



Environmental Overview

KY 57 Bridge Replacement

KYTC Item No. 9-8507.00

Lewis & Fleming Counties

Kentucky Transportation Cabinet

Department of Highways

District 9

June 2016



Table of Contents

A. Project Information	1
1. Project Description	1
2. Existing Conditions	1
B. Purpose and Need	1
C. Alternatives Summary	1
1. Alternate Descriptions	2
a) No Build Alternative	2
b) East Build Alternative	2
c) West Build Alternative	2
d) South East & South West Study Alternatives	2
2. Preferred Build Alternative	3
D. Public Involvement	3
E. Socioeconomic Impacts	3
1. Right of Way/Relocations	3
2. Economic & Farmland Impacts	3
3. Social Impacts	4
4. Environmental Justice	4
5. Local Land Use & Transportation Plan	4
F. Historic Resources	5
G. Archaeological Resources	5
H. Section 4(f)	6
I. Section 6(f)	6
J. Noise Impacts	6
K. Air Quality Impacts	6
L. Hazardous Materials	6
M. Threatened and Endangered Species	7
1. Plants	8
2. Bats	8
3. Mussels	8
N. Water Resource Impacts	9
1. Stream & Wetland Impacts	9

2. Floodplain Impacts.....	10
3. Permit Requirements.....	10
O. Construction Impacts	10
1. Maintenance of Traffic.....	10
2. Noise, Dust, Delays, etc.....	11
3. Excess Material Sites (Waste Areas) and/or Borrow Sites.....	11
P. Environmental Commitments, Mitigation & Required Future Actions.....	11
1. Cemetery Relocation.....	11
2. Permits	11

Appendix A – Design Executive Summary and Alternatives Exhibits

Appendix B – Historic Resources

Appendix C – Archaeological Resources

Appendix D – Threatened and Endangered Species

A. Project Information

1. Project Description

The KY 57 Bridge over the North Fork of the Licking River lies on the Fleming-Lewis County line. As the roadway approaches the valley from both the north and south directions, it overtops the hills with sharp-crested curves with insufficient sight distance. Entrances also lie near those curves, creating hazardous conditions. Grades approaching the bridge are 7.5% and 5.8%, with sharp sag curves at each bridge end with insufficient headlight site distance. Flood overtopping of the bridge has been documented, temporarily closing the road. The bridge deck is only 19 feet in width, requiring opposing traffic to stop when large trucks or farm equipment is passing.

2. Existing Conditions

KY 57 is classified as a rural collector with a rolling terrain. The current ADT is 1800 with 10% trucks and the Design Year ADT (2040) is projected to be 2680. The route has a posted speed limit of 55 mph. It has two 9.5' to 10' lanes with a 2' paved shoulder. The bridge width is 19'.

B. Purpose and Need

Replacing the KY 57 Bridge and reconstructing its approaches will ensure that this primary connection from Flemingsburg and Fleming County to Vanceburg and the AA Highway will remain an open and safe passage for users. The existing bridge is structurally deficient (sufficiency rating of 47.9), too narrow for safe passage of opposing vehicles (19'), has been overtopped in flood events (temporarily closing the road), and has roadway approaches with hazardous vertical sight distance deficiencies.

C. Alternatives Summary

Two Build alternates and the No Build alternate were considered for the KY 57 bridge replacement project (Item No. 9-8507). Two additional study alternates were developed that would tie in to the bridge replacement alternates and extend to the KY 344 intersection in Fleming County. The study alternates were developed to ensure that a future Lewis County federally funded KY 57 reconstruction project (Item No. 9-8807) will have an adequate logical terminus on its southern end.

Both study alternates were investigated environmentally to determine evidence of “show-stoppers” that could preclude future roadway projects from extending south into Fleming County if funding should become available, as well as, to demonstrate that the future federally funded project would have independent utility as a stand-alone solution that doesn't rely on future reconstruction projects to the south. See Appendix A for exhibits of each alternative.

1. Alternate Descriptions

a) *No Build Alternative*

The No Build Alternative would leave the roadway as it currently exists with a structurally deficient, narrow bridge and hazardous approaches. The structure would continue to deteriorate leading to the eventual closure of KY 57. The Purpose and Need of the project would not be satisfied by this alternative. Therefore, the No Build alternate was dismissed from further consideration.

In addition to the No Build Alternative that was considered along with the East and West Build alternatives, there were also two alignments to the south of the bridge replacement project that were developed for environmental study purposes only. The South East and South West alternatives are discussed below (See d)). Both of these alternates were developed preliminarily as viable and feasible build alternatives from an engineering perspective. However, neither of them will be built as part of this project.

b) *East Build Alternative*

The East Alternative begins 1,800 feet south of the bridge and moves off the existing corridor using a horizontal curve, which allows for the flattening of the crest curve with sufficient separation to maintain traffic during construction on the existing road. A second horizontal curve brings the roadway back to a tangent crossing over the river. The approach grades are reduced with this alternate. Some temporary widening may be needed to maintain two lanes of traffic during construction. This alternate ties into the existing horizontal tangent with a flatter horizontal curve than exists currently. No design exceptions are required. One residential relocation is necessary for construction of this alternative. A cemetery will be impacted by this alternate and will require relocation.

c) *West Build Alternative*

The West Alternative begins 500 feet south of the East Alternative so that the shift can be to the left in order to avoid the residential relocation. Staying to the west side of the existing roadway allows for the flattening of the sharp crest curve with sufficient separation to keep traffic on the existing roadway during construction. This alternative crosses the river at a sharper skew angle because of a bend in the stream. Both approach grades are reduced as compared to the existing. This alternate ties into the existing tangent further north than the East Alternative with a horizontal curve, which eliminates one vertical curve. No design exceptions are required for this alternative and no residential relocations are needed. A cemetery will be impacted by this alternate and will require relocation.

d) *South East & South West Study Alternatives*

Two alignments south of the bridge replacement project, extending to the KY 344 intersection were also developed for environmental investigation purposes: one to the east of the existing corridor (South East Alternative) and one to the west (South West Alternative). Each of these study alignments begin just south of the KY 344/KY 57 intersection and both could be tied into alignments preliminarily investigated by District 9 going through or around Mt. Carmel to the south. Both study alignments could also be easily connected to the proposed alignments for the bridge replacement project. A potential right of way corridor was defined for each study alternate to be used in the environmental investigations. No residential relocations would be required for either the South East or the South West alternatives. Both study alternatives were included in the environmental investigations and a preferred was not chosen.

2. Preferred Build Alternative

The West Alternative was chosen by the Project Team to carry forward into Phase II Design and final plan development. The primary reasons for choosing the West Alternate were: no residential relocations, fewer utility impacts, stays to one side of the existing corridor (reduces maintenance of traffic complications), better entrance alignments and grades, fewer horizontal curves, and lower cost.

D. Public Involvement

There are no public meetings currently planned for this state-funded project. However, communication with various property owners has been ongoing and will continue throughout all phases of the project. Additionally, the local officials for both Fleming and Lewis counties have been kept apprised of the progress of the project. There is no public or agency controversy known or expected for the project.

E. Socioeconomic Impacts

1. Right of Way/Relocations

The West Alternate requires no residential relocations. Right of way is needed from nine parcels, 2 of which are from the same owner. Approximately 14.75 acres of fee simple right of way and 1.20 acres of temporary easement will be acquired.

The East Alternate requires one residential relocation. Nine parcels, 2 of which are the same owner, are impacted by this alternate.

No residential relocations would be required for the South East or the South West alternates. Six parcels, 2 with the same owner, would be impacted if either of the no build alternates were constructed.

2. Economic & Farmland Impacts

The KY 57 corridor from KY 344 in Fleming County to the end of the proposed project in Lewis County is rural in nature with large farms comprising much of the land along the route. A custom soil resource report was generated for the project area using the USDA Natural Resources Conservation Service (NRCS) website. The report identified that the majority of soil types along the KY 57 route can be classified as “Not Prime Farmland” (about 22% of the project area) or “Farmland of Statewide Importance” (roughly 21% of the project area), with “Prime Farmland” comprising roughly 15% of the project area. Nearly all of the right of way needed for construction of the project is from large tracts currently used as farmland. The areas to be acquired are immediately adjacent to the existing roadway and no large farms are bisected by the proposed road project. Therefore, it would seem that impacts to farmland could be considered minor overall. Because this project is state-funded through all phases, a Land Evaluation and Site Assessment (LESA) process (using the Farmland Conversion Impact Rating Form) was not required. There are no known properties with the project area that are protected by an agricultural preservation easement.

KY 57 serves as a north-south rural collector route between the AA Highway in Tollesboro and KY 11 and KY 32 in Flemingsburg. This connector facilitates the transport of goods and services not only to these

two communities, but also allows access to I-64 via KY 32 to Morehead or via KY 11 to Mt. Sterling. Additionally, motorists use the AA Highway to access Cincinnati, OH and the Ashland, KY area. The existing bridge on KY 57 at the Fleming/Lewis county line is a “pinch-point” that is too narrow for safe passage of opposing vehicles, has sharp sag curves at both bridge ends, causing hazardous vertical sight distance deficiencies, and has been overtopped in flood events causing the road to be temporarily closed. Replacing the structurally deficient bridge and raising the approaches to lessen the current sag condition will make for safer access to both communities and points thereon, possibly allowing for better employment opportunities and safer travel conditions for truck transport of goods.

3. Social Impacts

There are no established neighborhoods, subdivisions, or communities within the limits of the project. The area consists primarily of farms, some with a residence, barn and outbuildings, or smaller tracts containing only a home and lot. There are no businesses, school facilities, churches, or police/fire departments located within the project limits.

A large Amish population resides within the KY 57 corridor in Fleming and Lewis counties. Buggies frequently share the road with motorized vehicles to reach nearby farms or the communities of Flemingsburg, Mt. Carmel, and Tollesboro, creating an unsafe mix of vehicles and speeds, which can be compounded by the existing hazardous vertical sight distance deficiencies. Both the Amish community and motorists should benefit from the construction of the project. The proposed 10 foot shoulders, 8 feet of which will be paved, will allow the buggies to travel outside of the main flow of traffic making a much safer condition for all motorists, and also improving accessibility to neighboring farms and communities.

4. Environmental Justice

Executive Order (EO) 12898 requires that an Environmental Justice (EJ) analysis be performed on projects that receive federal funds. Because the KY 57 bridge relocation project is projected to use state funds throughout all phases, an Environmental Justice Analysis was not completed.

Furthermore, the 2014 KYTC/FHWA Environmental Justice Guidance and Methodology document refined the EO 12898 requirements to allow for no analysis to be needed when 1 or fewer residential relocations are required. There are no relocations needed for the construction of the West Build Alternative and no relocations anticipated if either of the study alternates (South West or South East) should ever be built. Therefore, even if federal funds are needed in future project phases, an EJ analysis would not be warranted.

5. Local Land Use & Transportation Plan

There is no local land use or local transportation plan for the KY 57 corridor. Additionally, there are no schools, businesses, or other institutions present that would require pedestrian facilities. Bicycles and Amish buggies currently share the road with motorized vehicles. The proposed 10 foot shoulder (8 foot paved) would provide a safer lane for those users and would keep them out of the traffic flow.

F. Historic Resources

KYTC identified 5 sites within the Area of Potential Effect (APE) as being potentially eligible for the National Register of Historic Places because they are at least 50 years old. The APE included both of the build alternates and both of the no build study alternates. Of the five identified sites, one was the existing concrete bridge, two were barns, one was a farmstead, and one was an early 20th century Craftsman style home. None of these sites were recommended as eligible for the NRHP, and therefore, the SHPO concurred with the “No Historic Properties Effectuated” finding. A copy of the SHPO concurrence letter can be found in Appendix B.

G. Archaeological Resources

A Phase I archaeology survey was performed within the limits of the West Alternate (the selected alternate), and also included geophysical work to identify the approximate boundary and number of graves in a small family cemetery.

The multi-component mid-nineteenth century historic cemetery (15Lw219) is noted on the 1934 roadway plans for KY 57, but no archival record of it could be found and there is nothing visible on the property. Communications with the current property owner revealed an approximate location of the cemetery on the property, which corresponds with the old roadway plans, and that the headstones were previously removed by the next of kin and relocated across KY 57 onto their property. An inspection of the headstones indicated at least 4-5 burials that date to the 1850's. Geophysical investigations, including magnetics and ground penetrating radar, revealed that there is high probability of 1 grave, medium probability of 4 graves and low probability of 1 grave located within the area depicted as a cemetery on the 1934 roadway plans. Additionally, there was one possible outlier grave that was assigned low probability.

The National Register of Historic Places (NRHP) eligibility of the cemetery component of 15Lw219 was not assessed; instead it was recommended to avoid or archaeologically excavate the cemetery. Both the East and West Alternates impact this cemetery and there is no feasible way to avoid it. Therefore, once right of entry is obtained on the parcel, the cemetery will be relocated following all applicable right of way and archaeology regulations, procedures and protocol. In addition to the cemetery component of site 15Lw219, there was also a minor unassigned prehistoric open habitation component, which was found to be ineligible for listing in the NRHP.

Two previously unknown archaeology sites (15Lw218 & 15Fl146) and one isolated find (IF2) were also discovered during the course of the Phase I survey. Sites 15Lw218 and 15Fl146 are unassigned prehistoric open habitations without mounds. IF2 is a single prehistoric chert flake recovered from an auger test. None of these sites are considered eligible for the NRHP. Therefore, no further work was recommended for these sites. A copy of the SHPO concurrence letter can be found in Appendix C.

The Phase I report also included an OSA database search that covered a 2 km (1.2 mile) radius around the West Alternate footprint. No previously discovered archaeology sites were found within this database search. The two study alternates (South East and South West) extend south from the begin point of the build alternates about 0.5 miles to the KY 344 intersection in Fleming County. Therefore,

the study alternates were covered by the OSA database search. It is possible that a historic archaeology site could be present north of KY 344 at its intersection with KY 57. The topographic map shows a structure in that location and there is local knowledge of a store and/or residence at this site. No standing structures remain at this location, but there is a water well that is thought to have once served the store. Because only a database search was done on the study alternates, a Phase I archaeological survey will need to be completed if either of them is advanced to construction in the future.

H. Section 4(f)

There are no parks, recreation areas, or wildlife refuges within the limits of any of the alternates. Additionally, 5 historic sites were identified within the project area, and none of them, including the bridge, appeared to be eligible. Three unrecorded archaeology sites and one isolated find were discovered as part of the field investigations, but none of them warranted any further study except for one small family cemetery, located on the Norma White parcel (Parcel 4), left of Station 276+00 to 277+00, which will be impacted by both the West and the East alternates. The SHPO recommended either avoidance or archaeological excavation and relocation of the graves. Because the project is state-funded through all phases, Section 4(f) does not apply. The National Register of Historic Places eligibility of the cemetery was not assessed, however, it is unlikely that it would constitute a Section 4(f) impact even if federal funds were being utilized.

I. Section 6(f)

According to the US Department of Interior, National Park Service website, there have been no Land and Water Conservation Fund grants used within the project area in either the Fleming County or Lewis County section.

J. Noise Impacts

A review of the alternates revealed that none of them meet the definition of a type one project, which means that regardless of funding type, a noise study is not required.

K. Air Quality Impacts

KYTC reviewed the project for possible air quality impacts and determined that the project would be classified as “No Effect” if MSATs were to be considered. Both Fleming and Lewis counties are considered as “attainment” areas for ozone. Additionally, neither of them are counties that require PM 2.5 consideration. Because the project is state-funded, it is not listed in the current STIP.

L. Hazardous Materials

No registered UST sites, monitoring wells or gas/oil wells were found within the project area when a search was done by KYTC. Additionally, there were no properties observed during field inspections that

would appear to have a former use which would suggest contaminated soils would be present. Therefore, there is nothing to suggest that contamination exists or that remediation would be required.

One site at the corner of KY 344 and KY 57 appears to have been a store and/or residence which had a water well at one time. KY Geological Survey water well records do not show this as being a registered well. It was likely a domestic well and appears to be out of commission at this time. If the water well is impacted by future construction activities, then it will need to be properly closed following applicable regulations and according to the most current KYTC Standard Specification Manual.

The concrete bridge on KY 57 crossing the North Fork Licking River will be demolished as part of the project. An inspection for Asbestos Containing Materials (ACM) will be performed by KYTC prior to the project being let to construction. If ACMs are found, then abatement will be required and will be completed following all proper regulations. Prior to demolition, it will be the responsibility of the roadway contractor to submit a 10 Day Notice of Intent for Demolition to the KY Division for Air Quality. A Special Note will be included in the Contract Proposal document to alert the contractor of this responsibility and to provide him with a copy of the ACM inspection results to be included with the DAQ notice.

M. Threatened and Endangered Species

The following table shows federally-listed threatened and endangered (T&E) species that have been listed by US Fish and Wildlife Resources, KY State Nature Preserves Commission, and/or the KY Department of Fish and Wildlife Resources as possibly occurring in Fleming or Lewis counties.

Federally-Listed Threatened and Endangered (T&E) Species for Fleming and Lewis Counties				
Indiana Bat	<i>Myotis sodalis</i>	(903) IB	USFWS	Endangered
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	(904) NLEB	KDFWR, USFWS	Threatened
Fanshell	<i>Cyprogenia stegaria</i>	(403) FSM	KDFWR, KSNPC, USFWS	Endangered
Catspaw	<i>Epioblasma o. obliquata</i>	(407) EPM	KDFWR, KSNPC, USFWS	Endangered
Pink Mucket	<i>Lampsilis abrupta</i>	(409) PMM	USFWS	Endangered
Ring Pink	<i>Obovaria retusa</i>	(412) RPM	KDFWR, KSNPC, USFWS	Endangered
Orangefoot Pimpleback	<i>Plethobasus cooperianus</i>	(414) OFPM	KDFWR, KSNPC, USFWS	Endangered
Sheepnose	<i>Plethobasus cyphus</i>	(415) SNM	KDFWR, KSNPC, USFWS	Endangered
Clubshell	<i>Pleurobema clava</i>	(416) CM	USFWS	Endangered
Rough Pigtoe	<i>Pleurobema plenum</i>	(417) RPTM	USFWS	Endangered
Snuffbox	<i>Epioblasma triquetra</i>	(427) SNB	KDFWR, KSNPC	Endangered
Rabbitsfoot	<i>Quadrula c. cylindrica</i>	(430) RFM	KDFWR	Endangered
Short's Goldenrod	<i>Solidago shortii</i>	(110) SG	KSNPC, USFWS	Endangered
Virginia Spiraea	<i>Spiraea virginiana</i>	(111) VS	KSNPC, USFWS	Threatened
Running Buffalo Clover	<i>Trifolium stoloniferum</i>	(112) RBC	USFWS	Endangered

KYTC performed a habitat assessment for the listed species to determine if suitable habitat is available within the limits of the West Alternate build alternative, as well as, the South West and South East no build alternatives.

1. Plants

As a result of the field inspections and habitat assessment, a No Effect finding (See Appendix D) was prepared for the three listed plant species – Virginia spiraea, running buffalo clover, and Short's goldenrod. Although habitat was present within the project area for Virginia spiraea, no specimens were found during the site visit. In the appropriate habitat areas, either bare ground/boulders, large trees, or grass like vegetation was present. The appropriate habitat was not observed for running buffalo clover. Some scour areas are present within the project area, but apparently these events occur too frequently to allow any vegetation to become established. Thick vegetative grasses and large trees with near complete canopy cover and shade exist in those areas outside and beyond the scoured banks. Additionally, no running buffalo clover plants were found during the on-site visit. Habitat for Short's goldenrod did not exist anywhere near the project area.

A Biological Assessment (BA) of the remaining federally-listed species – bats and mussels - was performed. A copy of the USFWS letter concurring with the findings of the BA can be found in Appendix D.

2. Bats

KYTC determined during the habitat assessment that no caves or portals exist within the project area or immediately nearby, therefore, this project will have no effect (direct or indirect) on winter habitat for the Indiana bat or the northern long-eared bat and no further literature or field search was performed by the consultant for this habitat.

Published sources (mapping, photos, & GIS layers) were reviewed for forested areas, which can serve as summer foraging and maternity habitat for both the Indiana and northern long-eared bats. The project area was physically examined for suitable habitat that might be directly disturbed as a result of the project. Additionally, potential summer habitat areas were delineated using GIS. Because KYTC has chosen to assume presence for the Indiana and northern long-eared bats, no active capture methods (i.e. mist netting) were utilized.

A total of 3.01 acres of forested habitat (primarily along the North Fork Licking River riparian area) was determined to exist within the proposed right of way for the project. This habitat may serve as foraging or maternity area for both Indiana bat and northern long-eared bat. The project occurs in “potential” habitat for forest dwelling bats, meaning that the area is not known to serve as summer, swarming, or maternity habitat, but the potential exists that either species could utilize suitable habitat within the project area. Because KYTC intends to use the 2015 Imperiled Bat CMOA to account for summer habitat loss and take, as well as, adhere to minimization methods to reduce direct and indirect impacts to foraging habitat, it was determined that a finding of **“may affect, likely to adversely affect”** was appropriate for both Indiana bat and northern long-eared bat.

3. Mussels

A field survey for freshwater mussels was performed on September 21, 2015. Only one stream which could provide suitable mussel habitat was identified within the project area. A total of 1500 feet of the North Fork of the Licking River (1000 feet downstream, 500 feet upstream of the proposed bridge replacement) was surveyed at 100 foot intervals using a dive/snorkel survey method. Stream substrate was characterized for each sampled reach.

Substrate types and flow regime were found to be suitable for multiple mussel species. Live individuals of five species, along with a single weathered dead specimen of a different species, were encountered. None of them were federally-listed T&E species. Additionally, no relict shells of federally-listed T&E species were found. Therefore, the effect determination for the proposed project is **“may affect, not likely to adversely affect”** the listed mussel species.

N. Water Resource Impacts

1. Stream & Wetland Impacts

North Fork of the Licking River, an Unnamed Tributary, and a few ephemeral streams are crossed by KY 57. KY Division of Water (KDOW) does not list the North Fork or its tributaries as Special Use Waters. Additionally, none of these streams are listed on the KDOW 303(d) list of impaired waters.

In addition to the construction of a replacement bridge across the North Fork, several new culvert pipes and one channel change on its tributaries, are proposed with the KY 57 reconstruction project. Because the purpose of the project is to replace the existing structurally deficient bridge, there is no way to avoid this impact. The existing 19' wide, 150' long, 3-span bridge will be replaced with a longer (approximately 250') and wider (44') 3-span bridge. The proposed piers are planned to be outside the channel, located at or near the tops of the banks. Footing locations are likely to be deep and will impact the stream banks. The abutment slopes will be outside the limits of the channel banks. Traffic will be maintained on the existing bridge during construction so a temporary crossing of North Fork is not anticipated at this time. However, if a working pad or temporary crossing is later determined to be necessary for equipment mobilization, appropriate permits, if needed, will be obtained.

Current plans for the West Alternate include five proposed culvert pipes to be installed as part of the new construction. Three of these pipes (Sta. 240+50, Sta. 274+22, and Sta. 280+49) appear to be located along streams that could be considered jurisdictional Waters of the US. The other two pipes appear to carry only roadside drainage. The stream near Station 240+50 shows up on the USGS topographic map as a blue line Unnamed Tributary to North Fork. The existing structure at this location is a 24" reinforced concrete pipe (RCP) that is 84' in length. It will be replaced with a 30" pipe that is approximately 118' in length. The remaining two jurisdictional streams appear to be ephemeral. Station 274+22 currently has an 84' long, 2.5' x 2.5' reinforced concrete box culvert (RCBC). It will be replaced with a 30" pipe approximately 146' in length. Station 280+49 currently has a 55' long, 2.5'x2.5' RCBC which will be replaced with a 168' long 30" pipe.

Additionally, one stream left of Station 252+00 will require an approximately 265' channel relocation. This stream does not show up as a blue line stream on the USGS topographic map, but could be an intermittent or ephemeral stream. The drainage area of the stream at this location is about 42 acres.

No jurisdictional wetlands were observed within the limits of the build or no build alternates. The National Wetlands Inventory website does not identify wetland areas except for a freshwater farm pond within the build or no build alternates. The farm pond does not appear on recent aerial photography but, if still existent, would be close to the existing right of way near Left Station 398+00 of the South West no build alternate and near Left Station 598+00 of the South East no build alternate. Either of

these alternates if ever advanced to design and construction would impact this farm pond. The pond is outside the limits of the selected build alternative (West Alternate). See Appendix A for a listing of all stream impacts in the Design Executive Summary.

2. Floodplain Impacts

FEMA maps 21135C0190D, 21069C0025C, 21069C0050C, 21069C0150C, and 21069C0125C illustrate a Special Flood Hazard Area surrounding the North Fork and its tributaries that is subject to inundation by the 1% annual chance flood. This Special Flood Hazard Area is considered to be Zone A at this location, meaning that there have been no base flood elevations determined for the 1% annual chance flood.

3. Permit Requirements

It is anticipated that the West Alternate will meet the requirements of a Nationwide #14 – Linear Transportation Crossing – Permit from the US Army Corps of Engineers (USACE) and a General Water Quality Certification from the KY Division of Water (KDOW). The channel relocation near Left Station 252+00 is projected to be 265' which is below the 300' threshold for requiring mitigation. Additionally, the proposed culvert replacements on jurisdictional Waters of the US are each well below the 300' threshold. At this time, a temporary crossing of North Fork of the Licking River during construction of the proposed structure is not expected to be needed for maintenance of traffic because the existing bridge can be used. However, if at a later project phase it is determined that a work pad or crossing is needed for equipment mobilization, then the permitting needs will be reassessed. A Nationwide #33 – Temporary Crossing – Permit is included as part of the Nationwide #14, and therefore, should not require an additional application. When Right of Way Plans are submitted to the Central Office for Right of Way Authorization, the KYTC Division of Environmental Analysis will be notified so that the USACE and KDOW permitting process can be initiated.

A KPDES Storm Water Permit from KDOW will be required for construction of the project because more than 1 acre of earth-disturbing activity will be necessary. Prior to the letting of the project, an electronic Notice of Intent (eNOI) will be initiated by the Project Development Branch and will then be completed and submitted by the Area Engineer after letting once the roadway contract is awarded and the contractor is known. Additionally, a Best Management Practices (BMP) plan will be completed jointly by the Area Engineer and the selected roadway contractor. Erosion control measures will be implemented as outlined by the KYTC Standards and Specifications Manual, Section 212 and 213.

O. Construction Impacts

1. Maintenance of Traffic

The bridge will be constructed just downstream of the existing location, with traffic using the existing structure during construction. Temporary widening of the existing roadway will be required at the north and south termini. Phasing would occur as: 1) construct the temporary widening at each location, 2) construct the bridge and new road, up to the top base pavement course, and 3) shift traffic onto the new road and bridge, demolish the old bridge, and complete the surfacing under traffic.

Part-width construction of the new structure was considered but ruled out because of the geometry of the existing bridge piers (only one column), and because the grade differential (to keep the new bridge

out of the flood elevation) would be too great, requiring either tall shoring or hazardous, temporary roadway approaches on each end.

2. Noise, Dust, Delays, etc.

Although the existing structure will remain in place for as long as possible during construction of the new bridge, it is likely that some delays and interruption of both the local traffic and those traveling along KY 57 can be expected, particularly when the tie-ins at the beginning and end of the project are being constructed. Additionally, the local residents might experience some construction noise and dust during working hours. However, these inconveniences are necessary, will be monitored by the engineer on the project, will be temporary in nature, and will be minimized as much as possible. It is thought that the benefits of having a new, safe bridge should outweigh and offset these temporary inconveniences during construction.

3. Excess Material Sites (Waste Areas) and/or Borrow Sites

Approximately 25,000 cubic yards of excess material is expected to be generated during construction of the project. Therefore, excess excavation sites (waste areas) will be needed. The location of the sites will be determined by the roadway contractor in accordance with the most current KYTC Standard Specifications Manual, and with oversight and approval from the KYTC Area Engineer. It will be the responsibility of the roadway contractor to obtain any permits if required, including the KY Division of Water KPDES permit, Floodplain permit, and/or the Section 401 Water Quality Certification, as well as, the US Army Corps of Engineers Section 404 permit. Additionally, any and all applicable concurrences or approvals from regulatory agencies (such as USFWS, SHPO) that are necessary for waste or borrow sites will be the responsibility of the roadway contractor.

P. Environmental Commitments, Mitigation & Required Future Actions

1. Cemetery Relocation

A small historic family cemetery will require relocation after right of entry is obtained for the parcel. It is expected that around 7 graves may be present at the site. A KYTC Grave Relocation Agent (GRA) will ensure that all laws, regulations, and KYTC policies regarding cemetery relocation are followed. A Department of Vital Statistics permit and next-of-kin permission will be needed prior to beginning the grave relocation process. Because of the age of the graves, the cemetery will be excavated archaeologically using a consultant specializing in grave excavation and will be contracted by the KYTC Division of Environmental Analysis. The GRA will be contract with a funeral director to reinter the graves at the nearest perpetual care cemetery or a location chosen by the next-of-kin and will be present during the excavation and re-interment of the graves.

2. Permits

Prior to letting the project to construction, a US Army Corps of Engineers (USACE) Section 404 permit will be required. Additionally, a KY Division of Water (KDOW) Section 401 Water Quality Certification (WQC) will be needed. The KYTC Division of Environmental Analysis Permit Coordinator for District 9 will prepare the permit if it can be processed as a Below Notification Requirements (BNR) Section 404 Nationwide #14 with Section 401 General Water Quality Certification. If the project cannot be

processed as a BNR or a General WQC because it exceeds thresholds, then the Permit Coordinator will prepare the permit application for submittal to the USACE and KDOW.

A KPDES (KY Pollutant Discharge Elimination System) electronic Notice of Intent (eNOI) will be initiated by the KYTC District Project Development Branch and then will be completed and submitted to KDOW by the Area Engineer after the project has been awarded to a roadway contractor. Additionally, a KYTC Best Management Practices (BMP) plan will be initiated during design by the Project Development Branch and then completed by the Area Engineer in conjunction with the roadway contractor.

The roadway contractor will be required to submit to Division for Air Quality, a Notice of Intent (NOI) to Demolish the existing bridge 10 days prior to the demolition work taking place. The KYTC Division of Environmental Analysis Asbestos Inspector will inspect the structure for Asbestos Containing Materials (ACM) and will prepare the necessary documents for the roadway contractor to submit with the NOI.

Appendix A:
Design Executive Summary
Alternatives Exhibits

DESIGN EXECUTIVE SUMMARY

County:	Fleming & Lewis	Item #:	9-8507.00
Route Number(s):	KY 57	State Program #:	FD04 068 0057 000-001 FD04 035 0057 008-009
BMP/EMP:	8.6 (Fleming)/0.5 (Lewis)	Federal Project #:	
Type of Work:	Bridge Replacement with Approach Reconstruction		

Highway Plan Project Description: Construct a new bridge crossing the North Fork of the Licking River at the Lewis-Fleming County Line

EXISTING CONDITIONS

ADT (current):	1800	Truck Class:	AAA	Trucks: <u>10</u> %
Existing Functional Classification:	<input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural Collector	Terrain:	Rolling	Route is on (check all that apply): <input type="checkbox"/> NHS <input type="checkbox"/> NN <input type="checkbox"/> Ext Wt <input checked="" type="checkbox"/> None
Posted Speed Limit:	<u>55</u> mph	or Statutory Speed Limit:	<input type="checkbox"/> 35 mph (urban) <input checked="" type="checkbox"/> 55 mph (rural)	
Existing Bike Accommodations:	None	Ped:	<input type="checkbox"/> Sidewalk <input type="checkbox"/> Other:	

PROPOSED CONDITIONS

Design Functional Classification:	<input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural Collector	Design ADT (year): 2040 2680	Access Control: Min. Spacing:	By Permit
		DHV:		

CONTROLLING CRITERIA:	EXISTING	AASHTO Guidance (for selected design speed)	Recommendation	Design Exception
Design Speed	55 mph	Range: 50mph Selected: 55mph	55 mph	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Lane Width, No. of Lanes	9.5' to 10' (2)	12' (2)	12' (2)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Shoulder Width, slope (minimum usable)	2' paved	8'	8' usable (8' paved)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Bridge Width (clear roadway)	19'	40'	44'	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Max. Grade	7.50%	7.00%	5.00%	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Horiz. Radius (min.)	1,200'	960'	3,080'	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Horiz. & Vertical SSD (min.)	333' (Crest)	495'	495'	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Vert. HLSD (min.)	155' (Sag)	495'	495'	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Normal Cross Slope	2.00%	2.00%	2.00%	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Max. Superelev. Rate (e _{max} = 8 %)	8.33%	8.00%	4.20% (from 8.00% Table)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Vert. Clearance	N/A	N/A	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No

OTHER CRITERIA:**Design Variance**

Border Area (urban)				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sidewalk Width, slope				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Bike Lane Width, slope				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Shared Use Path Width				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Other:				<input type="checkbox"/> Yes <input type="checkbox"/> No

DESIGN EXECUTIVE SUMMARY

Design Criteria Notes: Roadway and bridge shoulders were widened to accommodate the Amish vehicles which use the roadway. A minimum radius curve of 3,080' (4.2% Se) was used to minimize combined grade and cross slope.

Environmental Action:

Overview

**Completion Date:**
☒ scheduled ☐ actual

1-Feb-16

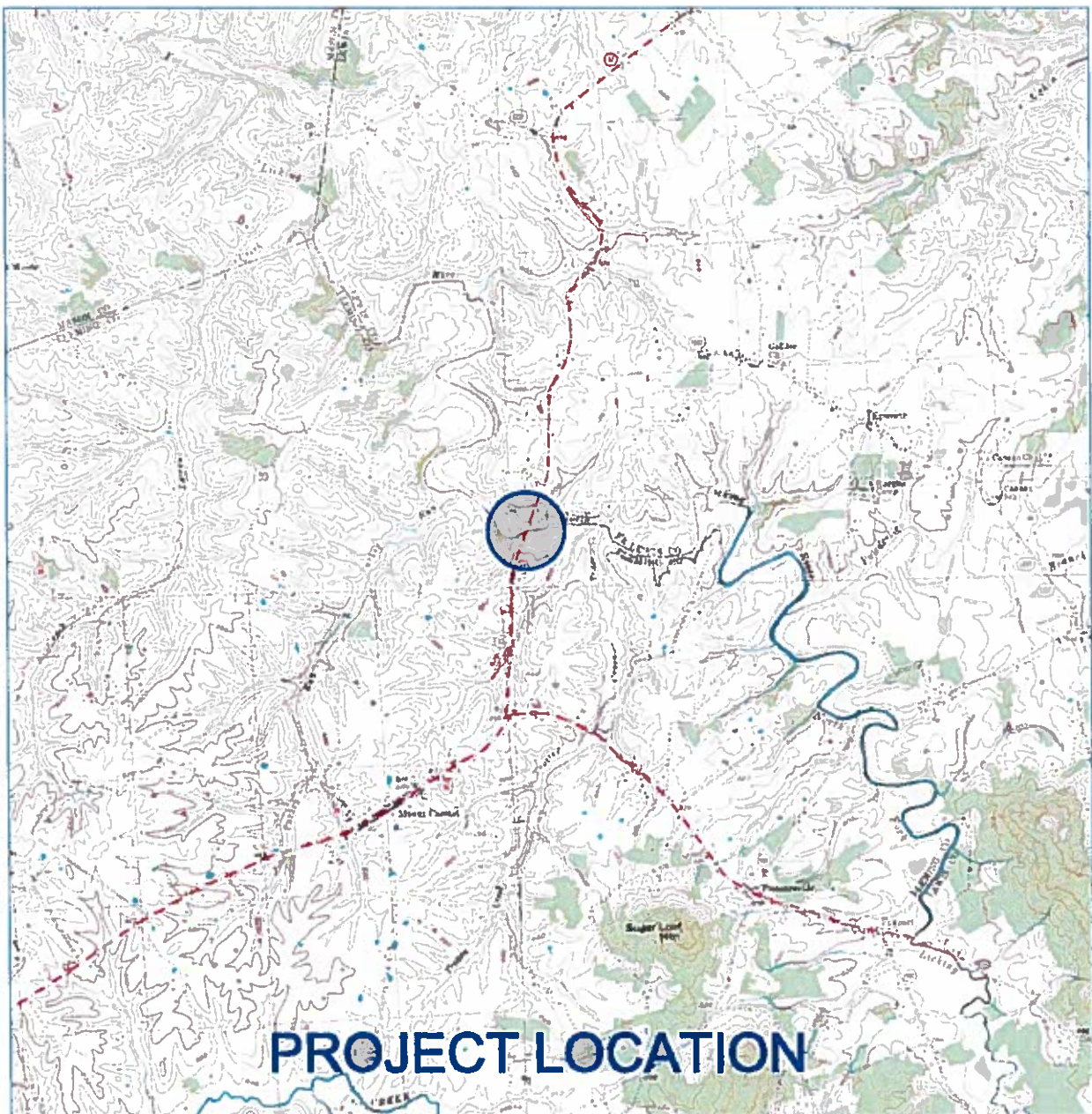
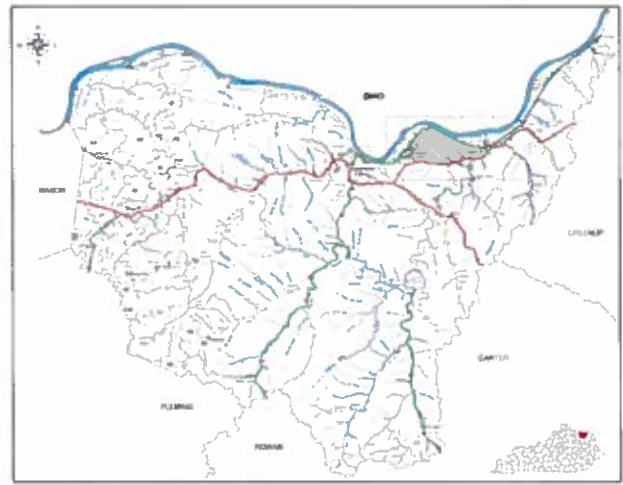
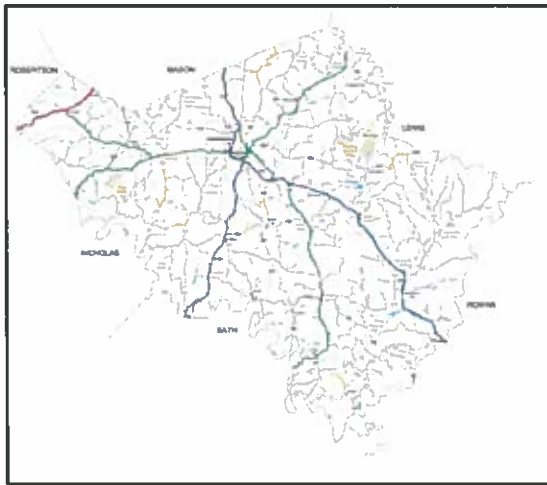
Existing Pavement Depths:**Include:**

1. Typical sections, including bridges (on 8.5X11 inch paper)
2. Map showing project location
3. Project overview and existing conditions
4. Purpose and Need statement
5. Discussion of alternatives (including preferred and no build) with respective traffic control schemes
6. Discussion of Design Exceptions and mitigation strategies
7. Cost comparison table of alternatives vs. Highway Plan
8. Discussion if preferred alternate cost is >115% than highway plan
9. Discussion of clearzone
10. Consideration for bicycle and pedestrian facilities (see HDM 1502)
11. Water-related impacts summary

Submitted by Project Engineer:
☐ KYT ☒ Consultant **Date:**
Recommended by Project Manager:
Date: 3/10/2016**Tier Level Approval**
☐ Tier 1

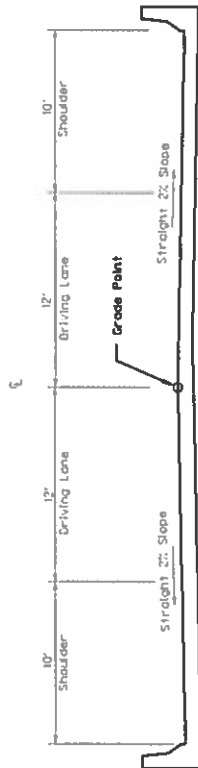
☒ Tier 2

☐ Tier 3
Location Engineer:
Date: 3/11/16**Roadway Design Branch Manager:**
Date: 3/28/16**Comments:****Geometric Approval****Granted by:**
Date:

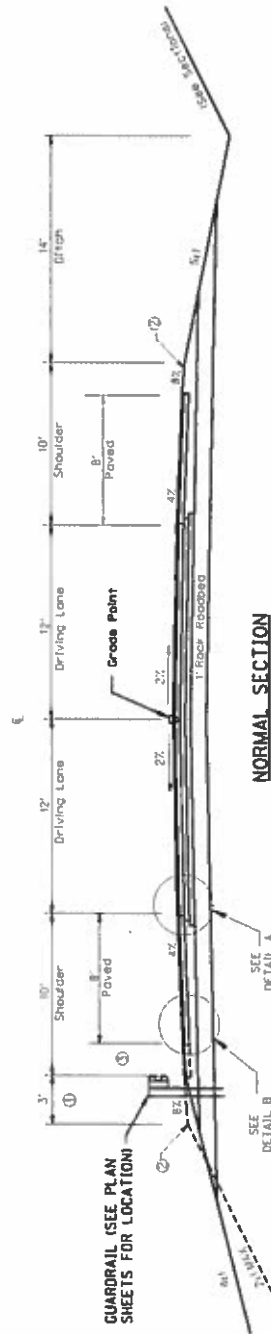


- NOTE 1: FOR SLOPES BEYOND SHOULDERS
SEE CROSS SECTIONS
- ① WIDEN SHOULDER 3' FOR GUARDRAIL
- ② ASPHALT SEAL COAT REQUIRED FROM
EDGE OF SHOULDER TO POINT 2' DOWN
POINT 2' DOWN THE DITCH OR FILL SLOPE.
- ③ SHOULDER TO BE PAVED TO EDGE
OF GUARDRAIL IN THESE LOCATIONS

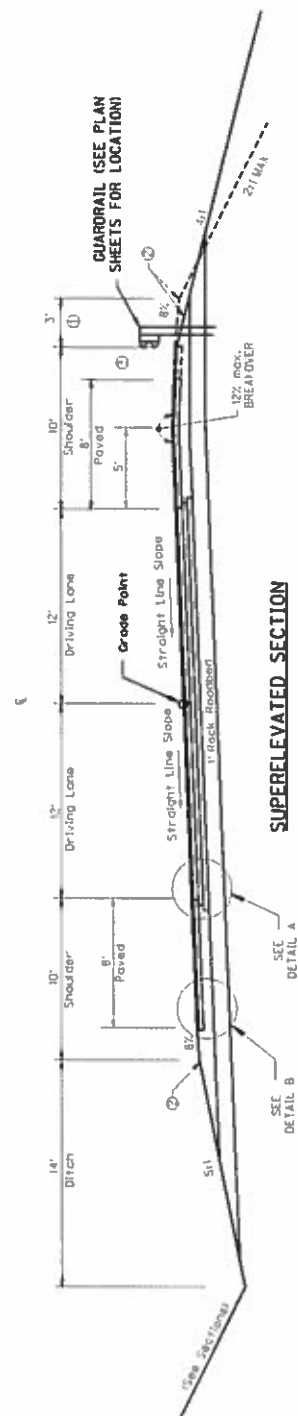
DESIGN SPEED
55 mph



BRIDGE DECK



NORMAL SECTION



SUPERELEVATED SECTION

KY 57 (9-8507.00) TYPICAL SECTION

PROJECT OVERVIEW

The KY 57 Bridge over the North Fork of the Licking River lies on the Fleming-Lewis County line. As the roadway approaches the valley from both the north and south directions, it overtops the hills with sharp-crested curves with insufficient sight distance. Entrances also lie near those curves, creating hazardous conditions. Grades approaching the bridge are 7.5% and 5.8%, with sharp sag curves at each bridge end with insufficient headlight sight distance. Flood overtopping of the bridge has been documented, temporarily closing the road. The bridge deck is only 19 feet in width, requiring opposing traffic to stop when large trucks or farm equipment is passing.

PURPOSE AND NEED STATEMENT

Replacing the KY 57 Bridge and reconstructing its approaches will insure that this primary connection from Flemingsburg and Fleming County to Vanceburg and the AA Highway will remain an open and safe passage for users. The existing bridge is structurally deficient (sufficiency rating of 47.9), too narrow for safe passage of opposing vehicles (19'), has been overtopped in flood events (temporarily closing the road), and has roadway approaches with hazardous vertical sight distance deficiencies.

DISCUSSION OF ALTERNATIVES

No Build:

The No-Build Alternative would leave the roadway as it currently exists with a structurally deficient, narrow bridge and hazardous approaches. Although this option would be less expensive in the short term as there would be no funds expended for right-of-way acquisition, utilities, or project construction, the structure elements on this bridge will continue to deteriorate, eventually requiring bridge and road closure. The No-Build option would not address the project's purpose and need to provide a safe crossing over North Fork of the Licking River and improvement of its approaches. Loss of the bridge would also leave users with a long detour route or lack of an adequate secondary route. For these reasons the Project Team does not consider the option worthy of further consideration.

Construction Alternatives

KY 57 crosses North Fork at nearly a 35° skew, just upstream (east) from a mild bend. The bridge is relatively low, and has been overtopped by flood waters in the past. Raising and replacing in-place might be possible with the construction of a temporary crossing, but would leave the vertical sight distance hazards and 7.5% grade in the roadway approaches. Since elimination of these hazards required reconstruction of the roadway approaches, the alternatives studied were to the east and west of the existing, so that it could be used for traffic without the need for a temporary structure during construction. Part-width construction of the new structure was also not considered due to the geometry of the existing bridge piers (only one column), and because the grade differential (to keep the new bridge out of the flood elevation) would be too great, requiring either tall shoring or hazardous, temporary roadway approaches on each end.

East Alternative

The East Alternative begins 1,800 feet south of the bridge, and moves off the existing corridor using a 3,270 foot (4% superelevation) horizontal curve. This allows for the flattening of the crest curve with sufficient separation for traffic to stay on the existing road during construction. The lateral move does, however, require the acquisition and relocation of a residence that lies very close to the existing road on that side. A second horizontal curve (of the same radius) brings the roadway back to a tangent crossing over the river. The grades down to and up from the bridge

were reduced to 4.5% and 5% respectively. The bridge crosses the river at a 20° angle, but then also crosses the old road at an 8° angle to avoid a barn and two residential structures (only the second appears to be occupied). Though the grades are close, it requires some temporary widening of the existing roadway to keep two lanes open during construction. The new route then closely parallels the old, but with sufficient lateral distance to eliminate sharp crest and sag curves. It ties into the existing horizontal tangent by way of a flatter a horizontal curve, changing from the existing 1,200 foot to a 3,270 foot radius (4% superelevation). No design exceptions are required for this alternative.

West Alternative

The West Alternative begins 500' south of the East Alternative, so as to accomplish the shift left (west) to avoid the relocation needed with the that one. Staying to the west side of the existing roadway, it flattens the sharp crest curve, with sufficient separation to keep traffic on the existing during construction. It continues north with a 3,270 foot radius (4% superelevation) curve and 4.5% grade down to the proposed bridge. Being on the west side of the existing structure, this alternative crosses the river at a sharper skew angle of 40° due to the bend in the stream. The roadway climbs the north slope at the same 5% grade as the East Alternative, but stays on the west side. It ties into the existing tangent with the same horizontal curve as the East, but the grade ties in further north, to eliminate one of the vertical curves. (It might be noted that the West Alternative could tie-in at the same location as the East, using the same vertical alignment.) There were no relocations required by this alignment. No design exceptions are required for this alternative.

Comparison

The alternatives were nearly equal in length, geometry, and cost. The main differences being the relocation required with the East, and the higher earthwork required for it. Estimates for both are shown below, with those in the current Plan.

Cost Estimate	East Alternative	West Alternative	Six-Year Plan
Construction:	\$ 4,300,000	\$ 4,200,000	\$ 5,200,000
Right of Way:	\$ 750,000	\$ 450,000	
Utilities:	<u>\$ 160,000</u>	<u>\$ 130,000</u>	
	\$ 5,200,000	\$ 4,800,000	

MAINTENANCE OF TRAFFIC PLAN

East Alternative

The bridge will be constructed just upstream of the existing location, with traffic using the existing structure during construction. Temporary widening of the existing roadway will be required at the north and south termini, and where the new roadway crosses the old. Phasing would occur as: 1) construct the temporary widening at each location, 2) construct the bridge and new road, up to the top base pavement course, 3) shift traffic onto the new road and bridge, demolish the old bridge, and complete the surfacing under traffic.

West Alternative

The bridge will be constructed just downstream of the existing location, with traffic using the existing structure during construction. Temporary widening of the existing roadway will be required at the north and south termini. Phasing would occur as: 1) construct the temporary widening at each location, 2) construct the bridge and new road, up to the top base pavement course, 3) shift traffic onto the new road and bridge, demolish the old bridge, and complete the surfacing under traffic.

CHOSEN ALTERNATIVE

The West Alternative was chosen by the Project Team to move into the next design phase. The reasons for its selection over the East Alternative were: no residential relocations, fewer utility impacts, stays to one side of the existing corridor (no crossing to complicate maintenance of traffic), better entrance alignments and grades, fewer horizontal curves, and lower cost.

CLEAR ZONE

For ADT between 1500 and 6000, a design speed of 55mph, and a 5:1 foreslope, the recommended minimum clear zone is 24 feet. With a 10 foot shoulder and 14' ditch, the typical section will achieve this minimum. Where obstacles or adjacent slope requires, guardrail will be used.

BIKE, PEDESTRIAN, AND AMISH FACILITIES

There are no schools, businesses, or other institutions present and no local planning or zoning long range plans that would require pedestrian facilities. Bicycles and Amish buggies currently share the road with motorized vehicles. The proposed 10 foot shoulder (8 foot paved) would provide a lane for those users that would keep them out of traffic flow.

WATER RELATED IMPACTS SUMMARY

County	Fleming & Lewis	Route No.	KY 57	Item No.	9-8507.00
Date	08-04-2015	Program #	89312 01 D		
Federal Project No.					
State Project No.	FD04 068 0057 000-001 FD04 035 0057 008-009				
Location Engineer	Jim Simpson				

Section 1: Impact Checklist

Complete this section for each alternative considered at the conclusion of Phase 1 design.

FLOODPLAIN IMPACTS (East & West Alternatives)		
FEMA Study Type	Yes	Community No.
Detailed FEMA Study with delineated floodway*	<input type="checkbox"/>	
Detailed FEMA Study without delineated floodway*	<input type="checkbox"/>	
Approximate FEMA Study	<input type="checkbox"/>	
No FEMA Study	x	
<p>* May require initiation of the map revision process if impacts to water surface elevations cannot be avoided. Potential impacts to floodplains and/or floodways shall be assessed early in the project. Refer to Sections DR 203 and DR 204 of the Drainage Manual.</p>		

SIGNIFICANT RESOURCE IMPACTS (East & West Alternatives)				
Are open sinkholes impacted?	Yes	<input type="checkbox"/>	No	X
If so, how many sinkholes are impacted?				
Are wetlands impacted?	Yes	<input type="checkbox"/>	No	X
If so, how many total acres are estimated? _____ acres				
Are any of the streams in the project area designated "Special Use Waters" (e.g. Wild Rivers, Exceptional Waters, Outstanding State Resource Water, etc.)?	Yes	<input type="checkbox"/>	No	x
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Where possible, alignments should be developed that avoid significant resources. When it becomes impossible to avoid a significant resource, the project should be designed to minimize these impacts. Significant resource impacts are discussed in DR 202 of the drainage manual. Wetland impacts and their costs are also discussed in DR 500 of the Drainage Manual.</p>				
<p>Projects that impact special use waters may require an individual KPDES Erosion Control Permit. Contact the Division of Environment analysis for more information.</p>				

STREAM CHANNEL IMPACTS (East Alternative)				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? ____ LF	Yes		No	x
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? ____ 440 LF	Yes	X	No	
Will temporary stream crossings be needed?	Yes		No	x
Will excess material sites that require permitting be needed?	Yes	X	No	
Will bridges be constructed?	Yes	x	No	
<p>On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.</p>				

STREAM CHANNEL IMPACTS (West Alternative)				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? __265_ LF	Yes	x	No	
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? ____ 450 LF	Yes	X	No	
Will temporary stream crossings be needed?	Yes		No	x
Will excess material sites that require permitting be needed?	Yes	X	No	
Will bridges be constructed?	Yes	x	No	
<p>On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.</p>				

Section 2 : Impact Discussion

The purpose of the project is to replace the bridge. With the existing bridge now open to traffic (and to remain open until the new structure is open to traffic), access to each side of the stream is readily available. The proposed piers are located at or near the tops of the channel banks, and should be able to be constructed without crossing the stream. Footing locations, however, are likely to be deep and will impact the stream banks. The abutment slopes are also outside the limits of the channel banks. Should the contractor require work pads for equipment mobilization that encroach into the stream, appropriate permits will be obtained.

There are a number of new culverts and culvert extensions proposed, and one channel change (whose drainage area is 42 acres) will impact 265' of existing stream. Erosion controls will be implemented during construction, and modified as it proceeds to prevent sediment from leaving the project site.

Drainage structures affected by the proposed roadway:

Station	Existing Structure	Proposed Structure	Length
240+50	84'-24" RCP	Replace w/30" Pipe	118'
246+63	50'-18" RCP	(None – Diverted to 258+25)	
258+43	50'-18" CMP	(None – Diverted to 258+25)	
258+25	(None – New Location)	24" Pipe	114'
260+50	150' 3-Span Bridge ¹	Replace w/3-Span Bridge ¹	250'
269+83	38'-18" RCP	(None: To Be Removed)	
274+22	84'-2'.5'x2.5' RCBC	30" Pipe	146'
280+49	55'-2.5'x2.5' RCBC	30" Pipe	168'
285+43.23	29'-24" RCP	24" Pipe	86'

- 1) Existing: Vertical Abutments, Concrete T-Beam; Proposed: Spill-Thru (2:1) Abutments, Concrete Beam



LINDA APPEGATE BREEZE (UNMARRIED)
DB 238 PG 471

JAMES L. CLARKE ET. AL.
DB 124 PG 436

55+00

POB 55+07.94

50+00

00+50 NORMA WHITE
DB 153 PG 404

LINDA APPEGATE BREEZE (UNMARRIED)
DB 170 PG 47

STEVE WHITE
DB 18 PG 239

GREGORY P. GAINES ET. AL.
DB 238 PG 462
VIRGINIA GAINES FOX
DB 188 PG 381

STEVEN W. HUMPHRIES
SHARON L. HUMPHRIES (WF)
DB 184 PG 455

LAWREN ZEHR
MARIE ZEHR (WF)
DB 229 PG 205

NORMA WHITE
DB 153 PG 404

SAMUEL D. WHITE
DEBRA E. WHITE (WF)
DB 249 PG 412

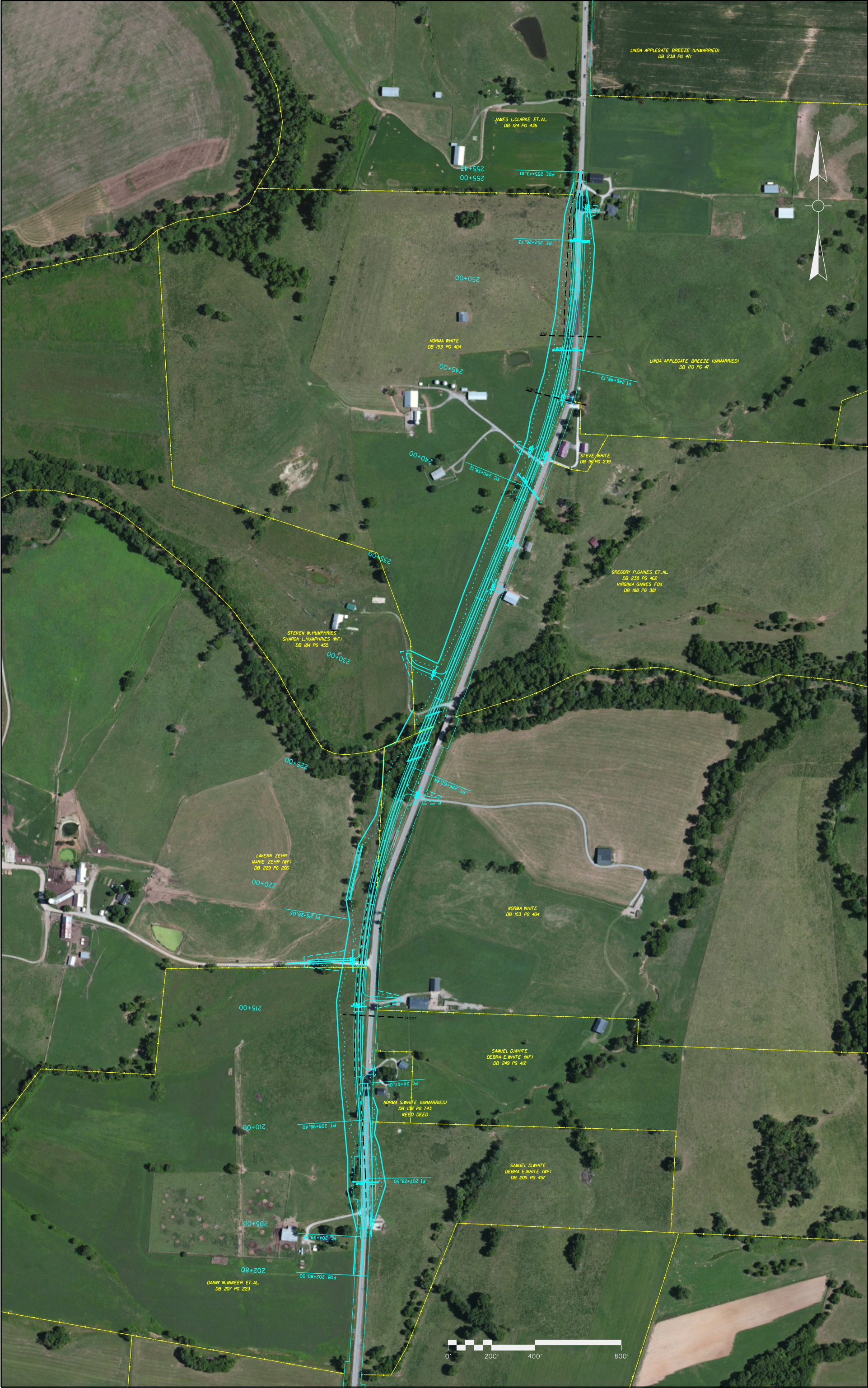
NORMA S. WHITE (UNMARRIED)
DB 138 PG 743
NEED DEED

SAMUEL D. WHITE
DEBRA E. WHITE (WF)
DB 205 PG 457

DANNY W. MINEER ET. AL.
DB 207 PG 223



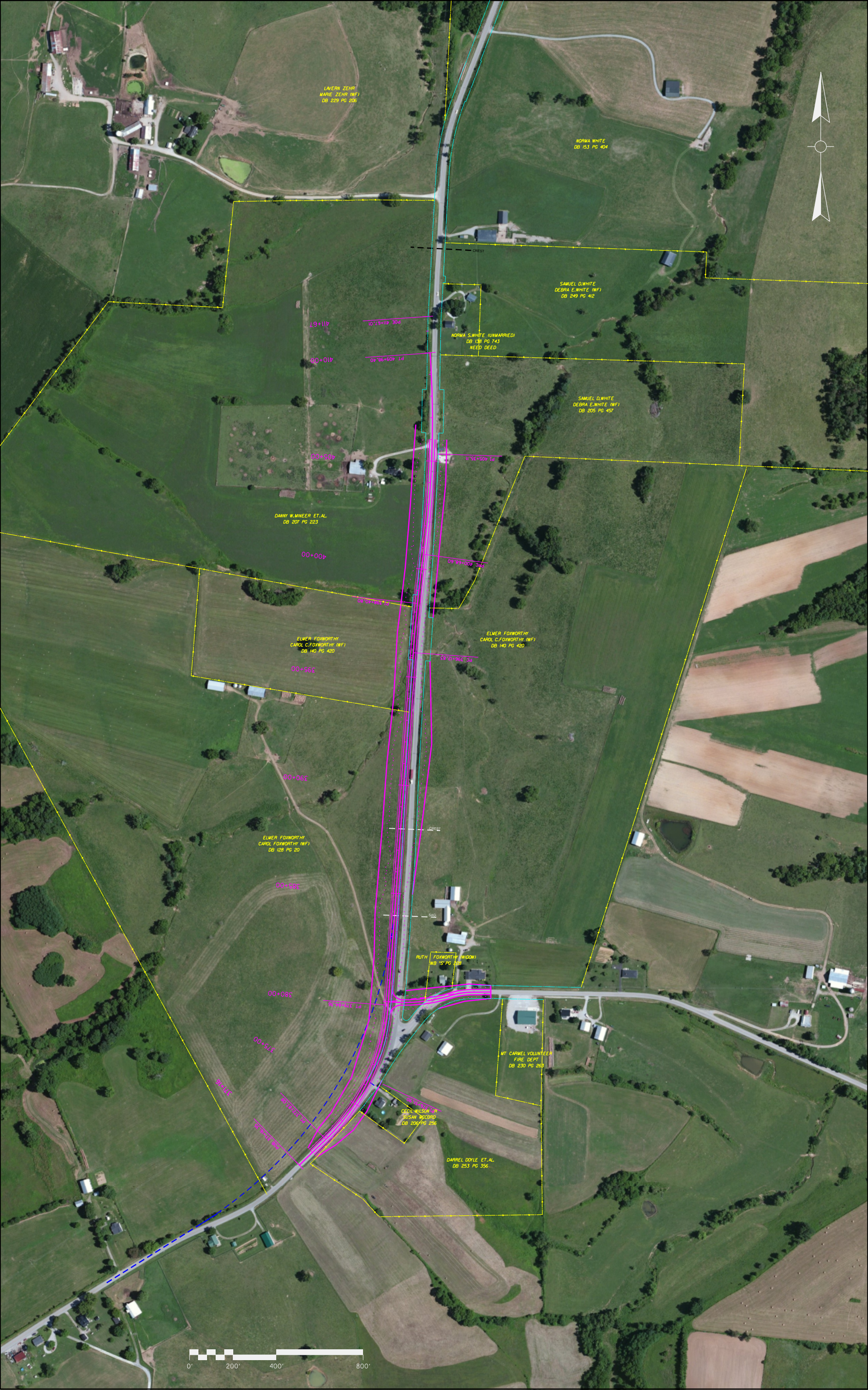
EAST ALTERNATIVE



WEST ALTERNATIVE



SOUTH EAST ALTERNATIVE



SOUTH WEST ALTERNATIVE

Appendix B:
Historic Resources



MATTHEW G. BEVIN
GOVERNOR

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

REGINA STIVERS
DEPUTY SECRETARY

DON PARKINSON
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE

300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

CRAIG A. POTTS
EXECUTIVE DIRECTOR
& STATE HISTORIC
PRESERVATION OFFICER

March 21, 2016

Mr. David M. Waldner, P.E., Director
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street, 5th Floor
Frankfort, KY 40622

**Re: State-Funded Project
KY 57 Bridge Replacement
Fleming and Lewis Counties
Item No. 9-8507.00**

Dear Mr. Waldner:

Thank you for submitting the historic baseline survey report for the above-listed proposed project, which is pursuant to Section 106 of the National Historic Preservation Act of 1966 (16 U. S. C. Sec. 470f) and implementing regulations at 36 C. F. R. Part 800, to the Kentucky Heritage Council (SHPO) for review and comment. We concur that there appear to be five historic properties within the Area of Potential Affect (APE) but that none of them appear to be eligible. We further concur with the finding of **No Historic Properties Affected** for the proposed project.

Should the project plans change, or should additional information become available regarding cultural resources please submit that information to our office as additional consultation may be warranted. If you have any questions please contact Amanda Kincaid of my staff at 502.564.7005, ext. 147.

Sincerely,

Craig A. Potts,
Executive Director and
State Historic Preservation Officer

CP: agk 46359
cc: Jonna Wallace (KYTC:DEA)

Appendix C:
Archaeological Resources



MATTHEW G. BEVIN
GOVERNOR

TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL
THE STATE HISTORIC PRESERVATION OFFICE

REGINA STIVERS
DEPUTY SECRETARY

DON PARKINSON
SECRETARY

300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

CRAIG A. POTTS
EXECUTIVE DIRECTOR
& STATE HISTORIC
PRESERVATION OFFICER

March 28, 2016

Mr. David Waldner, P. E., Director
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, Kentucky 40622

Re: An Archaeological Survey of the Proposed KY 57 Bridge Replacement over the North Fork of the Licking River in Fleming and Lewis Counties, Kentucky by Brian G. DelCastello of Cultural Resource Analysts, Inc., Lexington, Kentucky
KYTC Item Number 9-8507.00

Dear Mr. Waldner,

This letter concerning the above-referenced report supersedes our letter of 3-7-16. This investigation of 24.3 acres entailed geophysical and pedestrian survey and the hand excavation of systematic screened shovel test probes and limited bucket auger tests within the project area. The geophysical survey involved ground penetrating radar and magnetometry of one location, a historic-period cemetery.

During the survey, three (3) previously unrecorded archaeological sites (15Lw218, 15Lw219 and 15F1146) and one (1) isolated find (IF2) were documented within the project area. Sites 15Lw218 and 15F1146 are unassigned prehistoric open habitations without mounds. The author noted that sites 15Lw218 and 15F1146 are likely to extend outside the current project area. Site 15Lw219 is a multicomponent mid-nineteenth century historic cemetery and a minor unassigned prehistoric open habitation. IF2 is a single prehistoric chert flake recovered from an auger test.

The author assessed the portions of sites 15Lw218 and 15F1146 within the project area and the prehistoric component of 15Lw219 to be ineligible for listing in the National Register of Historic Places (NRHP) due to lack of further research potential. The NRHP eligibility of the cemetery component of 15Lw219 was not assessed; instead, the author recommended avoidance or archaeological excavation and relocation of the graves.

#Preservation50: Commemorating the 50th anniversary of the National Historic Preservation Act and the Kentucky Heritage Council 1966-2016

I concur with the authors' assessments of NRHP ineligibility of sites 15Lw218, 15F1146, and the prehistoric component of site 15Lw219. I concur that the historic cemetery component of site 15Lw219 must be avoided or moved, with archaeological investigation as an option. I accept this report without revision and look forward to receipt of one (1) additional copy for archival purposes.

Should the project plans change, or should additional information become available regarding cultural resources or citizens' concerns regarding impacts to cultural resources, please submit that information to our office as additional consultation may be warranted. Should you have any questions, feel free to contact Bill Huser of my staff at 502.564.7005, extension 151.

Sincerely,





Craig A. Potts,
Executive Director and
State Historic Preservation Officer

CP: KHC # 46076 (revised)

cc: George Crothers (OSA); Dan Davis (KYTC); Charles Niquette (CRAI)

Appendix D:
Threatened and Endangered Species

	Kentucky Transportation Cabinet Federal Highway Administration NO EFFECT FINDING																																
KYTC Item No:	9-8507	Route:	KY-57																														
Quadrangle(s):		County(ies):	Fleming/Lewis																														
Project Description: (Type of improvement, areas to be impacted, crossroad improvements, easements, etc.)																																	
KY-57 Reconstruction along the Fleming and Lewis County line.																																	
<p><u>FLEMING and LEWIS COUNTIES LISTED SPP:</u></p> <table border="0"> <tbody> <tr> <td>Indiana Bat</td> <td><i>Myotis sodalis</i></td> </tr> <tr> <td>Northern Long-eared Bat</td> <td><i>Myotis septentrionalis</i></td> </tr> <tr> <td>Fanshell</td> <td><i>Cyprogenia stegaria</i></td> </tr> <tr> <td>Pink Mucket</td> <td><i>Lampsilis abrupta</i></td> </tr> <tr> <td>Rabbitsfoot</td> <td><i>Quadrula cylindrica cylindrica</i></td> </tr> <tr> <td>Rough Pigtoe</td> <td><i>Pleurobema plenum</i></td> </tr> <tr> <td>Sheepnose</td> <td><i>Plethobasus cyphus</i></td> </tr> <tr> <td>Catspaw</td> <td><i>Epioblasma o. obliquata</i></td> </tr> <tr> <td>Clubshell</td> <td><i>Pleurobema clava</i></td> </tr> <tr> <td>Orangefoot Pimpleback</td> <td><i>Plethobasus cooperianus</i></td> </tr> <tr> <td>Ring Pink</td> <td><i>Obovaria retusa</i></td> </tr> <tr> <td>Snuffbox</td> <td><i>Epioblasma triquetra</i></td> </tr> <tr> <td>Virginia Spiraea</td> <td><i>Spiraea virginiana</i></td> </tr> <tr> <td>Running Buffalo Clover</td> <td><i>Trifolium stoloniferum</i></td> </tr> <tr> <td>Short's Goldenrod</td> <td><i>Solidago shortii</i></td> </tr> </tbody> </table>				Indiana Bat	<i>Myotis sodalis</i>	Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Fanshell	<i>Cyprogenia stegaria</i>	Pink Mucket	<i>Lampsilis abrupta</i>	Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	Rough Pigtoe	<i>Pleurobema plenum</i>	Sheepnose	<i>Plethobasus cyphus</i>	Catspaw	<i>Epioblasma o. obliquata</i>	Clubshell	<i>Pleurobema clava</i>	Orangefoot Pimpleback	<i>Plethobasus cooperianus</i>	Ring Pink	<i>Obovaria retusa</i>	Snuffbox	<i>Epioblasma triquetra</i>	Virginia Spiraea	<i>Spiraea virginiana</i>	Running Buffalo Clover	<i>Trifolium stoloniferum</i>	Short's Goldenrod	<i>Solidago shortii</i>
Indiana Bat	<i>Myotis sodalis</i>																																
Northern Long-eared Bat	<i>Myotis septentrionalis</i>																																
Fanshell	<i>Cyprogenia stegaria</i>																																
Pink Mucket	<i>Lampsilis abrupta</i>																																
Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>																																
Rough Pigtoe	<i>Pleurobema plenum</i>																																
Sheepnose	<i>Plethobasus cyphus</i>																																
Catspaw	<i>Epioblasma o. obliquata</i>																																
Clubshell	<i>Pleurobema clava</i>																																
Orangefoot Pimpleback	<i>Plethobasus cooperianus</i>																																
Ring Pink	<i>Obovaria retusa</i>																																
Snuffbox	<i>Epioblasma triquetra</i>																																
Virginia Spiraea	<i>Spiraea virginiana</i>																																
Running Buffalo Clover	<i>Trifolium stoloniferum</i>																																
Short's Goldenrod	<i>Solidago shortii</i>																																
<p><u>This NE will cover listed plant species. Bats and mussels were coordinated with a BA and CMOA.</u></p>																																	
Methodologies: (Methods of assessment, who, what, when, resources, etc.)																																	
Site visit by DEA biologist, ArcMap (aerial, topo, stream orders, soils, ...)																																	

Results: (Compare habitat used by listed species with available habitat)

Plants: Virginia Spiraea occurs on banks, bars, and braided features along larger streams and rivers. This habitat does occur in the project area, however, upon the habitat assessment during the summer, no VS specimens were found. In appropriate habitat areas, either bare ground/boulders, large trees, or grass like vegetation was present.

Running Buffalo Clover is associated with limestone soils, partial shade, and moderate/periodic disturbances. Although some scour areas are present within the project's area, these events are too often and tend to leave the area bare with no vegetative growth. In areas beyond the scour grow thick vegetative grasses and large trees with near complete canopy cover and shade. Also, RBC was not found in the project area during the habitat assessment.

Short's goldenrod is associated with thin soils and glade like habitat. This habitat does not occur anywhere near the project area.

Determinations: No Effect for listed plant species.

The project has been assessed in accordance with the provisions of Section 7 of the Endangered Species Act. As a designated representative of the FHWA, the KYTC has determined that the project will have No Effect on any listed species or their critical habitat, and further Section 7(a)(2) consultation with the Service is not required.


KYTC Signature

1/7/2016
Date

Nathan Click
Print Name

E.A.T.S. Milestones updated

Nathan Click
Name

1/7/2016
Date

Distri	County	Group	Name	Sci Name	EATS	Listing Agency	Status
9	Fleming	Mammals	Indiana Bat	<i>Myotis sodalis</i>	(903) IB	USFWS	Endangered
9	Fleming	Mammals	Northern Long-eared Bat	<i>Myotis septentrionalis</i>	(904) NLEB	KDFWR, USFWS	Threatened
9	Fleming	Mussels	Fanshell	<i>Cyprogenia stegaria</i>	(403) FSM	KDFWR, KSNPC, USFWS	Endangered
9	Fleming	Mussels	Pink Mucket	<i>Lampsilis abrupta</i>	(409) PMM	USFWS	Endangered
9	Fleming	Mussels	Rabbitsfoot	<i>Quadrula cylindrica cyli</i>	(430) RFM	KDFWR	Endangered
9	Fleming	Mussels	Rough Pigtoe	<i>Pleurobema plenum</i>	(417) RPTM	USFWS	Endangered
9	Fleming	Mussels	Sheepnose	<i>Plethobasus cyphus</i>	(415) SNM	KDFWR, KSNPC, USFWS	Endangered
9	Fleming	Mussels	Snuffbox	<i>Epioblasma triquetra</i>	(427) SNB	KDFWR, KSNPC	Endangered
9	Fleming	Plants	Running Buffalo Clover	<i>Trifolium stoloniferum</i>	(112) RBC	USFWS	Endangered
9	Fleming	Plants	Short's Goldenrod	<i>Solidago shortii</i>	(110) SG	KSNPC, USFWS	Endangered
9	Lewis	Mammals	Indiana Bat	<i>Myotis sodalis</i>	(903) IB	KSNPC, USFWS	Endangered
9	Lewis	Mammals	Northern Long-eared Bat	<i>Myotis septentrionalis</i>	(904) NLEB	KDFWR, USFWS	Threatened
9	Lewis	Mussels	Catspaw	<i>Epioblasma o. obliquata</i>	(407) EPM	KDFWR, KSNPC, USFWS	Endangered
9	Lewis	Mussels	Clubshell	<i>Pleurobema clava</i>	(416) CM	USFWS	Endangered
9	Lewis	Mussels	Fanshell	<i>Cyprogenia stegaria</i>	(403) FSM	KDFWR, KSNPC, USFWS	Endangered
9	Lewis	Mussels	Orangefoot Pimpleback	<i>Plethobasus cooperianus</i>	(414) OFPM	KDFWR, KSNPC, USFWS	Endangered
9	Lewis	Mussels	Pink Mucket	<i>Lampsilis abrupta</i>	(409) PMM	KDFWR, KSNPC, USFWS	Endangered
9	Lewis	Mussels	Rabbitsfoot	<i>Quadrula cylindrica</i>	(430) RFM	KDFWR, KSNPC, USFWS	Endangered
9	Lewis	Mussels	Ring Pink	<i>Obovaria retusa</i>	(412) RPM	KDFWR, KSNPC, USFWS	Endangered
9	Lewis	Mussels	Rough Pigtoe	<i>Pleurobema plenum</i>	(417) RPTM	KDFWR, KSNPC, USFWS	Endangered
9	Lewis	Mussels	Sheepnose	<i>Plethobasus cyphus</i>	(415) SNM	KDFWR, KSNPC, USFWS	Endangered
9	Lewis	Mussels	Snuffbox	<i>Epioblasma triquetra</i>	(427) SNB	KDFWR, KSNPC, USFWS	Endangered
9	Lewis	Plants	Virginia Spiraea	<i>Spiraea virginiana</i>	(111) VS	KSNPC, USFWS	Threatened







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

December 30, 2015

Mr. David M. Waldner
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, Kentucky 40622

Re: FWS 2016-B-0136; KYTC 9-8507; KY-57 reconstruction; located in Fleming and Lewis counties, Kentucky

Dear Mr. Waldner:

The U.S. Fish and Wildlife Service (Service) has reviewed your December 3, 2015 correspondence and the Biological Assessment (BA) prepared by HMB Professional Engineers, Inc. (HMB) regarding the above-referenced project. The Service 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.*) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*).

Indiana bat (*Myotis sodalis*)

Northern long-eared bat (*Myotis septentrionalis*)

The proposed project is in potential Indiana bat habitat and northern long-eared bat habitat, and KYTC has chosen to assume presence of the species in the project area. KYTC did not observe any caves or portals during the field assessment of the project area and did not evaluate the potential for winter habitat surrounding the immediate project area because impacts are not anticipated to extend beyond the immediate project area. Therefore, the proposed project is not likely to impact potential Indiana bat hibernacula. Suitable summer roosting habitat will be removed as a part of the proposed project. KYTC will address any impacts to the Indiana bat and the northern long-eared bat as a result of the forested habitat removal through adherence to an Interim Process that utilizes framework in the September 6, 2012 Indiana Bat Programmatic Agreement between KYTC, FHWA, and the Service or a 2015 FHWA Range-Wide Programmatic Agreement. In both of these agreements, KYTC follows a process that will conclude with a "not likely to adversely affect" determination or a "likely to adversely affect determination" involving mitigation in accordance with the Service's 2015 Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky for the Commonwealth of Kentucky. Either of these processes will fulfil KYTC's ESA section 7 obligations regarding

summer habitat removal for the Indiana bat and can also be relied upon to fulfil the section 7 obligations of other federal action agencies. In addition to the species addressed above, KYTC made “no effect” determinations for the following species: Virginia spiraea (*Spiraea virginiana*), running buffalo clover (*Trifolium stoloniferum*), and Short’s goldenrod (*Solidago shortii*). The Service has no further comments regarding these species.

Federally-listed mussel species

HMB conducted a mussel survey on September 21, 2015 extending 500 feet upstream of the existing bridge to 1,000 feet downstream of the existing bridge. In which no federally-listed mussel species were found. Live mussels representing five species were found; one additional species was represented by a relic shell only. No live or relic shells of any federally-listed mussels were found. In addition to the probable absence of the species in the action area of the project, the new bridge piers will be placed outside of normal stream flow. Because of the temporary nature of the disturbance that may occur during construction, and the implementation of minimization measures discussed in section 7.1 of the BA to limit impacts to water quality, we believe that any impacts to mussels downstream of the surveyed area would be insignificant and/or discountable. Based on the information available to us, we concur that the proposed project is not likely to adversely affect (1) fathead minnow (*Cyprogenia stegaria*), pink mucket (*Lampsilis abrupta*), rabbitsfoot (*Quadrula c. cylindrica*), rough pigtoe (*Pleurobema plenum*), sheepsnose (*Plethobasus cyphus*), purple catpaw (*Epioblasma o. obliquata*), clubshell (*Pleurobema clava*), orangefoot pimpleback (*Plethobasus cooperianus*), ring pink (*Obovaria retusa*), and snuffbox (*Epioblasma triquetra*).

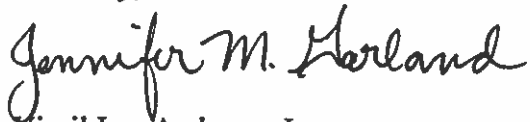
Fish and Wildlife Coordination Act Comments

The proposed project plans specify that the impacted area will be re-vegetated using seed mixes that contain tall fescue (*Festuca arundinacea*) and/or sericea lespedeza (*Lespedeza cuneata*). Both of these grass species are designated as “severe threat” on the Kentucky Exotic Pest Plant Council’s Exotic Invasive Plants of Kentucky 2013 list. Both species out compete native plant species and are allelopathic. Furthermore, tall fescue stands are usually infected by a fungus that, when ingested, is harmful to wildlife and livestock. The Service recommends using native species to re-vegetate the area in the proposed project. Planting native or noninvasive grasses, such as switchgrass (*Panicum virgatum*) and indiangrass (*Sorghastrum nutans*); forbs, such as white clover (*Trifolium repens*) and partridge pea (*Chamaecrista fasciculata*); shrubs; and trees would provide bank stability and long-term benefits to migratory birds, other wildlife, and water quality.

In view of these findings we believe that the requirements of section 7 of the Endangered Species Act have been fulfilled for this project. Your obligations under section 7 must be reconsidered, however, if: (1) new information reveals that the proposed action may affect listed species in a manner or to an extent not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated.

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 Jessica Blackwood Miller at (502) 695-0468 extension 104 or jessica_miller@fws.gov.

Sincerely,


for Virgil Lee Andrews, Jr.
Field Supervisor