

ORDINANCE NO. 530.60

AN ORDINANCE ESTABLISHING LIMITS AND RESTRICTIONS
ON KENNETH UTLEY DRIVE & DITMORE FORD ROAD IN SIMPSON COUNTY

WHEREAS, the Simpson County Fiscal Court has been made aware of a proposed commercial operation that could locate on the Ditmore Ford Road in Simpson County; and

WHEREAS, the Simpson County Fiscal Court has performed an analysis of the Kenneth Utley Drive/Ditmore Ford Road by employing the services of a professional engineering firm familiar with the Kentucky Transportation Cabinet designs for road construction and road standards; and

WHEREAS, said analysis, included as an attachment to this ordinance, determines that the Kenneth Utley Drive/Ditmore Ford Road, in its current condition, is inadequate to support regular commercial truck traffic, of such type as would support the proposed commercial operation, due to the sub-standard base and pavement conditions, narrow width, dangerous vertical and/or horizontal alignments, as well as the inadequate design and support of the low-water ford crossing constructed across the West Fork of Drakes Creek; and

WHEREAS, the Simpson County Fiscal Court deems it necessary to enact an ordinance to protect and preserve the health, safety, welfare and convenience of the inhabitants of Simpson County, including the residential commuter traffic on Kenneth Utley Drive/Ditmore Ford Road, as well as the recreational traffic utilizing Kenneth Utley Drive/Ditmore Ford Road to access the community park facilities, pursuant to the Fiscal Court's authority under KRS 189.230;

NOW, THEREFORE, BE IT ORDAINED BY THE SIMPSON COUNTY FISCAL COURT that Kenneth Utley Drive/Ditmore Ford Road in Simpson County shall be restricted to residential commuter traffic, recreational traffic utilizing the community park, and other non-commercial traffic customary in the normal course of rural road travel, with the following exceptions:

1. Regular and/or weekly residential garbage pick-up provided by approved waste haulers licensed for such business within Simpson County, including traffic to and from the Simpson County Convenience/Recycling Center.
2. School bus and other pupil transportation vehicles used for the regular transportation of school children to and from school.
3. Motor vehicles specifically exempted by KRS 189.2225(3), KRS 189.2226, and any other applicable Kentucky Revised Statute.

Any person, persons, corporations or associations, or other entity violating the provisions of this ordinance shall be fined not less than \$100.00 nor more than \$500.00 per day per incident, or be sentenced to no more than ninety (90) days in jail, or both fines and incarceration. Restitution may also be sought for the amount of damage caused to the road, including the complete cost of repairs and/or reconstruction of the road. Both the driver of the vehicle and the vehicle's owner shall be responsible for any violations of this ordinance, jointly and severally.

This ordinance shall become effective upon passage and publication.

April 16, 2013 FIRST READING

April 30, 2013 SECOND READING

At a meeting of the Simpson County Fiscal Court, Commonwealth of Kentucky, held on April 30, 2013, on a motion by Honorable Marty Chandler, and seconded by Honorable Kelly Banton, the foregoing ordinance was adopted, after full discussion by the following vote:

Yes Kelly Banton

Yes Marty Chandler

Yes Larry Randolph

Yes Blake Tarpley

Approved:

By:



Jim Henderson, Judge/Executive
County of Simpson

ATTEST:

Pam Rohrs

Pam Rohrs, Fiscal Court Clerk
County of Simpson, Commonwealth of Kentucky

Date: April 30, 2013



AMERICAN ENGINEERS, INC.
PROFESSIONAL ENGINEERING

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Glasgow, KY 42141
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November 8, 2012

Honorable Jim Henderson
Simpson County Judge/Executive
P.O. Box 242
Franklin, KY 42135

Re: Results of Pavement Evaluation
Ditmore Ford Road
Simpson County, Kentucky
AEI Project Number 212-083

Dear Judge:

As requested, American Engineers, Inc. (AEI) has drilled 12 soil test borings as well as performed supporting laboratory testing for the referenced road. The purpose of this scope of services was to determine the remaining life of the existing pavement section under current traffic conditions as well as to project the life associated with the additional heavy truck traffic from a proposed quarry. The roadway is generally about 16 feet wide and shows signs of pavement failure in a few locations. The photo below, to the left, shows one such location on the north side of the low water ford (visible in the distance) with a closer view of the pavement shown below, to the right.



It is our understanding that the existing roadway currently carries residential traffic that includes one school bus twice per day, one garbage truck per week, and approximately 100 cars per day. We have also assumed two 10,000 pound delivery trucks per day. Further, we understand that the proposed quarry operation would require as many as 50 triaxle dump trucks per day. Assuming that these trucks



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carry 25 tons per load, this equates to a total of about 1,250 tons per day. We have assumed that these trucks would enter empty at 25,000 pounds and leave full at 75,000 pounds per day. Further, we understand that it may be possible to transport the tonnage referenced above utilizing single axle dump trucks that would typically enter empty at 15,000 pounds and leave full with up to 35,000 pounds. This would require approximately 125 trips to move the same tonnage utilizing single axle dump trucks.

The borings were drilled utilizing a truck-mounted drill rig equipped with continuous flight hollow-stem augers. Standard penetration tests (SPT's) were obtained at selected depth intervals to provide an indication of the strength consistency of the pavement subgrade soils. A Professional Geologist was on-site throughout the exploration to log the soil materials encountered in the borings as well as obtain samples representative of the predominant soil horizons. Measurements of the pavement cross-section were performed at each location including the asphalt and crushed stone thickness. The borings were typically drilled within two feet of the edge of pavement generally on alternating sides of the roadway. Initially, the intent was to drill several of the borings along the centerline of the roadway, however, this was not possible due to the inability to allow traffic around the drill rig with this configuration. A boring layout drawing showing the approximate boring locations is attached.

The borings encountered asphalt to depths ranging from 2 ¼ to 5 ½ inches with an average of 3 ¼ inches. Crushed stone thicknesses range from zero to nine inches with an average of five inches. A summary of the asphalt and crushed stone thicknesses encountered at the boring locations is shown in the following table.

Table 1: Pavement Thickness Summary

Boring Number	Asphalt Thickness (inches)	Crushed Stone Thickness (inches)
B-1	5 ½	5 ½
B-2	3 ½	6
B-3	3 ½	3
B-4	3 ½	0
B-5	2 ½	1 ½
B-6	2 ¼	5
B-7	2 ½	3
B-8	3	8
B-9	3 ½	5
B-10	3 ¼	9
B-11	3	5 ½
B-12	3	9



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Below the asphalt and crushed stone, low plasticity lean clay soil was typically encountered to the boring termination depths. Moisture contents of the clay soil range from 12 to 41 with most values from 19 to 25 percent. SPT N-values range from three to 22 with most values from seven to 12 indicative of mostly medium stiff to stiff strength consistencies with isolated soft and very stiff zones. Unconfined compressive strength results range from 1,474 to 6,864 pounds per square foot (psf) with most values exceeding 1,700 psf. These results compare favorably with the SPT N-values. Standard Proctor tests were performed on three distinct samples representative of the predominant soil horizons and indicate maximum dry densities of 105.4, 108.2, and 111.6 pounds per cubic foot (pcf) at optimum moisture contents of 16.5, 16.0, and 13.4 percent, respectively. Three-point California Bearing Ratio (CBR) tests were performed on the same samples and resulted in values of 4.5 and 4.2 percent at 0.2 inches penetration. Dry densities measured prior to performing the unconfined compressive strength tests range from 91 to 110 pcf corresponding to 85 to 100 percent of the standard Proctor maximum dry density with most values greater than 92 percent. The above data indicates reasonable compaction levels for the roadway subgrade materials. Copies of the borings logs and laboratory test data are attached.

The remaining life of the existing pavement was projected utilizing the Asphalt Institute's Effective Thickness Procedure for Overlay Design. Based on the average thickness of the pavement measured in the borings as well as the general condition of the pavement as observed during our exploration, the remaining ESAL (Equivalent Single Axle Load) capacity of the pavement is estimated to be 7,000. An ESAL is the measure of the amount of damage done to the pavement by one application of a single axle load (four tires) weighing 18,000 pounds. Therefore, the ESAL's per truck varies dependent upon the number of axles per truck and the specific loadings on each axle or axle group.

Due to the narrow width of the road, it is assumed that during one trip, the typical vehicle may pass over the pavement twice (once on the way in and once on the way out). A typical garbage truck will impart 2 ESAL's per pass or a total of 208 ESAL's per year for a frequency of once per week. A typical school bus will impart 1.2 ESAL's per pass or a total of 840 ESAL's for a 175 day school year (2 trips per day, four passes). The light delivery trucks will impart 0.1 ESAL's per pass with a total of 73 ESAL's per year. One hundred cars or light trucks per day will impart 0.01 ESAL's per pass for a total of 730 ESAL's per year. Based on our calculations, the remaining life of the pavement under the current configuration and existing traffic volumes is nearly four years.

The proposed quarry operation will require the road to carry up to 50 triaxle trucks per day. An empty triaxle truck weighing 25,000 pounds will impart 0.8 ESAL's per truck. A triaxle truck loaded to 75,000 pounds will impart 2.9 ESAL's per pass. These values equate to an additional 46,250 ESAL's per year assuming a 5 day work week and 50 weeks of operation per year. Using these calculations, the life of the pavement would be reduced to less than 2 months. We have also evaluated the use of single axle dump trucks to move the same tonnage. Since these trucks are estimated to impart 1.7 ESAL's loaded



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and 0.3 ESAL's empty, the calculations indicate an increase in yearly ESAL's above that utilizing triaxle dump trucks resulting in a pavement life less than that projected above.

In summary, our analysis indicates that the roadway is already substandard for the existing traffic volume loadings. Any consistent heavy truck traffic would consume the remaining ESAL life of the existing pavement very quickly and significant reconstruction would be required.

We appreciate the opportunity to provide these engineering services. Please call if you have questions or need additional information at this time.

Respectfully,

AMERICAN ENGINEERS, INC.

A handwritten signature in blue ink that reads "Dennis Mitchell".

Dennis Mitchell, PE
Director of Geotechnical Services



NO.	DATE	REVISION

DRN/

BORING LAYOUT

SIMPSON COUNTY FISCAL COURT

DITMORE FORD ROAD SIMPSON COUNTY, KY

PROJECT:

SCALE: NOT TO SCALE

DATE: 10-26-12

DRAWN BY: G. CASH

CHECKED BY: D. MITCHELL

FILE: P:\12\1208\120801\120801.dwg

SHEET: **B1**

LEGEND

⊙ SOIL TEST BORINGS WITH STANDARD PENETRATION TESTS AND / OR UNDISTURBED TUBE SAMPLES

NOTE: ALL BORING LOCATIONS APPROXIMATE