

United States Department of the Interior
National Park Service

NR 1/29/08

National Register of Historic Places
Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Evansville-Dutch Mills Road Bridge
other names/site number Bridge #17383 / Site # WA0967

2. Location

street & number South Dutch Mills Road/County Road 464 not for publication
city or town Dutch Mills vicinity
state Arkansas code AR county Washington code 143 zip code 72729

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this nomination
request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic
Places and meets the procedural and professional requirements set for in 36 CFR Part 60. In my opinion, the property meets
does not meet the National Register criteria. I recommend that this property be considered significant
 nationally statewide locally. (See continuation sheet for additional comments.)

Signature of certifying official/Title Date
Arkansas Historic Preservation Program
State or Federal agency and bureau

In my opinion, the property meets does not meet the National Register criteria. (See Continuation sheet for additional
comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:
 entered in the National Register.
 See continuation sheet
 determined eligible for the
National Register.
 See continuation sheet
 determined not eligible for the
National Register.
 removed from the National
Register.
 other, (explain:) _____

Signature of the Keeper Date of Action

Evansville-Dutch Mills Road Bridge

Name of Property

Washington County, Arkansas

County and State

5. Classification

Ownership of Property
(Choose as many boxes as apply)

- private
public-local
public-State
public-Federal

Category of Property
(Choose only one box)

- building(s)
district
site
structure
object

Number of Resources within Property
(Do not include previously listed resources in count.)

Contributing Noncontributing

Table with 2 columns: Contributing, Noncontributing and 4 rows: buildings, sites, structures, Total. Values: 1, 1

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)

Historic Bridges of Arkansas

Number of Contributing resources previously listed
in the National Register

6. Function or Use

Historic Functions
(Enter categories from instructions)

TRANSPORTATION/Road-Related/Bridge

Current Functions
(Enter categories from instructions)

TRANSPORTATION/Road-Related/Bridge

7. Description

Architectural Classification
(Enter categories from instructions)

Other/closed-spandrel concrete arch deck

Materials
(Enter categories from instructions)

foundation Concrete, reinforced

walls N/A

roof N/A

other Concrete, reinforced/Earth

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- Criteria A, B, C, D with checkboxes and descriptions.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is:

- Criteria A through G with checkboxes and descriptions.

Levels of Significance (local, state, national)

Local

Areas of Significance (Enter categories from instructions)

Engineering

Transportation

Period of Significance

1936-1958

Significant Dates

1936

Significant Person (Complete if Criterion B is marked)

Cultural Affiliation (Complete if Criterion D is marked)

Architect/Builder

Luten Bridge Company of Little Rock, AR

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

- Documentation criteria with checkboxes and fields for survey numbers and record numbers.

Primary location of additional data:

- Location criteria with checkboxes: State Historic Preservation Office, Other State Agency, Federal Agency, Local Government, University, Other.

Name of repository:

Washington County Archives, Fayetteville, AR

Evansville-Dutch Mills Road Bridge

Name of Property

Washington County, Arkansas

County and State

10. Geographical Data

Acreage of Property Less than one

UTM References

(Place additional UTM references on a continuation sheet.)

1 15 364597 3969842
Zone Easting Northing
2

3
Zone Easting Northing
4

See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Van Zbinden, National Register Historian
organization Arkansas Historic Preservation Program date 21 September 2007
street & number 1500 Tower Building, 323 Center Street telephone 501.324.9880
city or town Little Rock state AR zip code 72201

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

- A USGS map (7.5 or 15 minute series) indicating the property's location
A Sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black and white photographs of the property.

Additional items

(Check with the SHPO or FPO for any additional items.)

Property Owner

(Complete this item at the request of SHPO or FPO.)

name Washington County, Judge Jerry Hunton
street & number 280 North College Street, Suite 500 telephone 479.444.1700
city or town Fayetteville state AR zip code 72701

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listing. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.)

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P. O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20303.

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Summary

Evansville-Dutch Mills Road Bridge, Bridge #17383, crosses Whitaker Branch south of the village of Dutch Mills in western Washington County, Arkansas. The bridge is a reinforced concrete, filled-spandrel arch built in 1936. It consists of one span of a total length of approximately thirty (30) feet with a height above water of approximately ten (10) feet.

Elaboration

Luten Bridge Company of Little Rock, Arkansas, built the reinforced concrete, filled—or closed—spandrel arch bridge over Whitaker Branch in western Washington County in 1936. The bridge was completed by the Luten Bridge Company and paid for by the county government of Washington County. It was one of the last bridges to be built by Luten in the county. The bridge is of Luten's standard design with gently sloping, shallow arches, spandrel walls topped with coping at the deck, and solid balusters with square inset detail. There are no piers as the bridge is quite short. Only one span, the bridge is thirty feet long with a span of twenty-eight feet. The bridge is approximately ten feet above the water and the deck is fifteen feet wide. The spandrel walls of the bridge appear to have been brush hammered; a type of finishing common to Luten bridges. Unlike many Luten bridges, the rings were not also polished for decorative effect.

Daniel B. Luten began his career in commercial bridge design in 1902 when he founded the National Bridge Company in Indianapolis, Indiana. Luten was an engineer who preached economics as well as solid engineering design. His designs consistently focused on strengthening the bridge while also reducing the amount of material needed to construct the bridge. Primarily this was accomplished by connecting the reinforcement of the piers with that of the rings while simultaneously connecting the rings to the spandrel walls. In this way, Luten increased the strength of the bridge while reducing the amount of material needed to build the bridge. It was the economical design and strength of the Luten bridges that proved their success. The Luten Bridge Company of Knoxville successfully bid on several of the filled spandrel arch bridges in Washington County and won each contract.

Bridge #17383, as numbered by the Arkansas Highway and Transportation Department, connects Dutch Mills with Evansville on what is now known as Dutch Mills Road South or County Road 464. Originally this route was part of Butterfield's Stage Route and the Cane Hill Road. It served as an important connection between Fayetteville, Cane Hill, Evansville, Fort Smith, and points west. Dutch Mills was once an important milling community with grist mills and saw mills along with a cotton gin. The community is now primarily a farming community.

Evansville-Dutch Mills Road Bridge
Name of Property

Washington County, Arkansas
County and State

United States Department of the Interior
National Park Service

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Integrity

Evansville-Dutch Mills Road Bridge, Bridge #17383, retains good integrity. The county transportation department has done an excellent job in maintaining the bridge. There have been no modifications or changes to the bridge, nor have there been unnecessary or extensive repairs. The roadway has never been modified and is still in similar condition to that of 1936.

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Summary

Evansville-Dutch Mills Road Bridge, Bridge #17383, is being nominated to the National Register of Historic Places with **local significance** under **Criterion C** as a good example of reinforced concrete, filled-spandrel bridge construction. The bridge is also a good example of Daniel B. Luten bridge design in Washington County, Arkansas. The bridge is also being listed under **Criterion A** for its association with transportation in Washington County. Bridge #17383 is being submitted to the National Register of Historic Places under the multiple property listing "Historic Bridges of Arkansas."

Elaboration

On 10 July 1850, Johann Heinrich Hermann wrote to his brother Wilhelm about his newly adopted home. Hermann, whose English name was John Henry, wrote, "So with Ganter I got on the road south and after several weeks...I arrived in Washington County, Arkansas, where I found all the things I desired: rich upland soil, springs and brooks in great numbers, and a healthy location."¹ Johann regales his brother with stories of grape vines a foot thick and of berry bushes covering entire hills. The winters, according to Johann, are mild and the summers not too hot. It was here in this new land that he was going to accomplish his new dream of producing silk.²

Johann Hermann came to the United States in 1849. In letters to his mother he tells that he left from the port of Le Havre, France, on 29 July 1849 and arrived in New York 26 August on the ship Louisiana. Hermann was born 28 May 1823 in Mannheim, Germany. He attended Vienna Polytechnic and the University of Heidelberg before making his early career in engineering and manufacturing. Soon after school he took a job as an engineer in a French factory. His manufacturing career in France came quickly to an end during the February Revolution in 1848 and Hermann returned home to Germany. It was soon after, that his friend Ganter convinced him to travel to the United States.³

"From earlier reports I knew that New York is a fine city but I could not have imagined its real magnificence. But I cannot remain here. According to all those to whom I was recommended, it is not possible for a foreigner to get a position as an engineer or draftsman immediately."⁴ Taking these recommendations to heart, Hermann left New York for Albany, Buffalo, and Detroit.

¹ Johann Heinrich Hermann to Wilhelm Hermann, 10 July 1850, translated and reprinted in W. J. Lemke, ed. *The Hermanns of Old Hermannsburg, Washington County, Arkansas* (Fayetteville, AR: Washington County Historical Society, 1965), 19.

² Ibid.

³ Ibid., 8, 12.

⁴ Johann Heinrich Hermann to Elise Hermann, 31 August 1849, in Lemke, 12.

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It is unknown if Hermann attempted to find work in these places but on 20 March 1850 Hermann mailed a letter from Memphis, Tennessee, informing his mother that he was on a steamboat from New Port, Missouri to meet his friend Ganter in Arkansas. In early 1850, Ganter convinced Hermann to visit him in western Washington County. Hermann gives no reason for his visit in March saying only, "From that time we discussed the best thing to do."⁵ Over the summer of 1850 he found work in the grist mill of Freyschlag von Karrback, working to maintain and update the mechanical systems in the mill.

Hermann returned to New Port in the fall of 1850 where he married Nanni Wilhelmi. Nanni, Johann, and a hired German immigrant returned to Washington County, Arkansas in the spring of 1851. Hermann was intent this time on settling down. "I have had enough of this homeless wandering-about," he wrote in 1850.⁶ Hermann purchased the unfinished mill of Booker Smith on the Whitaker Branch in western Washington County in 1851. He wrote to his mother, "it is a desirable location in every respect, in the center of a rich section of Arkansas, on the Texas Road and with a more constant water-flow than any other mill."⁷ According to Hermann's letters, due to lack of funds, Smith failed to complete his mill on the site. An 1834 map of the township and range shows a mill and distillery along the Whitaker Branch that were possibly Smith's.⁸

It took over a year for Johann Hermann and his hired employees to complete the construction of the mill. By that time they had been joined by fellow immigrants from Germany. Hermann wrote in July 1852, "Both of the new immigrants have arrived here...[and] will stay with me and help me to bring the mill into operation."⁹ The letters home finally convinced Karl, Johann's brother, to come to the new village and he arrived in the spring of 1853. That same year the petition for a post office was approved and the growing village beside the Whitaker Branch on the Cane Hill Road officially became known as Hermannsberg.¹⁰

⁵ Johann Heinrich Hermann to Elise Hermann, 20 March 1850, in Lemke, 15.

⁶ Johann Heinrich Hermann to Elise Hermann, 12 October 1850, in Lemke, 20.

⁷ Johann Heinrich Hermann to Elise Hermann, 19 May 1851, in Lemke, 22.

⁸ Bureau of Land Management, General Land Office Records, "Township 14 North, Range 33 West, Arkansas, 5th Prime Meridian," document id 5756, available online at <http://www.glorerecords.blm.gov/>, accessed 25 September 2007. See Figure 1.

⁹ Johann Heinrich Hermann to Elise Hermann, 25 July 1850, in Lemke 30.

¹⁰ Russell Pierce Baker, *From Memdag to Norsk: A Historical Directory of Arkansas Post Offices 1832-1971* (Hot Springs: Arkansas Genealogical Society, 1988), 104.

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There were at least fourteen German families who chose to settle in Hermannsberg. Many, like Karl Hermann and Julius Wilhelmi, came because of family connections. After settling, Karl built and operated a dry goods store not far from his brother's mill. In 1855, Johann Hermann, with his brother-in-law Julius Wilhelmi, converted the water powered grist mill to a steam mill and added wool carding equipment.¹¹ The town became an important location at the Cane Hill Road ford of the Barren Branch of the Illinois River. The road was the primary route between Fort Smith, Van Buren, and Fayetteville via Evansville, Hermannsberg, Cane Hill, and Prairie Grove. In fact it was so important and well traveled that when John Butterfield was looking for routes for his new stage operation—Butterfield's Overland Mail—he and his engineers examined the possibility of using the Cane Hill Road.

Local stages were already in operation between Fort Smith and Fayetteville over the Cane Hill Road when John Butterfield won his contract for a cross country mail route in 1857. Therefore when Butterfield and his engineers visited Washington County in late 1857 and early 1858 they examined the Cane Hill Road as a possibility for their mail route from Tipton, MO to Fort Smith and ultimately San Francisco. Though none of the roads in southern Washington County appeared to be in the best shape—one reporter noted, "I might say our road was steep, rugged, jagged, rough and mountainous—and then wish for some more expressive words in the language"—the Cane Hill Road was particularly treacherous.¹² The route through the valleys required fording five unbridged river crossings: it crossed the Illinois River at Cane Hill, the Barren Fork of the Illinois near Dutch Mills, Evansville Creek, Mountain Fork Creek, Natural Dam Creek, and Lee Creek between Evansville and Cedarville. Additionally, rain soaked the clay soils and quickly made sticky, slow roads that were highly likely to mire animals and wagons alike.¹³

The Butterfield Overland Mail bypassed the Cane Hill route in favor of the Boston Mountain Road which, though in just as rough condition, had only two fords. Connecting stages continued to offer passage between Fayetteville and Fort Smith along the Cane Hill Road. In 1859, Washington County finally built a bridge over the Illinois River at Cane Hill. The *Fayetteville Arkansian* noted, "We are gratified to learn that the long talked of bridge across the Illinois [River] at Cane Hill crossing is in a fair way of being built."¹⁴

¹¹ Lemke, 5. Also Karl Frederich Hermann, *Chronik der Familie Heinrich Hermann, 1650 bis 1900*, trans. Clarence Evans, "Memoirs, Letters, and Diary Entries of German Settlers in Northwest Arkansas, 1853-1863," *Arkansas Historical Quarterly* Volume VI, No. 3 (Fall, 1947): 227.

¹² *Fayetteville Arkansian*, quoted in Phillip W. Steele, *The Butterfield Run Through the Ozarks* (Springdale, AR: Heritage Publishing Co., 1966), 18. In 1851, the *Fort Smith Herald* wrote, "We have no roads of any kind except a few that are merely cut out and not fit to travel over. It does not appear that the people of this state manifest more apathy on the improvement of the roads of the State than any other State of the Union." Quoted in Robert B. Walz, "Migration into Arkansas, 1820-1880: Incentives and Means of Travel," *Arkansas Historical Quarterly* Volume XVII, No. 4 (Winter 1987): 321.

¹³ Mary Frances Ezell, "The Problem of Selecting the Northern Arkansas Route for the Butterfield Overland Mail," *Arkansas Historical Quarterly* Volume XVII, No. 3 (Autumn 1958): 237.

¹⁴ *Fayetteville Arkansian*, quoted in Ezell, 235.

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Indeed the small town of Hermannsberg prospered along a well traveled road. The Cane Hill Road connected Hermannsberg to Cane Hill, Prairie Grove, Fort Smith, and Fayetteville. It brought local farmers to town to shop at Karl Hermann's dry goods store and to purchase lumber from Johann Hermann's saw mill. On the eve of the Civil War Johann Hermann's mill was one of thirteen grist mills in the county producing an estimated \$290,500 dollars of goods each year. His carding mill was one of only three mills in the county. These three mills employed nine, including two women, and produced almost \$16,000 dollars in finished wool. Hermann's saw mill was one of only four in the county making Hermannsberg an important distribution center for lumber products.¹⁵ As beneficial as the Cane Hill Road was for the growth and prosperity of Hermannsberg, it would ultimately bring about the town's demise.

Karl Hermann observed in his memoir, "the question of admitting Kansas into the Union had produced a violent cleavage within the ranks of political parties and had divided them into Northern and Southern wings."¹⁶ Many of the German immigrant families living in Hermannsberg worried about the possibility of a Civil War. Though they owned slaves, the group largely supported the Union. The Hermann brothers, having both experienced civil war in Europe, expressed dismay over the secessionist movement. "The pro-secession forces won the election, but only as a result of using intimidation,"¹⁷ noted Karl. When asked about his opinion of the election to secede, Karl remarked, "I don't like it at all. Never desert the old ship Union." He continued, "An ambiguous silenced followed. After I had spoken shortly on the horrors that go with civil war, I decided it the wiser course to drop the subject altogether."¹⁸

The horrors of the Civil War would indeed visit Hermannsberg. Cane Hill Road became the primary route for both Northern and Southern forces during the war. During the battles at Cane Hill and Prairie Grove the town of Hermannsberg was occupied by both forces. The fact that the Hermanns and their fellow citizens were known Union supporters brought regular visits by bands of Southern sympathizers who terrorized the population. One neighbor, a man known only as Dannenberg, was killed by a group of men looking to rob his home; the same was true of a man named Malloy.¹⁹

¹⁵ United States Department of the Interior, Bureau of the Census, *Manufactures of the United States in 1860; Compiled from the Original Returns of the Eighth Census* (Washington, DC: GPO, 1865), 20.

¹⁶ Hermann, trans. Evans, 229.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Evans, 229, footnote 4; 230, footnote 6.

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Karolina Hermann, wife of Karl, kept a diary in which she notes almost daily visits by the armies or their marauding bands. In 1862 she wrote, "The last two years have been trying ones for us; somehow things seem to grow worse instead of better."²⁰ Throughout November 1862 Hermannsberg was looted by both armies and roving bands of criminals. Hogs, chickens, flour, and bread were stolen time and again. On 18 November Karl's store was broken into and almost completely emptied. After the battle of Prairie Grove the looting became more sinister, "They demanded money, looked through everything and carried away much stuff....The scoundrels took coffee, flour, clothes, shirts, handkerchiefs, and some clothes made of especially fine material that Fritz had bought me. They spent two hours, then went away."²¹

On 18 December 1862 the Hermanns and many of their neighbors left Hermannsberg as refugees. Escorted by over 100 Union soldiers they left many of their possessions behind and headed for Missouri. Johann Hermann returned in December 1863 to attempt to recover some family possessions. When he arrived the home was completely destroyed, the stairs, walls, floors all torn loose. He found the doors missing and windows broken. At some point during the war the mill was dismantled and the equipment stolen; the remaining was burned.²²

There is little history of the village of Hermannsberg after the Civil War. Only one German family remained in the area and new settlement in the area was largely American born farmers. At some point prior to 1925 a new steam powered mill was built on the site of Johann Hermann's mill. New stores were opened and the town took a new name, Dutch Mills, with its new post office in 1871. The new mill at Dutch Mills burned in 1925 and was never replaced.²³ The post office and a store remained open and were the heart of the community into the 1960s.²⁴

Through the early 1900s Cane Hill Road remained the primary route between Van Buren, Evansville, Dutch Mills, Prairie Grove, and Fayetteville. The road through Dutch Mills and the store in Dutch Mills also served the rural farm families living in eastern Oklahoma. It is therefore little surprise that Washington County worked diligently to keep the road in good condition.

²⁰ Karolina Hermann, 12 November 1862, quoted in Evans, 234.

²¹ Karolina Hermann, 14 December 1862, quoted in Evans, 238, 239.

²² Karl Hermann, quoted in Lemke, 54, 55. See also, Michael A. Hughes, "Wartime Gristmill Destruction in Northwest Arkansas and Military Farm Colonies," *Arkansas Historical Quarterly* Volume XLVI, No. 2 (Summer 1987): 167-86.

²³ Shiloh Museum, *History of Washington County Arkansas* (Springdale, AR: Shiloh Museum, 1989), 229.

²⁴ The post office closed in 1965, see Baker, 69. Also see *Arkansas Gazette*, 11 December 1962, B1:2.

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From its beginning the Washington County Court was involved with some aspect of roadways. They were appointing overseers, viewers, and commissioners to maintain, change, or layout roads in every session of the Court from the first onward. The first county record shows the appointment of overseers to layout two separate roads. One from Franklin to Damon's Lick on Lee Creek and the other from Fayetteville to the southern boundary of the county, "at or near Cove Creek."²⁵ In July of 1837, the Court appointed commissioners to oversee construction of one of the first public bridges in the county over the dam at Dugan's Mill on the White River.²⁶ In October of that year they ordered construction of a bridge across the mill dam at Fisher's Mill, also on the White River.²⁷

As settlement of the county pushed west and south the demand for roads into those areas grew. The Washington County court was appointing overseers for maintenance of the Cane Hill Road as early as 1836.²⁸ Cane Hill Road is clearly shown on a United States government survey map made in 1834 (See Figure 1).²⁹ Nevertheless, the majority of early settlement was in the northern half of the county. The central-eastern and southeastern sections of Washington County remained sparsely settled.

The Boston Mountains dominate the topography of central, southern, and eastern Washington County. These mountains are old mountains generally more similar in nature to a plateau. However, they are deeply dissected and have very steep sides with differences in elevation from valley floor to mountain top nearing 500 feet. As a result early settlement was largely limited to the valley floors along the flood plains of rivers such as the Whitaker Branch, the Barren Fork of the Illinois River, or the Illinois River.

Between 1828 and 1860, the majority of settlers in the Boston Mountains of eastern Washington County were American born or of western European descent. Such was the influx of settlers that by 1840 Washington County was the state's most productive agricultural county. However, settlement and agricultural production remained heavily focused in a few areas of the county until after 1840.³⁰

²⁵ Goodspeed Publishing Company, *The Goodspeed Biographical and Historical Memoirs of Northwestern Arkansas* (Chicago: Goodspeed Publishing Co., 1889; reprint Easley, SC: The Southern Historical Press, 1971), 163, 164.

²⁶ Washington County Court, Court Record Book A, 140.

²⁷ *Ibid.*, 203.

²⁸ Washington County Court, Court Record Book A, 26.

²⁹ Bureau of Land Management, General Land Office Records, "Township 14 North, Range 33 West, Arkansas, 5th Prime Meridian," document id 5756, available online at <http://www.glorerecords.blm.gov/>, accessed 25 September 2007

³⁰ Brooks Blevins, *Hill Folks: A History of Arkansas Ozarkers and Their Image* (Chapel Hill: University of North Carolina Press, 2001), 18-24.

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After the large population increase between 1830 and 1840, settlement in the county slowed but remained robust, doubling by 1860 and doubling again by 1900.³¹ A result of this influx was that in the twenty years between 1840 and 1860 the interior areas of the Boston Mountains attracted greatly increased settlement. Richland Township, created in 1829, had a population of 871 in 1850.³² By 1870 that number had grown to 1,156.³³

Historian Brooks Blevins notes that antebellum farming in the Boston Mountains of Washington County was largely subsistence agriculture. The yeoman farmer who settled in the Ozarks between 1840 and 1860 settled on the hillsides and in hollows. Many worked farms that were only fifty to ninety acres.³⁴ Though some farmers in the lowlands did grow cotton, the primary cash crop for the yeoman, if he bothered with a cash crop, was tobacco or livestock.³⁵ Untouched by the railroads, Cane Hill, Dutch Mills, and Evansville struggled to maintain their populations and importance in a changing agricultural economy.

Washington and Benton Counties, as early as 1869, accounted for half of the state's fruit production, producing a combined \$68,000 dollar harvest. However shipping the fruits to market proved uneconomical in that relatively small amounts of fruit could be shipped by wagon and the distance shipped was limited by rot; which in-turn limited market availability.³⁶ The lack of markets and the inability to capitalize on large shipments resulted in a decline in the fruit harvest, reaching a low point in 1879, when only \$20,000 dollars of fruit was harvested.³⁷ The arrival of the railroad in Washington County made it possible to reach significantly larger markets and to get the produce to those markets while it was still fresh. In speaking of Washington County fruits, particularly apples, Goodspeed's entry on Washington County notes, "These, heretofore raised for home consumption, have, since the advent of the Frisco Railway, been raised almost exclusively for commercial purposes, and become famous throughout the country."³⁸

³¹ The population of Washington County reached 14,673 in 1860. Subsequent population census for 1870, 1880, 1890, and 1900 are respectively: 17,266; 23,844; 32,024; 34,256. United States Department of the Interior, Bureau of the Census, *Statistics of the Population at the Tenth Census* (Washington, DC: GPO, 1880), 50. Hereafter referred to as Census, *Tenth*. United States Department of the Interior, Bureau of the Census, *Twelfth Census of the United States, Census Reports, Volume I—Population, Part I* (Washington, DC: GPO, 1901), 11. Hereafter referred to as Census, *Twelfth*.

³² Goodspeed, 164. United States Department of the Interior, Bureau of the Census, *Seventh Census of the United States—1850* (Washington, DC: GPO, 1851), 546.

³³ Census, *Tenth*, 106.

³⁴ The average farm size for Washington County according to the 1890 census was 119 acres. There were 1,094 farms of 50 to 100 acres and 1,962 farms of 100 to 500 acres. United States Department of the Interior, Bureau of the Census, *Report on the Statistics of Agriculture in the United States at the Eleventh Census: 1890* (Washington, DC: GPO, 1895), 124.

³⁵ Blevins, 22-29.

³⁶ *Ibid.*, 42.

³⁷ *Ibid.*

³⁸ Goodspeed, 140.

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In 1881, the St. Louis and San Francisco Railroad (the Frisco) completed its line from Springfield, Missouri, to Fort Smith, Arkansas, through Benton and Washington Counties. Within five years of completion, canneries, cold storage warehouses, and packing houses opened in Springdale, Fayetteville, Rogers and other cities along the railroad. By 1889, Washington County's apple harvest was 200,000 bushels. Of course apples were not the only produce grown by Washington County farmers; grapes, tomatoes, and strawberries made significant harvests as well.³⁹ This change in agricultural focus and shift in economic centers had unique ramifications on the villages and roadways of western Washington County.

The movement of goods toward railroad loading points, and cities along the railroad, increased traffic from the southwestern corner of Washington County toward Fayetteville and Springdale. In this way, the condition and quality of the roadways in western and southwestern Washington County became more important and the demand for better roads grew. Additional traffic toward central and northern Washington County increased the number of people traveling through Dutch Mills. Diametrically, it also meant that fewer people were interested in remaining in Dutch Mills. The population remained much the same throughout the late eighteenth and early nineteenth centuries. The community remained significantly a farming community.

The increasing availability and use of automobiles and trucks brought an initial increase in traffic counts but then those leveled. Traffic census completed by the Arkansas Highway Commission for the Twelfth and Thirteenth Biennial Reports show steady traffic counts between 100 and 199 automobiles a day.⁴⁰ While this seems relatively low, this was traffic on roads designed primarily for buggies, wagons, and stage coaches. Not only were many of the roads unpaved and narrow but many lacked adequate bridges. As engineers for the Arkansas Highway Commission noted, "Many of the improved roads are being damaged from the excessive loads on trucks and other vehicles and from tractors and engines having lugs or cleats upon the wheels, and from the excessive speed of some of these vehicles, as well as heavy pleasure cars."⁴¹ They continued, "The great majority of bridges in the State were designed for loads far below those passing over them."⁴²

³⁹ Ibid., 42-44; For more on the fruit harvest see also, Thomas Rothrock, "A King that Was" *Arkansas Historical Quarterly*, Volume XXXIII, No. 4 (Winter 1974): 326-33; and Carl H. Moneyhon, *Arkansas and the New South, 1874-1929* (Fayetteville: University of Arkansas Press, 1997), 63.

⁴⁰ Arkansas Highway Commission, *Twelfth Biennial Report of the Arkansas State Highway Commission for the Period From July 1, 1934 to June 30, 1936* (Little Rock: privately printed, 1936), 35. Hereafter referred to as AHC, *Twelfth*. Arkansas Highway Commission, *Thirteenth Biennial Report of the Arkansas State Highway Commission for the Period From July 1, 1936 to June 30, 1938* (Little Rock: privately printed, 1938), 27. Hereafter referred to as AHC, *Thirteenth*.

⁴¹ Arkansas Highway Commission, *Fourth Biennial Report of the Department of State Lands, Highways, and Improvements for the Period Ending September Thirtieth Nineteen Twenty* (Little Rock: privately printed, 1921), 171. Hereafter referred to as ACH, *Fourth*.

⁴² Ibid.

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Washington County Judge, George Appleby noted in 1918 that Washington County's streams were well bridged. He noted additionally, "There is a general demand for good roads in Washington County and nearly all the principal roads have been graded and culverts placed."⁴³ Indeed, Washington County had one of the more active road programs in the state.

Act 338 of 1915, more commonly known as the Alexander Law, enabled counties to form local road districts for improvement and construction of roads. Under this act Washington County formed several road districts to assess property taxes for road improvements.⁴⁴ These road districts continued to actively improve roads throughout the county. Through the early twentieth century the demand for good roads in Washington County continued to grow. This was the result of several factors, primarily the economic growth in both the farming and logging industries. However demand for good roads was also spurred by the increase in automobile and truck ownership. The Arkansas Highway Commission's 1920 report shows a growth in automobile licensure of 13 percent between 1919 and 1920. In 1920, there was one car for every 13 people in the county, bringing over \$27,000 dollars of revenue to the county for road improvements.⁴⁵

Fifteen years later the number of vehicles registered in Washington County was 6,992, or one car for every five people, bringing \$69,529.50 dollars in road revenue for the county.⁴⁶ By 1936, Washington County had one of the highest traffic counts in the state, placing significant stress on the road network.⁴⁷ To alleviate the problem, between 1934 and 1936, the state spent \$72,782.01 dollars on road projects in the county. More money was spent on Washington County roads than any other in their district.⁴⁸

In 1935 and 1936 the state and Washington County focused heavily on modernizing and improving the roads in the southwest corner of the county. Much of the state spending came as a result of the National Recovery Acts and other New Deal federal programs intended to support state and local governments. Between 1932 and 1938 the federal government appropriated \$720,654.50 dollars for roadwork in Washington County.⁴⁹

⁴³ Arkansas Highway Commission, *Third Biennial Report of the Department of State Lands, Highways, and Improvements for the Period Ending November Thirtieth, Nineteen Eighteen* (Little Rock: privately printed, 1918), 86.

⁴⁴ A brief discussion of the legislative history of road law in Arkansas can be found in Arkansas Highway Commission, *Eighth Biennial Report of the Department of State Lands, Highways, and Improvements for the Period Ending June 30, 1928, Supplemented to the Period Ending September 30, 1928* (Little Rock: H. G. Pugh & Co., 1929). There were at least ten separate road districts formed in Washington County between 1907 and 1920. For more see Washington County, Court Record Books U, V, and W.

⁴⁵ AHC, *Fourth*, 171.

⁴⁶ AHC, *Twelfth*, 47.

⁴⁷ *Ibid.*, 35.

⁴⁸ *Ibid.*, 80. It should be noted that Washington ranked seventh in state spending behind Union, Lonoke, White, Cleburne, Miller, and Crittenden Counties.

⁴⁹ AHC, *Thirteenth*, 75.

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National Recovery Act money funded project 4192 on the Evansville-Dutch Mills Road; a grading, ditching, surfacing, and bridge project. The 1935 and 1936 project included rerouting U. S. Highway 59 and the Evansville-Dutch Mills Road. Arkansas Highway Commission job 9152 was a Works Project funded job to reroute and improve the Dutch Mills-Cane Hill Road—also known as Cane Hill Road between the two towns. Working with the state, the county included some of their own improvements, one of which was the Luten Bridge over the Whitaker Branch just south of the town of Dutch Mills.

The bridge is a small, one span filled-spandrel bridge built by the Luten Bridge Company of Little Rock. To complete the bridge at a lower cost the original deck was not concrete but dirt covered in gravel. It is said, though undocumented, that the county had the concrete work done by the Luten Bridge Company but that local citizens and contractors were responsible for filling the spandrels and finishing the roadway.

Filled—or closed—spandrel arch bridges were the specialty of the Luten Bridge Company. In fact they were the specialty of Daniel B. Luten the civil engineer who designed the bridges. Luten specialized in reinforced concrete bridges. His designs and innovations led to a number of patents and for many years in the early twentieth century, an almost complete monopoly on concrete arch bridge construction.

By the 1920s, concrete was very commonly used in bridge construction. Concrete is a mixture of an aggregate—usually sand, gravel, or both—cement, and some amount of water. The cement holds everything together. Portland Cement is the cement most often used in concrete construction. It was first patented in 1848 in Portland, England. The first use of it in the United States is generally attributed to David O. Saylor who, in 1871, patented the American equal to Portland cement and began a manufacturing plant. Frederick Law Olmstead is credited with the first design of a concrete-arch bridge for his Central Park in New York.⁵⁰

Portland cement was widely used in the United States for concrete construction by the early 1890s.⁵¹ The Columbian Exhibition of 1893 though, brought concrete to the fore. This exhibition depended heavily on the use of concrete in its classical designs and bridges. The bridges were based heavily on Roman designs and featured filled spandrels, ornate balustrades, and facades designed to simulate real stone. From the exhibition grew a demand for design of buildings and structures that were elegant, fit naturally into their surroundings, and yet had a feel of grandeur. The imprint of the exhibition on the American landscape would be felt for many years to come.

⁵⁰ James L. Cooper, *Artistry and Ingenuity in Artificial Stone: Indiana's Concrete Bridges 1900-1942* (Greencastle, IN: privately printed, 1997), 9.

⁵¹ Ibid.

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In bridge and road design, the post Columbian Exhibition movement toward classical designs was called the City-Beautiful movement.⁵² One of the staunchest critics of the City-Beautiful movement was Daniel B. Luten. Luten was a civil engineer who received his engineering training at the University of Michigan. He graduated in 1894 and then was asked to teach in the engineering staff of the university. In 1895, he took a position in the engineering school at Purdue University where he taught Architectural and Sanitary engineering.⁵³ Several years of teaching left Luten dissatisfied with what he perceived as the academic professionals' lack of empirical knowledge about engineering.

As he once noted, "College professors, 'are not leaders in engineering,'" and that in fact, they are, "almost always years behind the practical men of the profession."⁵⁴ This dissatisfaction led Luten to resign his post at Purdue to become a practical man.

Luten was indeed a practical man. He made his name by dramatically changing the way bridges—especially reinforced concrete bridges—were designed in the United States. Luten used the nineteenth century designs of Joseph Melan, and the American, Edwin Thacher as the basis for his innovations. Both Melan and Thacher used reinforcing metal to provide support for their concrete arches. Melan's designs however could more correctly be called metal bridges encased in concrete; with rolled I-beam girders supporting the weight of the bridge.⁵⁵

Thacher took Melan's designs and decreased the amount of metal used in the reinforcing by using flat bars or rods. Thacher also redesigned the location of the bars in the top and bottom of the ring. In this way the courses acted independently of one another and provided additional strength. Thacher also designed his system to have smaller piers and anchors by carrying the reinforcing metal into the abutment. This small design change redirected the thrust of the ring toward a more vertical thrust giving the bridge greater carrying capacity while using less material.⁵⁶

⁵² Two, of many, good books on the City-Beautiful movement are William H. Wilson, *The City Beautiful Movement* (Baltimore: Johns Hopkins Press, 1989) and Jon A. Peterson, *The Birth of City Planning in the United States, 1840-1917* (Baltimore: Johns Hopkins Press, 2003).

⁵³ Cooper, 38.

⁵⁴ Daniel B. Luten quoted in Cooper, 38.

⁵⁵ Cooper, 15, 16.

⁵⁶ *Ibid.*, 39-41.

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Luten took all of these designs and pushed them further. Luten focused on empirical design. Yet, he felt that determining calculations for each specific job was a waste of time. Luten developed a series of calculations that he applied to each bridge. With these calculations Luten developed a set of two corollaries both of which stressed that the bridge should be assessed as a whole and not as pieces. Luten's corollaries led him to integrate the bridge components more completely than had his predecessors. The spandrel walls, which once were seen as only to hold dirt fill, were connected in Luten design to the arch rings and extended beyond the abutments.⁵⁷

In this way, Luten placed more weight on the ends of the bridge and increased leverage to support more weight in the middle. Increasing the spandrel wall height and weaving the reinforcing rods through the bridge helped add strength across the bridge and allowed for less concrete in the spandrel walls. By reducing the material and adding strength Luten was able to reduce the size of his piers and abutments. Between 1902 and 1911 Luten received seven patents including the steel-tied arch, the ring-stiffening spandrel, and the arch-ring reinforcing method. By 1915, Luten held 39 U.S. Patents and designed over 6,000 bridges in the U.S., Mexico, Canada, and Japan.⁵⁸

Statement of Significance

Though one of the smaller Luten Bridges in the county and in the state, the Evansville-Dutch Mills Road Bridge is an excellent example of Luten reinforced bridge design. The Evansville-Dutch Mills Road Bridge, Bridge #17383, is being nominated to the National Register of Historic Places with **local significance** under **Criterion C** as a good example of reinforced concrete, filled-spandrel bridge construction. It is a good example of Daniel B. Luten bridge design in Washington County, Arkansas. The bridge is also being listed under **Criterion A** for its association with transportation in Washington County. Bridge #17383 is being submitted to the National Register of Historic Places under the multiple property listing "Historic Bridges of Arkansas."

⁵⁷ Ibid., 44-50.

⁵⁸ Jayne H. Feigle, *Andrew J. Sullivan Memorial Bridge, Spanning Cumberland River, Williamsburg vicinity, Whitley County, KY*, Historic American Engineering Record No. KY-31 (July 2000), http://memory.loc.gov/ammem/collections/habs_haer/ [Accessed 06/21/2007]. One of Luten's business related innovations that had a more dramatic effect on the history of engineering in the United States was his licensing program. Luten used his corollaries and established computations to apply bridge design to multiple locations. In this way he was able to license, for a fee, his design to independent companies who built Luten bridges. Ultimately Luten was taken to court for this practice and in several high profile cases ultimately had his patents stripped from him.

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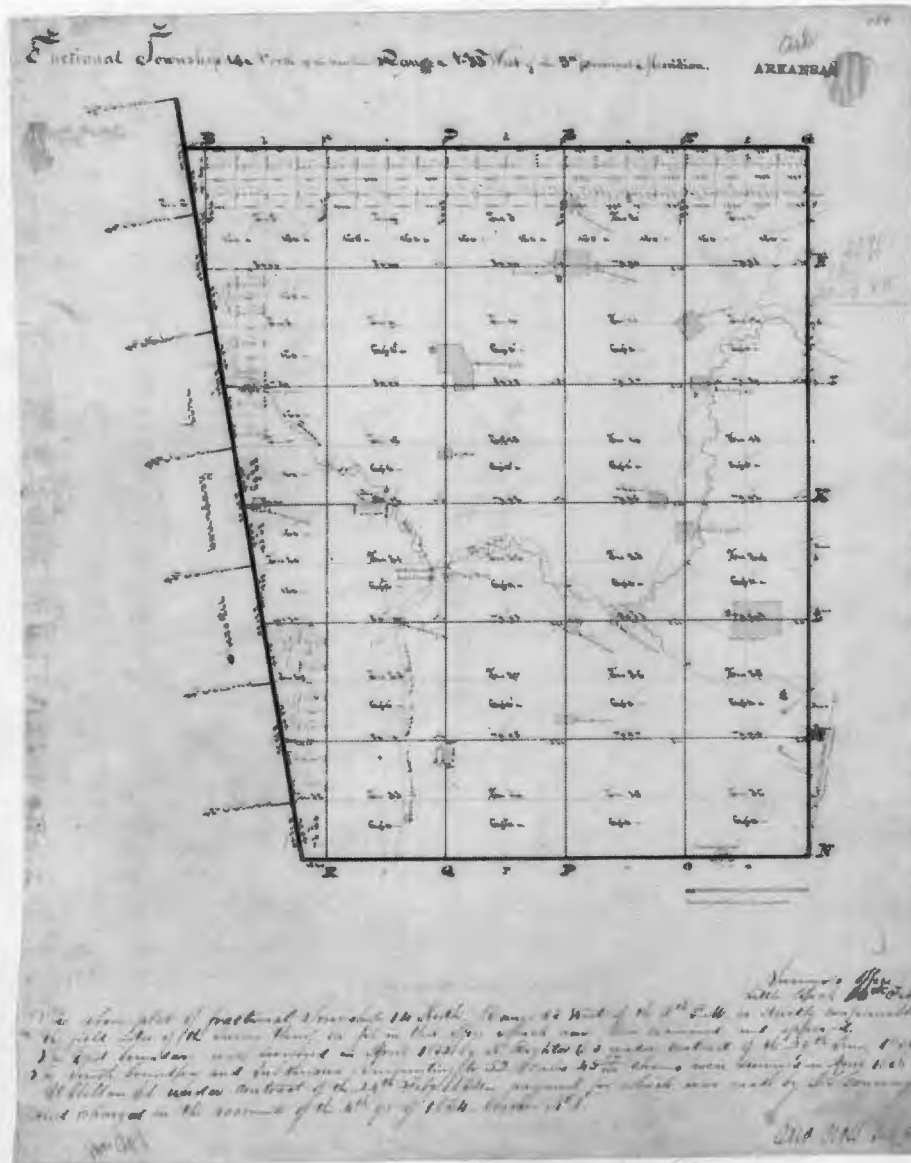


Figure 1: United States survey of Township 14 North, Range 33 West including the Cane Hill Road and the location of the future site of Hermannsberg and Dutch Mills. Bureau of Land Management, General Land Office Records, "Township 14 North, Range 33 West, Arkansas, 5th Prime Meridian," document id 5756, available online at <http://www.glorerecords.blm.gov/>, accessed 25 September 2007.

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Evansville-Dutch Mills Road Bridge

Name of Property

Washington County, Arkansas

County and State

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Evansville-Dutch Mills Road Bridge

Name of Property

Washington County, Arkansas

County and State

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Verbal Boundary of Description

Beginning fifteen (15) feet on the south side of Evansville-Dutch Mills Road Bridge, Bridge #17383, and running north for forty-five (45) feet. Extending fifteen (15) feet from the centerline to the east and west of Bridge #17383 for a total width of thirty (30) feet.

Boundary Justification

The boundary encompasses all of the land historically associated with Bridge #17383, the Evansville-Dutch Mills Road Bridge.