5	26

Table 1 - Meidahl Transmission Line Corridor Data

Route Number	Segment Number	State	Segment Length (ft)	Corridor Width (ft)	River Crossing (1=US, 2=DS)	Length Along Existing ROW (ft)	Length that crosses Woodlands (ft)	Number of Streams Crossed	Number of Properties Crossed	Number of Roads Crossed	Number of Buildings within:		
											100 ft	500 ft	1000 ft
9	1	KY	300	300		0	300	0		0	0	0	0
9	2	KY	957	300		0	642	0		1	0	0	0
9	3	KY	765	300		0	482	0		0	0	0	0
9	4	KY	2,140	300		0	0	1		0	0	0	0
9	5	OH	355	300		0	0	1		0	0	0	0
9	6	OH	692	300		0	343	0		0	0	0	0
9	7	OH	284	300		0	0	0		0	0	0	1
9	8	OH	8,406	300		1,353	3,108	3		5	0	12	36
9	9	OH	2,826	300		2,826	2,826	3		0	0	4	11
9	10	OH	4,873	300		1,946	1,562	7		3	0	5	9
9	11	OH	1,146	300		0	902	2		0	0	2	4
9	12	OH	1,392	300		0	1,205	3		0	0	1	3
9	13	OH	2,240	300		1,140	570	0		0	0	0	0
9		KY	4,161			0	1,424	1	1	1	0	0	0
9		OH	22,215			7,264	10,515	19	25	8	0	24	64
9		Total	26,376	300	1	7,264	11,940	20	26	9	0	24	64
10	1	KY	300	300		0	300	0		0	0	0	0
10	2	KY	957	300		0	642	0		1	0	0	0
10	3	KY	765	300		0	482	0		0	0	0	0
10	4	KY	2,140	300		0	0	1		0	0	0	0
10	5	OH	355	300		0	0	1		0	0	0	0
10	6	OH	692	300		0	343	0		0	0	0	0
10	7	OH	284	300		0	0	0		0	0	0	1
10	8	OH	8,406	300		1,353	3,108	3		5	0	12	36
10	9	OH	2,826	300		2,826	2,826	2		0	0	4	11
10	10	OH	6,823	300		1,029	2,603	4		1	0	11	19
10		KY	4,161			0	1,424	1	1	1	0	0	0
10		OH	19,387			5,208	8,880	10	24	6	0	27	67
10		Total	23,549	300	1	5,208	10,304	11	25	7	0	27	67

TABLE 2 – MELDAHL TRANSMISSION LINE CORRIDOR DATA SUMMARY

Table 2 - Meldahl Transmission Line Corridor Data Summary

Route Number	Segment Number	State	Corridor Length (ft)	Corridor Width (ft)	River Crossing (1=US, 2=DS)	Length Along Existing ROW (ft)	Length that crosses Woodlands (ft)	Number of Streams Crossed	Number of Properties Crossed	Number of Roads Crossed	Number of Buildings within:		
											100 ft	500 ft	1000 ft
1	0	KY	4,675			0	2,459	5	1	0	0	0	0
1	0	OH	20,632			11,205	17,654	29	29	4	3	20	33
1	0	Total	25,307	300	2	11,205	20,113	34	30	4	3	20	33
2	0	KY	4,675			0	2,457	5	1	0	0	0	0
2	0	OH	16,137			4,627	7,495	7	10	3	0	7	16
2	0	Total	20,812	300	2	4,627	9,951	12	11	3	0	7	16
3	0	KY	4,161			0	1,424	1	1	1	0	0	0
3	0	OH	17,790			4,774	7,581	4	10	4	0	7	10
3	0	Total	21,952	300	1	4,774	9,005	5	11	5	0	7	10
4	0	KY	4,161			0	1,424	1	1	1	0	0	0
4	0	OH	13,145			7,913	7,812	14	25	7	2	21	32
4	0	Total	17,307	300	1	7,913	9,237	15	26	8	2	21	32
5	0	KY	4,161			0	1,424	1	1	1	0	0	0
5	0	OH	14,037			538	6,361	14	12	3	0	4	20
5	0	Total	18,199	300	1	538	7,785	15	13	4	0	4	20
6	0	KY	4,161			0	1,424	1	1	1	0	0	0
6	0	OH	11,308			1,678	4,668	6	10	2	0	3	21
6	0	Total	15,470	300	1	1,678	6,092	7	11	3	0	3	21
7	0	KY	4,161			0	1,424	1	1	1	0	0	0
7	0	OH	11,847			1,678	3,751	8	11	1	0	6	25
7	0	Total	16,009	300	1	1,678	5,176	9	12	2	0	6	25
8	0	KY	4,161			0	1,424	1	1	1	0	0	0
8	0	OH	13,992			2,632	5,131	9	12	2	0	5	26
8	0	Total	18,153	300	1	2,632	6,555	10	13	3	0	5	26
9	0	KY	4,161			0	1,424	1	1	1	0	0	0
9	0	OH	22,215			7,264	10,515	19	25	8	0	24	64
9	0	Total	26,376	300	1	7,264	11,940	20	26	9	0	24	64
10	0	KY	4,161			0	1,424	1	1	1	0	0	0
10	0	OH	19,387			5,208	8,880	10	24	6	0	27	67
10	0	Total	23,549	300	1	5,208	10,304	11	25	7	0	27	67
Minimum Values			15,470	300	1	538	5,176	5	11	2	0	3	10
Maximum Values			26,376	300	2	11,205	20,113	34	30	9	3	27	67

TABLE 3 – MELDAHL TRANSMISSION LINE CORRIDOR EVALUATION & SCORING

Table 3 - Meldahl Transmission Line Corridor Evaluation Values & Scoring

Route Number	Corridor Length (miles)	Corridor Area (acres)	River Crossing (1=US, 2=DS)	Percentage of Length Along Existing ROW	Length Crossing Woodlands (miles)	Number of Streams Crossed	Properties Crossed per Mile	Roads Crossed per Mile	Buildings per Mile within:			Total Evaluation Score
									100 ft	500 ft	1000 ft	
1	4.8	174.3	2	44%	3.8	34	6.3	0.8	0.6	4.2	6.9	
2	3.9	143.3	2	22%	1.9	12	2.8	0.8	0.0	1.8	4.1	
3	4.2	151.2	1	22%	1.7	5	2.6	1.2	0.0	1.7	2.4	
4	3.3	119.2	1	46%	1.7	15	7.9	2.4	0.6	6.4	9.8	
5	3.4	125.3	1	3%	1.5	15	3.8	1.2	0.0	1.2	5.8	
6	2.9	106.5	1	11%	1.2	7	3.8	1.0	0.0	1.0	7.2	
7	3.0	110.3	1	10%	1.0	9	4.0	0.7	0.0	2.0	8.2	
8	3.4	125.0	1	15%	1.2	10	3.8	0.9	0.0	1.5	7.6	
9	5.0	181.7	1	28%	2.3	20	5.2	1.8	0.0	4.8	12.8	
10	4.5	162.2	1	22%	2.0	11	5.6	1.6	0.0	6.1	15.0	
Minimum Values	2.9	106.5	1	3%	1.0	5	2.6	0.7	0.0	1.0	2.4	
Maximum Values	5.0	181.7	2	46%	3.8	34	7.9	2.4	0.6	6.4	15.0	
Criteria Lower Bound	3.3	121.6	1	35%	1.5	11	3.7	1.0	0.1	2.1	4.9	
Criteria Upper Bound	4.5	162.9	1	12%	3.1	27	6.6	2.0	0.5	5.1	11.9	
1	10	10	10	1	10	10	5	1	10	5	5	77
2	5	5	10	5	5	5	1	1	0	1	1	39
3	5	5	5	5	5	1	1	5	0	1	1	34
4	1	1	5	1	5	5	10	10	10	10	5	63
5	5	5	5	10	1	5	5	5	0	1	5	47
6	1	1	5	10	1	1	5	5	0	1	5	35
7	1	1	5	10	1	1	5	1	0	1	5	31
8	5	5	5	5	1	1	5	1	0	1	5	34
9	10	10	5	5	5	5	5	5	0	5	10	65
10	5	5	5	5	5	5	5	5	0	10	10	60

Attachment B

BEFORE THE OHIO POWER SITING BOARD

In the Matter of City of Hamilton	:	
and American Municipal Power, Inc.	:	
for a Certificate of Environmental	:	
Compatibility and Public Need for a	:	**Case No. 10-2440-EL-BTX**
138 kV Transmission Line	:	**Case No. 10-2439-EL-BSB**
and Substation Project in	:	
Franklin and Washington Townships,	:	
Clermont County, Ohio	:	

AFFIDAVIT OF. JEFFREY M. BOLTZ, PH.D., IN SUPPORT OF MOTION FOR WAIVER

STATE OF MARYLAND :
: SS
COUNTY OF BALTIMORE :

I,Jeffrey M. Boltz, Ph.D., being first duly sworn under oath, depose and state as follows:

1. I am a Vice President at EA Engineering, Science and Technology, Inc. ("EA").
2. I am competent to attest to the matters set forth herein based upon my personal knowledge.
3. EA has been engaged by the City of Hamilton and American Municipal Power, Inc. (collectively "Applicants") to perform and/or oversee the performance of certain studies and analysis required by Ohio law to support applications to the Ohio Power Siting Board for approval to construct a transmission line, Case No. 10-2440-EL-BTX, and a substation, Case No. 10-2439-EL-BSB, associated with the Applicants' Meldahl Hydroelectric Project.
4. As part of the O.A.C. 4906-15-06 requirement to perform cultural resource studies for both a preferred and alternative route, EA retained OVAI as a subcontractor to perform certain field investigations and Phase I testing on the preferred and alternative transmission routes and substations in October 2010.

5. On November 10, 2010, Dave Snyder of the Ohio Historic Preservation Office ("SHPO") sent an electronic correspondence, attached, to EA expressing SHPO's opinion that OVAI should not conduct any additional archaeological testing on the alternative transmission route and substation.

6. Mr. Snyder's correspondence noted that he was concerned that additional ground disturbance could result in the unnecessary destruction of archaeological materials, and that he agreed that preferred Route 7 and the associated SS-4 substation site are superior from a historic preservation perspective. Mr. Snyder stated: "If there is a viable route, I would prefer not to conduct archaeological investigations that could destroy portions of sites only to show that the shorter, viable route is in fact viable."

7. In my professional opinion, based on the field study results that I have worked on or reviewed, the work performed by EA and OVAI support the conclusion that preferred Route 7 and SS-4 are both viable and superior to alternative Route 3 and associated SS-2.

FURTHER AFFIANT SAYETH NAUGHT.

By: _____
Dr. Jeffrey M. Boltz, Ph.D.

Sworn to before me and subscribed in my presence this 12th day of January 2011.

_____
Notary Public

JEANNE HARRIS-COVINGTON NOTARY PUBLIC BALTIMORE CITY, MD My Comm. Expires Sept. 19, 2011

From: Dave Snyder [mailto:dsnyder@ohiohistory.org]
Sent: Wednesday, November 10, 2010 2:29 PM
To: Boltz, Jeff
Subject: RE: Meldahl Transmission Line

Hello Jeff.

As you correctly note, I am not in favor of conducting additional Phase I archaeological testing for the alternate route provided that the survey along the preferred route doesn't result in the identification of a significant resource. The alternate route extends along the floodplain before extending up to the connection with the aerial transmission line while the preferred route, which is shorter, cuts across the floodplain and then climbs up to the interconnect. You have succinctly captured the argument for limiting the extent of archaeological survey. Provided that the cultural resources investigation and other environmental investigations along the preferred route show a viable route, then I would like to avoid archaeological investigations that involve ground disturbance. Shovel testing and deep testing are necessary at times to identify archaeological sites, but these survey techniques also result in the destruction of a portion of the archaeological site. If there is a viable route, I would prefer not to conduct archaeological investigations that could destroy portions of sites only to show that the shorter, viable route is in fact viable. In addition, in my opinion, there is a greater likelihood of identifying archaeological sites along the alternate route as compared to the preferred route. If the surveys and data collection along the preferred route show that the route is viable, then it isn't in the best interests of preservation to conduct investigations along the alternate route. The data collection along the preferred route identifies an important archaeological site or other significant resources, then it may become important to extend the survey along the alternate route to enable the selection of the route that will result in the least impacts.

David Snyder, Ph.D., RPA, Archaeology Reviews Manager
Ohio Historic Preservation Office
1982 Velma Avenue
Columbus, OH 43211-2497
Phone: (614) 298-2000
FAX: (614) 298-2037
Email: dsnyder@ohiohistory.org

November 10, 2010
-----Original Message-----
From: Boltz, Jeff [mailto:jboltz@eaest.com]
Sent: Wednesday, November 10, 2010 12:07 PM
To: Dave Snyder
Subject: Meldahl Transmission Line

David

I wanted to follow up to our meeting last week regarding moving the transmission line for the Meldahl Hydroelectric Project from Kentucky to Ohio. In that meeting we discussed a path forward for the Phase 1 study on the preferred transmission route and agreed to conduct shovel testing as well as putting 2 trenches on the floodplain where the main river crossing tower and deadend structure would be located. We then discussed if we would need to do more testing on the floodplain for the alternative route that travels downstream along the floodplain for a distance prior to turning to connect into 345 kv line. My records indicate that you were not in favor of additional Phase 1 testing on the alternative route (floodplain or upland) because there was enough existing information from a cultural perspective to believe, based on current data, that the preferred route was indeed better from a cultural resource perspective. We want to approach the OPSB for a waiver on the alternative route that would include

no additional cultural resources investigation on the alternative route. I believe you were in favor of that approach but I just want to confirm that prior to contacting the OPSB to discuss the potential for no further cultural work on the alternate route.

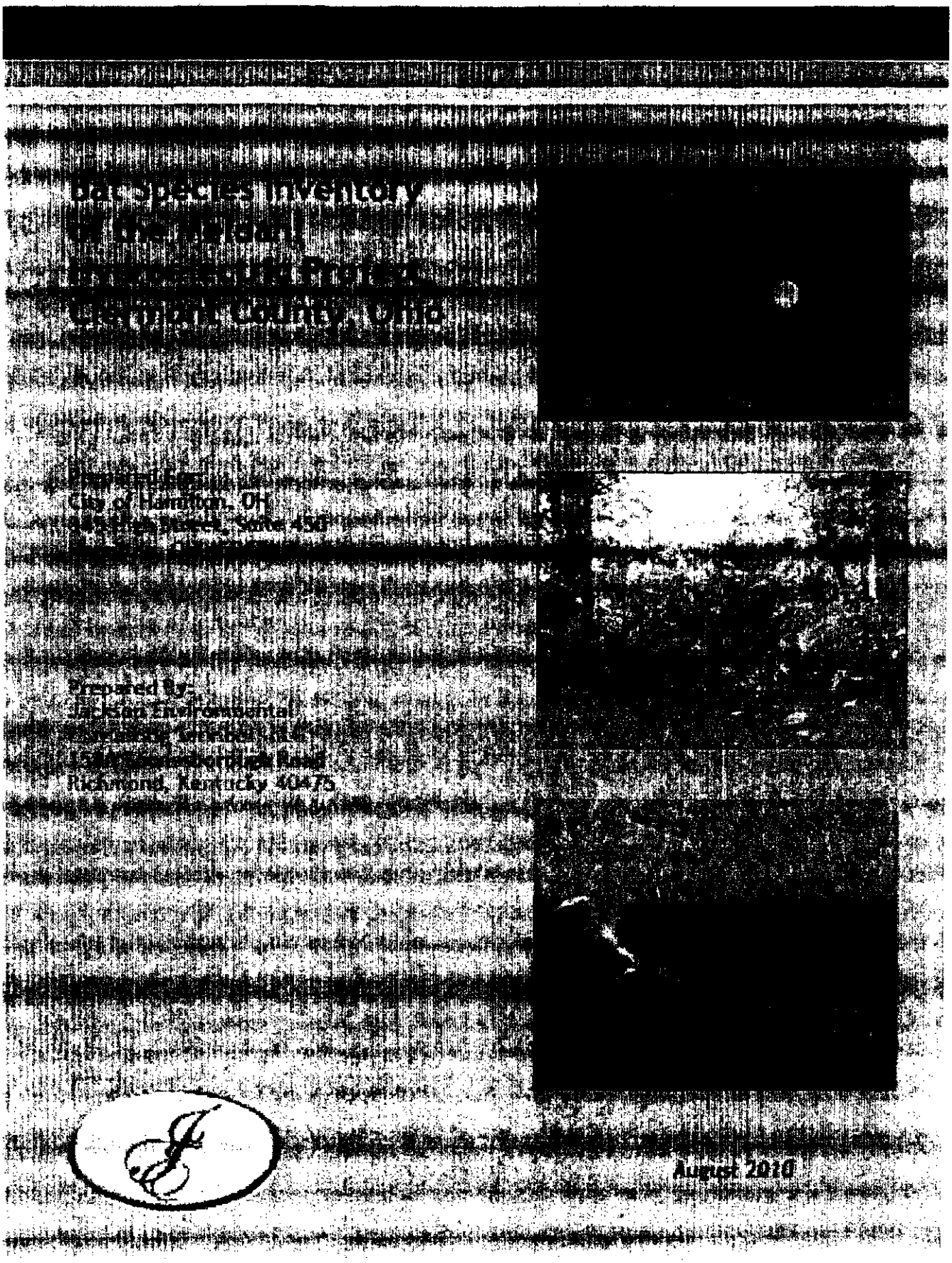
Can you please confirm the above discussion or provide clarification

Thanks for your time and let me know if you need more information from me.

Jeff

Jeffrey M. Boltz, Ph.D.
Vice President
EA Engineering, Science, and Technology, Inc.
15 Loveton Circle
Sparks, Maryland 21152
Phone: 410-329-5179
Fax: 410-771-4204
Cell: 410-804-9230

Attachment C



Bat Species Inventory of the Meldahl Hydroelectric Project Clermont County, Ohio

JACKSON ENVIRONMENTAL PROJECT NO. 30-032-400-02

August 2010

Bat Species Inventory
of the
Meldahl Hydroelectric Project
Clermont County, Ohio

Prepared For:

City of Hamilton, OH
345 High Street, Suite 450
Hamilton, OH 45011

Prepared By:

Jackson Environmental Consulting Services, LLC
1586 Boonesborough Road
Richmond, Kentucky 40475

August 2010

TABLE OF CONTENTS

LIST OF ATTACHMENTS

LIST OF TABLES

1.0 INTRODUCTION

Jackson Environmental Consulting Services, LLC, (Jackson Environmental) of Richmond, Kentucky was contracted by EA Engineering, Science, & Technology, Inc., of Sparks, Maryland on behalf of the City of Hamilton, Ohio to conduct a bat species inventory for a proposed transmission corridor for the Meldahl Hydroelectric Project (project area). (Note: The City of Hamilton is currently studying three alternative transmission corridors, but only one could be surveyed within the allowable window for summer bat surveys. In spring 2011, the City intends to survey other corridors still under consideration at that time.)

1.1 Project Purpose and Objective

The purpose of this project was to 1) establish presence or probable absence of Indiana bats (*Myotis sodalis*) and 2) quantify the abundance and species composition of bats during the maternity season.

The objective of this project was to provide state and federal agencies with ecological data to assist in evaluating any potential effects upon the bat community, especially upon bat species that are federally listed as species of concern, threatened, and/or endangered, that could result from the proposed project.

Net site selection and survey methods, as detailed in the Methods and Materials section (Section 2.0), were conducted in accordance with the Mist Net Guidelines established in the Indiana Bat Revised Recovery Plan (U.S. Fish and Wildlife Service (USFWS) 2007). Additionally, survey implementation was authorized by USFWS, as discussed in the Scientific Collection Permits and USFWS Approvals section (Section 2.9).

2.0 METHODS AND MATERIALS

2.1 Project Location

The project area is generally located approximately 1.3 miles (mi) west of Chilo, Ohio (Attachment 1). The project area is mapped on the United States Geological Survey (USGS) Moscow quadrangle, 7.5-minute series map. The project area is approximately centered at Universal Transverse Mercatur (UTM) coordinates E225955 N4299799, North American Datum 1983 (NAD 83), Zone 16.

2.2 General Site Description

The project area is generally characterized as an un-even age forest located in the Appalachian Forest Level II Ecoregion (USEPA, 2010). Topography in the project area is characterized as moderately hilly being adjacent to the Ohio River floodplain. Elevation in the project area ranges from approximately 500 feet (ft) above sea level on the Ohio River floodplain to 600 to 750 ft on the hills north of the floodplain.

2.3 General Habitat Characteristics

The project area corridor is approximately 3.0 mi in length. The project area is partially forested with plant communities representative of upland and riparian forest. Dominant overstory and mid-story species include box elder (*Acer negundo*), hickory (*Carya* spp.), Ohio buckeye (*Aesculus glabra*), red elm (*Ulmus rubra*), red maple (*Acer rubrum*), sugar maple (*A. saccharum*), and sycamore (*Platanus occidentalis*),

The land use within and surrounding the project area generally consists of residential properties, roads, and power lines. Specific net site characteristics for each net site are discussed in the Findings and Results section (Section 3.0).

2.4 Net Site Selection

Between 10 August 2010 and 11 August 2010, the project area was surveyed in accordance with the Mist Net Guidelines (USFWS 2007). The Mist Net Guidelines define sample level of effort (i.e., number of mist net sites) as a function of either area or linear distance. For a linear corridor, netting is required at a rate of one site per linear kilometer of suitable habitat; surveys must be completed along the right-of-way (ROW) and associated access roads and temporary workspaces, ware yards, and other facilities. Blocks of land require two

nets sites per 246 acres (1 km^2). This project is for a new transmission line corridor. Based on the guidelines and a review of site habitat conditions, two net site locations were established and distributed across the transmission corridor in areas that provided potential foraging areas and/or flight corridors, which could serve as natural funnels, aiding in capturing bats (Attachment 2). These areas included creek corridors through forest interiors.

2.5 Bat Capture and Banding

In accordance with the Mist Net Guidelines (USFWS 2007), there were two net-sets, spaced at least 100 ft apart, at each net site location (*i.e.*, 2 net-sets/net site) and each net-set was monitored for two consecutive nights, except during inclement weather. One net-set/night equals one net-night, totaling four net-nights/net site. Two net site locations were established and were surveyed for two nights, totaling eight net-nights (Attachments 1 – 3).

Bats were captured using black nylon mist nets (1.4-in mesh) ranging from 8.5 ft X 13 ft to 25 ft X 40 ft. Nets were opened approximately 30 minutes before sunset and checked every 15 minutes for at least five hours. The capture time, species, sex, and band presence of each captured bat were recorded while nets were opened. Bats were placed in separate brown paper bags and processed (*i.e.*, measurements taken and captured bats were banded). Data that were collected included: 1) species, sex, and age of each animal; 2) the reproductive condition of each bat, (males—non-reproductive or scrotal; females—non-reproductive, pregnant, lactating, or post-lactating); 3) measurements of the weight, forearm, tragus, and ear length; and 4) band number of any banded bats. Appropriate state bands were available for placement upon the forearm of any captured *Myotis* sp. individuals (males—right forearm, females—left forearm).

2.6 Summer Habitat Characterization

Summer habitat characteristics were recorded at each net site location. Specific characteristics included: canopy closure and height to overstory; dominant tree species; understory closure; density of the mid- and understory; and, where applicable, stream width and substrate composition. The date and time nets were opened and closed, climatic conditions, and habitat type were also documented during each sampling effort.

2.7 Geographic Information System Metadata

The specific location of each net site was recorded using Garmin GPS units. Global Positioning System (GPS) coordinates were recorded in Universal Transverse Mercator, Zone 16S units using the NAD 83 geodetic reference system. Garmin GPS units have accuracy up to 5 ft, dependent upon, but not limited to climate and weather conditions, satellite availability and position, relative canopy closure, and topography. Data was imported into ArcGIS 9.3 for map preparation.

2.8 Disinfection Protocol for White Nose Syndrome (WNS)

Procedures used for disinfecting equipment to minimize the potential transmission of white-nose syndrome (WNS), the Final Disinfection Protocol for Bat Field Studies (USFWS, June 2009) are provided in Attachment 4.

2.9 Scientific Collection Permits and USFWS Approvals

Jackson Environmental's USFWS and Ohio scientific collection permits are provided in Attachment 5. Attachment 5 also includes USFWS approval of the survey study plan and authorization for survey implementation.

3.0 FINDINGS AND RESULTS

3.1 Net Site Location: Net Site 1

3.1.1 Location

Net site 1 is located within riparian forest, along a creek near the center of the project area (Attachment 1). Specifically, this net site is located at UTM coordinates E746653 N4298867, which is 1.3 mi west of Chilo, Ohio.

3.1.2 Habitat Characteristics

Net site 1 is characterized as an un-even age riparian forest with a dominant canopy comprised of hickory, red elm, and sugar maple. Bear Creek traverses through the forest and provides a potential flyway for foraging bats. To sample this area, one net was placed in the creek (photo 1, Attachment 2) and another placed approximately 100 ft from the first, also in the creek (photo 2, Attachment 2). Detailed habitat characteristics are provided in Attachment 3.

3.1.3 Weather Conditions

Starting and ending temperatures on 10 August 2010 were 22.8°C and 21.3°C and on 11 August 2010 were 23.9°C and 22.0°C, respectively. There was approximately 25% cloud cover on 10 August 2010 and 51 – 75% cloud cover on 11 August 2010. Nightly weather conditions are provided on bat capture data sheets in Attachment 3.

3.1.4 Bat Captures

An eastern pipistrelle (*Perimyotis subflavus*) was captured at this net site location (Table 1). No federally listed endangered bat species were captured at this net site. Bat capture data sheets for this net site are provided in Attachment 3.

3.2 Net Site Location: Net Site 2

3.2.1 Location

Net site 2 is located along riparian forest in the northern portion of the project area (Attachment 1). Specifically, this net site is located at UTM coordinates E747853 N4300099, which is 2.9 mi north of Chilo, Ohio.

Table 1. Bat species captured

Species	No. Captured At Each Mist Site	
	Net 1	Net 2
Perimyotis subflavus	1	--
Lasiurus borealis	--	2
Eptesicus fuscus	--	1
Site Totals	1	3
Project Total	4	

3.2.2 Habitat Characteristics

Net site 2 is characterized as an un-even aged riparian forest with a dominant canopy comprised of mockernut hickory (*Carya tomentosa*), red maple and shagbarck hickory (*C. ovata*). To sample this area, one net was placed along Bear Creek (photo 3, Attachment 2) and another spaced at least 100 ft from the first net, also in the creek (photo 4, Attachment 2). Detailed habitat characteristics are provided in Attachment 3.

3.2.3 Weather Conditions

Starting and ending temperatures on 10 August 2010 were 32°C and 21°C and on 11 August 2010 were 26°C and 22°C, respectively. There was no cloud cover on 10 August 2010 and approximately 25% cloud cover on 11 August 2010. Nightly weather conditions are provided on bat capture data sheets in Attachment 3.

3.2.4 Bat Captures

Eastern red bats (*Lasiurus borealis*) (66%, n = 2) and a big brown bat (*Eptesicus fuscus*) (33%, n = 1) were captured at this site. No federally listed endangered bat species were captured at this net site. Bat capture data sheets for this net site are provided in Attachment 3.

4.0 SUMMARY AND DISCUSSION

Two net site locations were surveyed, totaling 8 net-nights on the proposed Meldahl Hydroelectric Project in Clermont County, Ohio. Eastern red bats (50%, n = 2), a big brown bat (25%, n = 1), and an eastern pipistrelle (25%, n = 1) were captured during the survey. Species captured during the survey were representative of chiropterofauna known to occur in the region, and each is ubiquitous on the landscape. No federally threatened or endangered species were captured during the survey.

Winter habitat was also qualitatively evaluated within the project area. No potential winter habitat, including caves, deep mine portals or any other man-made structure that could be considered as potential suitable Indiana bat winter habitat was observed.

5.0 REFERENCES

Gardner, L.E., J.D. Garner, and J.E. Hofmann. 1991. Summer roost selection and roosting behavior of *Myotis sodalis* (Indiana bat) in Illinois. Final Rep. Champaign, IL: Illinois Natural History Survey and Illinois Department of Conservation. 56 pp.

Menzel M.A., J.M. Menzel, T.C. Carter, WM Ford, and J.W. Edwards. 2001. Review of the forest habitat relationships of the Indiana bat (*Myotis sodalis*). 5-8 pp.

Salyers J., K. Tyrell, and B. Brack. 1996. Artificial roost structure use by Indiana bats in wooded areas in central Indiana. Bat Research News 37: 148.

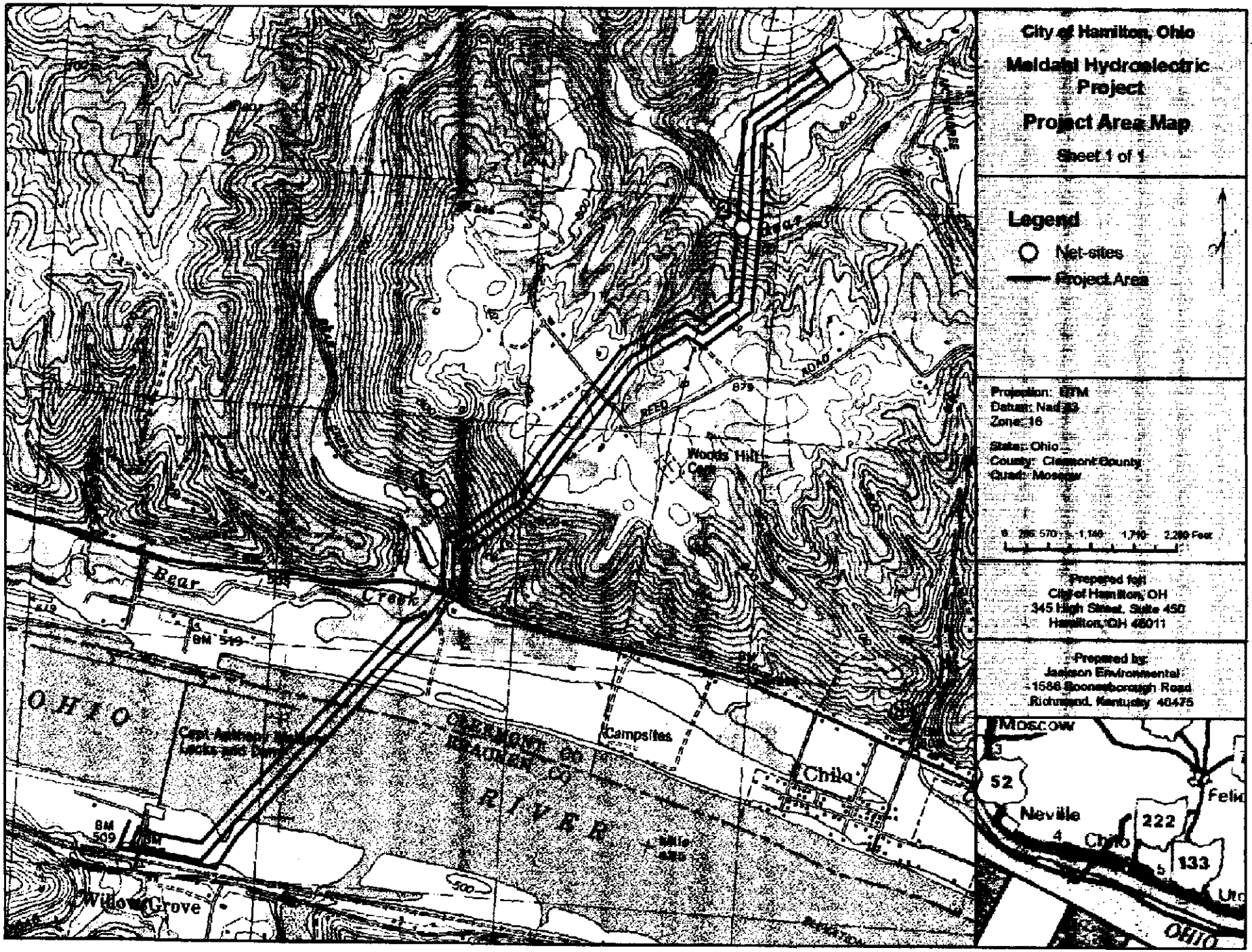
United States Environmental Protection Agency (USEPA). 2010. Ecoregions of North America. <http://www.epa.gov/wed/pages/ecoregions/na_eco.htm#CEC%201997>. Accessed 30 August 2010.

United States Fish and Wildlife Service (USFWS). 207. Revised Indiana bat (*Myotis sodalis*) recovery plan.

United States Fish and Wildlife Service (USFWS). 2009. Disinfection protocol for bat field research and monitoring.

Attachment 1

Map


City of Hamilton, Ohio
Meldahl Hydroelectric Project
Project Area Map
Sheet 1 of 1
Legend
Net-sites
Project Area
Projection: UTM
Datum: Nad83
Zone: 16
State: Ohio
County: Clermont County
Quad: Moscow
0 285 570 1,140 1,710 2,280 Feet
Prepared for:
City of Hamilton, OH
345 High Street, Suite 450
Hamilton, OH 45011
Prepared by:
Jacobson Environmental
1586 Boonesborough Road
Richmond, Kentucky 40475
Bear Creek
OHIO
RIVER
Campsites
Chilo
Willow Grove
Woods Hill Cem
BM 519
BM 509
Moscow
Neville
Chilo
52
222
133
OHIO

Attachment 2

Net Site Location Photos

Photo 1. Representative photo of
Net Site 1 Net A

Photo 2. Representative photo of
Net Site 1 Net B

Photo 3. Representative photo of
Net Site 2 Net A

Photo 4. Representative photo of
Net Site 2 Net B

Attachment 3

Bat Capture/Weather/Site Description Data Sheets

BAT SURVEY SUMMARY SHEET

Please fill out and submit a summary sheet when you complete each mist netting project

Study Area/Project Name: Meldahl

General Location: Clermont County, Ohio

Distance & direction to nearest town: a few miles west of Chilo, OH

Counties where netting took place: Clermont

Conducted by: **Affiliation/Company:** JECS

Principle Investigator: Jeremy Jackson

Telephone number: _____ **Fax:** _____

Email address: _____

Conducted for: EA Engineering

Begin Date: 10 Aug 2010 **End Date:** 11 Aug 2010

Total number of sites netted: 2

Total number of net nights (count multiple-tiered nets as one net): 8

Total number of sites harp trapped: 0

Total number of trap nights: 0

Number of bats captured: 4

Species	NUM.	Species	NUM.
Myotis lucifugus		*Eptesicus fuscus*	1
Myotis septentrionalis		*Lasiurus borealis*	2
Myotis sodalis		*Lasiurus cinereus*	
Myotis leibii		*Lasiurus seminolus*	
Myotis grisescens		*Myotis humeralis*	
Lasionycteris noctivagans		*Corynorhinus virginianus*	
Pipistrellus subflavus	1	*Corynorhinus rafinesquii*	

Date: 10 Aug 2010 Project #: Project Name: Meldahl

Mist-net Site Location I.D. #: MS 001 Survey Area: Route 1

Structure Netted: Road Rut Forest Road Pond Stream Other: Start Time (24 hr): 2135 Start Temp 228°

Finish Time (24 hr): 0150 Finish Temp 213°

Sampler Name: Dan Cox

County: Clermont State: OH Quadrangle:

GPS Location: E 746653 N 4299867 Projection/Units: NAD83 GPS Accuracy: ± 15 ft.

General Location Description (eg. 1000 m North of intersection of State Hwy 1 and 2): Approx. 0.5 miles north of intersection of Rt. 52 & Bear Creek Rd

Net A: Size: (m) Width 12 Height 5 | Net B: Size: (m) Width 6 Height 5 | Net C: Size: (m) Width — Height —

Mist-Net Site Habitat Description and Condition:

Dominant Canopy Species (3) red elm, sugar maple, hickory spp (not shagbark)	Dominant Understory Species (3) sycamore, ohio buckeye, box elder
% Canopy Closure: 60%	% Canopy Closure: 40%
Average Canopy DBH: 10"	Average Canopy DBH: 6"
Relative Density: (Circle One) Very Moderate Open	Relative Density: (Circle One) Very Moderate Open

General Nightly Weather Conditions:

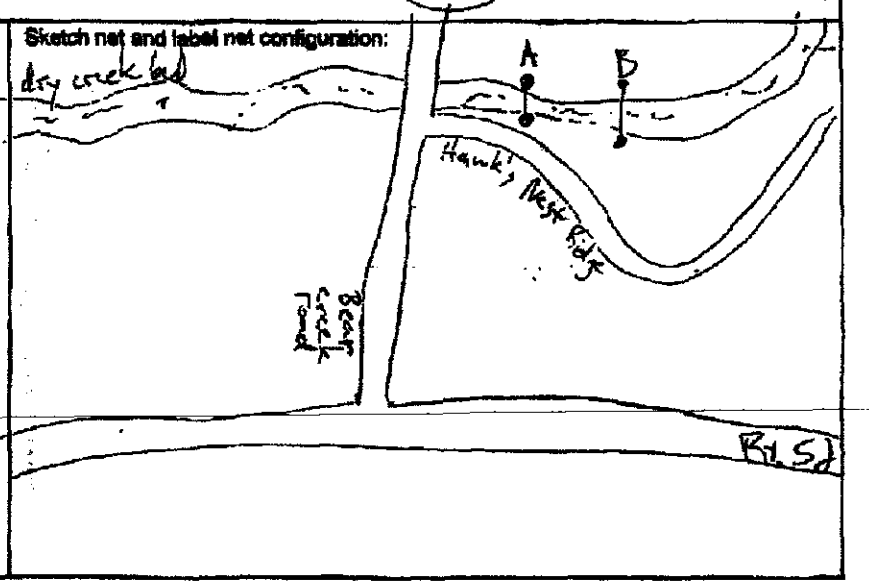
Wind Speed:

- < 1 mph (Calm; smoke rises vertically; no perceivable movement)
- 1-3 mph (Smoke drift shows wind direction; barely moves tree leaves)
- 4-7 mph (Wind felt on face; leaves rustle; small twigs move)
- 7-12 mph (Leaves and small twigs in constant motion; (blows up dry leaves from ground)
- > 13 mph (Moves small branches)

Precipitation: None, Fog, Mist, Light rain, Heavy rain

Cloud Cover: Clear, < 25 % Overcast, 26-50% Overcast, 51-75 % Overcast, > 75% Overcast

Sketch net and label net configuration:



Time (24 hr)	Net #	Height in Net	Band ID #	Species	Sex	Age	Reprod Cond.	Left Forearm Length (mm)	Weight (g)	Wing Index	Notes (ie. parasites and/or fungus present, torn wings, ect.)
	No			Captures							

Band Color / Type:
AL = Aluminum B = Blue S = Silver
P = Plastic Y = Yellow
Height in Net (Teirs 1-6 ect.)

Age:
J = Juvenile
A = Adult

Reproductive Status:
SR = Scrotal
L = Lactating PL = Post Lactating
P = Pregnant N = Non Reprod.

Wing Index:
0 = No damage. Fewer than 5 small scar spots.
1 = < 50% of wing membrane is depigmented.
2 = > 50% of wing membrane is depigmented. Possibly small holes.
3 = Deteriorated, necrotic wings, isolated holes.

Date: 11 Aug 2010 Project #: Project Name: Mental

Mist-net Site Location I.D. # PKC001 Survey Area: Route 1

Road Pond Start Time (24 hr) 2040 Start Temp 23.9°

Structure Netted: Road Rut Forest Finish Time (24 hr) 0140 Finish Temp 22.0°

(Stream) Other: Samplers Name: Dan C&K

County: Clermont State: OH Quadrangle:

GPS Location: E 7[illegible]53 N 4[illegible]867 Projection/Units: NAD83 GPS Accuracy: 15 ft

General Location Description (eg. 1000 m North of intersection of State Hwy 1 and 2): Approx. 0.5 miles north of intersection of Rt. 52 & Bear Creek Rd.

Net A: Size: (m) Width 6 Height 5 | Net B: Size: (m) Width 6 Height 5 | Net C: Size: (m) Width — Height —

Mist-Net Site Habitat Description and Condition:

Dominant Canopy Species (3): red elm; sugar maple; hickory spp (not shagbark)

% Canopy Closure: 60%

Average Canopy DBH: 10"

Relative Density: (Circle One) Very (Moderate) Open

Dominant Understory Species (3): sycamore; ohio buckeye; box elder

% Canopy Closure: 40%

Average Canopy DBH: 6"

Relative Density: (Circle One) Very (Moderate) Open

General Nightly Weather Conditions:

Wind Speed:

(< 1 mph) (Calm; smoke rises vertically; no perceivable movement)

1-3 mph (Smoke drift shows wind direction: barely moves tree leaves)

4-7 mph (Wind felt on face; leaves rustle; small twigs move)

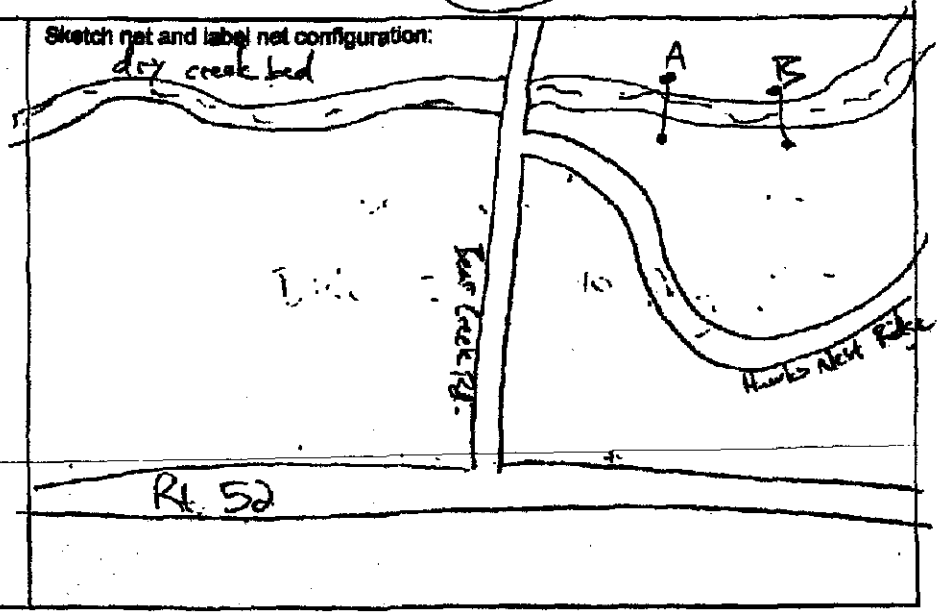
7-12 mph (Leaves and small twigs in constant motion; (blows up dry leaves from ground)

> 13 mph (Moves small branches)

Precipitation: (None) Cloud Cover: Clear

Fog	< 25 % Overcast
Mist	26-50% Overcast
Light rain	(51-75 % Overcast)
Heavy rain	> 75% Overcast

Sketch net and label net configuration:



Time (24 hr)	Net #	Height in Net	Band ID #	Species	Sex	Age	Reprod Cond.	Left Forearm Length (mm)	Weight (g)	Wing Index	Notes (ie. parasites and/or fungus present, torn wings, ect.)
0125	B	2	—	P. subflavus	FEMALE	J	NR	34.0	5.5	2	torn right wing

Band Color / Type:
AL = Aluminum B = Blue S = Silver
P = Plastic Y = Yellow
Height is Net (Tiers 1-8 ect.)

Age:
J = Juvenile
A = Adult

Reproductive Status:
SR = Scrotal
L = Lactating PL = Post Lactating
P = Pregnant N = Non Reprod.

Wing Index:
0 = No damage. Fewer than 5 small scar spots.
1 = < 50% of wing membrane is depigmented.
2 = > 50% of wing membrane is depigmented. Possibly small holes.
3 = Deteriorated, necrotic wings. Isolated holes.

Date: 10 Aug 2010 Project #: _____ Project Name: McLeah

Mist-net Site Location I.D. # 2 Survey Area: Route 1

Structure Netted: Road Pond / Road Rut Forest / Stream Other: _____ Start Time (24 hr) 2030 Start Temp 32.0°

Finish Time (24 hr) 0145 Finish Temp 21.0°

Samplers Name: Jeremy Jacks

County: Clermont State: OH Quadrangle: _____

GPS Location: 16S 747853/4300[illegible] Projection/Units: NAD83/UTM GPS Accuracy: _____

General Location Description (eg. 1000 m North of intersection of State Hwy 1 and 2): _____

Net A: Size: (m)	Width 7.0	Height 7.8	Net B: Size: (m)	Width 6.0	Height 7.8	Net C: Size: (m)	Width _____	Height _____

Mist-Net Site Habitat Description and Condition:

Dominant Canopy Species (3)	Acer rubra Carya tomentosa Carya ovata	Dominant Understory Species (3)	Acer rubra carya spp.
% Canopy Closure:	80%	% Canopy Closure:	20
Average Canopy DBH:	2.0"	Average Canopy DBH:	1 in
Relative Density: (Circle One)	Very Moderate Open	Relative Density: (Circle One)	Very Moderate Open

General Nightly Weather Conditions:

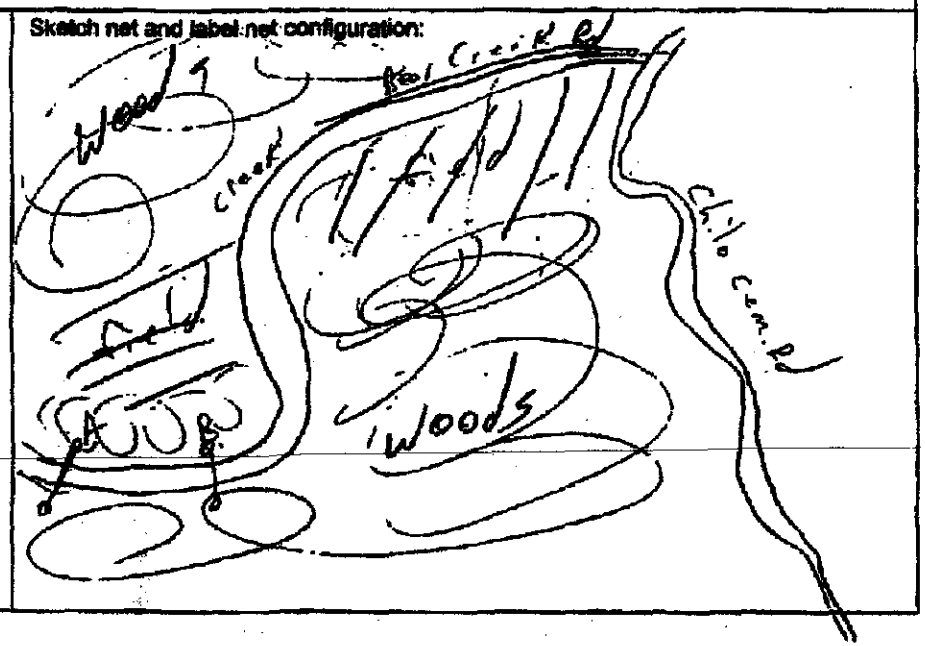
Wind Speed:

- < 1 mph *(Calm; smoke rises vertically; no perceivable movement)*
- 1-3 mph *(Smoke drift shows wind direction: barely moves tree leaves)*
- 4-7 mph *(Wind felt on face; leaves rustle;small twigs move)*
- 7-12 mph *(Leaves and small twigs in constant motion; (blows up dry leaves from ground)*
- > 13 mph *(Moves small branches)*

Precipitation: None / Fog / Mist / Light rain / Heavy rain

Cloud Cover: Clear / < 25 % Overcast / 26-50% Overcast / 51-75 % Overcast / > 75% Overcast

Sketch net and label net configuration:



Time (24 hr)	Net #	Height in Net #	Band ID #	Species	Sex	Age	Reprod. Cond.	Left Forearm Length (mm)	Weight (g)	Wing Index	Notes on parasites and/or fungus present, torn wings, etc.
2100	A	3	—	Lasiurus	male	A	N	39	11	0	—
2145	A	2	—	Lasiurus	male	A	N	39	10.8	0	—
2230	R	4	—	Myot. fus	male	A	SC	42	7.5	0	—

Band Color / Type:
AL = Aluminum B = Blue S = Silver
P = Plastic Y = Yellow
Height in Net (Take 1-8 ea.)

Age:
J = Juvenile
A = Adult

Reproductive Status:
SR = Scrotal
L = Lactating PL = Post Lactating
P = Pregnant N = Non Reprod.

Wing Index:
0 = No damage. Fewer than 5 small scar spots.
1 = < 50% of wing membrane is depigmented.
2 = > 50% of wing membrane is depigmented. Possibly small holes.
3 = Deteriorated, necrotic wings. Isolated holes.

Date: 11 Aug 2010 Project #: _____ Project Name: McLeah

Mist-net Site Location I.D. #: 2 Survey Area: Route 1

Road Pond

Structure Netted: Road Rut Forest Start Time (24 hr): 2025 Start Temp: 26°

Stream Other: Finish Time (24 hr): _____ Finish Temp: 73°

Samplers Name: Jeremy Jackson

County: clermont State: OH Quadrangle: _____

GPS Location: 16S 741853/4300096 Projection/Units: NAD83/UTM GPS Accuracy: _____

General Location Description (eg. 1000 m North of intersection of State Hwy 1 and 2): _____

Net A: Size: (m)	Width 9.0	Height 7.2	Net B: Size: (m)	Width 6.0	Height 2.8	Net C: Size: (m)	Width	Height

Mist-Net Site Habitat Description and Condition:

Dominant Canopy Species (3)	Acer rubra	Dominant Understory Species (3)	Acer rubra
	Carya tomentosa		Carya spp
	Carya ovata		
% Canopy Closure:	80%	% Canopy Closure:	20
Average Canopy DBH:	2.0ft	Average Canopy DBH:	1"
Relative Density: (Circle One)	Very (Moderate) Open	Relative Density: (Circle One)	Very (Moderate) Open

General Nightly Weather Conditions:

Wind Speed:

(<1 mph) *(Calm; smoke rises vertically; no perceivable movement)*

1-3 mph *(Smoke drift shows wind direction; barely moves tree leaves)*

4-7 mph *(Wind felt on face; leaves rustle; small twigs move)*

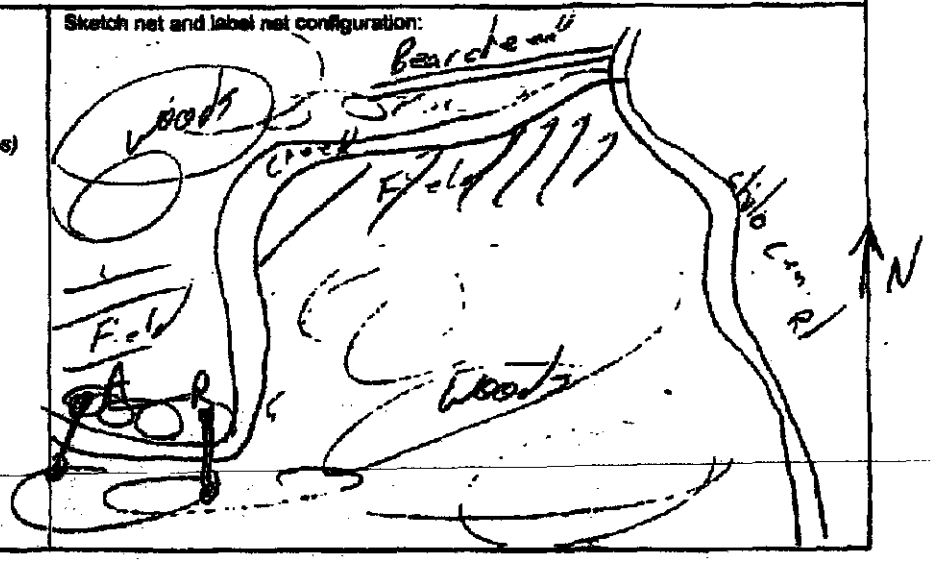
7-12 mph *(Leaves and small twigs in constant motion; (blows up dry leaves from ground)*

> 13 mph *(Moves small branches)*

Precipitation: (None) Fog Mist Light rain Heavy rain

Cloud Cover: Clear (< 25 % Overcast) 26-50% Overcast 51-75 % Overcast > 75% Overcast

Sketch net and label net configuration:



Time (24 hr)	Net #	Height in Net	Band ID #	Species	Sex	Age	Reprod. Cond.	Left Forearm Length (mm)	Weight (g)	Wing Index	Notes: (ie., parasites and/or fungus present, torn wings, ect...)
	No Captures										

Band Color / Type:
AL = Aluminum B = Blue S = Silver
P = Plastic Y = Yellow

Height in Net (Tiers 1-5 ect.)

Age:
J = Juvenile
A = Adult

Reproductive Status:
SR = Scrotal
L = Lactating PL = Post Lactating
P = Pregnant N = Non Reprod.

Wing Index:
0 = No damage. Fewer than 5 small scar spots.
1 = < 50% of wing membrane is depigmented.
2 = > 50% of wing membrane is depigmented. Possibly small holes.
3 = Deteriorated, necrotic wings. Isolated holes.

Attachment 4

Disinfection Protocol for Bat Field Research/Monitoring
U.S. Fish and Wildlife Service, June 2009

Disinfection Protocol for Bat Field Research/Monitoring
U.S. Fish and Wildlife Service
June 2009

To minimize the potential for transmission of white-nose syndrome (WNS) while handling bats (both between handler and bats, between bats, and between handler and environment), these procedures are highly recommended. To date, WNS has been discovered in the northeastern US and mid-Atlantic states[1]. The U.S. Fish and Wildlife Service (USFWS) advises implementation of equipment decontamination protocols to reduce the risk of unintentional, human-assisted spread of WNS. In addition, we recommend that similar guidelines be used any time people handle wildlife to minimize potential disease-related impacts to wildlife and people. ***Please note that individual states/agencies may have additional permitting requirements above and beyond these general procedures.*** Additional restrictions apply for individuals conducting research in USFWS Region 3 - Ohio, Indiana, Illinois, Missouri, Iowa, Wisconsin, Michigan and Minnesota - either under a federal permit or Section 6 authorities as these states are currently unaffected by WNS. The requirements for Region 3 are posted at:
http://www.fws.gov/midwest/Endangered/mammals/BatDisinfectionProtocol.html.
These guidelines may be revised upon review of new information.

Any equipment that comes in contact with bats, individuals handling bats, or the environments where bats occur has the potential to be a vector for the spread of WNS. Examples include mist nets, harp traps, bat bags, wing biopsy punches, weighing tubes, rulers, clothing, and gloves.

Decontamination recommendations target the fungus *Geomyces* sp., which to date has been the most consistent pathogen recovered from bats exhibiting signs of WNS. Fortunately, many of the disinfectants/techniques tested for efficacy against the fungus are also suitable to kill other bacterial or viral agents should another causative agent of this disease be identified.

CAUTION: Disinfectant efficacy is based on application to hard, nonporous surfaces and the ability to prevent the regrowth of *Geomyces* sp. on artificial culture media. Tests are currently being conducted on porous fiber materials such as ropes and harnesses to determine disinfectant efficacy to kill the fungus on these substrates and their effects on gear integrity. The repeated use of disinfecting agents may compromise the effective use of vertical equipment; therefore, this equipment should be dedicated to one cave or not used at all.

Although a site may be affected with WNS, it should not be assumed that all individual bats within the site are infected or will become infected, and thus, care should be taken not to cross-contaminate specimens by lax handling methods. This is especially true if samples are to be submitted for diagnostic purposes.

Decontaminate all clothing, footwear, and gear prior to departing for a bat netting or cave outing if you did not decontaminate these items after last netting activity or exiting a cave. In affected and unaffected states, we ask that you not take gear into a cave if that gear cannot be thoroughly decontaminated or disposed of (i.e. if harnesses, ropes, or webbing cannot be decontaminated, we advise that you not enter caves or parts of caves requiring use of this gear).

In addition, only bring essential equipment used for bat netting and processing to a site, other non-essential items should be left home as they may contribute to spreading the fungus.

PROCEDURES:

Vehicles:

Do not work on live bats in vehicles. Vehicles used to transport equipment may harbor spores. Do all processing on vehicle hood or on a table away from the vehicle. The tailgate is not preferred since it is likely near netting equipment. A drawstring garbage bag should be placed at each site outside the field vehicle each night so all contaminated bags, gloves, wipes, etc., are contained. Dead bats should be placed in a sealed plastic container and placed inside a second bag or container handled only with clean gloves. This outer packaging layer is considered clean and uncontaminated and safe to transport inside the vehicle (preferably contained within a clean cooler).

Submersible Gear (i.e. clothing and soft-sided equipment):

- For clothing – Wash all clothing and any appropriate equipment in washing machine using the hottest cycle possible for material and conventional detergents. Laboratory testing has found Woolite® fabric wash to be the best surfactant for clothing. Rinse thoroughly, and then follow by soaking with sodium hypochlorite bleach (i.e. household bleach) solution diluted to 1 part bleach to 9 parts water in a tub or plastic container. Soak for 10 minutes, then rinse and air dry. If field projects necessitate extended efforts at remote locations, with no travel to new or additional sites, and daily washing or decontamination is not possible, then at the least, wash/decontaminate all clothing and other soft-sided equipment that has had direct contact with bats using the recommended procedures specified above.

- For other submersible gear (i.e. bags, gloves, nets, etc.) – Disinfect any equipment that can be submersed in a solution with an appropriate and compatible disinfectant such as sodium hypochlorite bleach (i.e. household bleach) solution diluted to 1 part bleach to 9 parts water in a tub or plastic container or $\geq$ 0.3% concentration of quaternary ammonium compounds (i.e. Sparquat 256, Lysol® All-purpose Professional Cleaner, or the antibacterial form of Formula 409®). Keep submersed for 10 minutes, then rinse and air dry.

Nets:

- Use separate sets between states known to be affected by WNS[1] and states currently unaffected. Realizing that some WNS affected states contain both affected and unaffected sites, under no circumstances should nets that have been used in an affected site be used in an unaffected site. Contact your state wildlife agency for updated information regarding WNS affected sites by visiting the following webpage http://www.fws.gov/offices/statelinks.html.

Bats should be kept in breathable holding bags rather than holding cages. To avoid cross-contamination of samples, it is imperative to keep bats separated using holding bags that are kept as clean as possible. Non-disposable holding bags should be used only once per night of field work and should be washed and decontaminated (following procedures above) and dried between nights of use. Disposable paper bags are also a convenient option for holding bats temporarily. Only one bat should be in a given bag, and that bag should not be reused for a new bat.

Disposable exam gloves should be worn over handling gloves and changed in between handling each bat. Disposable gloves should be one size larger than the handling gloves. Smooth leather gloves may be wiped down with a disinfectant (i.e. Purell®, Lysol® disinfecting wipes or alcohol wipes) in between handling bats. If only using leather gloves, each handler should have several sets of gloves to interchange in between handling bats. This allows time to effectively kill the fungus and for the disinfectant to completely dry. After each night of netting, remove heavy soil deposits from surface of bags and gloves, soak in an appropriate disinfectant, then dry completely.

For situations when gloves may hinder field work (i.e. transmitter attachment) and bats come in contact with bare hands, apply hand sanitizer with alcohol (i.e. Purell®) after handling each bat. Make sure it dries completely before handling the next bat.

Non-submersible Gear (i.e. hard-sided equipment):

- For non-submersible gear (i.e. bat processing equipment, mist net poles, harp trap frames and legs, folding chairs, etc.) – Disinfect any equipment that cannot be submersed by applying an appropriate and compatible disinfectant to the outside surface by using ≥ 0.3% concentration of quaternary ammonium compounds such as Sparquat 256, Lysol® All-purpose Professional Cleaner or the antibacterial form of Formula 409®, or use sodium hypochlorite bleach (i.e. household bleach) solution diluted to 1 part bleach to 9 parts water. Keep on surface for 10 minutes, then rinse and air dry.

- For boots – Boots need to be fully scrubbed and rinsed so that all soil and organic material is removed. The entire rubber and leather boots, including soles and leather uppers, can then be disinfected with an appropriate disinfectant such as ≥ 0.3% concentration of quaternary ammonium compounds (i.e. Sparquat 256, Lysol® All-purpose Professional Cleaner or the antibacterial form of Formula 409®) or sodium hypochlorite bleach (i.e. household bleach) solution diluted to 1 part bleach to 9 parts water. Keep on surface for 10 minutes, then rinse and air dry.

Use one of the disinfecting agents listed above to sanitize all equipment that comes into contact with a bat's body, including light boxes, banding pliers, rulers, calipers, scale, etc. Any instrument coming into direct contact with bat skin should be rinsed free of chemical disinfectant using clean water or physiologic (0.9%) saline. Clean items after handling each bat. If using containers to weigh bats, separate containers used to weigh tree bats from cave bats, do not place tree bats in the same container previously used for a cave bat. Containers used to weigh bats (film canisters, baggies, cardboard rolls) should be disinfected in between handling each bat.

Paper lunch bags can be used for holding and weighing individual bats, and can be immediately discarded after each use. Plastic baggies can also be used to line weighing containers, and bats can even be held in unsealed plastic bags during forearm measurements, reducing contact with wing rulers or calipers. Discard used bags after each bat. Disinfect gloves or discard disposable gloves after handling each bat.

Harp traps:

- Use separate traps between states known to be affected by WNS[1] and states currently unaffected. Realizing that some WNS affected states contain both affected and unaffected sites, under no circumstances should traps that have been used in an affected site be used in an unaffected site. Contact your state wildlife agency for updated information regarding WNS affected sites by visiting the following webpage http://www.fws.gov/offices/statelinks.html.

- In both affected[1] and unaffected states, we recommend that traps be cleaned nightly after use to remove any dirt/debris from wires/lines and bags. Following cleaning, all surfaces should be sprayed with one of the disinfecting agents listed above. Swab the bag with disinfectant and allow to dry completely (preferably in the sun) prior to the next use. Do not use equipment in an unaffected site following use in an affected site.

- We recognize that when working at a maternity colony using harp traps where regular bat to bat contact occurs, that some of the recommended decontamination procedures may not be practical. Therefore, we recommend checking the catch bag more frequently in order to reduce the amount of time that bats are in contact with each other and the bag. To reduce cross-contamination, the catch bag may be lined with a sheet of plastic and replaced with new plastic periodically or wiped down with one of the disinfecting agents above. Disposable gloves should be worn over handling gloves and swapped out regularly throughout the night, or frequently disinfected using Lysol® disinfecting wipes or alcohol wipes.

Cameras, Computers, and Other Electronic Equipment:

If possible, do not bring electronic equipment to a netting site. If practical, cameras and other similar equipment that must be brought to a site may be wrapped in plastic wrap where only the lens is left unwrapped to allow for photos to be taken. The plastic wrap can then be decontaminated by using Lysol® disinfecting wipes and discarded after use. If using plastic wrap is not practical, alcohol wipes or Lysol® disinfecting wipes can be applied directly on surfaces.

Wing Biopsies:

If collecting wing biopsies for any approved research studies on Federally threatened or endangered bats, use a new (unused) sterile punch for each bat. For other bats, punches may be reused, but only if they are still sharp enough to make clean punches. If there is evidence of fungal infection on any individual, use new punches. Be sure to completely sterilize recycled punches between bats by dipping the cutting end in alcohol. Pass the cutting end through a flame 3-4 times, and then allow the flaming punch to naturally extinguish, and cool completely. The

cutting board must also be disinfected between processing individual bats using one of the agents detailed above. Disposable, stiff cardboard squares (1 per individual) can be used as an alternate support for biopsy.

Notification of Signs of WNS

As a reminder, the white fungus is only one of the signs of WNS. We do not expect to find bats with fungus on them during the summer or fall, but bats could still be infected during these seasons. Other possible signs of WNS may be damage to wings and tail membranes in the form of lesions, flakiness or dehydrated skin, discolored spots/scarring, multiple holes, or tears to leading edge of membranes. We encourage the use of Reichard's Wing Damage Index (link below) for assessing bats. Please photograph any damage you observe and report it to the nearest U.S. Fish and Wildlife Service Field Office and your state agency that issued your bat handling permit within 24 hours.
http://www.fws.gov/northeast/PDF/Reichard_Scarring%20index%20bat%20wings.pdf

Important Note: These protocols are posted on the U.S. Fish and Wildlife Service Northeast Region website at: http://www.fws.gov/northeast/white_nose.html. We recommend that you visit the site at least once every six weeks to ensure that you are using the most recent protocol in your permitted activities.

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[1] WNS Affected States: Connecticut, Massachusetts, New York, Pennsylvania, Vermont, New Hampshire, New Jersey, West Virginia, and Virginia

Note: The listed WNS affected and adjacent states are current as of 6-9-09, please visit http://www.fws.gov/northeast/white_nose.html for the most updated information.

What is known about *Geomyces* sp. viability:

- The fungus survives exposure to mammalian body temperature (38°C/100°F) for at least 3 days, but does not remain viable after 8 days (W. Stone, NYSDEC, pers. communication 4/14/09).

- The fungus survives exposure to temperature (30°C/86°F) for at least 15 days. (W. Stone, NYSDEC, pers. communication 4/14/09).

- Short-term incubation of fungus at higher temperatures reduces the number of conidia present and alters the morphology of the hyphae which may not inhibit growth once returned to colder temperatures (W. Stone, NYSDEC and D. Blehert, USGS NWHC, pers. communication 4/14/09).

- Clothes dryer heat treatment (49°C/ 120°F) alone increases fungal spore germination and does not kill the fungus (H. Barton, NKU, pers. communication 4/22/09).

What kills the *Geomyces* sp. fungus:

Method	Conditions	Kill Time	Source	Cautions*
Disinfectant				
5.25% Chlorine bleach	10% bath solution (1 part bleach: 9 parts water)	10 min	Over the counter	Inactivated by organic material, detergents; corrosive to metals; produces toxic gas if combined with ammonia; skin irritant
Lysol® Professional Antibacterial All Purpose Cleaner	1:128 bath solution (1 oz per 1 gal water)	10 min	Janitorial supply	Corrosive; skin & eye irritant
	1:64 bath solution (2 oz per 1 gal water)	5 min		
Sparquat 256	½ oz per 1 gal water	10 min	www.chemsearch.com	May require license to obtain; requires special disposal methods
Promicidal™	1:128 bath solution (1 oz per 1 gal water)	10 min	www.chemsearch.com	May require license to obtain; requires special disposal methods
Grenadier™	1:64 bath solution (2 oz per 1 gal water)	10 min	www.chemsearch.com	May require license to obtain; requires hazardous waste disposal methods
	1:32 bath solution (4 oz per 1 gal water)	5 min		
Formula 409®	At least 0.3% concentration	10 min	Over the counter	
Woolite®	Refer to product label		Over the counter	
Dawn® antibacterial hand soap	Refer to product label		Over the counter	
Purell®	Refer to product label		Over the counter	
Lysol® disinfecting wipes	Refer to product label		Over the counter	

70%-95% ethanol	Undiluted bath	2 min	Lab supply distributor	Flammable, skin irritant
Temperature				
Dry heat	110°F/ 43°C	12 hr	Oven, incubators	
	165°F/ 74°C	15 min		
	175°F/ 79°C	5 min		
	180°F/ 82°C	5 min		
Sterilization				
Steam autoclave	121°C; 15 psi	15 min	Laboratory or hospital settings	
Gas sterilization	Ethylene oxide	16-18 hr	Only available at hospitals	
Flame sterilization	Alcohol & open flame	15-20 sec		Fire hazard; burn injuries

* Effects of different decontamination methods on the integrity of caving equipment are currently being tested.

Attachment 5

Scientific Collection Permits and USFWS Approvals

U.S. DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

FEDERAL FISH AND WILDLIFE PERMIT

1. AUTHORITY STATUTE

REGULATIONS

2. NUMBER

3. PERMITTEE

4. RENEWABLE — 5. MAY COPY

6. EFFECTIVE — 7. EXPIRES

6/22/07

8. NAME AND TITLE OF PRINCIPAL OFFICER (if it is a business)

9. TYPE OF PERMIT

ENDANGERED SPECIES

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

THROUGHOUT THE EXPOSED RANGES IN WEST VIRGINIA, VIRGINIA, OHIO, PENNSYLVANIA, KENTUCKY, ARKANSAS, TENNESSEE, NORTH CAROLINA, MISSOURI, ILLINOIS, INDIANA, AND MISSISSIPPI.

11. AUTHORIZED ACTIVITIES:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS APPEARING IN FEDERAL REGULATIONS CITED IN BLOCK #7 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CONDUCTED IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS DEPENDENT ON COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED REPORTS AND RECEIPTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.

C. ONLY FOR USE BY PERMITTEE NAMED ABOVE.

D. PERMITTEE IS AUTHORIZED TO TAKE, POSSESS, AND TRANSPORT OUR CAVE BAT (Myotis sodalis) FOR SCIENTIFIC PURPOSES, ENHANCEMENT OF PROPAGATION OR SURVIVAL, OR INCIDENTAL TO OTHERWISE LAWFUL ACTIVITIES FOR THE PURPOSE OF TRANSACTING PROJECT/PROGRAMS DESCRIBED IN CONDITIONS BELOW:

_XX_ BLOCK II OF THIS PERMIT CONSISTS OF ITEMS A - N (6 PAGES TOTAL).

12. REPORTING REQUIREMENTS

PERMITTEE IS REQUIRED TO PROVIDE U.S. FISH AND WILDLIFE SERVICE OFFICE INDICATED IN CONDITION C ABOVE WITH THIS PERMIT, RETENTION CERTIFICATE, RECEIPT, APPLICATION, AND ANY ANNUAL REPORTS REQUIRED IN CONDITIONS A OF THIS PERMIT.

ISSUED BY

Acting

DATE

6-22-07

DIVISION OF WILDLIFE

Ohio Department of Natural Resources

Division of Wildlife Headquarters
2045 Morse Road, Bldg. G
Columbus, Ohio 43229-6693
1-800-WILDLIFE

WILD ANIMAL PERMIT: 11-243
SCIENTIFIC COLLECTION

David M Graham
Chief, Division of Wildlife

DATE ISSUED
7/16/2010

Others authorized on permit
YES (SEE ATTACHMENT)

JEREMY L JACKSON
1589 BOONESBOROUGH RD.
RICHMOND, KY 40475

SOCIAL SECURITY NUMBER: XXX-XX-0953

is hereby granted permission to take, possess, and transport at any time and in any manner specimens of wild animals, subject to the conditions and restrictions listed below or any documents accompanying this permit.

This permit, unless revoked earlier by the Chief, Division of Wildlife, is effective from: 5/22/2008 to: 3/15/2011

This permit must be carried while collecting wild animals and be exhibited to any person on demand.

THIS PERMIT IS RESTRICTED TO THE FOLLOWING:

1.MAY COLLECT BATS, INCLUDING ENDANGERED SPECIES, FOR SURVEY AND INVENTORY.
2.COLLECTION BY MISTNETS
3. **ALL SPECIMENS ARE TO BE IMMEDIATELY RELEASE AFTER IDENTIFICATION, MEASUREMNT, EVALUATION, TAGGING AND RADIO ATTACHMENT. MUST MAINTAIN CURRENT U.S. FISH AND WILDLIFE SERVICE ENDANGERED SPECIES PERMIT # TE102292-3.**
4.AN ANNUAL REPORT MUST BE SUBMITTED DENOTING SPECIES, QUANITY AND LOCATIONS WHERE SPECIMANS WERE COLLECTED.

Locations of Collecting

STATEWIDE

Equipment and method used in collection:

MISTNETTING

Name and number of each species to be collected:

BATS, INCLUDING THE ENDANGERED INDIANA BAT. MUST MAINTAIN A CURRENT ENDANGERED SPECIES LETTER PERMIT WITH THE DIVISION OF WILDLIFE. CURRENT LETTER EXPIRES 15 MARCH, 2011.

RESTRICTIVE DOCUMENTS ACCOMPANYING THIS PERMIT? YES

This permit is not valid for collecting migratory birds, their nests, or eggs unless a current permit from the U.S. Fish and Wildlife Service has been obtained.

NO ENDANGERED SPECIES MAY BE TAKEN WITHOUT WRITTEN PERMISSION FROM THE CHIEF

ATTACHMENT

This attachment to Scientific Collecting Permit # 11-249 authorizes the following persons to conduct the activities listed on the permit, within the conditions and restrictions set forth. Each person must carry and exhibit upon request, a copy of the permit and this attachment when conducting any of the listed activities. The person named on the permit assumes full responsibility for the actons of the persons on this list and for completing and submitting all required reports.

Name	SSN or Driver License
ERIC A. BRITZKE	XXX-XX-8167
ROBERT S. PRESCOTT	XXX-XX-7929
DANIEL COX	XXX-XX-8134
LANN WILF	XXX-XX-0000
JONATHAN HOOTMAN	XXX-XX-1506

STANDARD CONDITIONS FOR SCIENTIFIC COLLECTING AND EDUCATION PERMITS (ORC 1533.08 AND 1533.09)

The standard conditions listed below apply to all permit holders unless otherwise stated on an issued permit. The standard conditions below are in addition to the provisions listed on the permit. Failure to comply with the conditions of the permit may result in the suspension or termination of your permit. If you need an amendment to your permit, or have questions regarding these conditions, contact the Division of Wildlife Permit Coordinator at (614)265-6315. Please allow a minimum of two weeks for amendments.

1. When collecting or sampling you and any subpermittees must carry a copy of your permit and present to any officer upon request.
2. Only persons listed on the permit may conduct permitted activities.
3. Collection on all Department of Natural Resources properties is prohibited without authorization from the appropriate landholding division.
4. Collection is prohibited in the Little Darby Creek, Big Darby Creek, Killbuck Creek, Fish Creek (Williams County) and the upper portions of the Grand River watershed without written authorization from the Chief.
5. The collection and possession of state endangered and threatened species is prohibited without prior approval from the Chief.
6. The possession of Aquatic Nuisance Species(ANS) for educational or scientific purposes is prohibited without authorization from the Chief.
7. A migratory bird permit issued by the United States Fish and Wildlife Service may be required for all persons collecting or in possession of migratory birds.
8. Twenty-four hours prior to all stream collection, the permit holder must contact the local wildlife officer or nearest district office to advise the location and duration of sampling. Messages are acceptable.
9. All voucher specimens must be accessioned to the Cleveland Museum of Natural History, The Ohio State University, Museum of Biological Diversity or the Cincinnati Museum of Natural History.
10. Traps and nets must be checked and all animals removed every twenty-four hours.
11. Traps and nets must bear a durable waterproof tag bearing the name and address of the user in English letters, legible at all times.
12. Unless otherwise provided, all specimens must be released at the point of capture.
13. When sampling on public properties or over water, non-toxic shot shall be used.
14. Newly discovered Aquatic Nuisance Species (ANS) must be reported to the Division of Wildlife within twenty-four hours of capture.
15. All Starlings, house sparrows and aquatic nuisance species collected for laboratory use must be euthanized upon completion of project.

From: Angela_Boyer@fws.gov [mailto:Angela_Boyer@fws.gov]
Sent: Tuesday, August 10, 2010 7:28 AM
To: Jeremy Jackson
Cc: Boltz, Jeff; Koeneke, Mary-Alice; Jennifer_Finfera@fws.gov
Subject: Re: Meldahl Bat Study Project Authorization Request

Dear Mr. Jackson,

This is in response to your August 9, 2010 request for an amendment to your Federal Fish and Wildlife Permit No. TE102292-5 to conduct a 2010-2011 mist net survey for the Indiana bat (*Myotis sodalis*) at the proposed Meldahl Locks and Dam Hydroelectric Project site in southern Clermont County, Ohio.
This notification serves as written concurrence that Jeremy Jackson is authorized to proceed with the Indiana bat survey as described in the request. Upon completion of the survey, we request that you submit an electronic copy of the survey results to this office for review. Please include the latitude and longitude coordinates for each survey site in the report. If any Indiana bats are found during the survey, please notify this office within 48 hours. Please include the GPS coordinates of the capture site in the initial notification and any roost trees found during radio-tracking as soon as they become available.

Due to concerns over White-nose Syndrome, we are requiring that the Disinfection Protocol for Bat Field Studies be followed for all bat survey work in conducted in Ohio. Please be advised that the current protocol (attached) is subject to revision. Please visit the following link prior to conducting the survey to ensure the most current protocol is being followed.
http://www.fws.gov/midwest/Endangered/mammals/BatDisinfectionProtocol.html
(See attached file: USFWS Region 3 Bat Disinfection Protocol.pdf)
We request that all Indiana bats be banded utilizing the Ohio Department of Natural Resources, Division of Wildlife (DOW) bands. Please contact Keith Lott (DOW) for questions and to request bands (419) 466-4601.

Please carry a copy of this site specific authorization and your Federal permit while conducting the survey. If you have questions, or if we may be of further assistance in this matter, please contact me.

Sincerely,
Angela Boyer
Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
4625 Morse Road, Suite 104
Columbus, OH 43230
(614) 416-8993, ext. 22
(614) 416-8994 FAX
angela_boyer@fws.gov

"Jeremy Jackson" jli@jacksonenvironmental.com
08/09/2010 04:22 PM

To Angela_Boyer@fws.gov

Cc "Koeneke, Mary-Alice" <makoeneke@eaest.com>, jboltz@eaest.com.

Subject: Meldahl Bat Study Project Authorization Request

Mrs. Boyer,

As per our conversation earlier today, Jackson Environmental request project authorization to conduct a summer mist-net survey for bats along the Ohio River in Clermont County, Ohio. The project consists of three proposed linear transmission lines as illustrated on attached map. These transmission lines are labeled as Route 1, Route 2, and Route 3. The forested portion of Route 1 is 2.6 km length, Route 2 is 1.3 km in length, and Route 3 is 2.8 km in length.

Based upon a preliminary map reconnaissance and the relative amount of forested areas where the transmission line routes are proposed and the time available in the year in which surveys can be conducted, we are proposing to survey route 2, (the preferred route), in 2010 and the two alternate routes in 2011.

We are proposing to establish 2 net-site locations along route 2, with at least two nets sets at each and survey them for a total of 2 nights as per the US Fish Wildlife Protocol. We will begin the survey of August 10, 2010 and complete the survey on August 11, 2010, weather dependent.

We are proposing to establish 1 site in the forested area closest to the Ohio River and 1 site in the middle of the larger forested area near the north central portion of the project area.

If any female Indiana bats are captured, we will immediately begin radio tracking to locate roost trees and to conduct emergence counts for a period of at least 5 days.

Thank you for your rapid response and coordination.

Kindest Regards,

Jeremy Jackson
Jackson Environmental[attachment "Meldahl_Bat_Study_Area_Figure_1.pdf" deleted by Angela Boyer/R3/FWS/DOI]

Attachment D

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994

November 10, 2010

Daniel Cox
Jackson Environmental Consulting Services, LLC
1586 Boonesborough Road
Richmond, KY 40475

Dear Mr. Cox:

TAILS #: 31420-2011-TA-0092

This is in response to your October 29, 2010 submission and request for comments on the report: Bat Species Inventory of the Meldhal Hydroelectric Project, Clermont County, Ohio. The project site is located approximately 1.3 miles west of Chilo, Ohio.

We understand that Jackson Environmental Consulting Services, LLC performed a mist net survey of the project area on August 10-11, 2010. The survey protocol and level of effort was pre-approved by this office on August 10, 2010. No Indiana bats (*Myotis sodalis*) were captured during the survey. Therefore, no further action regarding the Indiana bat is required for this proposed project. Should, during the term of this project, additional information on the Indiana bat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts to the Indiana bat.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act of 1973 (ESA), as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the U. S. Fish and Wildlife Service's Mitigation Policy.

If you have questions, or if we may be of further assistance in this matter, please contact Angela Boyer at extension 22 in this office.

Sincerely,

Mary M. Knapp, Ph.D.
Field Supervisor

cc: ODNR, DOW, SCEA Unit, Columbus, Ohio
Dr. Jeffrey Boltz (jboltz@eaest.com)
Jeffrey Elseroad (jelseroad@eaest.com)