

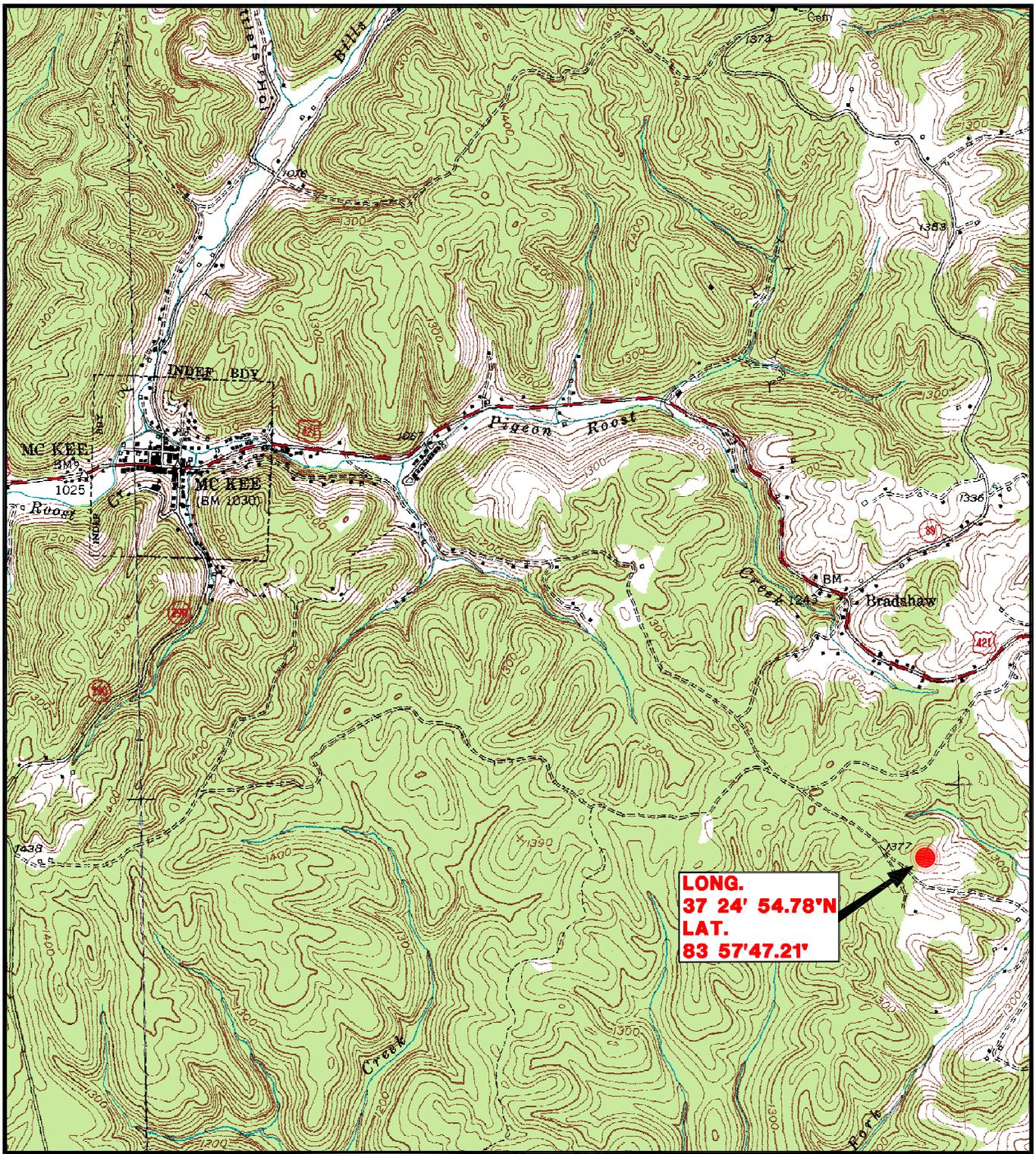
*Appendix A*  
*Maps*



Google earth

feet  
meters

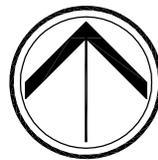




**LONG.**  
**37 24' 54.78\"/>**



**SCALE: 1" = 2000'**



**MCKEE, KY.**  
 NW/4 TYNER 15' QUADRANGLE  
 N3722.5—W8352.5/7.5  
 1953  
 PHOTOINSPECTED 1976  
 AMS 4258 IV NW—SERIES V853



Engineers  
 Architects  
 Planners

624 Wellington Way  
 Lexington, KY 40503  
 www.mselex.com

PHONE: (859)223-5694  
 FAX: (859)223-2607

**PROPOSED  
 JACKSON COUNTY  
 EOC PROJECT SITE**

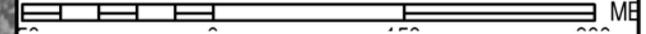
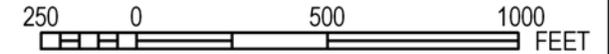
DRAWING NO.

**1**

SHEET OF



MAP SCALE 1" = 500'



NFIP

PANEL 0137C

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM

FLOOD INSURANCE RATE MAP  
 JACKSON COUNTY,  
 KENTUCKY  
 AND INCORPORATED AREAS

PANEL 137 OF 275  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
JACKSON COUNTY	210118	0137	C
MCKEE, CITY OF	210119	0137	C

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER  
 21109C0137C  
 EFFECTIVE DATE  
 AUGUST 3, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



U.S. Fish and Wildlife Service

# National Wetlands Inventory

Jackson Co. EOC

Apr 14, 2014



## Wetlands

-  Freshwater Emergent
-  Freshwater Forested/Shrub
-  Estuarine and Marine Deepwater
-  Estuarine and Marine
-  Freshwater Pond
-  Lake
-  Riverine
-  Other

## Riparian

-  Herbaceous
-  Forested/Shrub

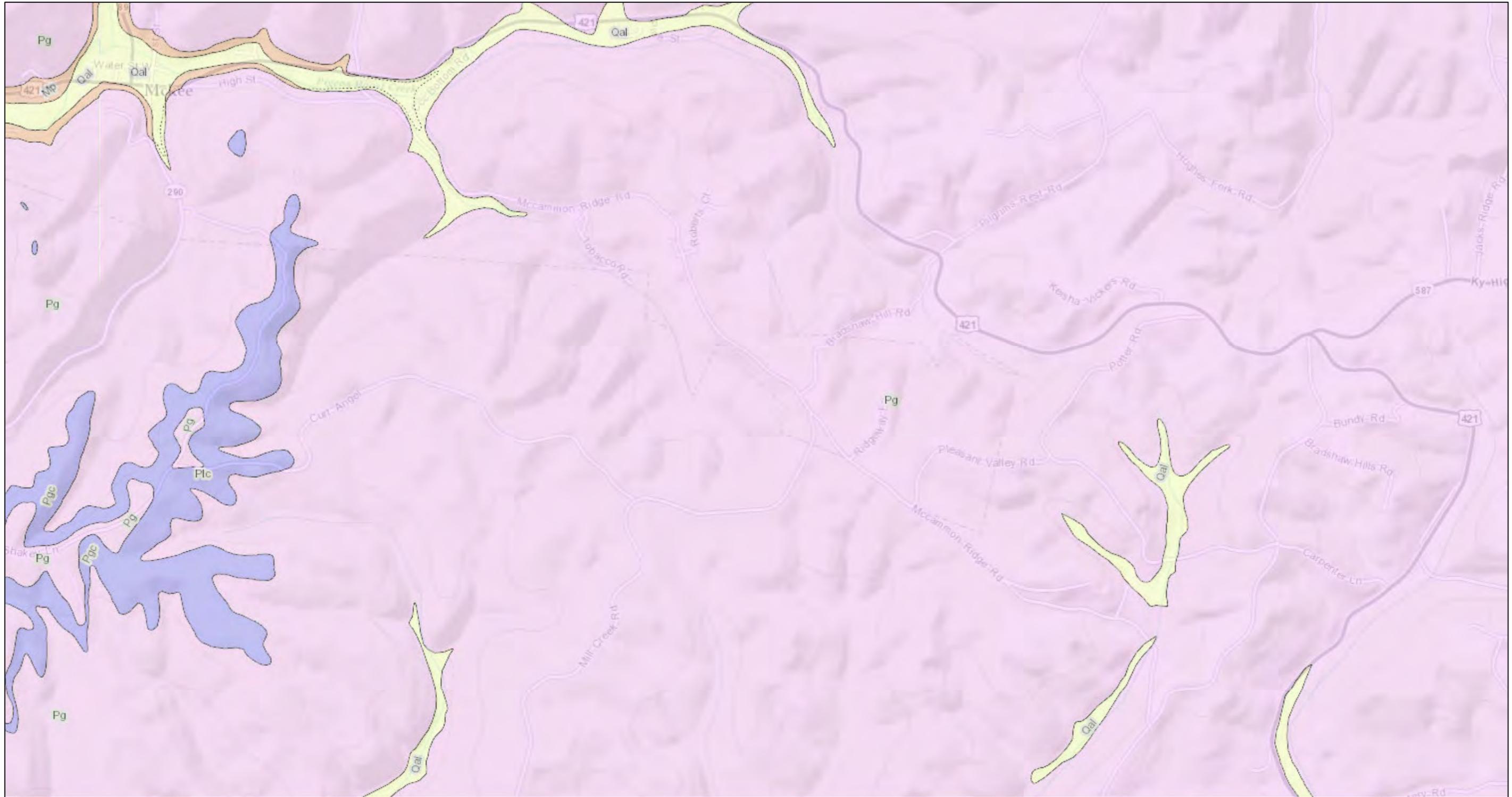
## Riparian Status

-  Digital Data

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

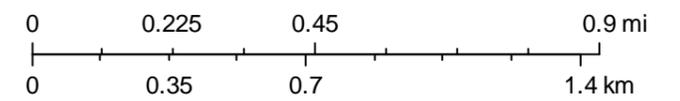
User Remarks:

# Kentucky Geologic Map Information Service



April 14, 2014

1:18,056



Sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

author: Kentucky Geological Survey  
copyright Kentucky Geological Survey

*Appendix B*  
*Agency Correspondence*



STEVEN L. BESHEAR  
GOVERNOR

DEPARTMENT FOR LOCAL DEVELOPMENT  
OFFICE OF THE GOVERNOR  
1024 CAPITAL CENTER DRIVE, SUITE 340  
FRANKFORT, KENTUCKY 40601-8204  
PHONE (502) 573-2382 FAX (502) 573-2939  
TOLL FREE (800) 346-5606  
www.dlg.ky.gov

TONY WILDER  
COMMISSIONER

August 27, 2013

Ms. Tara Hackney  
MSE of Kentucky, Inc.  
624 Wellington Way  
Lexington, KY 40503

**RE:** Jackson County Emergency Operations Center CSEPP Project  
SAI# KY20120531-0664  
CFDA# 97.052

Dear Ms. Hackney:

Pursuant to your request, the State Clearinghouse will update its evaluation of SAI# KY20120531-0664. The State Clearinghouse has contacted appropriate state agencies and determined its previous comments regarding this proposal are still valid.

Please consider this correspondence as official notification that the State Clearinghouse is reaffirming its previous correspondence. This endorsement remains valid for a period of one (1) year from the date of this letter.

If you have any questions regarding this matter, please feel free to contact the State Clearinghouse at 502-573-2382.

Sincerely,

A handwritten signature in blue ink that reads "Lee Nalley".

Lee Nalley  
Kentucky State Clearinghouse

**The Heritage Council has made the following advisory comment pertaining to State Application Identifier Number KY201205310664**

**The applicant must ensure compliance with the Advisory Council on Historic Preservation's Rules and Regulations for the Protection of Historic and Cultural Properties (36CFR, Part 800) pursuant to the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, and Executive Order 11593.**

**There are no known above-ground historic properties in the immediate vicinity of the project area, so no indirect effects are anticipated.**

**In order to determine whether archaeology will be requested, we request additional information on ground disturbance at the site. Please provide a site plan showing proposed work in relation to existing construction, photographs of the areas where new construction will take place, and detailed information on any previous disturbance in these locations.**

**If you have questions regarding these comments, please contact Jill Howe at 502-564-7005, ext. 121.**

**The Housing, Building, Construction has made the following advisory comment pertaining to State Application Identifier Number KY201205310664**

**Prior to any additions, alterations or construction, drawings shall be submitted to the Department of Housing, Buildings and Construction for review and approval. A submittal guide or plan application form with the address can be downloaded from our web site at [www.dhbc@ky.gov](http://www.dhbc@ky.gov). for your convenience. You can contact Ric McNees or Phil Craig for more information at 502-573-0373.**

**The Labor Cabinet has made the following advisory comment pertaining to State Application Identifier Number KY201205310664**

**PW RATES MAY APPLY IF PROJECT TOTAL EXCEEDS \$250,000. CONTACT KY LABOR CABINET AT 502-564-3534**

**The Natural Resources has made the following advisory comment pertaining to State Application Identifier Number KY201205310664**

**This review was based upon the information that was provided by the applicant through the Clearinghouse for this project. An endorsement of this project does not satisfy, or imply, the acceptance or issuance of any permits, certifications or approvals that may be required from this agency under Kentucky Revised Statutes or Kentucky Administrative Regulations. Such endorsement means this agency has found no major concerns from the review of the proposed project as presented other than those stated as conditions or comments.**

**Kentucky Division for Air Quality Regulation 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the Fugitive Emissions Fact Sheet located at [http://www.air.ky.gov/homepage\\_repository/e-Clearinghouse.htm](http://www.air.ky.gov/homepage_repository/e-Clearinghouse.htm)**

**Kentucky Division for Air Quality Regulation 401 KAR 63:005 states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the Open Burning Fact Sheet located at [http://www.air.ky.gov/homepage\\_repository/e-Clearinghouse.htm](http://www.air.ky.gov/homepage_repository/e-Clearinghouse.htm)**

All solid waste generated by this project must be disposed at a permitted facility. If underground storage tanks are encountered they must be properly addressed. If asbestos, lead paint, and/or other contaminants are encountered during this project, they must be properly addressed.

If the proposed project site is in a designated flood hazard area, application must be made to the Division of Water for a floodplain construction permit. Permission, or exemption, depends upon design and the exact site.

Utility line projects that cross a stream will require a Section 404 permit from the US Army Corps of Engineers and a 401 Water Quality Certification from DOW.

If the construction area disturbed is equal to or greater than 1 acre, the applicant will need to apply for a Kentucky Pollutant Discharge Elimination System (KPDES) stormwater discharge permit from the Division of Water.

Best Management Practices (BMPs) should be utilized to control storm water runoff and sediment damage to water quality and aquatic habitat. For technical assistance on the kinds of BMPs most appropriate for housing and related construction, please contact the local Soil and Water Conservation District or the Division of Conservation.

**WATER SUPPLY** - If an existing water server is to be utilized for new water tap-ons (rehabilitations, new constructions), ascertain the capacity and operating condition of the originating water treatment plant and of the server (if different) in comparison to the water needs of the proposed housing. DOW cannot permit connections to water servers under tap-on bans, Agreed Orders, or Court Orders. DOW may not give approval to connections to water systems operating near, at, or over capacity. If a new water source is to be utilized, ascertain the source's (stream's or well's) low flow ability to serve the proposed project. Prior approval from DOW is required for water withdrawals of over 10,000 gallons per day and for all public drinking water. Final plans and specifications are subject to review by DOW.

**WASTEWATER TREATMENT** - If an existing wastewater server is to be utilized for new wastewater tap-ons (rehabilitations, new construction), ascertain the capacity and operating conditions of the receiving wastewater treatment facility (wastewater treatment plant or package sewage treatment plant) and of the server (if different) in comparison to the wastewater needs of the proposed housing. DOW cannot permit connections to wastewater servers under tap-on bans, Agreed Orders, or Court Orders. DOW may not give approval to connections to wastewater systems at or over hydraulic capacity. If a new wastewater treatment facility is to be utilized, ascertain the discharge stream's ability to absorb the proposed projects treated wastewater.

DOW notes the requirements of onsite sewage disposal legislation, KRS 211.350 to 211.380, and administrative regulations, 902 KAR 10:060 to 10:110, must be met. DOW requests provisions be made for future connections to a wastewater treatment system. A Groundwater Protection Plan, as required by 401 KAR 5:037, needs to be prepared by all onsite wastewater system owners. Contact the DOW regarding requirements.

Prior approval from DOW is required for all discharges into streams and for all wastewater treatment facilities. DOW reminds the applicant to seal abandoned wastewater service connections.

The KY Dept. of Transportation has made the following advisory comment pertaining to State Application Identifier Number KY201205310664

Chappell (D-11), Sherri: Contact KYTC D-11 Permits before constructing a new entrance.

The Cumberland Valley ADD has made the following advisory comment pertaining to State Application Identifier Number KY201205310664

No Comments

**The KY State Fish & Wildlife has made the following advisory comment pertaining to State Application Identifier Number KY201205310664**

**To minimize impacts to the aquatic environment the Kentucky Dept. of Fish & Wildlife Resources recommends that erosion control measures be developed and implemented prior to construction to reduce siltation into waterways located within the project area. Such erosion control measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins, and diversion ditches. Erosion control measures will need to be installed prior to construction and should be inspected and repaired regularly as needed. Please contact Dan Stoelb @ 502-564-7109 ex. 4453 or Daniel.Stoelb@ky.gov if you have further questions or require additional information.**



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Kentucky Ecological Services Field Office  
330 West Broadway, Suite 265  
Frankfort, Kentucky 40601  
(502) 695-0468

June 21, 2012

Ms. Tara Hackney  
Planner  
MSE of Kentucky, Inc.  
624 Wellington Way  
Lexington, Kentucky 40503

Re: FWS 2012-B-0611; MSE of Kentucky, Inc., Jackson County Fiscal Court, Emergency Operations Center – CSEPP Project, located in Jackson County, Kentucky

Dear Ms. Hackney:

Thank you for the correspondences of May 31 and June 20, 2012 regarding the above-referenced project. The U.S. Fish and Wildlife Service (Service) has reviewed this proposed project and offers the following comments in accordance with the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

In order to assist you in determining if the proposed project has the potential to impact protected species we have searched our records for occurrences of listed species within the vicinity of the proposed project. Based upon the information provided to us and according to our databases, we believe that the following federally listed species have the potential to occur within the project vicinity:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Federal Status</u>
Indiana bat	<i>Myotis sodalis</i>	endangered
Virginia big-eared bat	<i>Corynorhinus townsendii virginianus</i>	endangered

We must advise you that collection records available to the Service may not be all-inclusive. Our database is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitats and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality.

## Indiana bat

The proposed project would be located within the swarming range of several documented Priority 1 and 2 Indiana bat hibernacula. Prior to hibernation, Indiana bats utilize the forest habitat around the hibernacula, where they feed and roost until temperatures drop to a point that forces them into hibernation. This "fall swarming" period lasts, depending on weather

conditions in a particular year, from about August 16 to about November 15. This is a critical time for Indiana bats, since they are acquiring additional fat reserves and mating prior to hibernation. Another critical time for Indiana bats utilizing this swarming range is during spring emergence (~April 1 - ~May 14) from the hibernacula. During this time, bats utilize the swarming range to forage prior to migrating to their respective areas. It should also be noted that some bats may continue to utilize this swarming area year round; however, these are typically adult males. Typically for a project of this nature, the Service would recommend seasonal tree clearing or the completion of a mist net survey before construction activities take place. Mist net surveys provide presence/absence information; however, we already know that the Indiana bats are present and that the project area falls within the swarming range of a several known hibernacula. We do not believe a survey is necessary for the proposed project. Even seasonal tree clearing (removal of habitat) is likely to result in significant or non-discountable effects to the Indiana bat. Due to these concerns, we cannot concur with a determination of not likely to adversely affect for the Indiana bat at this time.

In order to address these concerns and be in full compliance with the ESA, we recommend one of the following options:

- 1) The project proponent can further modify the proposed project to eliminate impacts to Indiana bat habitat and thus avoid impacts;
- 2) The project proponent can request formal section 7 consultation through the lead Federal Action Agency associated with the proposed project; or
- 3) The project proponent may choose to enter into a Conservation Memorandum of Agreement (MOA) with the Service to account for the incidental take of Indiana bats. By entering into a Conservation MOA with the Service, Cooperators gain flexibility in project timing with regard to the removal of suitable Indiana bat habitat. In exchange for this flexibility, the Cooperator provides recovery-focused conservation benefits to the Indiana bat through the implementation of minimization and mitigation measures that are described in the Indiana Bat Mitigation Guidance for the Commonwealth of Kentucky. For additional information about this option, please notify our office.

Additionally, we also have the following recommendation relative to Indiana bats.

- Based on the presence of numerous caves, rock shelters, and underground mines in Kentucky, we believe that it is reasonable to assume that other caves, rock shelters, and/or abandoned underground mines may occur within the project area, and, if they occur, they could provide winter habitat for Indiana bats. Therefore, we would recommend that the project proponent survey the project area for caves, rock shelters, and underground mines, identify any such habitats that may exist on-site, and avoid impacts to those sites pending an analysis of their suitability as Indiana bat habitat by this office.

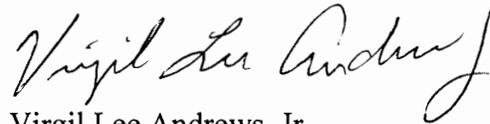
**Virginia big-eared bat**

The project area site is also in close proximity to several documented occurrences of the federally endangered Virginian big-eared bat. Virginia big-eared bats occur in isolated populations in eastern Kentucky, and live in caves year-round. They prefer caves in karst regions (*i.e.*, areas underlain with limestone bedrock and many caves and sink holes) dominated by oak-hickory or beech-maple-hemlock forest. They tend to feed along the edges of forested areas. Because the proposed project area is partially forested and occurs within a known karst region, the Service has reason to believe that potentially suitable summer roosting and winter hibernacula habitat for the Virginia big-eared bat could occur onsite.

Therefore, we request that the project area be assessed for any caves, rockshelters, and/or abandoned mines, and assess their potential as Virginia big-eared bat summer/winter habitat. This assessment should be separate from the Indiana bat assessment. If potential summer/winter habitat is identified, additional surveys of these areas may be required. Impacts to these areas should be avoided until the surveys are completed and the presence/absence of Virginia big-eared bats within these areas has been determined. Please notify this office with the results of any surveys and an analysis of the “effects of the action,” as defined by 50 CFR 402.02 on this listed species including consideration of direct, indirect, and cumulative effects.

Thank you again for your request. Your concern for the protection of endangered and threatened species is greatly appreciated. If you have any questions regarding the information that we have provided, please contact James Gruhala at (502) 695-0468 extension 116.

Sincerely,



Virgil Lee Andrews, Jr.  
Field Supervisor

**INDIANA BAT CONSERVATION  
MEMORANDUM OF AGREEMENT  
BETWEEN THE  
U.S. FISH AND WILDLIFE SERVICE  
AND  
JACKSON COUNTY FISCAL COURT**

This Memorandum of Agreement (MOA) is entered into by the United States Department of the Interior, U.S. Fish and Wildlife Service (Service) and the Jackson County Fiscal Court to promote the survival and recovery of the Indiana bat (*Myotis sodalis*), a federally listed endangered species. Together, the Service and the Jackson County Fiscal Court are referred to as "Cooperators."

**Section 1: PURPOSE AND OBJECTIVES**

The Indiana bat is a federally listed endangered species native to a large portion of the eastern United States and the Commonwealth of Kentucky. This MOA will implement recovery-focused conservation measures that will be undertaken by the Cooperators and afford a measurable conservation benefit for the Indiana bat as set forth in the Service's Indiana Bat Mitigation Guidance as modified January 3, 2011 and hereby incorporated by reference. These measures will be implemented in association with the proposed project as detailed in section 4 of this MOA. All measures will be implemented according to the terms of this MOA. The Cooperators understand and intend that the benefits resulting from this MOA may also provide conservation benefits for other federal protected species and native fish and wildlife.

**Section 2: AUTHORITY**

This MOA is hereby entered into under the authorities of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) (ESA), Fish and Wildlife Act of 1956 (16 U.S.C. 742a. *et seq.*), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*). Section 5 of the ESA provides that, "The Secretary...shall establish and implement a program to conserve fish, wildlife, and plants, including those which are listed as endangered species or threatened species..." and "shall utilize land acquisition and other authority under the Fish and Wildlife Act, as amended, and the Migratory Bird Conservation Act, as appropriate". Section 7(a) (1) of the ESA further directs Federal agencies to "utilize their authorities in furtherance of the purposes of this Act [ESA] by carrying out programs for the conservation of endangered species and threatened species." The Fish and Wildlife Act of 1956 provides that the Secretary shall "...take such steps as may be required for the development, advancement, management, conservation, and protection of fish and wildlife resources..." Finally, the Fish and Wildlife Coordination Act states that the Secretary is authorized "to provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat..."

The authorization for any incidental take of the Indiana bat, as defined in section 9 of the ESA, and resulting from impacts that may be associated with the qualified project(s), as defined in section 4 of this MOA, is provided through the Service's incidental take statement and January 3, 2011 intra-Service biological opinion, which is incorporated herein by this reference. This biological opinion covers the Service's development of conservation agreements for the Indiana bat, which includes this MOA, that are based on implementation of the Indiana Bat Mitigation Guidance and provides incidental take of Indiana bats in the form of up to 2,500 acres of forested Indiana bat habitat per year through 2016.

**Section 3: STATEMENT OF MUTUAL INTEREST**

The mission of the Service is to work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. The Service's major responsibilities are for endangered species, threatened species, migratory birds, marine mammals, and freshwater and anadromous fish. The Service recognizes the ability and interest of Jackson County Fiscal Court to contribute to the conservation and recovery of the Indiana bat, and recognizes Jackson County Fiscal Court as a partner in the recovery and habitat conservation of the species. Jackson County Fiscal Court recognizes the Service's mission and its interest in developing partnerships to protect, restore, and manage important habitats on private and public lands for federal listed species. The Cooperators understand the collaboration for this MOA is voluntary.

**Section 4: PROJECT DESCRIPTION**

The project proponent proposes to construct an Emergency Operation Center (EOC) in Jackson County, Kentucky next to the County Detention Center. The project proponent has committed to removing Indiana bat habitat (i.e., trees) associated with this project during the unoccupied timeframe between the dates of November 15 – March 31. The following information was derived and calculated from Kentucky Emergency Management's January 7, 2013 correspondence and attachments:

The proposed project would result in the direct loss of 3.52 acres of forested habitat from one (1) Indiana bat habitat types as depicted in Table 1 below.

**Table 1**

<b>Habitat Type</b>	<b>Forested Acreage Removed</b>
Priority 1 & 2 Swarming habitat	3.52 acres

These Indiana bat habitat impacts are the impacts that are covered by this agreement and that were analyzed by the Service to assess the direct, indirect, and cumulative effects of the proposed project on Indiana bats.

**Section 5: EFFECTIVE DATE AND TERMS OF AGREEMENT**

This MOA is valid for the Jackson County Fiscal Court' consideration for 90 days from the date of the Service's signature below, shall be deemed effective on the last date signed below, and shall remain in effect until all terms of the agreement have been fulfilled, except as modified in Section 8 hereof.

The Jackson County Fiscal Court has determined that the removal of all Indiana bat habitat will occur during the timeframe when the Indiana bat is not anticipated to be present (i.e., unoccupied), which is between the dates of November 15 – March 31. The Indiana Bat Conservation Fund contribution amount that is identified in section 6.4 of the MOA is based on the assumption that all tree removal associated with the project will be conducted during the unoccupied timeframe. If additional forested areas not considered in Section 4 of this agreement are to be removed, then the Jackson County Fiscal Court must coordinate with the Service to determine if additional modification of this agreement is necessary, and, if found necessary, the Jackson County Fiscal Court will seek such modification. In addition, if tree clearing must occur during the occupied timeframe (April 1 – November 14), then the Jackson County Fiscal Court must notify the Service in advance of tree clearing during the occupied timeframe and the MOA must be amended to appropriately account for the types of adverse effects to Indiana bats that would occur as a result.

#### **Section 6: SPECIFIC OBLIGATIONS OF THE COOPERATORS**

The Jackson County Fiscal Court and the Service agree to fulfill the following conditions to minimize the potential level of take of the Indiana bat, compensate for adverse effects on the Indiana bat that may result from construction of the project, and promote future conservation and recovery of the Indiana bat:

6.1 The Service will take the necessary steps to ensure that the project covered under this MOA meets federal requirements for compliance with the National Environmental Policy Act (NEPA) and ESA. If the Jackson County Fiscal Court has NEPA requirements beyond the scope of this MOA, the Jackson County Fiscal Court or other Federal action agency are responsible for those additional requirements.

With regard to the ESA, the Biological Opinion authorizes incidental take of Indiana bats associated with forested habitat removal. As such, paragraphs 6.3 and 6.4 are incorporated to ensure compliance with the Reasonable and Prudent Measures and Terms and Conditions of the biological opinion. The Jackson County Fiscal Court acknowledges that any divergence from these measures and conditions may result in a violation of Section 9 of the ESA.

6.2 The Jackson County Fiscal Court will take the necessary steps to ensure that the project covered under this MOA meets federal requirements for compliance with the National Historic Preservation Act (NHPA).

6.3 The project proposed by the Jackson County Fiscal Court, as described in Section 4, will result in the incidental take of Indiana bats in the form of habitat loss totaling not more than 3.52 acres of known P1/P2 Indiana bat swarming habitat. The Jackson County Fiscal Court may remove this habitat during the unoccupied time from November 15 – March 31. As stated in Section 5, if tree clearing is necessary during the occupied timeframe, the Jackson County Fiscal Court must notify the Service so that the MOA and Indiana Bat Conservation Fund contribution amount can be amended accordingly. Forested habitat associated with the proposed project, but not considered in this MOA, shall not be removed without further coordination.

6.4 The Jackson County Fiscal Court shall contribute \$16,104.00 to the Indiana Bat Conservation Fund (IBCF) administered by the Kentucky Natural Lands Trust (KNLT). This contribution is based on 3.52 acres of known Indiana bat P1/P2 swarming habitat using the process identified in the Indiana Bat Mitigation Guidance. Funds shall be provided to KNLT within thirty (30) days of the last signature to this MOA. The Jackson County Fiscal Court shall provide the Service with a copy of the check or transaction receipt within seven (7) business days of payment that shows the date and amount of the deposit.

In summary, this MOA provides recovery based conservation benefits for the Indiana bat in form of contributions to the IBCF which, in turn, will fund Indiana bat habitat protection, conservation, restoration and/or priority monitoring and research projects for the Indiana bat.

#### Section 7: COOPERATION

Both the Service and Jackson County Fiscal Court acknowledge that it is their desire to facilitate the processes set forth in this MOA by open communication and cooperation. Both parties agree to exercise their rights and obligations under this MOA in good faith. If at any time the Jackson County Fiscal Court has questions regarding this MOA or the Guidance, the Service agrees to make itself available for consultation in a timely fashion.

#### Section 8: MODIFICATION OR TERMINATION

Modifications to this MOA may be proposed by either party in writing and will become effective upon being reduced to a written instrument and being signed by duly authorized representatives of the Cooperators.

The Jackson County Fiscal Court or the Service may terminate this MOA at any time within or prior to thirty (30) days of the last signature to this MOA upon written notification from the other signatory party. Failure to fulfill the provisions, as specified, within paragraph 6.4 will result in automatic termination of this MOA.

#### Section 9: OTHER PROVISIONS

9.1 The Cooperators hereto agree that they shall be liable for the negligent or wrongful acts or omissions of their employees, agents, and assigns only to the extent liable under applicable law. Nothing in this MOA shall be interpreted or construed as constituting a waiver by any party of sovereign immunity or statutory limitation on liability.

9.2 Each provision of this MOA shall be interpreted in such a manner as to be effective and valid under applicable law, but if any provision of the MOA shall be prohibited or invalid under application law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this MOA.

9.3 No provision of this MOA shall be interpreted as or constitute a commitment or requirement that either party take actions in contravention of applicable laws, either substantive or procedural.

9.4 Nothing in the MOA shall be interpreted as or constitute a commitment or requirement that the Service obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. §1341, or any other law or regulation.

9.5 Third Parties Not to Benefit: This MOA does not grant rights or benefits of any nature to any party not named or identified in this MOA.

9.6 Merger: This MOA contains the sole and entire MOA of the parties. No oral representations of any nature form the basis of or may amend this MOA. This MOA may be extended, renewed, or amended only when agreed to in writing by the parties.

9.7 Waiver: Failure to enforce any provision of this agreement by either party shall not constitute waiver of that provision, nor a waiver of a claim for subsequent breach of the same type, nor a waiver of any other term of this agreement. The waiver of any provision must be express and evidenced in writing.

9.8 Assignment: No part of this agreement shall be assigned to any other party.

**Section 10: NOTICES AND AUTHORIZED REPRESENTATIVES**

Notices shall be made in writing to the persons at the addresses listed below and may be given by personal delivery, mail or by telecopy (FAX) to the duly authorized representatives listed below. If there are changes in a party's representative, each party shall notify the other party, in writing, within thirty (30) days of the change in their representative.

U.S. Fish and Wildlife Service  
Virgil Lee Andrews, Jr.  
Field Office Supervisor  
330 West Broadway, Room 265  
Frankfort, Kentucky 40601  
502-695-0468 (telephone)  
502-695-1024 (fax)

Jackson County Fiscal Court  
Judge Executive William O. Smith  
PO Box 175  
McKee, Kentucky 40447  
606-287-7190 (fax)  
606-287-8562 (telephone)

Each party hereby indicates its acceptance of the terms of the MOA as outlined herein by its signature below. The parties hereto have executed this MOA as of the last written date below:

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

BY: Michael A. [Signature]

for TITLE: Field Supervisor

DATE: 2/13/13

JACKSON COUNTY FISCAL COURT

BY: William O. Smith [Signature]

TITLE: County Judge

DATE: 2-26-13



**TOURISM, ARTS AND HERITAGE CABINET  
KENTUCKY DEPARTMENT OF FISH & WILDLIFE RESOURCES**

**Steven L. Beshear**  
Governor

#1 Sportsman's Lane  
Frankfort, Kentucky 40601  
Phone (502) 564-3400  
1-800-858-1549  
Fax (502) 564-0506  
[fw.ky.gov](http://fw.ky.gov)

**Bob Stewart**  
Secretary

19 December 2013

MSE of Kentucky, Inc.  
Attn: Tara Hackney  
624 Wellington Way  
Lexington, Kentucky 40503

RE: Jackson County Emergency Operations Center – CSEPP Project  
Jackson County, Kentucky

Dear Ms. Hackney:

The Kentucky Department of Fish and Wildlife Resources (KDFWR) has received your request for information pertaining to the subject project. The Kentucky Fish and Wildlife Information System indicates that no federally or state-listed species are known to occur within close proximity to the project site. However, this project does occur within known Indiana bat habitat according to the U.S. Fish and Wildlife Service Kentucky Field Office. If tree cutting is required, it should be conducted from November 15<sup>th</sup> – March 31<sup>st</sup> to reduce possible impacts to roosting bats. Please be aware that our database system is a dynamic one that only represents our current knowledge of various species distributions.

Since this tower is less than 200 feet tall, we understand that federal laws do not require it to be lighted for aircraft safety. Night-migrating birds can be attracted to and disoriented by lights on towers, resulting in collision with the tower and oftentimes death. In order to reduce impacts to migratory birds, we recommend that this tower does not have lights. If for some reason, the tower must have lights, we recommend that white strobe lights be used with the maximum permissible "off" interval (i.e., time between flashes) and solid or pulsating red warning lights be avoided. Solid or pulsating red lights attract night-migrating birds at a much higher rate than white strobe lights.

Construction techniques should be used which do not require guy wires, as these components are thought to be a primary cause of tower-related bird mortality. Alternative construction techniques include using a lattice structure or a monopole (preferred). If this tower will use guy wires for support, daytime visual markers should be installed (i.e., bird diverter devices) on the guy wires to prevent collisions by diurnally active bird species.



**DEPARTMENT OF THE ARMY**  
NASHVILLE DISTRICT, CORPS OF ENGINEERS  
Regulatory Branch  
3701 Bell Road  
NASHVILLE, TENNESSEE 37214

June 15, 2012

SUBJECT: Reference No. 12-56E, Jackson County Emergency Operations Center, Jackson County, Kentucky.

Ms. Tara Hackney  
MSE  
624 Wellington Way  
Lexington, KY 40503

Dear Ms. Hackney:

This is in regard to your May 31, 2012 letter, and subsequent update June 15, 2012, concerning the subject project.

A preliminary review of the information provided indicates an activity that would not likely involve work in waters of the United States (jurisdictional streams and/or wetlands). **Therefore, a Department of the Army (DA) permit would not be required.**

We appreciate your awareness of our regulatory program. If you have any question regarding this matter, please contact me at the above address, telephone (615) 369-7518 or email [deborah.t.tuck@usace.army.mil](mailto:deborah.t.tuck@usace.army.mil).

A handwritten signature in black ink, appearing to read "D. Tuck", written over a horizontal line.

Deborah T. Tuck  
Regulatory Specialist  
Regulatory Branch

United States Department of Agriculture



NRCS

Natural  
Resources  
Conservation  
Service

1925 Old Main Street  
Suite 2  
Maysville, KY. 41056  
Ph: 606-759-5570

To: Tara Hackney, Planner  
MSE of Kentucky, Inc.  
624 Wellington way  
Lexington, KY 40503

6-07-2012

Re: Jackson County Emergency Operations Center – CSEPP Project  
Jackson County, Kentucky

Ms. Hackney,

Enclosed is a custom soil survey for the Jackson County Emergency Operations Center – CSEPP Project showing the soils, their descriptions, and their prime farmland designation for an area of approximately 20 acres inside and around the Jackson County Detention Center. Areas within the incorporated boundaries of the Detention Center are considered prior converted farmland and not impacting prime farmland or statewide important farmland. Additional areas that are presently buildup, residential, or disturbed outside the detention boundary would also be considered prior converted farmland and not impacting prime farmland or statewide important farmland. Included in the soils report are interpretations and soil ratings for this area that apply to slope, erosion, soil suitability and stability. Additional soils information is available on these interpretations and others on-line at USDA's Web Soil Survey for the Jackson and Owsley Counties Soil Survey, KY. For general information, I have included the farmland rating and the map units on a separate map (attached) involved in the overall site area as no boundary was provided.

If this office may be of additional assistance, please do not hesitate to contact my office in Maysville Ky. or contact the NRCS District Conservationist at 1-606-287-8314.

Steve Jacobs  
Resource Soil Scientist, NRCS, Maysville, KY.

cc: Chuck Gibson, NRCS District Conservationist, McKee, KY



STEVEN L. BESHEAR  
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET  
KENTUCKY HERITAGE COUNCIL**

BOB STEWART  
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE  
300 WASHINGTON STREET  
FRANKFORT, KENTUCKY 40601  
PHONE (502) 564-7005  
FAX (502) 564-5820  
[www.heritage.ky.gov](http://www.heritage.ky.gov)

CRAIG A. POTTS  
EXECUTIVE DIRECTOR AND  
STATE HISTORIC PRESERVATION OFFICER

January 30, 2014

Tara Hackney  
MSE of Kentucky, Inc.  
624 Wellington Way  
Lexington, KY 40503

**Re: Proposed Jackson County Emergency Operations Center, SAI # KY201205310664**

Ms. Hackney,

Thank you for the correspondence regarding the above-mentioned undertaking. Our office requested information regarding the identification of archaeological resources in the project area on June 29, 2012. It is our understanding that tree removal and grading was conducted at the project area after our request and without consultation with our office. It is important to note that any activity (e.g. construction, demolition, etc.) for a federal undertaking should not commence without first consulting the Kentucky Heritage Council (State Historic Preservation Office) as outlined under Section 106 of the National Historic Preservation Act of 1966 (16 U. S. C. Sec. 470f) and its implementing regulations at 36 CFR Part 800. Any such activity performed prior to Section 106 consultation with the State Historic Preservation Office can have deleterious effects on the project including but not limited to an anticipatory demolition recommendation as outlined in Section 110(k) of the National Historic Preservation Act. That being said, through our own identification efforts we have determined that the proposed project area is located within an area previously surveyed for archaeological resources and should not require additional survey. Therefore, we have no further comments regarding this undertaking. However, if the project design or location is altered this office should be contacted to determine if further consultation is required.

Should you have any questions, feel free to contact Yvonne Sherrick of my staff at 502-564-7005 ext 113.

Sincerely,

Craig A. Potts  
Executive Director and  
State Historic Preservation Officer

CP: 40851-2

cc: John V. Ketchum (FEMA)



STEVEN L. BESHEAR  
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET  
KENTUCKY HERITAGE COUNCIL**

BOB STEWART  
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE  
300 WASHINGTON STREET  
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PHONE (502) 564-7005  
FAX (502) 564-5820  
[www.heritage.ky.gov](http://www.heritage.ky.gov)

CRAIG A. POTTS  
EXECUTIVE DIRECTOR AND  
STATE HISTORIC PRESERVATION OFFICER

May 9, 2014

Tara Hackney  
MSE of Kentucky, Inc.  
624 Wellington Way  
Lexington, KY 40503

**RE: Amendment of KHC response dated 1/20/2014 to include proposed tower site for the  
CSEPP - Jackson County EOC**

Dear Ms. Hackney,

On April 29, the State Historic Preservation Office received the above referenced request to reopen Section 106 review. Previous review of this project included only construction of an EOC. Reviewers had been unaware of a tower being constructed at the site, which required a larger area of potential effect (APE) for indirect effects than was originally examined.

Based on the information submitted and the results of your subsequent site check for this project, it is our assessment there will be no historic properties affected by the proposed undertaking. It is important to note that coordinates supplied for this project in the most recent submission still did not place the site in the correct location. Our findings are based on the project site depicted in the aerial included in your submission, which you have confirmed is correct. Please ensure FEMA has a copy of this information for their files so the agency can document the site upon which compliance review was based.

The proposed tower did not substantially change the APE for direct effect that had been previously reviewed, so our previous comments for archaeology can stand; no survey is requested. If you have questions regarding these comments, please contact Jill Howe at 502-564-7005, ext. 121.

Sincerely,

Craig A. Potts  
Executive Director and  
State Historic Preservation Officer

CP:jh

*Appendix C*  
*Schematic Design Drawings*







**GRADING PLAN**  
**JACKSON COUNTY EOC**  
**McKEE, KENTUCKY**

SHEET TITLE:  
 JOB NAME:

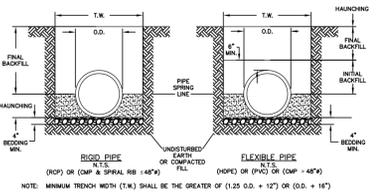
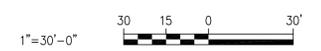
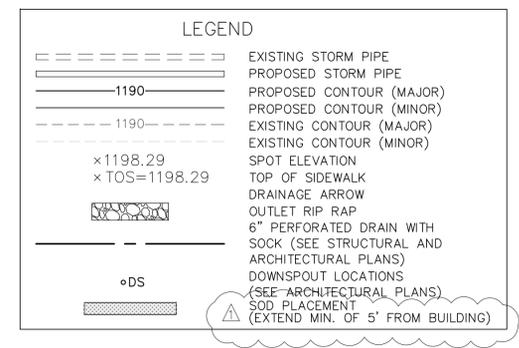
**m+g+**  
**MURPHY-GRAVES-TRIMBLE, PLLC**  
 ARCHITECTURE | PLANNING | INTERIORS  
 3399 Tates Creek Road, Suite 250  
 Lexington, KY 40502  
 ph: 859.559.0504 fax: 859.559.0523  
 www.mgky.com  
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**Palmer**  
**ENGINEERING**  
 301 EAST MAIN STREET  
 SUITE 900  
 LEXINGTON, KY 40507  
 (859) 388-9283

JOB NO. 1318  
 DATE: 7.03.2014  
 PRODUCED BY: WCE/SIB  
 NOTES:  
 7/22/14-ARCHITECT COMMENTS

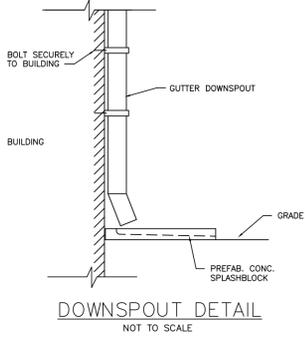
SHEET NUMBER:  
**C1.3**

- GRADING NOTES:**
- ALL EXCESS MATERIAL SHALL BE RESPONSIBILITY OF THE CONTRACTOR TO DISPOSE OF OFF SITE. CONTRACTOR TO COORDINATE WITH CONSTRUCTION ADMINISTRATOR ON PLACEMENT OF STOCKPILE.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND GEOTECHNICAL TESTING OF ANY REQUIRED IMPORT MATERIAL.
  - ALL EXISTING STRUCTURES, UNLESS OTHERWISE NOTED INCLUDING, FENCING, TREES, & ETC., WITHIN CONSTRUCTION AREA SHALL BE REMOVED & DISPOSED OF OFF SITE.
  - ANY BURNING ON SITE SHALL BE SUBJECT TO LOCAL ORDINANCES.
  - CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES HAVING UNDERGROUND UTILITIES ON SITE OR IN RIGHT-OF-WAY PRIOR TO EXCAVATION. CONTRACTOR SHALL CONTACT KENTUCKY UNDERGROUND AT 811 AND LOCAL UTILITIES IF NECESSARY TO LOCATE ALL UTILITIES PRIOR TO GRADING START.
  - SITE GRADING SHALL NOT PROCEED UNTIL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND A KPDES GENERAL STORMWATER PERMIT HAS BEEN OBTAINED FROM KDOW.
  - CONTRACTOR IS ADVISED TO HAVE GEOTECHNICAL ENGINEER ON SITE TO INSPECT EARTH MOVEMENT ACTIVITIES.
  - LOCALIZED UNDERCUTTING MAY BE REQUIRED ON SITE. COORDINATE WITH QUALIFIED GEOTECHNICAL REPRESENTATIVE TO DETERMINE THOSE AREAS.
  - CONSULT GEOTECHNICAL ENGINEER FOR PROPER STABILIZATION OF SITE. ANY STABILIZATION PROCEDURE SHOULD BE PERFORMED UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL REPRESENTATIVE.
  - SPLASH BLOCKS SHALL BE USED AT ALL DOWNSPOUTS AS DETAILED ON THIS SHEET.
  - ALL AREAS WHERE EROSION CONTROL BLANKET AND SOD ARE NOT INDICATED SHALL BE STABILIZED WITH SEED AND STRAW ACCORDING TO PROJECT SPECIFICATIONS.
  - SIDEWALK TO BE NO GREATER THAN 5% WITH 2% CROSS SLOPE.
  - ANY NON-PAVED AREAS THAT DO NOT HAVE EXISTING VEGETATION SHALL BE SEEDED AND MULCHED.
  - REGRADE EXISTING DITCH ALONG THE ROADWAY TO PROMOTE POSITIVE DRAINAGE AWAY FROM PROPOSED ENTRANCE LOCATION. EXISTING DITCH DOES NOT DRAIN.



**GENERAL NOTES**

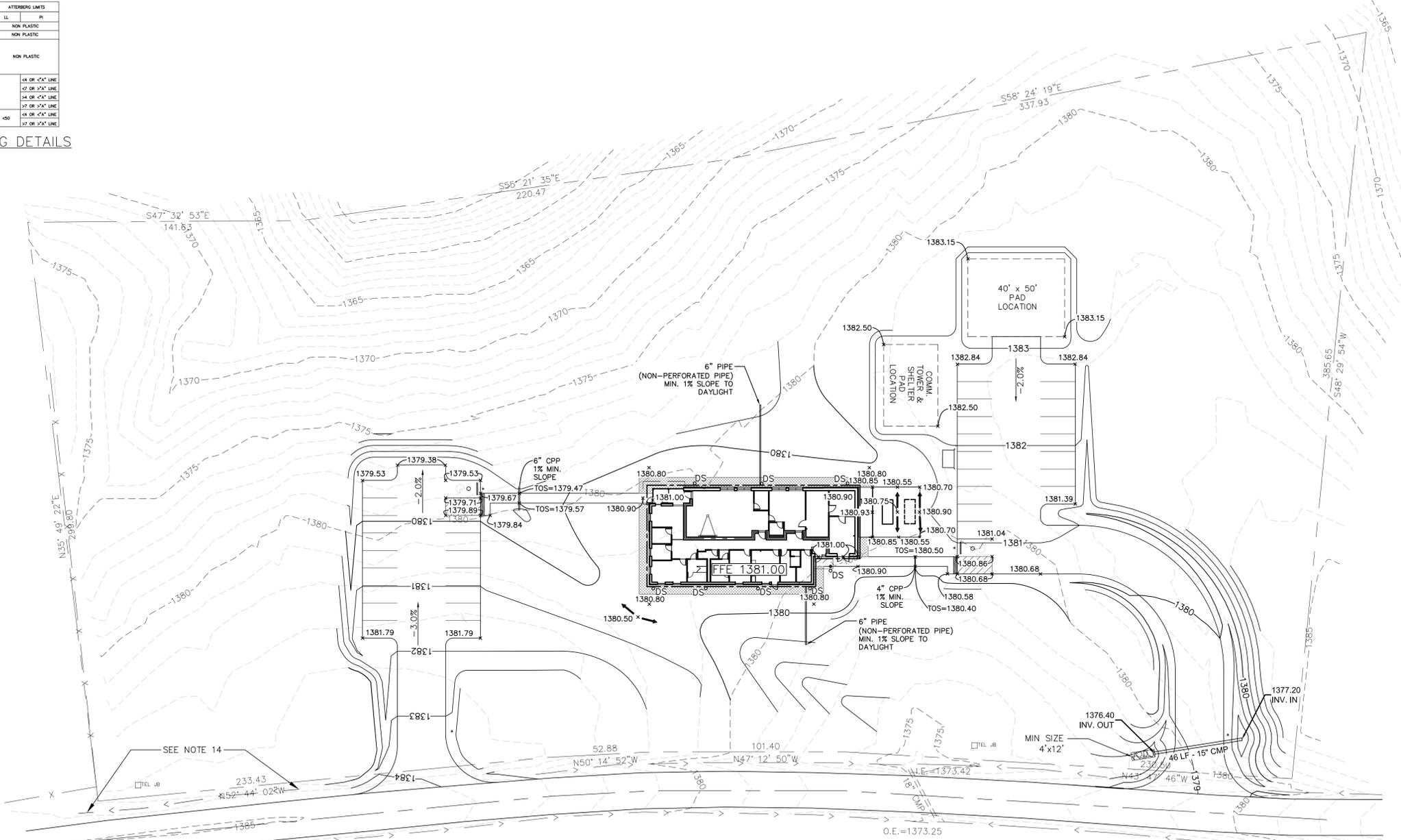
- BEDDING SHALL BE DUMPED CLASS I-A WORKED BY HAND, OR CLASS I-B OR CLASS II COMPACTED TO 90% STANDARD PROCTOR. LOCAL CODE PERMITTING WITH GEOTECHNICAL ENGINEER AND OWNER APPROVAL, NATIVE SOIL MAY BE USED FOR BEDDING PROVIDED IT MEETS THE EMBEDMENT AND BACKFILL MATERIALS IN TABLE 1 EXCLUDING CLASS IV-A.
- HAUNCHING SHALL BE WORKED AROUND THE PIPE BY HAND TO ELIMINATE VOIDS AND SHALL BE CLASS I-A, OR CLASS I-B OR CLASS II COMPACTED TO 90% STANDARD PROCTOR. PEA GRAVEL SHALL NOT BE USED AS A HAUNCHING MATERIAL. CLASS III MATERIAL SHALL BE ALLOWED FOR RIGID PIPE COMPACTED AT 90% STANDARD PROCTOR.
- INITIAL BACKFILL SHALL BE CLASS I-A WORKED BY HAND, OR CLASS I-B OR CLASS II COMPACTED TO 90% STANDARD PROCTOR. OR CLASS III COMPACTED TO 90% STANDARD PROCTOR. CLASS I & II MATERIAL SHALL BE USED FOR FLEXIBLE PIPE WHEN FILL HEIGHTS EXCEED 8".
- FINAL BACKFILL SHALL BE CLASS I-A WORKED BY HAND, OR CLASS I-B OR CLASS II COMPACTED TO 90% STANDARD PROCTOR. OR CLASS III COMPACTED TO 90% STANDARD PROCTOR.
- FINAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS IV-A COMPACTED TO 95% STANDARD PROCTOR.
- ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321. (SEE TABLE 1)
- ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 4" LOOSE LIFTS IN ACCORDANCE WITH ASTM D 698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED NEAR OPTIMUM MOISTURE CONTENT.
- FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCKS LARGER THAN 3".
- ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES.
- DESIGN ENGINEER SHALL DESIGNATE ON THE PLANS WHERE WATERTIGHT JOINTS ARE TO BE REQUIRED.
- REPLACE WET OR UNSUITABLE SOIL AS NECESSARY TO PROVIDE A SUITABLE BASE, AS DIRECTED BY GEOTECHNICAL ENGINEER OR OWNER.
- WHERE GROUND WATER IS PRESENT CLASS I-A MATERIAL SHALL BE WRAPPED WITH A NON-WOVEN GEO-TEXTILE, EXCLUDING BEDDING MATERIAL BETWEEN 4" AND 6" THICK.
- THE CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORT FOR SOIL TYPE AND CLASSIFICATIONS FOR THIS PROJECT.
- CONTRACTOR SHALL REFER TO THE LATEST VERSION OF ASTM STANDARDS PRIOR TO CONSTRUCTION.



**TABLE 1: CLASSES OF EMBEDMENT AND BACKFILL MATERIALS**

ASTM D 2321 MATERIAL CLASS	ASTM D 2487 SOIL GROUP	MATERIAL TYPE	1 1/2 IN. NO. 4	NO. 200	ATTERBERG LIMITS	LL	PI
IA	NONE	MANUFACTURED OPEN GRADED AGGREGATES	100%	<10%	<5%		NON PLASTIC
IB	NONE	MANUFACTURED DENSE GRADED AGGREGATES	100%	<5%	<5%		NON PLASTIC
I	GM	COARSE-GRAINED SOILS, CLEAN	100%	50% OF "COARSE FRACTION"	5%	15	NON PLASTIC
	GP						
	GM						
	GP						
II	GM	COARSE-GRAINED SOILS W/ FINES	100%	50% OF "COARSE FRACTION"	15% TO 50%	15	44 OR <44% LINE
	GP						
	GM						
	GP						
IV-A	ME	FINE-GRAINED SOILS	100%	100%	>50%	>5	44 OR <44% LINE

**STORM SEWER TRENCH AND BEDDING DETAILS**  
NOT TO SCALE



JACKSON COUNTY DETENTION CENTER (APPROX. LOCATION)



*Appendix D*  
*Photographs of Site*



East Side of Site



Site from McCammon Ridge Road



Site to the Right of McCammon Ridge Road



From Site Looking towards Jackson Co. Detention Center



Southwest Looking East



Site from McCammon Ridge Road



From Detention Center Looking East



Southwest Looking Northeast



Site from McCammon Road



South Looking North



Northwest Corner of Site (Jackson Co. Detention Center to West of Site)



From East End of Site Looking West

***Appendix E***  
***Geo-technical Report***

April 3, 2014

Greg Hayes, EMA/ CSEPP Director  
CSEPP Jackson County Emergency Management  
212 McCammon Ridge Road  
McKee, KY 40447

RE: Report of Geotechnical Exploration  
Jackson County Emergency Operations Center  
McKee, Kentucky  
AEI Project No. 214-040

Dear Mr. Hayes:

American Engineers, Inc. (AEI) is pleased to submit this letter report that summarizes the results of our geotechnical exploration performed at the above referenced site.

#### 1. SITE AND PROJECT DESCRIPTION

Seven soil test borings were performed at the above referenced site. The borings were drilled within the approximate limits of the proposed building footprint, proposed pavement areas, communication tower and future storage facility. It is our understanding that the finished floor elevation of the proposed building will lie at El 1380. Currently, the building is scheduled to be on the order of about 5,000 square feet. Based on the current grading plan it is anticipated that minimal amounts of cut and fill will be required to achieve the design subgrade elevation. Topography in the vicinity of the site is best described as relatively level to gently rolling. At the time of the exploration clearing and grubbing had been performed over the majority of the site.

#### 2. SITE GEOLOGY

Available geologic mapping (*Geologic Map of the McKee Quadrangle, Jackson and Owsley Counties Kentucky, USGS 1973*) shows the site to be underlain by Pennsylvanian-aged deposits of the middle to lower part of the Breathitt Formation, or more recently named Grundy Formation. The Breathitt Formation is comprised of shale, siltstone, sandstone, coal and underclay. The shale is described as commonly clayey to silty, slight to very carbonaceous and medium to dark gray in color. The siltstone of the formation is typically grayish brown to medium gray and clayey to sandy. The sandstone is described as light brown to gray in color and mostly fine grained but ranges from very fine to medium grained.

No geologic hazards were noted in the immediate vicinity of the site from review of geologic mapping or during the investigation. Geologic quadrangle mapping indicated that coal has been mined intermittently in the quadrangle in

the past. Online mine mapping was reviewed and several past coal mine permits were indicated in the area however none were noted proximate to the site.

### 3. RESULTS OF EXPLORATION

Auger refusal was encountered in each of the borings at the site at depths ranging from about 5 ½ to 15 feet beneath the existing ground surface. The clay soils were typically described as sandy lean clay, brown to red or gray in color, moist to wet of the anticipated optimum moisture content for compaction and stiff to very stiff in soil strength consistency with medium stiff zones. In general, the medium stiff zones were encountered near the existing ground surface. The SPT-N values in the residual soils ranged from three to 38 blows per foot (bpf), excluding 50+ blow counts, with most values between 10 and 25 blows per foot. Corresponding Qp values ranged from about 1.0 to greater than 4.5 tons per square foot (tsf). Together, the SPT-N and Qp values within the residual clays are indicative of stiff to very stiff soil strength consistencies. A copy of the boring logs is attached.

Groundwater was not encountered at the site during the investigation in any of the borings. In cohesive soils such as those encountered at the site, a long time is required for the hydrostatic groundwater level to come to equilibrium in the borehole. The short-term groundwater levels reported by the drill crew are not generally indicative of the long-term groundwater level. To accurately determine the long-term groundwater level, as well as the seasonal and precipitation induced fluctuations of the groundwater level, it is necessary to install piezometers in the borings, and monitor them for an extended length of time. Frequently, groundwater conditions affecting construction in this region are caused by trapped or perched groundwater, which occurs within the soil materials or at the soil/rock interface in irregular, discontinuous locations. If these water bodies are encountered during excavation, they can produce seepage durations and rates that will vary depending on the recent rainfall activity and the hydraulic conductivity of the material.

Also during the geotechnical investigation AEI performed soil resistivity testing to provide parameter for design of the grounding system for the communications tower supporting the emergency operations center. The soil resistivity testing was performed approximate to the proposed tower location and Boring B-7 using a Miller 400D Digital Resistance Meter. Resistivity testing included five lines surrounding the proposed tower following test method IEEE Standard 81 (Wenner 4-pt Method). The following table includes the apparent soil resistivity based on depth.

Depth (feet)	Apparent Resistivity ( $\Omega$ -cm)
5	114,000
10	130,000
20	144,000

Typical values for clay soils range from 200 to 15,000  $\Omega$ -cm according to USDA data. Soil resistivity typically decreases with increased water content and increases with decreases in temperature.

### 4. CONCLUSIONS AND RECOMMENDATIONS

- Based on the borings drilled, the on-site soils are suitable for support of light to moderately loaded spread or continuous footings. A net allowable soil bearing pressure of 2,000 psf is recommended for design of shallow spread footings supported on the native soils or properly placed and compacted engineered fill. Based on the SPT N-values obtained during the investigation it is anticipated that the near-surface soils at the site will likely require undercutting to achieve the recommended design bearing capacity. Footings

which are overexcavated due to the presence of soft soils should be backfilled to design bearing elevation with compacted lean clay meeting the recommendations outlined below, or may be backfilled with KYDOT No. 57 stone, placed and compacted with a vibratory plate compactor in 12-inch maximum lifts.

- According to the Kentucky Building Code, 2012 Edition, and the subsurface conditions encountered in the borings, Site Class C should be utilized for any seismic structural design.
- Any material, whether borrowed on-site or imported to the site, placed as engineered fill on the project site beneath the proposed building or other proposed on-grade structures such as pavement, parking lots, sidewalks, etc., should be an approved material, free of environmental contamination, vegetation, topsoil, organic material, wet soil, construction debris, and rock fragments greater than six inches in diameter. Fat clay or CH materials should not be *imported* to the site for utilization as fill material.
- Proof-rolling will be required following topsoil stripping and/or pavement removal to detect soft subgrade soils. Any areas which rut or deflect excessively should be undercut to firm soil or stabilized in place using crushed stone, shot rock, rubberized asphaltic pavement, or lime stabilization.
- Suitable fill material placed under building areas should be placed in maximum eight inch (loose thickness) horizontal lifts, with each lift being compacted to a minimum of 98 percent of the standard Proctor maximum dry density, at a moisture content within two percent of optimum as determined by standard Proctor testing. **It should be noted that silty or sandy soils such as those at the site may not perform well when moisture content exceeds optimum moisture content. Wetting or significant drying of the soils may be necessary to achieve a moisture content suitable for compaction. Frequent proofrolling and continual observations of construction traffic should be performed in conjunction with frequent moisture/ density testing.** Representative and adequate field density testing should be performed by AEI to verify that compaction requirements have been met.
- The compaction requirement may be reduced to 95 percent in proposed paved areas and to 90 percent in proposed landscape areas.
- Topsoil should be removed prior to fill placement and be stockpiled and utilized for landscaping purposes.
- The *minimum* recommended width of continuous wall footings is 18 inches. The minimum recommended plan dimension for isolated spread footings is 24 inches. Actual foundation sizes should be determined by the foundation engineer based on design structure loads and the net allowable bearing values presented above.
- We recommend that the bottom of exterior continuous strip spread footings extend a minimum of 24 inches below finished exterior grade to provide protection against frost penetration related problems in normal winters. Interior foundations not exposed to severe drying, freezing temperatures, and/or severe moisture fluctuations can be constructed at relatively shallow depths as appropriate for construction. Foundation construction should follow these recommendations:
  - Foundation concrete should be placed in the excavations the same day the trenches are cut.

- Exposed bearing surfaces should be protected from severe drying, freezing, and water accumulation. A concrete “mud-mat” may be constructed over the bearing materials if the excavation must remain exposed to the elements for an extended period of time.
- Any loose soil, debris, or excess water should be removed from the bearing surface by hand cleaning prior to concrete placement.
- The foundation-bearing surface should be level or appropriately benched.
- Foundation materials that have deteriorated as a result of the elements should be removed prior to concrete placement.
- Foundation trenches should be “clean-cut” where possible and constructed without the use of forms.
- Reinforcing steel should be placed in all footings to provide strength to distribute loads on the foundation that may be overlying weak or more compressible foundation materials to stronger adjacent materials.

The conclusions and recommendations presented herein are based on information gathered from the borings advanced during this exploration using that degree of care and skill ordinarily exercised under similar circumstances by competent members of the engineering profession. No warranties can be made regarding the continuity of conditions between the borings.

We appreciate the opportunity to be of service to you on this project and hope to provide further support on this and other projects in the future. Please contact us if you have any questions regarding this report.

Respectfully,  
**AMERICAN ENGINEERS, INC.**

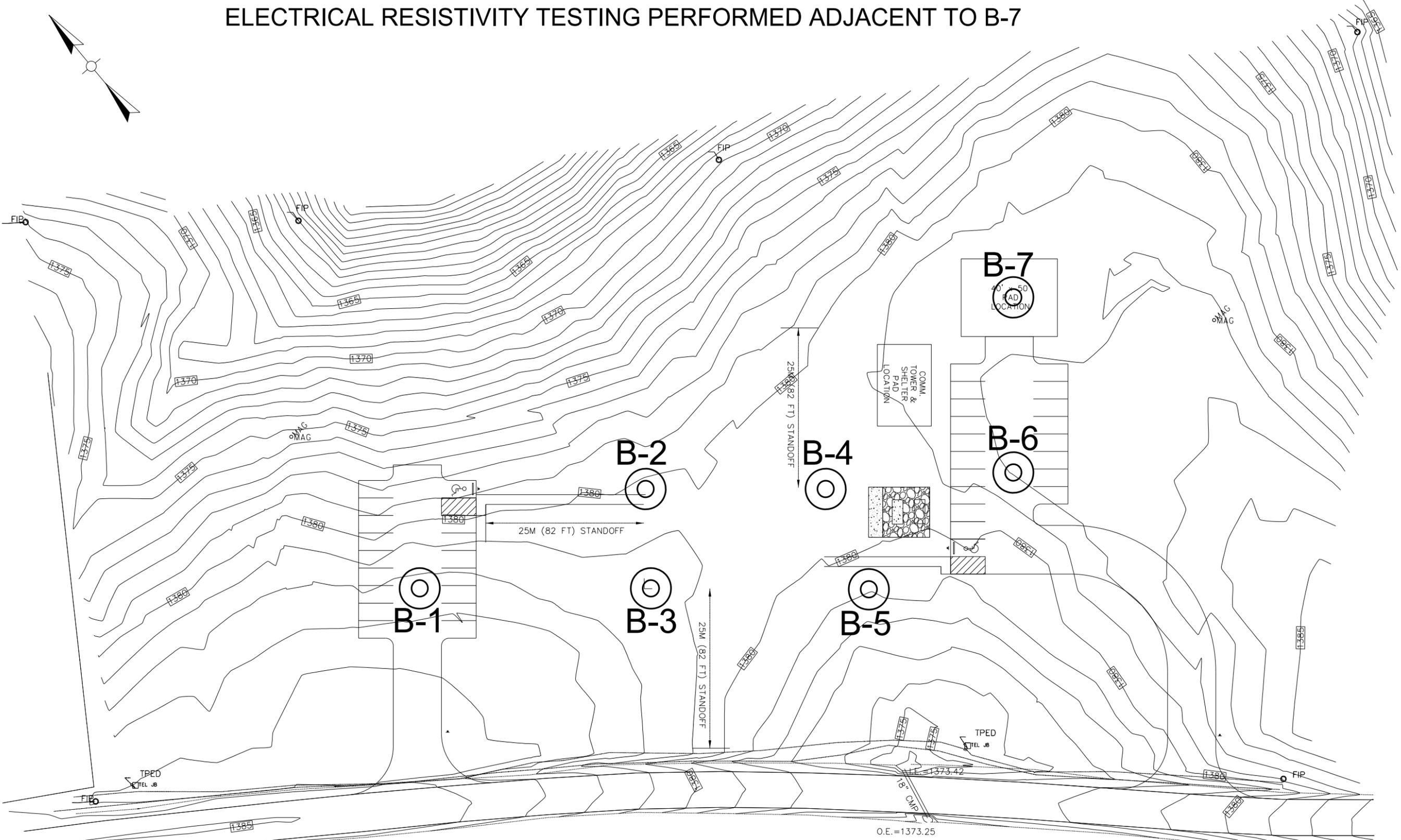


Brad High, PG  
Staff Geologist



Dusty Barrett, PE  
Geotechnical Project Manager

NOTE: ALL BORING LOCATIONS APPROXIMATE  
ELECTRICAL RESISTIVITY TESTING PERFORMED ADJACENT TO B-7



**LEGEND**  
 SOIL TEST BORING WITH STANDARD PENETRATION TESTS



NO.	DATE	DESCRIPTION

**BORING LAYOUT**

**CLIENT:** MURPHY GRAVES TRIMBLE, PLLC

**PROJECT:** JACKSON COUNTY EOC

PLANS PREPARED AND SUBMITTED BY:  
**AMERICAN ENGINEERS, INC.**  
 55 Ashwood Drive  
 Louisville, KY 40222  
 (502) 245-5813  
 www.aei.cc

**SCALE:** 1"=50'

**DATE:** 4-04-14

**DRAWN BY:** J. CHILDRESS

**CHECKED BY:** D. BARRETT

**FILE:** T:\14 Projects\214-040\ Jackson EOC Boring Layout.dgn

**SHEET:** B1



**AMERICAN ENGINEERS, INC.**

PROFESSIONAL ENGINEERING

65 Aberdeen Drive  
Glasgow, KY 42141  
(270) 651-7220

**B-1**

PAGE 1 OF 1

**CLIENT** Murphy Graves Trimble, PLLC  
**PROJECT NUMBER** 214-040  
**DATE STARTED** 3/25/14 **COMPLETED** 3/25/14  
**DRILLER** Adam Thompson  
**DRILLING METHOD** Hollow Stem Auger  
**LOGGED BY** Mitchell Read **CHECKED BY** Brad High  
**NOTES** \_\_\_\_\_

**PROJECT NAME** Jackson County EOC  
**PROJECT LOCATION** Jackson County, Kentucky  
**GROUND ELEVATION** \_\_\_\_\_  
**GROUND WATER LEVELS:**  
**AT TIME OF DRILLING** ---  
**AT END OF DRILLING** ---  
**AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		TOPSOIL (5 inches) (CL) lean CLAY with sand, orange to red, moist to wet, stiff									
5			SS 1	100	2-4-6 (10)	2.25	24				
			SS 2	100	4-6-9 (15)	2.0	20				
		(CL) silty lean CLAY, gray, moist, very stiff	SS 3	100	5-9-12 (21)	4.5	18				

Refusal at 9.0 feet.  
Bottom of borehole at 9.0 feet.

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 4/4/14 15:55 - T:\14 PROJECTS\214-040 JACKSON EOC\JACKSON EOC.GPJ



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**CLIENT** Murphy Graves Trimble, PLLC  
**PROJECT NUMBER** 214-040  
**DATE STARTED** 3/25/14 **COMPLETED** 3/25/14  
**DRILLER** Adam Thompson  
**DRILLING METHOD** Hollow Stem Auger  
**LOGGED BY** Mitchell Read **CHECKED BY** Brad High  
**NOTES** \_\_\_\_\_

**PROJECT NAME** Jackson County EOC  
**PROJECT LOCATION** Jackson County, Kentucky  
**GROUND ELEVATION** \_\_\_\_\_  
**GROUND WATER LEVELS:**  
**AT TIME OF DRILLING** ---  
**AT END OF DRILLING** ---  
**AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		(CL) lean CLAY, some fine sand, red with yellow and gray mottle, moist to wet, medium stiff to very stiff									
5			SS 1	87	2-3-5 (8)	2.25					
			SS 2	100	4-10-11 (21)	4.25	22				
			SS 3	100	7-11-13 (24)	4.5	20				
10			SS 4	100	7-10-16 (26)	4.25	18				

Refusal at 12.4 feet.  
Bottom of borehole at 12.4 feet.

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CLIENT Murphy Graves Trimble, PLLC

PROJECT NAME Jackson County EOC

PROJECT NUMBER 214-040

PROJECT LOCATION Jackson County, Kentucky

DATE STARTED 3/25/14 COMPLETED 3/25/14

GROUND ELEVATION \_\_\_\_\_

DRILLER Adam Thompson

GROUND WATER LEVELS:

DRILLING METHOD Hollow Stem Auger

AT TIME OF DRILLING ---

LOGGED BY Mitchell Read CHECKED BY Brad High

AT END OF DRILLING ---

NOTES \_\_\_\_\_

AFTER DRILLING ---

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 4/4/14 15:55 - T:\14 PROJECTS\214-040 JACKSON EOC\JACKSON EOC.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0											
		(CL) sandy lean CLAY, brown to red, moist to wet, medium stiff to very stiff	X SS 1	90	2-2-3 (5)	1.0	18				
5			X SS 2	100	3-5-15 (20)	4.5	29				
			X SS 3	100	8-10-15 (25)	4.5+	16				
10			X SS 4	100	8-11-16 (27)	4.5+	19				
15			X SS 5	100	7-11-50 (61)	4.5+	20				
Refusal at 15.3 feet. Bottom of borehole at 15.3 feet.											



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CLIENT Murphy Graves Trimble, PLLC

PROJECT NAME Jackson County EOC

PROJECT NUMBER 214-040

PROJECT LOCATION Jackson County, Kentucky

DATE STARTED 3/25/14 COMPLETED 3/25/14

GROUND ELEVATION \_\_\_\_\_

DRILLER Adam Thompson

GROUND WATER LEVELS:

DRILLING METHOD Hollow Stem Auger

AT TIME OF DRILLING ---

LOGGED BY Mitchell Read CHECKED BY Brad High

AT END OF DRILLING ---

NOTES \_\_\_\_\_

AFTER DRILLING ---

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 4/4/14 15:55 - T:\14 PROJECTS\214-040 JACKSON EOC.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		(CL) silty lean CLAY, trace to some fine sand, trace to some organic material (roots, wood), brown, wet, medium stiff	X SS 1	100	2-2-3 (5)	2.0	53				
		(CL) lean CLAY with sand, red to brown, moist, very stiff									
5			X SS 2	87	3-7-10 (17)	3.5	18				
			X SS 3	100	7-9-14 (23)	4.5+	21				
10			X SS 4	100	5-12-15 (27)	4.25	20				
15			X SS 5	67	26-50		19				

Refusal at 15.2 feet.  
Bottom of borehole at 15.2 feet.



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CLIENT Murphy Graves Trimble, PLLC

PROJECT NAME Jackson County EOC

PROJECT NUMBER 214-040

PROJECT LOCATION Jackson County, Kentucky

DATE STARTED 3/25/14 COMPLETED 3/25/14

GROUND ELEVATION \_\_\_\_\_

DRILLER Adam Thompson

GROUND WATER LEVELS:

DRILLING METHOD Hollow Stem Auger

AT TIME OF DRILLING ---

LOGGED BY Mitchell Read CHECKED BY Brad High

AT END OF DRILLING ---

NOTES \_\_\_\_\_

AFTER DRILLING ---

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 4/4/14 15:55 - T:\14 PROJECTS\214-040 JACKSON EOC\JACKSON EOC.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		(CL) sandy lean CLAY, brown to red with gray mottle, moist, stiff to very stiff									
5			SS 1	80	2-5-6 (11)	2.0	18				
			SS 2	67	5-6-8 (14)	2.75	20				
			SS 3	100	6-10-13 (23)	3.5	23				
10		(CL) silty lean CLAY, gray to red, damp to moist, hard	SS 4	93	10-16-19 (35)	4.5+	18				

Refusal at 12.6 feet.  
Bottom of borehole at 12.6 feet.

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CLIENT Murphy Graves Trimble, PLLCPROJECT NAME Jackson County EOCPROJECT NUMBER 214-040PROJECT LOCATION Jackson County, KentuckyDATE STARTED 3/25/14 COMPLETED 3/25/14

GROUND ELEVATION \_\_\_\_\_

DRILLER Adam Thompson

GROUND WATER LEVELS:

DRILLING METHOD Hollow Stem AugerAT TIME OF DRILLING ---LOGGED BY Mitchell Read CHECKED BY Brad HighAT END OF DRILLING ---

NOTES \_\_\_\_\_

AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0											
		(CL) sandy lean CLAY, brown to gray and red, wet to moist, soft to very stiff	SS 1	100	0-1-2 (3)	1.0	18				
5			SS 2	93	3-9-12 (21)	4.0	18				

Refusal at 5.5 feet.  
Bottom of borehole at 5.5 feet.



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CLIENT Murphy Graves Trimble, PLLC

PROJECT NAME Jackson County EOC

PROJECT NUMBER 214-040

PROJECT LOCATION Jackson County, Kentucky

DATE STARTED 3/25/14 COMPLETED 3/25/14

GROUND ELEVATION \_\_\_\_\_

DRILLER Adam Thompson

GROUND WATER LEVELS:

DRILLING METHOD Hollow Stem Auger

AT TIME OF DRILLING ---

LOGGED BY Mitchell Read CHECKED BY Brad High

AT END OF DRILLING ---

NOTES \_\_\_\_\_

AFTER DRILLING ---

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 4/4/14 15:55 - T:\14 PROJECTS\214-040 JACKSON EOC\JACKSON EOC.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0											
		(CL) sandy lean CLAY, brown to red with gray mottle, wet to moist, medium stiff to stiff	SS 1	100	1-2-3 (5)	1.0	20				
5			SS 2	100	2-5-10 (15)	3.5	19				
		(CL) silty lean CLAY, trace to some fine sand, gray to red, stiff to hard	SS 3	100	5-6-9 (15)	3.25	24				
10				SS 4	100	4-8-22 (30)	4.5+	21			
15			weathered SHALE, dark gray to black	SS 5	100	9-13-25 (38)	4.5+	13			

Refusal at 19.4 feet.  
Bottom of borehole at 19.4 feet.



CLIENT Murphy Graves Trimble, PLLC

PROJECT NAME Jackson County EOC

PROJECT NUMBER 214-040

PROJECT LOCATION Jackson County, Kentucky

**LITHOLOGIC SYMBOLS**  
*(Unified Soil Classification System)*



CL: USCS Low Plasticity Clay



SHALE: Shale



TOPSOIL: Topsoil

**SAMPLER SYMBOLS**



Split Spoon

**WELL CONSTRUCTION SYMBOLS**

**ABBREVIATIONS**

- LL - LIQUID LIMIT (%)
- PI - PLASTIC INDEX (%)
- W - MOISTURE CONTENT (%)
- DD - DRY DENSITY (PCF)
- NP - NON PLASTIC
- 200 - PERCENT PASSING NO. 200 SIEVE
- PP - POCKET PENETROMETER (TSF)

- TV - TORVANE
- PID - PHOTOIONIZATION DETECTOR
- UC - UNCONFINED COMPRESSION
- ppm - PARTS PER MILLION
- ▽ Water Level at Time Drilling, or as Shown
- ▼ Water Level at End of Drilling, or as Shown
- ▽ Water Level After 24 Hours, or as Shown