

Environmental Assessment

ATTACHMENTS

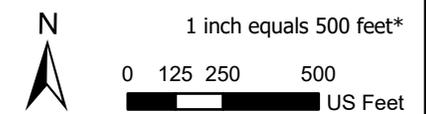
Environmental Assessment

Attachment A. Project Area Boundary



Big Rivers Electric Corporation
 Transmission Operations Center
 Environmental Assessment
 Site Vicinity

 Transmission Operations Center Site Area



*When printed on 8.5" x 11" page
Disclaimer: Maps are not intended to provide survey grade data.



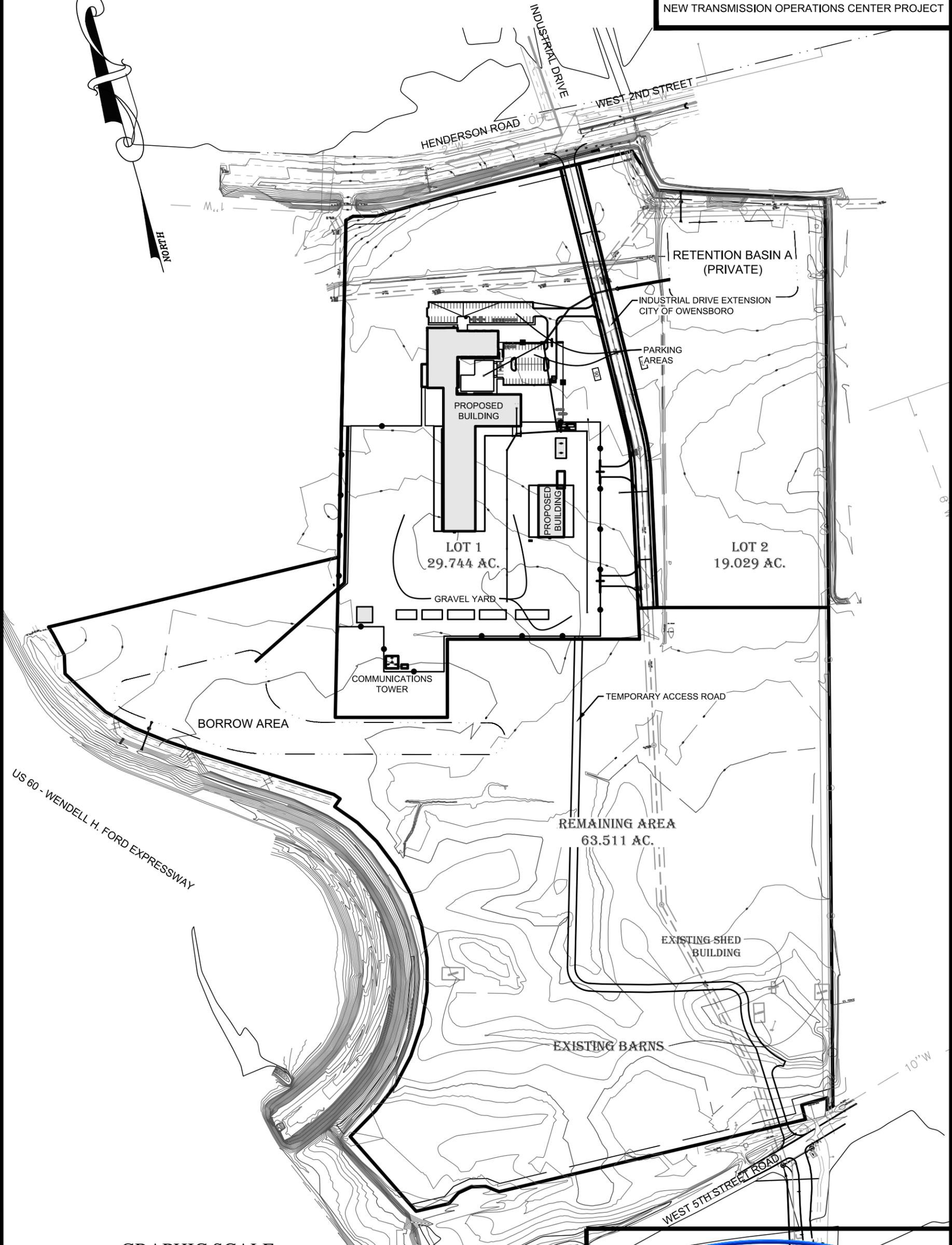
Title: Site Vicinity	Prepared: S. McEwen-Barbas
Site: Transmission Operations Center Site	Reviewed: M. Krajewski
Figure: 1 of 1	Date: 11/11/2022
	Revision: 0

Environmental Assessment

Attachment B. General Arrangement

REVISED SITE DESIGN EXHIBIT

BIG RIVERS ELECTRIC CORP.
NEW TRANSMISSION OPERATIONS CENTER PROJECT



GRAPHIC SCALE



(IN FEET)
1 inch = 300 feet



1535 FREDERICA STREET ~ P.O. BOX 21382
OWENSBORO, KENTUCKY 42304

(270) 685-2811

Environmental Assessment

Attachment C. Site Intelligence Report

SIR

SITE INTELLIGENCE REPORT

November 18, 2021

Audubon Loans I, LLC



Prepared For:
Big Rivers Electric Company



AEI



Transportation



Geotechnical



Bridge & Structural



Site Design



Geospatial



Environmental

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EXECUTIVE SUMMARY

AEI was contracted to provide a Site Intelligence Report (SIR) for the Audubon Loans I LLC tract of land located east of the US 60 Bypass, South of Henderson Road and north of 5th St. Road. It is currently undeveloped. The Site is approximately 114 acres. The SIR was prepared based on the scope expectation and guidance presented by Mr. Bob Berry, President and CEO. Scope items included standard development review items including geotechnical, environmental, planning & zoning, wetlands, flood plain, permitting, municipal requirements and site design review items including utilities, earthwork, landscaping, and other related items. A geotechnical overview was also performed.

Site Advantages

- The site is located on the west side of Owensboro only 0.5 miles from the US 60 “Bypass”, which is a fully controlled access highway with connections to I 165, and the Audubon Parkway, which has been congressionally designated as a “future interstate”.
- The Owensboro Riverport is located only 2 miles away and the roadway leading to it (KY 331) is scheduled for major reconstruction in late 2022, or 2023.
- There are no documented wetlands on the parcel.
- There are no designated floodplains on the parcel.
- No previously recorded archaeological sites have been recorded in the proposed project area.
- All major utilities are either on-site, or nearby.
- The site is adjacent to KY 331 which is part of the National Highway System (NHS), which means access to interstates is available via 100% NHS designated routes.

Site Disadvantages

- Soils exhibit a low tolerance to moisture conditions. Soil may require manipulation to produce favorable moisture condition for proper compaction.
- Buildings with structure loads exceeding 100 kips and with heavy sustained floor slab loadings will likely require deep foundations or ground improvements to support structural and slab loads. Foundation types may

- include auger-cast piles, driven steel or concrete piles, ground improvement elements or rammed aggregate piers.
- Near-surface soil stabilization will most likely be required for building areas, parking areas and roadways due to the soft soils.
 - The site is classified as a Class “E” with regard to seismic requirements. A Class “E” may result in an increase in cost in the concrete and steel framing packages for many structure types. Depending on the seismic design category, an increase of 15% to the cost of the concrete and framing package is possible.
 - Development of the parcel will require interior roadways to accommodate planned use of the property because the parcel is currently agricultural.
 - KYTC will require a traffic impact study to ensure that the proposed access point and traffic facilities are safe and properly sized to accommodate an increase in traffic. This may include requirements for improvements to KY 331 to accommodate additional traffic demand.

INTRODUCTION

American Engineers, Inc. (AEI) was contracted to perform a Site Intelligence Report (SIR) for the +/- 114.2 acre tract of land at the following location:

Site Location: Owensboro, Kentucky

W 5th Street Road, Owensboro, KY

Latitude (North): 37°46'8.62"N

Longitude: (West): 87° 9'32.31"W

The entire site is located in Daviess County outside of Owensboro city limits. It is bordered by 4th Street/Henderson Road on the north, West 5th Street Road on the south, the Audubon Parkway on the west, as well as farmland and residential on the east. See **Exhibit 1** for the property location map.

TRANSPORTATION NETWORK

The north end of the property is located half a mile from the end of the US 60 "bypass" of Owensboro. The half mile distance is via Henderson Road, which is a state route designated as KY 331, a 4-lane divided highway classified as an "urban minor arterial". Connection to the US 60 "Bypass" is at a signalized intersection. The US 60 Bypass is a fully controlled access highway that surrounds the city of Owensboro on the south side with access only allowed at interchanges. It is not a parkway or interstate but has very similar characteristics and functions to those high-end types of roadways. From the US 60 bypass there are interchange connections to newly designated Interstate 165 to Bowling Green and I 65, and the Audubon Parkway, another fully controlled highway, similar to an interstate that provides connection to future I 69 in Henderson County, 24 miles to the west. Additionally, the Audubon Parkway is a congressionally accepted "future interstate" and may be upgraded to interstate standards in the future. Interstate 64 in southern Indiana is only approximately 35 miles to the north of Owensboro and offers travelers a short distance to a major east-west corridor.

Overall, the location of this property is well suited for quick and easy access to major fully controlled access highways that can get products and people to interstates quickly and efficiently that span many states. Interstate connection to I 165, in Owensboro connects to I 65 in Bowling green for major North/South Access, and I 64 is only 35 miles north providing major East/West access. Additionally, the Owensboro Riverport is only 2 miles north of this property's northern access point on KY 331. KY 331 is in the process of being upgraded and should be under construction from Henderson Road to Rinaldo Road late in 2022.

Entrance Point

The Kentucky Transportation Cabinet, District 2 office in Madisonville will require an entrance permit if the land is developed because the property borders a state route (KY 331 on the north). This development will trigger a required "Traffic Impact Study" to review the anticipated traffic load generated from the property and to ensure the entrance location has proper sight distance and is built to safely accommodate the additional traffic. Most likely the main entrance will need to be at the signal on KY 331 at Industrial Drive.

KYTC Entrance Permit Contact:

Taylor Franklin, PE
Permits Section Supervisor
Kentucky Transportation Cabinet, District 2 office
1840 N. Main Street
Madisonville, KY 42431
270-824-7080

CURRENT PROPERTY ZONING

This site is currently zoned as A-U (Urban Agriculture). Adjacent zoning is A-U, I-1 (Light Industrial), B-4 (General Business), and R1-C (Single Family Residential). Nearby zoning also contains A-U, A-1, B-4, and R1-C. See **Exhibit 5** for zoning map.

The A-U Urban Agriculture Zone is established to provide for agricultural and related open space uses for portions of the Owensboro Urban Service Area projected for urban development. The A-U Zone is also intended to designate potential development areas surrounding particular rural communities of Daviess County and the area surrounding Whitesville. A zone change from A-U to a more urban classification should be encouraged for projects that promote the objectives of the Comprehensive Plan Land Use Element.

Discussions with OMPC suggested that a zoning change to P-1 or I-1 would most likely be necessary for the property. P-1 is the "Professional/Service Zone" and is established to provide for professional offices, limited personal service businesses, and for community-oriented public and private facilities in urban areas. I-1 is "Light Industrial Zone" and is intended for light manufacturing warehouses, shops of special trade, heavy equipment dealers, and related uses. (This information is taken from Article 8 of the Owensboro Metropolitan Zone Ordinance.)

Zoning is governed by the Owensboro Metropolitan Planning Commission of Daviess County and can be found at www.iompc.org.

OMPC Contact:

Brian Howard howardbr@owensboro.org
Executive Director
Owensboro Metropolitan Planning Commission of Daviess County
200 East 3rd Street
Owensboro, KY 42302
270-687-8650

PARKING REQUIREMENTS

The OMPC sets the minimum parking requirements in the Owensboro Metropolitan Zoning Ordinance Article 13: Off-Street Parking, Loading & Unloading areas. Parking requirements for various zones and uses can be found in table 13.8 of Article 13.

OMPC Contact:

Brian Howard howardbr@owensboro.org
Executive Director
Owensboro Metropolitan Planning Commission of Daviess County
200 East 3rd Street
Owensboro, KY 42302
270-687-8650

PUBLIC TRANSIT

The Owensboro Transit System's Red Route borders the property on the north side, travelling east on 4th Street/Henderson Road. A bus stop is also located near the corner of Industrial Drive and 4th/2nd Street. The current Owensboro Transit map and information can be found at www.transit.owensboro.org. See **Exhibit 4** for the transit map, hours of operation and more details.

Transit Contact:

Pamela Canary
Owensboro Transit System
430 Allen Street
Owensboro, KY 42303
270-68-8570

NEW ADDRESS REQUESTS

New address requests are governed by the Owensboro Metropolitan Planning Commission of Daviess County and the request form can be found at www.iompc.org. There is no set time to make an address request, but they recommend that it be done during the building permit stage.

OMPC Contact:

Brian Howard howardbr@owensboro.org

Executive Director

Owensboro Metropolitan Planning Commission of Daviess County

200 East 3rd Street

Owensboro, KY 42302

270-687-8650

SUB-DIVIDING REGULATIONS

If Sub-dividing is desired, a Minor Subdivision Plat would be needed and will require an approximate one-week approval period.

Subdivision Regulations and Applications for Plat Review for any needed revisions can be found at www.iompc.org.

Plat Contact:

Brian Howard howardbr@owensboro.org

Executive Director

Owensboro Metropolitan Planning Commission of Daviess County

200 East 3rd Street

Owensboro, KY 42302

270-687-8650

WETLANDS

According to the U.S Fish and Wildlife Service's National Wetlands Inventory, there are no wetlands on the project site. See **Exhibit 3** for the National Wetlands Survey Map.

Contact Information:

Trey Barrett

US Army Corps of Engineers

Louisville District

Newburgh IN Regulatory Office

812-583-5631

Clifford Scott

Kentucky Department of Fish and Wildlife Resources

#1 Sportsman's Lane

Frankfort, KY 40601

502-564-5251

ENVIRONMENTAL REVIEW

A recent Phase I ESA was completed by AEI dated November 18, 2021.

Based on the findings of the ERIS report, communication with Kentucky EEC DEP DWM, and other research conducted during this Phase I ESA, the subject property does not exhibit visual indicators of potential Recognized Environmental Conditions. See Phase I ESA document for further details.

FLOODPLAIN

No floodplains are designated based on review of available information from OMPC and FEMA flood zone mapping parcel 21059C0118D. See **Exhibit 2** for floodplain mapping.

HISTORIC PRESERVATION AND ENDANGERED AND THREATENED SPECIES

A Cultural Resources Review and Field Visit was conducted by Cultural Resource Analysts, Inc. (CRA) for the property. The summary of the field visit and review are as follows:

- No previously recorded archaeological sites have been recorded in the proposed project area.
- As a result of the field survey, there are at least three historic residential archaeological sites in the project area. They do not appear to likely be eligible for inclusion in the NRHP based on the cursory visual inspection.
- There are no previously unrecorded architectural properties within either the project area or a 1,000 ft buffer that appear to be eligible for listing in the NRHP and/or are likely to be affected by development of the proposed project.
- One NRHP listed historic structure, the Moorman House (DAOB 42) is within 0.6 miles of the project, but it appears as though the proposed project has no potential to affect the historic property.

See the full CRA review for details.

A review of the available database regarding Federal Threatened and Endangered Species in Daviess County, Kentucky identified three species with the potential to occupy properties in Daviess County:

- Indiana Bat – *Myotis Sodalist*
- Gray Bat – *Myotis Grisescens*
- Northern Long-Eared Bat – *Myotis Septentrionalis*

During the summer, most reproductive female Indiana Bats occupy roost sites under exfoliating bark of dead trees that retain large, thick slabs of peeling bark. Northern long-eared bats, during the spring and summer spend the day roosting in trees.

Mitigation for bats is not required unless federal funds are used on a project. If a Federal Grant was used to develop this site, mitigation would be required. To minimize costs, tree cutting should occur between November 15 and March 31.

GEOTECHNICAL

A geotechnical investigation was undertaken on the property consisting of fifteen (15) soil test borings, with one (1) boring advanced to a depth of 100 feet to determine the site class for seismic structural design. The full geotechnical report is located in the Appendix.

The geotechnical investigation denotes a low tolerance to moisture conditions. This may require manipulation of the soil to produce favorable moisture condition for proper compaction. Buildings with structure loads exceeding 100 kips and with heavy sustained floor slab loadings will likely require deep foundations or ground improvements to support structural and slab loads. Foundation types may include auger-cast piles, driven steel or concrete piles, ground improvement elements or rammed aggregate piers.

Near-surface soil stabilization will most likely be required for building areas, parking areas and roadways due to the soft soils.

The site is classified as a Class "E" with regard to seismic requirements. A Class "E" may result in an increase in cost in the concrete and steel framing packages for many structure types. Depending on the seismic design category, an increase of 15% to the cost of the concrete and framing package is possible.

These geotechnical features are not unusual to Owensboro soil. Proper design and geotechnical investigation can easily offset these conditions, however there may be additional costs associated.

Contact:

Jackson Daugherty, PE, PMP jdaugherty@aei.cc
AEI Geotechnical Engineer
270-651-7220

UTILITIES

Water

Currently there is a 10" water main that dead-ends at the southeast property corner. There are also multiple 6" mains that dead-end where the roadways end in the subdivision to the east. After review of this property, OMU stated that there would be no issues servicing the property.

Water Contact:

Austin McLimore MCLIMORECA@omu.org
Delivery Engineering Manger
Owensboro Municipal Utilities

2070 Tamarack Road
Owensboro, KY 42301
270-926-3200 x 4464

Electric

Currently there is an OMU Electrical substation approximately 1 mile from the property with two distribution lines from that station feeding across the southern boundary of the property. OMU stated that they have the capacity to serve the property with up to 4MW at this time and could serve more with improvements, and that there would be no issues servicing the property with electricity. *(As an example of how much 4MW is, Bluegrass Commons in Owensboro has 300 residential lots and OMU expects a load of approximately 1.5MW from that development)*

Electric Contact:

Austin McLimore MCLIMORECA@omu.org
Delivery Engineering Manger
Owensboro Municipal Utilities
2070 Tamarack Road
Owensboro, KY 42301
270-926-3200 x 4464

Stormwater

There is sufficient relief across the property to allow for adequate drainage provided good engineering practices are followed. It would be expected on this site that runoff created by the introduction of impervious surface (roofs, parking, etc.) would be collected in piped storm systems and ditches and directed to detention areas utilizing an outlet pipe for control.

Both Owensboro and Daviess County must meet the Phase II Stormwater requirements which require post-construction best management practices (BMPs) to be in-place to control debris released into the waters of Kentucky. This equates to the use of Stormwater BMP structures within the stormwater design and will add to the overall development cost. Further information can be obtained from the Daviess County Fiscal Court website at www.daviessky.org/departments/public-works/public-works-policies/stormwater-management/ where it states the following:

“The Phase II permit is designed to improve water quality from our MS4. This permit requires the City of Owensboro and Daviess County to address 6 minimum control measures....”

Contact:

Mark Brasher, PE mbrasher@daviessky.org

Director of Public Works

Daviess County Operations Center

2620 Highway 81

Owensboro, KY 42301

270-685-8456

Natural Gas

Currently there is an Atmos Energy (gas) regulator station on a leased parcel on the southeast corner of the property where gas lines come in and out. In addition, an 8" high pressure line runs on the east side of the property throughout its extent and a 4" distribution pressure line runs west out of the leased area. High pressure lines also run east and south out of the leased area but are not located on the property. Atmos Engineer Chase Downing, PE states in an email to AEI about the Audubon Loans I LLC property that "we shouldn't have an issue serving anything on this property...".

Western Kentucky Gas formerly stored gas under this property and one well was located on the property near the southern edge. Gas storage is monitored by the Commonwealth of KY Department of Mines and Minerals and information about this gas storage is available online. More information about this well site can be found on the Kentucky Geologic Map Service website at:

<https://kgs.uky.edu/kygeode/geomap/?LayoutID=2&ptX=-87.120976&ptY=37.573992&wkid=4326&zoom=true>

From information on the website the hole was drilled in March of 1946, was plugged in March of 1999 and is 1,167 feet deep. Atmos Energy confirms that they do not actively store nor have rights to store gas in this field anymore.

See **Exhibit 8** for a gas well location map from the KY Geologic Map Service, **Exhibit 9** for the current gas lease agreement, and **Exhibit 10** for the gas lease survey exhibit from March of 2020.

Gas Contact:

Chase Downing, PE chase.downing@atmosenergy.com

Atmos Energy Corporation

3275 Highland Pointe Drive

Owensboro, KY 42303

270-685-8128

Sanitary Sewer

Currently there is a 24" gravity sanitary sewer running north through the property that serves RWRA's Southwest Master Pump Station, which is capable of pumping 5 MGD. From conversations with RWRA, this line can service the property. See **Exhibit 6** for details.

Sewer Contact:

Joe Schepers, PE schepersjg@rwra.org
Executive Director
Regional Water Resource Agency
1722 Pleasant Valley Road
Owensboro, KY 42303
270-687-8440

Telephone and Internet

Currently OMU and Spectrum telecommunications exist on W 5th Street Road. AT&T telecommunications exist on the western extent of the neighborhood to the east of the property. From conversations with OMU and AT&T, telecommunication services are available to the property from their entities, and most likely from Spectrum as well.

AT&T Contact:

Glenn Shane gs5572@att.com
3021 Old Hartford Road, Engineering Office
Owensboro, KY 42303
270-215-6581

OMU Contact:

Austin McLimore MCLIMORECA@omu.org
Delivery Engineering Manger
Owensboro Municipal Utilities
2070 tamarack Road
Owensboro, KY 42301
270-926-3200 x 4464

Spectrum Contact:

Justin Sturgeon
Construction Supervisor
1900 N Fares Ave.
Evansville, IN 47711
812-253-2767

ARCHITECTURAL REQUIREMENTS

There are no architectural requirements in Owensboro/Daviess County outside the downtown area. Height restrictions however will be in place due to the proximity to the Owensboro/Daviess County Regional Airport. Information can be obtained from the Kentucky Department of Aviation planning and Zoning Department.

MUNICIPAL APPROVAL

SCHEDULE FOR SITE PLAN SUBMITTAL: It will be necessary to submit a Detailed Development Plan (DDP) to both the county engineer's office, and to OMPC. All development plans shall be approved or disapproved within 90 days of the date they are formally filed. A final development plan approved by the county engineer is required prior to the issuance of a building permit. The development plan must consist of a landscape plan, site plan, drainage plan, drainage details, floor plan and architectural elevations. Four copies must be provided. Work cannot commence until the building permit is issued and all fees have been paid.

Development Plan Contact:

Michael D. Hill hillmd@owensboro.org

Associate Director, Planning

Owensboro Metropolitan Planning Commission of Daviess County

200 East 3rd Street

Owensboro, KY 42302

270-687-8652

PERMITTING: Required permits for this job include, but may not be limited to: Building, Electrical, Plumbing and Mechanical. Cut/Fill, paving and landscaping fall under the Building Permit. The Building Permit will be issued when all reviews have been approved, or the City Building Inspector may issue the permit subject to approvals which have not yet been approved. A Cut/Fill Permit may be filed separately, in advance of the Building Permit if construction is to be started early, though this is not looked upon favorably.

All permits are applied for through the Owensboro Metropolitan Planning Commission in Owensboro except for the Plumbing Permit that must be applied for through the State of KY, Public Health Department who will review the plans and issue the permit. There is no plan review fee by the Health Department, but a fee will be charged for the issuance of a Plumbing Permit (State of KY Health Department – Contact: Geno Washington 502-573-0397).

Building Permit Regulations can be found at www.iompc.org in the ZONING ORDINANCE (ARTICLE 3: DEVELOPMENT REVIEW PROCEDURES). Application for a Building Permit can be found at www.iompc.org, under Document, Forms.

For 5th St. Road, no individual access permit will be required; however, access approval from the County Engineer, Mark Brasher will be required via his signature block on the required site plan. Development of the property will trigger his review despite the fact that an entrance already exists. See the Transportation Network section for further discussion about access permits from the Kentucky Transportation Cabinet for KY 331 (Henderson Road).

County Engineer Contact:

Mark Brasher, P.E. mbrasher@daviessky.org

Daviess County Public Works Director

Daviess County Operations Center

2620 Highway 81

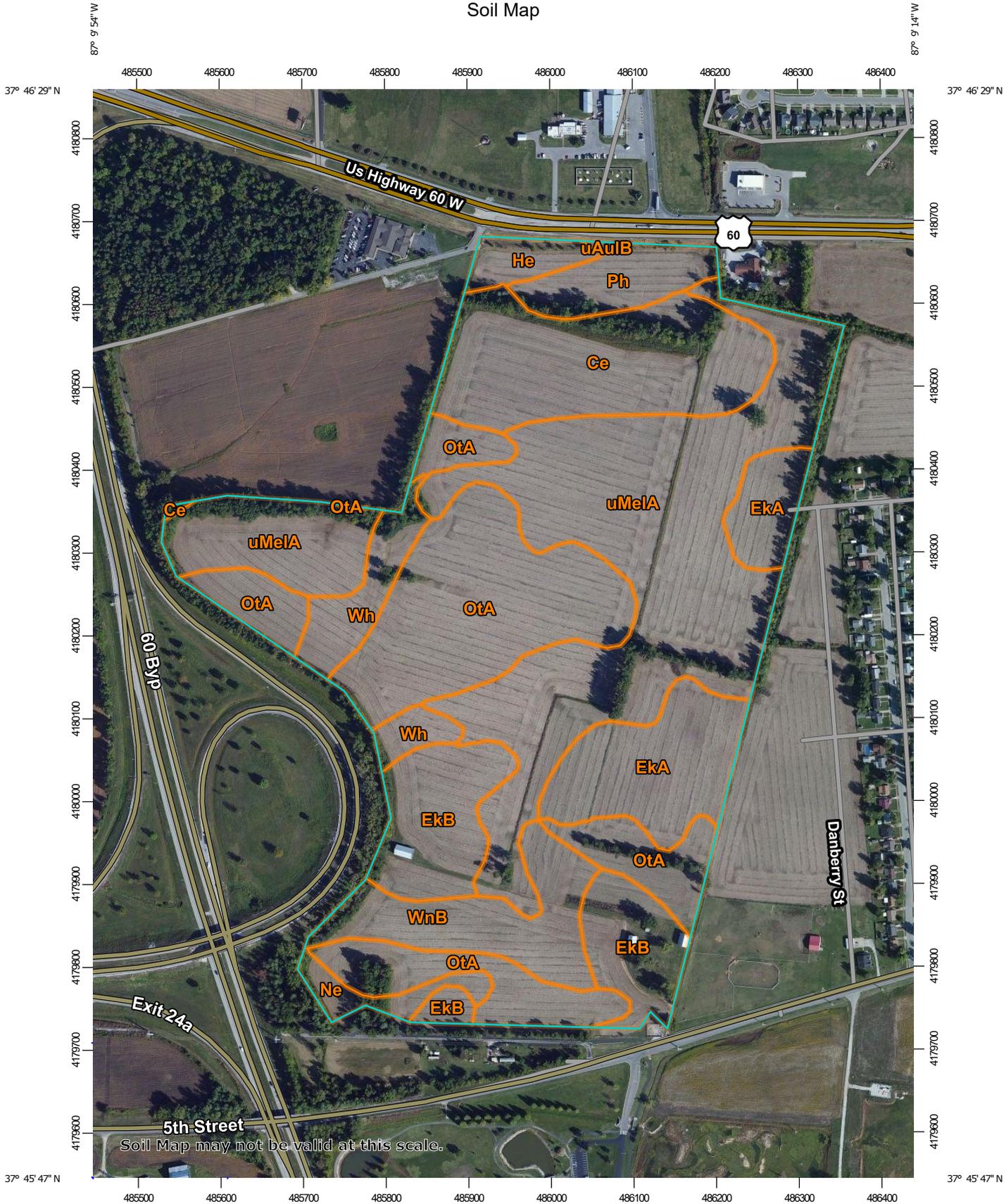
Owensboro, KY 42301

270-685-8456

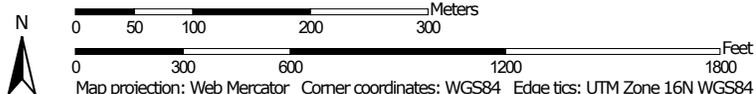
Environmental Assessment

Attachment D. Soils Map

Custom Soil Resource Report Soil Map



Map Scale: 1:6,400 if printed on A portrait (8.5" x 11") sheet.



Environmental Assessment

Attachment E. FEMA FIRM Maps

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the **Flood Profiles and Floodway Data** and/or **Summary of Stillwater Elevations** tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' NAVD 88. Users of this FIRM should be aware that coastal flood elevations are also provided in the **Summary of Stillwater Elevations** table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on the FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was State Plane Kentucky (Single Zone) FIPS 1600 USFT. **Horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid or projection used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NIMS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov/>.

Base map information was derived from multiple sources. Aerial photography shown on this FIRM is from GRW, Inc. and was published with 0.5' and 1' pixel resolution. Road centerlines, stream centerlines and political boundary files were provided by the Kentucky Geographic Network and additional stream centerlines were downloaded from the National Hydrography Dataset provided by the U.S. Geological Survey. Users of this FIRM should be aware that minor adjustments may have been made to specific base map features.

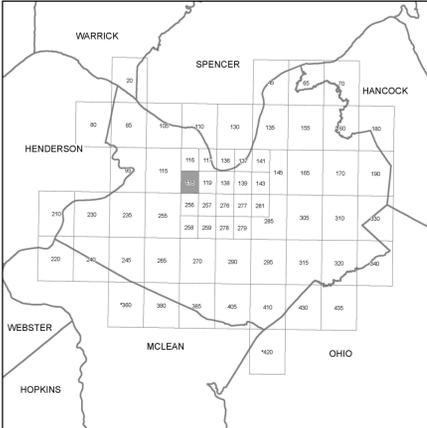
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

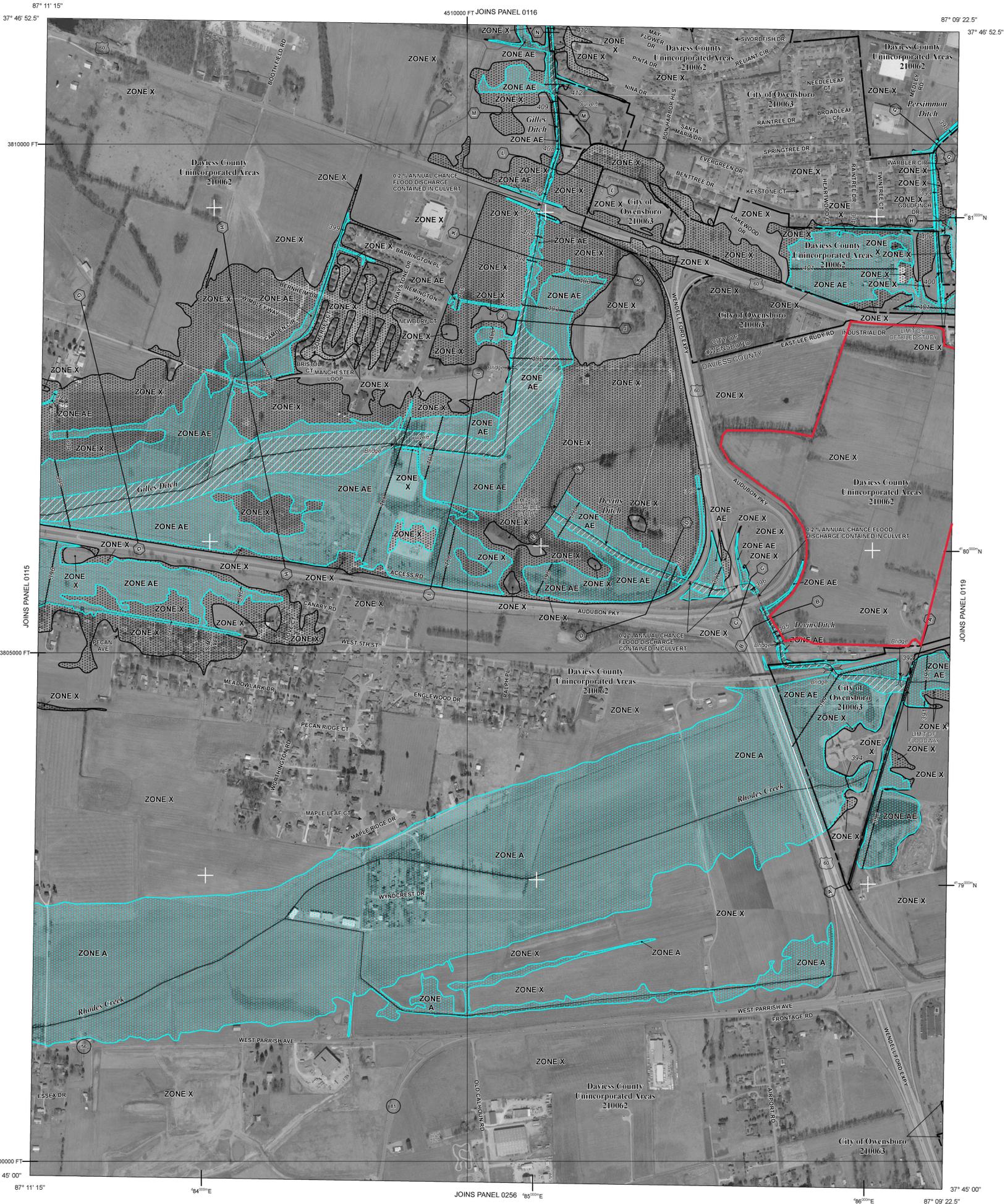
Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at <http://msc.fema.gov/>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/nfp>.

STATE OF KENTUCKY FIRM PANEL LOCATOR DIAGRAM



In cooperation with the Federal Emergency Management Agency (FEMA) and local communities in Kentucky, this Flood Insurance Rate Map was developed by the Kentucky Division of Water in a digital statewide format to assist communities in their efforts to minimize the loss of property and life through effectively managing development in flood-prone areas. The State of Kentucky has implemented a long term approach to floodplain management to reduce the impacts of flooding. This is demonstrated by the State's commitment to map floodplain areas at the local level. As part of this effort, the Kentucky Division of Water is working closely with FEMA as a Cooperating Technical Partner to produce and maintain this digital FIRM.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently destroyed. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*

- * Referenced to the North American Vertical Datum of 1988
- (A) Cross section line
- (25) Transect line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 87°07'45", 32°22'30"
- 42°76'00" E 1000-meter Universal Transverse Mercator grid values, zone 16
- 600000 FT 5000-foot grid ticks: Kentucky State Plane coordinate system (FIPS 1600), Lambert Conformal Conic projection
- DX5510 X Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile

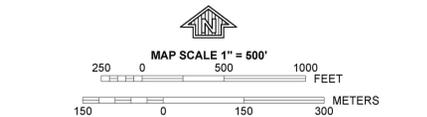
MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
March 3, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
April 16, 2009 - to update corporate limits, to change Base Flood Elevations, to add Special Flood Hazard Areas, to incorporate previously issued Letters of Map Revision, and to reflect updated topographic information.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0118D

FIRM FLOOD INSURANCE RATE MAP

DAVIESS COUNTY, KENTUCKY AND INCORPORATED AREAS

PANEL 118 OF 435
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DAVIESS COUNTY	210062	0118	D
OWENSBORO, CITY OF	210063	0118	D

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 REVISED **MAP NUMBER**
APRIL 16, 2009 **21059C0118D**

Kentucky State of Kentucky
Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the **Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations** tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' NAVD 88. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on the FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was State Plane Kentucky (Single Zone) FIPS 1600 USFT. **Horizontal datum** was NAD 83. GRS80 spheroid. Differences in datum, spheroid or projection used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA/NNGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov/>.

Base map information was derived from multiple sources. Aerial photography shown on this FIRM is from GRW, Inc. and was published with 0.5' and 1' pixel resolution. Road centerlines, stream centerlines and political boundary files were provided by the Kentucky Geographic Network and additional stream centerlines were downloaded from the National Hydrography Dataset provided by the U.S. Geological Survey. Users of this FIRM should be aware that minor adjustments may have been made to specific base map features.

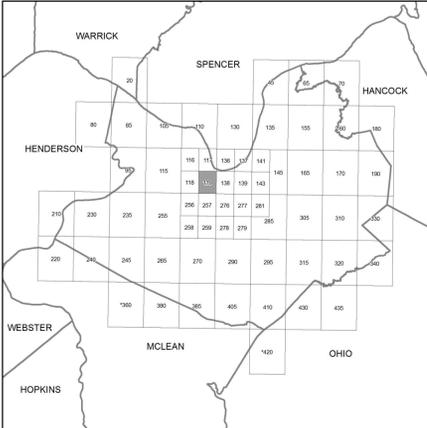
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses; and a listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

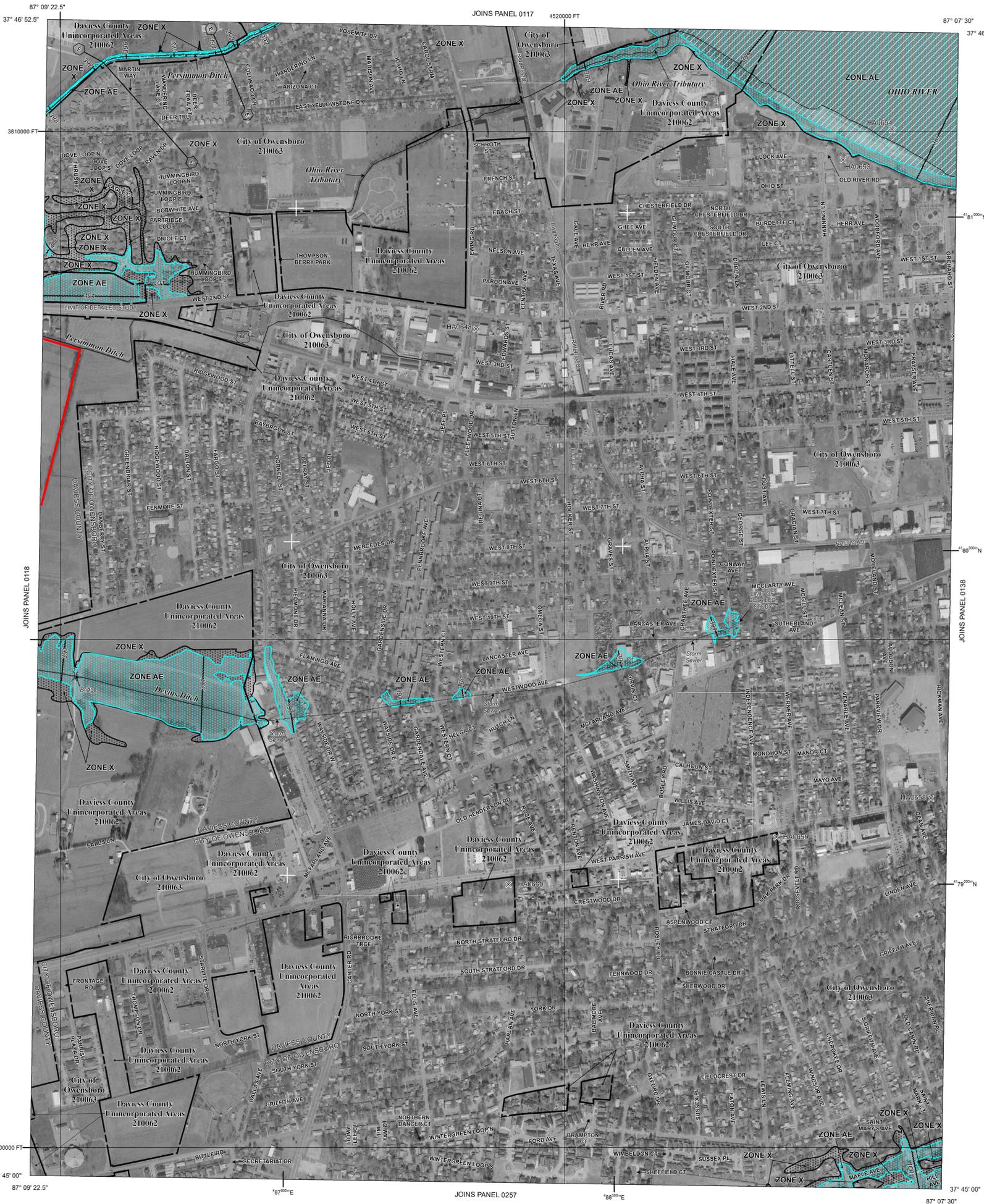
Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at <http://msc.fema.gov/>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/nfp>.

STATE OF KENTUCKY FIRM PANEL LOCATOR DIAGRAM



In cooperation with the Federal Emergency Management Agency (FEMA) and local communities in Kentucky, this Flood Insurance Rate Map was developed by the Kentucky Division of Water in a digital statewide format to assist communities in their efforts to minimize the loss of property and life through effectively managing development in flood-prone areas. The State of Kentucky has implemented a long term approach to floodplain management to reduce the impacts of flooding. This is demonstrated by the State's commitment to map floodplain areas at the local level. As part of this effort, the Kentucky Division of Water is working closely with FEMA as a Cooperating Technical Partner to produce and maintain this digital FIRM.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently identified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS
ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS
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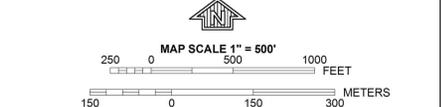
MAP REPOSITORY
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EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
March 3, 1997

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NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0119D

FIRM FLOOD INSURANCE RATE MAP

DAVIESS COUNTY, KENTUCKY AND INCORPORATED AREAS

PANEL 119 OF 435
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DAVIESS COUNTY	210062	0119	D
OWENSBORO, CITY OF	210063	0119	D

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MAP REVISED **MAP NUMBER**
APRIL 16, 2009 **21059C0119D**

Kentucky
State of Kentucky
Federal Emergency Management Agency