(Rev. 10-90)
NPS Form 10-900

OMB No. 1024-0018

United States Department of the Interior
National Park Service

VLR 3/20/8
NRHP 5/15/8

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 any 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 Page County Bridge No. 1990

other names/site number Overall Bridge; VDHR File No. 069-0238

2. Location

street & number U. S. Route 340 not for Publication N/A
city or town Overall vicinity N/A
state Virginia code VA county Page code 139 Zip 22610

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this ____ nomination _X__ 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 forth in 36 CFR Part 60. In my opinion, the property _X__ meets ____ does not meet the National Register Criteria. I recommend that this property be considered significant ___ nationally _X_ statewide ___ locally. (___ See continuation sheet for additional comments.)

4/1/08

Signature of certifying official Date

Virginia Department of Historic Resources
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 commenting or other official Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this 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 Keeper _____

Date of Action _____

5. Classification

Ownership of Property (Check as many boxes as apply)

___ private
___ public-local
_X_public-State
___ public-Federal

Category of Property (Check only one box)

___ building(s)
___ district
___ site
_X_structure
___ object

Number of Resources within Property

Contributing	Noncontributing	
__0__	__0__	buildings
__0__	__0__	sites
__1__	__0__	structures
__0__	__0__	objects
__1__	__0__	Total

Number of contributing resources previously listed in the National Register ___0___
Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.) _N/A_

6. Function or Use

Historic Functions (Enter categories from instructions)

Cat: __TRANSPORTATION_____ Sub: ___Road Related_____
_____ _____

Current Functions (Enter categories from instructions)

Cat: __TRANSPORTATION_____ Sub: ___Road Related_____
_____ _____

7. Description

Architectural Classification (Enter categories from instructions)

____OTHER: Pratt deck arch truss _____

Materials (Enter categories from instructions)

foundation __ _____
roof _____
walls _____
other Superstructure – STEEL: piers, rails, approach spans;
CONCRETE_____

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)

_X__ A Property is associated with events that have made a significant contribution to the broad patterns of our history.
____ B Property is associated with the lives of persons significant in our past.
_X__C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
____ D Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)
____ A owned by a religious institution or used for religious purposes.
____ B removed from its original location.
____ C a birthplace or a grave.
____ D a cemetery.
____ E a reconstructed building, object or structure.
____ F a commemorative property.
____ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)
_____TRANSPORTATION; ENGINEERING_____

Period of Significance ____1938_____

Significant Dates _____ _1938_____

Significant Person (Complete if Criterion B is marked above) __N/A_____

Cultural Affiliation _____N/A_____

Architect/Builder __VIRGINIA DEPARTMENT OF HIGHWAYS _____

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)
___ preliminary determination of individual listing (36 CFR 67) has been requested.
___ previously listed in the National Register
___ previously determined eligible by the National Register
___ designated a National Historic Landmark
___ recorded by Historic American Buildings Survey # _____
___ recorded by Historic American Engineering Record # _____
Primary Location of Additional Data
_X_ State Historic Preservation Office

___ Other State agency
___ Federal agency
___ Local government
___ University
___ Other
Name of repository: Virginia Department of Historic Resources, Richmond, Virginia

10. Geographical Data

Acreage of Property 0.344 Acres

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing	Zone	Easting	Northing
1	17	730195	4298390	2		

___ 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: Katherine Houston
Organization: Virginia Department of Transportation date September 7, 2007
street & number: 731 Harrison Avenue telephone (540) 387-5474
city or town Salem state VA zip code 25153

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 the SHPO or FPO.)
name Commonwealth of Virginia; Virginia Department of Transportation
street & number 1401 East Broad Street telephone (804) 786-2801
city or town Richmond state VA zip code 23219-2000

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SUMMARY DESCRIPTION

Page County Bridge No. 1990 (VHDR # 069-0238) is a single-span Pratt deck arch metal truss bridge with four T-beam concrete approach spans that was built in 1938 by the Virginia Department of Highways as part of the rebuilding and realignment of Route 12, the predecessor to current U.S. Route 340. The bridge carries Route 340 over Overall Run, a tributary of the South Fork of the Shenandoah River. The arched truss section is a Pratt truss with an arch for the bottom chord. It is approximately 123 feet long and the entire bridge length is approximately 245 feet. The bridge is one of two metal arch truss bridges currently in the Virginia highway system. The other bridge, Page County Bridge No. 1004,(VDHR # 069-0236), is located nearby, on the same highway, spans Jeremiah's Run, and was built two years earlier in 1936. The Jeremiah's Run bridge is slated for demolition within the next year. The two bridges both utilized the same standard designs developed by the Virginia Department of Highways: Standard Steel Arch Truss Bridge design A-24-120, 24 feet wide and 120 feet long, and Standard Reinforced Concrete Bridge designs C-24-25 and C-24-30, used as approach spans, both 24 feet wide and 25 and 30 feet long, respectively (See Figures 1 and 2). Both bridges have the typical cork concrete rails, prevalent in Virginia's state highway bridges from the late 1920s through the next two decades. When Route 12 was rebuilt, it utilized modern machinery and methods that made the rugged site at Overall more amenable to crossing and utilized the rarely used arch form, which was suitable for the new site.

STATEMENT OF SIGNIFICANCE

Page County Bridge No. 1990, historically known as Overall Bridge and located in Page County, Virginia, is a single-span Pratt deck arch metal truss bridge, built in 1938 by the Virginia Department of Highways. It carries U. S. Route 340 over Overall Run, a tributary of the South Fork of the Shenandoah River. The bridge is one of two remaining Pratt deck arch metal truss bridges in the state (the other is slated for demolition in the near future).

Page County Bridge No. 1990 was built as part of the major realignment of the main highway, then State Highway 12, between Front Royal and Luray, county seats of Warren and Page counties, respectively. Because of increased automobile traffic in the early 20th century, many of the older roads were realigned. [1] Although the new bridge's type, a Pratt deck arch truss bridge, is an adaptation of common engineering technology, it was one of the later, less-favored and more specialized forms of truss design, and well suited to the Overall site. The location and height of the bridge route, across a deep ravine in steeply rolling terrain, was made possible by the use of this specialized truss form. The bridge is nominated at the statewide level of significance under Criterion A for its role in the evolution of transportation routes in Page County and Criterion C, for its specialized and rare engineering design. Its period of significance is 1938, the date of its construction.

HISTORIC CONTEXT

Establishment of Virginia's Highway System

Following the passage of the Federal Aid Road Act, the Virginia General Assembly approved the establishment of the first state highway system in 1918. At that time, the highway department accepted responsibility for 4,002 miles of existing roads and the construction and maintenance of the state's roads and bridges became increasingly structured.

In 1922, the legislature directed that the state be divided into eight geographic highway districts, with available funds distributed equally among them. The same year, the legislature authorized the highway commission to expand the road system each year by an amount of mileage equal to two and one-half percent of the original system; that amount was later increased. Much of that mileage was used to connect county seats, and by 1925 all county seats except two had been connected.[2]

By 1930, the state highway system had increased to 7,191 miles.[3] On July 1, 1932, the maintenance and construction of the county roads of 96 counties, totaling approximately 40,000 miles, were turned over to the Highway Commission as part of legislation known as the Byrd plan, discussed below.

State Planning for New Alignment on Route 340/12/815 Between Front Royal and Luray

The earliest reference to the Front Royal-Luray section of U.S. Route 340 in Highway Commission records was on September 18, 1929, a month before the stock market crash that launched the Great Depression. Minutes of that meeting indicate that the tentative location of Route 815 from Bentonville would be in the general direction of Front Royal, taking the western cut-off, known as Billy Robertson's cut-off, but "action of the Commission in no way decides the final location of this road, which will be done by [actual] surveys when funds are available."[4]

At the Commission's December 18, 1930 meeting, an "Extension of Warren Route 815 near Front Royal via Limeton towards Bentonville" was noted in the Distribution of Mileage to the State Highway System.[5] A meeting two weeks later, on December 30, transferred $58,750 of the state's total 1931-1932 $1,504,000 Emergency Federal Construction Fund money to Route 815 between Luray and Stanley (to the south).[6] Allocations of the federal funds were described as based on each district's proportionate share of the state's total area, population, and road mileage. It is assumed that the Route 815 alignment between Luray and Stanley was the predecessor to today's U. S. Route 340.

At its December 17, 1931 meeting, the Commission made final allocations of $150,000 for "Route 815, Luray-North and South" and $20,000 for "Front Royal-South".[7] At its July 19, 1932 meeting, the Commission designated an estimated $72,000 for Route 815 for "Luray-South" in its revised allocations for the fiscal year beginning July 1, 1932 and ending June 30, 1933.[8]

Plans for the five sections of Page/Warren Route 340 between Front Royal and Luray were approved over a three-year period from August 8, 1932 through April 29, 1935, with a number of revisions for each set of plans. The work started on both ends, Front Royal to the north and Luray to the south, and work was not necessarily contiguous.

The coversheets of each of the five sections, both in Warren County and in Page County, are identified in the upper right corner as Project 751, followed by the letters AGH, F, I, D, or C. **Section __8___ Page __4___**

The sketches of the component plan sheets on each of the five sections' coversheets refer to the main route number variously as 815, 12 or 340, with multiple strikeovers. Based on those strikeovers, other Commission meeting references, and newspaper references, it is assumed that the current U. S. Route 340 was preceded by Routes 12 and 815. The roadway was an undertaking of the Virginia Highway Commission, both in planning and execution, and Route 340 was and is utilized as a part of the statewide system of highways, connecting regions of the state. Page County Bridge No. 1990 at Overall Run was constructed as part of the rebuilding and realignment of Route 12/815.

The Construction of Route 340 Between Front Royal and Luray

The county newspaper, the *Page News and Courier,* followed changes in the state's road building authority, as mandated by the Byrd plan, on its front pages. There the issue regularly shared space with plans for the Skyline Drive and Depression related stories, including the closing of all banks throughout the country in March 1933, the establishment of the first Civilian Conservation Corps camp in the nation in Page County (several miles west of Luray), and the pursuit of various federal programs to help with local unemployment.

An article in the *News and Courier* dated March 1, 1932 reported that the chairman of the county Board of Supervisors had directed the county surveyor to "abandon for the present" a survey he had almost completed; that the state would buy county road machinery "if a price can be agreed upon"; and that the Byrd plan had been changed so that "every county has the guarantee that a sum at least equaling its share of the gasoline tax will be expended on its roads." The article continued:

> Many citizens contend that the Byrd plan inflicts peculiar hardships on Page County where funds received from the gasoline tax have been used for construction work, as the law contemplated, while in numerous other counties this fund has been diverted to other purposes, and sometimes not used for roads at all.
>
> Since 1920 Page county has always rotated the road building fund between the four districts of the county and each has used the money under the supervision of the State Highway Commission in building a number of miles of excellent hard surface roads and numerous bridges . . ..

> It is still the opinion of many that the Byrd plan will in the end impair our road system in both the county and the State, that it is not really economical and is not equitable as a tax measure, as between different classes and localities, that it threatens to make a huge machine out of an unwieldy Highway Commission, and that it was passed without sufficient study or reflection.
>
> Whether we like it or not, however, we must all live under the Byrd plan.[9]

Another front page article on March 18, 1932 reported that the $150,000 allocated to the East Side Highway the previous fall would be "practically thrown in the discard" due to the Byrd plan and that "Everybody hopes that a great opportunity [for the East Side Highway as Route 340 was known locally] has not been lost."[10] A month later, on April 15, 1932, the paper reported that the Brunswick County resident highway engineer. J. E. Blackley, was "going over" secondary roads with the Luray engineer, F.T. Amiss, to make a complete road map of Page County for the State Highway Commission, in anticipation of the Commission assuming responsibility for all county roads on July 1 of that year.[11] Amiss and Blackley were basing their map on the 1885 D.J. Lake & Co. map, referred to as the "wheelbarrow map" because Lake used a wheelbarrow to measure distances. Amiss and Blackley used an automobile odometer.

As the July 1, 1932 date of state takeover of all county roads approached, the *Page News and Courier* reflected on the old system. County Clerk Grover C. Miller estimated that Page County had spent $300,000 building roads and bridges in the prior 22 years. Beginning in 1910, and alternating between the four districts, the county built a few miles of road each year, using state funds and road and bridge tax receipts. A third of the $300,000 was spent on bridges because prior to 1910, Page County had no bridges and no paved roads. The county maintained that it could build roads for significantly less than the state.[12] Prior to the transition from local to state control on July 1, 1932, representatives of the State Highway Department had appraised county and district road machinery at $4,500; the county estimated that the equipment had originally cost $30,000.[12] As of July 1, 1932, Page County was "out of the road business."[13]

A month later, at its August 4, 1932 meeting, the Commission allocated $72,000 for Route 815 from Luray-South.[14] A week later, the *News and Courier* reported that 15 to 20 Page County citizens had attended the State Highway Commission meeting in Harrisonburg.[15] They may have attended to express their displeasure with the Byrd plan, which they believed would drastically

reduce anticipated allocations for the Eastside/East Side highway.

In late September, 1932, preparations began for construction of the Stanley-Luray road job, when the superintendent of construction arrived, along with 21 mules, just south of Luray. Seven dump trucks and a work force of convicts were to arrive shortly and a special force was constructing the camp buildings—"long, single story structures" with frame, waist-high lower walls, with wire on the wooden framing above them. "The engineers have said this was to be a pick and shovel job, but the number of mules and dump wagons indicates a possibility of the use of some heavier equipment." The road would be built north through Luray and "some distance to the north", with "little or no possibility of the use of hired local labor."[16] By the end of September, 1932, all of the Eastside Highway was in the state system, from the West Virginia line through Luray to Waynesboro; howver, there were controversies as to the exact location. North of Bentonville in Warren County, the route was called Route 815 and the route through Browntown, several miles to the east, had been abandoned.[17]

By the middle of November, Senator Aubrey G. Weaver, of Front Royal, had received a letter from State Highway Commissioner Shirley, saying "We have the plans for the route leading [south] from Front Royal towards Luray about completed, and this work should be advertised in the next two weeks."[18] At about the same time, the Board of Supervisors had met and considered applying for an advance from the federal Relief Finance Corporation's $1,250,000 Virginia fund to be used in road work for the unemployed; the advance would be deducted from anticipated federal funds. One problem, however, was that "the county is out of the road business and has no equipment."[19]

The Great Depression had hit bottom in 1932. Times continued to be tight, with the Norfolk & Western Railroad proclaiming itself to be Page County's largest taxpayer and the Board of Supervisors debating salary cuts for the county's treasurer and commissioner of revenue.[20]

One rare instance of good news occurred just before Christmas 1932, when Page County citizens acknowledged the benefits of the Byrd plan after eight snow plows worked in sub-zero weather throughout the county, including the most remote parts of the mountains, clearing a foot of snow through the night. The *News and Courier* remarked that "in this day and generation the people have more opportunity to get around with ease and comfort than ever before" and that county businesses had greatly benefited from the new state system.[21]

Early in February 1933, the convict camp south of Luray received plans for the construction of

six miles of the same route from Luray north to Oak Hill. While the camp of a hundred black men that were then building "on the southern suburbs" would remain there, work would be carried through Luray, and the work camp moved north of Luray later. Rights of way had been secured from a number of farmers north of town and two large concrete bridges were being planned--one at Dry Run, a mile and a half north of Luray and the other at Springfield, where the bridge would cross forty feet above Pass Creek.[22]

When Franklin Roosevelt took office in March, 1933, most of the nation's banks were closed, industrial production had declined 44 percent since 1929, farmers were in dire straits, and approximately 13,000,000 people were unemployed. The local newspaper remarked that Page County was better off than other regions of the country but reported that the School Board had made a uniform pay reduction of $5 on all teachers' monthly salaries, which ranged from $60 to $75; the reduction was the second in two years' time.[23] By the end of June, 1933, the paper reported that there were no highway funds available for the construction of the Dry Run and Pass Run bridges on the Eastside Highway.[24]

But less than two weeks later, in early July, 1933, the State Highway Commission announced an allocation of $100,000 of the state's $7,000,000 federal construction funds for the Eastside Highway from Luray north towards Front Royal. The local paper said the road would have a "gravel base with a macadam top dressing, the same kind of road as was built between Luray and Stanley [to the south]… However much excavation and costly road building is anticipated north of Luray. It is hoped that the allocation will carry the road from Luray to the Warren county line. A convict camp located between Luray and Springfield has already built several miles of this road north of the town… to Springfield. The convict force does not have sufficient funds to build" the remainder of the road south to Luray, but would build about half of it, perhaps because the Industrial Recovery Act prohibited the use of federal money to support convict camps or purchase rights of way.[25]

By the end of September, 1933, the paper announced that the new roadway from Springfield to Oak Hill had been staked and the right of way secured. The convict camp, however, would not build the mile of road between Luray and Dry Run because there was "much heavy work", which would be done by private contractors, as would the bridges at Dry Run and Pass Run and "some heavy work near Rileyville where the country is exceedingly rugged."[26]

When Highway Commission member Wade Massie spoke to Luray Rotary members in early October, 1933, he said he did not know exactly where the previously announced $100,000 Eastside Highway allocation funds would be expended, but that "some equitable plan of distributing the fund between the south and north end of the highway would be adopted."[27] By October 17, the Highway Commission had advertised sealed bids for two of the 751 projects: one just south of Front Royal, including the Dry Run bridge, and another short section near Luray, including a bridge over Pass Run.[28]

Federal programs continued to be pursued to address local unemployment. The Page County Board of Supervisors and Luray town councilmen went to Staunton in late October, 1933 to meet with Governor Pollard and the Virginia Public Works Board to inquire about opportunities for local improvements under the $3,300,000,000 Federal Industrial Recovery Act.[29] In mid-December, a Civil Works Administration work program was informally approved for the county.[30] The latter program would provide 68,310 man hours, worth approximately $34,000 for providing local employment.[31]

Route 340 Contracts

At its December 5, 1934 meeting, the Commission confirmed the award of a construction contract for Project 751 A1, Route 340, south of front Royal to a Fairmont, West Virginia, firm.[32]

On July 1, 1936, the contract award for Project FA 751 B1,2, for the Route 12 Bridge over Gooney Creek, was approved; no contractor was mentioned.[33] Minutes for the same meeting mentioned changes in the system--reversions/conversions of affected old roads.[34] They also requested extensions of time for the Route 12 projects over Jeremiah's Run near Luray; Gooney Creek and Flint Run; and the Norfolk and Western Railroad Overhead near Rileyville.[35] The projects were identified as FA 751 B5; FA 751 B1,2 and WPGH 751 E[]BS, respectively.

At its August 12, 1936 meeting, the Commission confirmed the award of the contract for Project 751 B1, 2, Route 12 over Gooney Creek and Flint Run to the low bidder, Clark and Lewis, of Luray.[36] Throughout 1937, there were references to reversions and abandonments on old Route 12 in Page County. By March 23, 1937, further abandonment of old sections of Route 12 was discussed because of the completion of a new overhead crossing over the N & W Railroad north of Rileyville being opened to traffic on Route 12.[37]

Although no mention was found in Commission minutes or in the local newspaper, Department of Transportation records show that the plans were finished November 12, 1935 and that the bridge was completed and opened to traffic in 1938. By June 3, 1938, the *Page News and Courier* reported on its front page that "Route 12 Plans Are Progressing", saying that final plans for Route 12/Eastside Highway from Elkton south to Waynesboro and the Augusta County line were progressing and that the section between Waynesboro and Grottoes was to be on new alignment. As the effects of the Depression were abating and the section of Route 340 between Luray and Front Royal was nearing completion, perhaps urgent interest was waning as well.

American Bridge Development

With no tradition of its own, American bridge building development was mainly one of trial and error. Prominent late-nineteenth-century bridge engineer and author J.A.D. Waddell noted that American engineers, out of time and monetary considerations, paid "far more attention to economy than appearance." Additionally, America's many wide rivers presented a challenge quite different from the European experience.[38] Eric DeLony has called the first decades of the nineteenth century "the era of the carpenter engineer", when monumental timber truss bridges were built spanning wide eastern rivers and their lengths "astounded visiting European engineers."[39]

In 1812, the "Colossus Bridge" was built over the Schuylkill River in Philadelphia, with a clear span of 340 feet; it was primarily "a very flat arch with some truss action, and was the longest all-wooden bridge ever constructed in the United States". When Ithiel Town patented the Town Lattice truss in 1820, Waddell called it the first essentially American truss. With the advent of railroads, trusses were made first of wood, then cast iron, then wrought iron, and, finally, steel. The first major iron truss bridge was built in this country in 1840.[40]

Virginia Bridge Development

The earliest bridges in Virginia, however, were basic beam bridges and "the most rudimentary and traditional wooden trusses…Timber bridge truss designs improved in the 19th century" and a "few stone lintel or arched masonry bridges were also constructed, primarily as turnpike bridges, but stone construction generally remained prohibitive in terms of costs and time…metal truss bridges were first developed in the 1840s and 1850s, although they did not appear in many areas

of Virginia until the 1870s…Metal truss bridges began to supersede wooden trusses … during the last quarter of the 19th century. Since most varieties of wooden bridges needed constant maintenance, and still deteriorated quickly, metal truss bridges were seen as a more long-lasting solution. For short beam bridge spans (under 40 feet), bridges with iron or steel I-beams instead of wooden beams began to gain popularity, either used alone or as approach spans to metal truss bridges."[41]

When automotive traffic necessitated the development of improved roadway systems, the truss form was used extensively for Virginia's highway and roadway bridges and was the most prevalent bridge form built during the late nineteenth and early twentieth centuries. Most metal truss bridges could be fabricated and assembled offsite to suit the needs of the particular site, then disassembled, shipped and erected fairly quickly and inexpensively on location.

History of Trusses

Trusses are geometric structural forms, made of wood or metal, consisting of a series of triangles that lie in the same plane. The triangular arrangement is a stable one, inherently resisting stress. The earliest known trusses were wooden and dated to ancient times. The Romans and Greeks used them, the latter extensively in roofing, and the truss form was used for various purposes in the Middle Ages. Palladio's *Treatise on Architecture* in the sixteenth century contained plans for timber trusses, which Swedish bridge builders resurrected in the mid-eighteenth century.

Bridge trusses range from short and simple to long and complex, with a wide range of combinations between the two extremes. Truss configurations can be repeated in multiples and, therefore, are able to support considerable loads over a large span. Under a load, the component parts of the truss are stressed mainly in tension (being pulled apart) or compression (being pressed together).

Truss Bridge Nomenclature Classifications

The truss bridges used for highways or roadways are described using <u>two classifications</u>: (1) by *truss configuration*, i.e. how the component pieces of the truss are geometrically configured, and (2) by *span type*, i.e., how the roadway is carried by the truss.

The truss panels can have dozens of truss configurations, ranging from simple to complex. The large truss bridges in the northeast and middle west of the country were typically the most complex forms. But in Virginia, as elsewhere, the most common truss bridge types were much simpler; the most common forms historically and currently are Warren and Pratt trusses. The Overall bridge is a variation on the Pratt truss, one with an arch for the bottom chord, called an arch truss.

There are four *span type* classifications for metal truss bridges: (1) *pony trusses* (load on bottom chords, with no overhead lateral bracing of top chords, which are fairly low in height); (2) *through or high trusses* (where the bridge has overhead lateral bracing between the top chords and carries the traffic load/roadway on its bottom chords); (3) *deck trusses* (roadway rests on top of the top chord of the truss, with traffic passing over the truss); and (4) *mixed span* types, combinations of the other types. Historically and currently in Virginia, pony trusses were and are most numerous because they cover shorter distances, over branches and creeks; 143 of the 245 metal truss bridges recorded in Miller and Clark's 1997 Virginia metal truss bridge survey were pony trusses. The next most numerous, historically and currently, were through trusses, with 80 recorded. Next numerically, were deck trusses, with 16 recorded in Appendix D of the report; the subject bridge and the bridge at nearby Jeremiah's Run are both deck trusses. The rarest span types in Virginia were mixed span bridges, with seven recorded. The 245 metal truss bridges recorded in the same survey were classified under 32 combinations of truss configurations/span types. There were only two deck arches recorded; this bridge and the one at Jeremiah's Run.

Metal truss bridge plans had been standardized in Virginia after 1909. "The construction of new metal truss bridges continued through the 1940s, and a few new trusses were built after 1950, but metal trusses became increasingly a less-favored and more specialized form of bridge design", as was the bridge at Overall . "By the mid-20th century, the moving and re-erection of older metal truss spans was more common than new metal truss construction."[42]

By the 1930s, concrete slabs and T-beams had become the predominant bridge types, with all bridge elements, including railings, abutments, and piers, following the standard Department of Highways component plans. In June of 1930, of the 42 bridges then under construction in the state, 34 were reinforced concrete, one was concrete, and only seven were steel. Thus, the bridges at Overall and Jeremiah's Run were not typical ones of their time. Rather, they were deck arch trusses, among the increasingly "less-favored and more specialized" forms of metal

truss bridge design.[43] The only typical standard component on the bridge was the "cork" rail, with separately cast concrete posts and rails, which was the predominate type from the late 1920s through the next two decades.

During fiscal year 1931-1932, perhaps in anticipation of carrying out the provisions of the Byrd plan to take over county roads, the Division of Bridges made a survey of bridges on the state highway system. There were approximately 1,450 bridges over 20 feet in length, and more than 900 of them were considered inadequate to carry the maximum load. Plans for the Overall bridge were approved and revised in 1934 and 1935 and the roadway was constructed after that time. The roadway was an undertaking of the Virginia Highway Commission, both in planning and execution, and Route 340 was and is utilized as a part of the statewide system of highways, connecting regions of the state. Page County Bridge No. 1990 at Overall Run was built as part of the rebuilding of Route 12.

Metal Arch Bridges

Waddell had observed that "Quite a number of cast-iron bridges were built in Europe" in the hundred years after the first was built in 1776 at Coalbrookdale, England. Like the first, "nearly all of them" were arch types.[44] But the use of the metal arch bridge was not adopted in America. "As early as 1787, Thomas Payne had tried to introduce the cast-iron arch into American bridgework but had failed."[45] Waddell went on to explain that the metal arch bridge had not been as extensively used in the United States as in Europe because the "low banks and alluvial soils of so much of North America do not favor the arch type, which, generally speaking, is suitable only for comparatively high crossings and rock or other very solid foundations. " Waddell cited a number of other monumental examples, none comparable to the simple arch bridges at Overall and Jeremiah's Run.

Virginia's Standard Designs

The Virginia Department of Transportation and the state's district bridge offices still have a number of old bridge plans and standard specifications on file which illustrate the Department's use of standardized bridge design and construction over the years. The first page of the individual bridge plans refers to the standard specifications, which were used over and over in similar patterns for individual bridges with adjustments for different sites. There were specifications for any number of component designs, including substructures, abutments, piers,

and railings, and for concrete and metal bridges. The standard specification identification number consisted of a letter or letters, followed by two sets of numbers, separated by dashes. The letter refers to the structural element or material; the first number refers to the bridge roadway width; the second refers to its length. Dates on the standard specifications indicate that they were continually revised. The 1997 metal truss bridge study recorded 56 standard plans for metal truss bridge components.

There was only one standard plan for a metal arch bridge, A-24-120, used for the arch spans at both the Overall and Jeremiah's Run bridges (Figure 1). The plan number indicates that the span is an arch (A), 24 feet wide by 120 feet long. The Overall bridge has four T-beam approach spans and measures 245 feet long overall. The Jeremiah's Run bridge predated the Overall bridge by two years; it has five T-beam approach spans and an overall length of 262 feet. Both were fairly late examples of the metal truss bridge, used in the type of rugged terrain to which they were best suited.

ENDNOTES

1 Ann Miller, "Route 340 Context." An unpublished paper.
2 State Highway Commission records, 1925, 11-12. Virginia Transportation Research Council, Charlottesville, Virginia.
3 Virginia Department of Transportation and Virginia Research Council, *A History of Roads in Virginia*, Virginia Department of Transportation's Office of Public Affairs and the Virginia Transportation
Research Council, n.p., 1992: 14.
3 Commonwealth Transportation Board minutes, 09-1929-01: 179. Virginia Transportation Research Council, Charlottesville, Virginia.
4 ____, 12-1930-02: 25.
5 ____, 12-1930-03: 12.
6 ____, 12-1931-02: 7.
7 ____, 07-1932-02) March 1, 1932.
8 *Page News & Courier*, March 1, 1932, 1.
9 ____, March 18, 1932, 1.
10 ____, April 15, 1932, 1.
11 ____, June 21, 1932, 1.
12 ____, April 19, 1932, 1 and June 21, 1932,1.
13 ____, June 21, 1932, 1.
14 Commonwealth Transportation Board minutes, 08-1932-01: 2.
15 *Page News & Courier***,** August 12,1932, 1.

ENDNOTES (Continued)

16 ____, September 23, 1932, 1.
17 ____, September 30, 1932, 1.
18 ____, November 18, 1932, 1.
19 ____, November 22, 1932, 1.
20 ____, December 13, 1932, 1.
21 ____, December 23, 1932, 1.
22 ____, February 7, 1933, 1.
23 ____, May 23, 1933, 1.
24 ____, June 30, 1933. 1.
25 ____, July 11, 1933, 1.
26 ____, September 29, 1933, 1.
27 ____, October 3, 1933, 1.
28 ____, October 17, 1933, 1.
29 ____, October 20, 1933, 1.
30 ____, December 15, 1933, 1.
31 ____, December 23, 1933, 1.
32 Commonwealth Transportation Board minutes, 12-1934-01: 1.
33 ____, 07-1936-01: 8.
34 ____, 07-1936-01:16.
35 ____, 07-1936-01: 20, 24.
36 ____, 02-1937-01: 20.
37 ____, 03-1937-01: 2.
38 J.A.L.Waddell, *Bridge Engineering.* New York, New York: John Wiley & Sons, Inc., 1916: 18-19. (need full name and his work plus publisher, location, year)
39 DeLony, Eric. *Cast and Wrought Iron Bridges in America.* Boston: American Society of Civil Engineers and Bullfinch Press, Little Brown Publishing Company, June, 1993.
40 ____, 44.
41 Miller, Clark, 7.
42 ____, 8.
43 ____.
44 Waddell, 16.
45 ____, 22.

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GEOGRAPHICAL DATA

Verbal Boundary Description

The nominated boundary encompasses the footprint of the bridge as shown on the accompanying tax map obtained from the Page County Commission of Revenue's Office, and mapped as UTM zone 17 point 730195E and 4298390N.

Verbal Boundary Justification

The boundary includes the historic bridge and road easement historically associated with the bridge.

PHOTOGRAPHIC DATA

The following information is common to all photographs:
NAME OF PROPERTY: Page County Bridge No. 1990, Page County, Virginia, #069-0238
NAME OF PHOTOGRAPHER: Trevor Wrayton, Virginia Department of Transportation
DATE OF PHOTOGRAPH: December, 2007
LOCATION OF DIGITAL IMAGES: Virginia Department of Historic Resources, Richmond

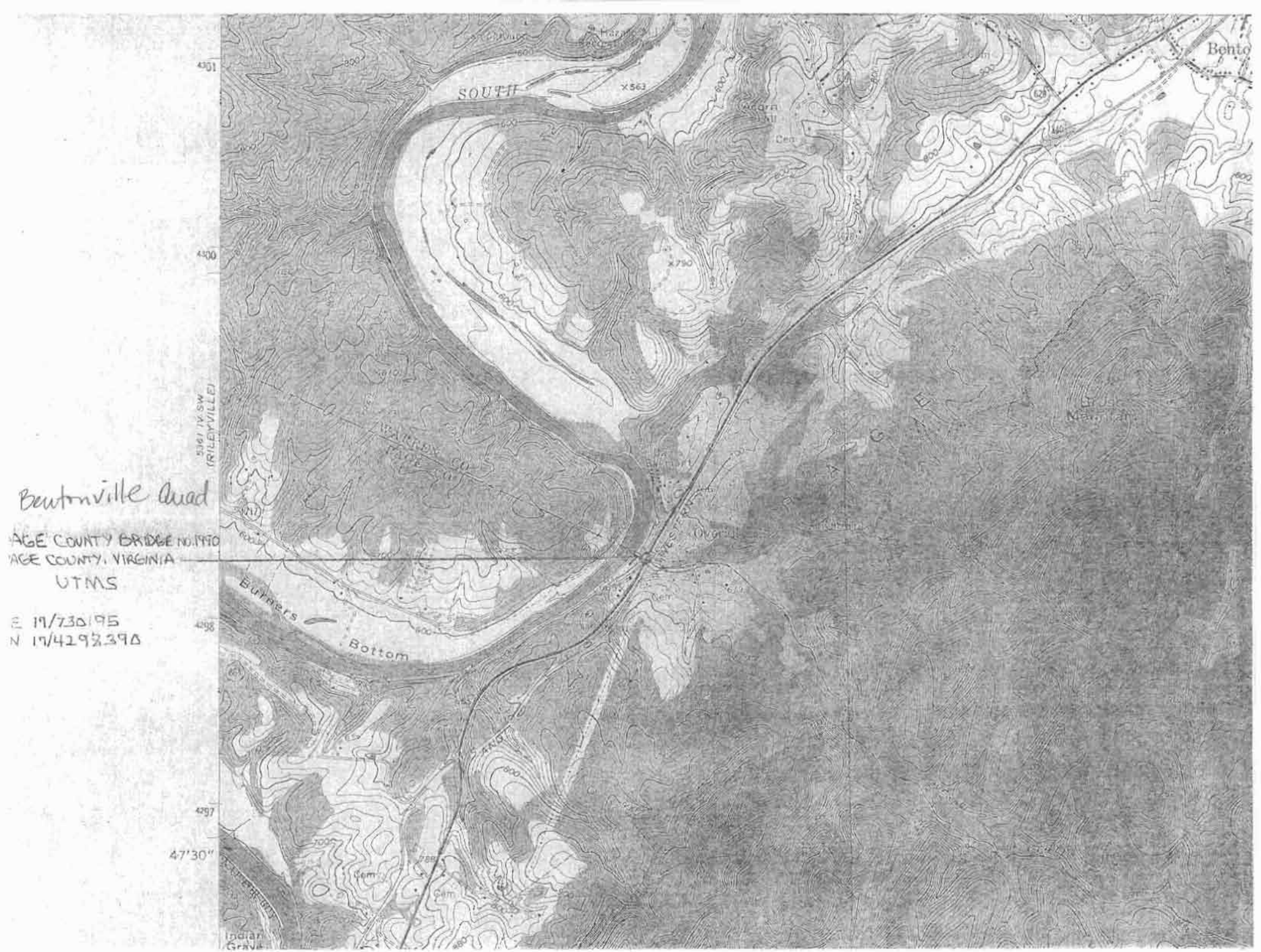
VIEW: Looking North along Bridge
PHOTO: 1 of 5

VIEW: Bridge with Cork Rail
PHOTO: 2 of 5

VIEW: Pratt Deck and Arch Section
PHOTO: 3 of 5

VIEW: Bridge Piers
PHOTO: 4 of 5

VIEW: Looking East at under side of Bridge
PHOTO: 5 of 5



Bentonville Quad

AGE COUNTY BRIDGE NO. 1910
AGE COUNTY, VIRGINIA

UTMS

E 19/730195
N 19/4295390