Consideration of and Findings regarding Dimension Limestone Resources within the I-69 Section 5 Area of Potential Effects

I-69 Evansville to Indianapolis: Tier 2 Studies
Section 5, SR 37 South of Bloomington to SR 39
DES No.: 0300381

Monroe County, Indiana

Prepared for
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Prepared by
Michael Baker Jr., Inc.
Principal Investigator: Timothy G. Zinn, MA
Principal Authors: Katherine Molnar, MA; Jesse Belfast, MA

100 Airside Drive
Moon Township, PA

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Executive Summary

This report documents the methodology and findings of eligibility for dimension limestone resources in the Area of Potential Effects (APE) for the Section 5 Tier 2 Study of the I-69 Evansville to Indianapolis project. In 2011, as part of the Additional Information Study, historians visited previously-surveyed properties contained in the 2008 HPR to document any changes that occurred within the intervening years, surveyed pre-1967 properties in APE addition areas (based on new information), and surveyed properties constructed between 1954 and 1967 (recent past) in the remainder of the APE. The results of the 2011 study were reported in an Additional Information (AI) report.[1] The AI Report did not include an evaluation of dimension limestone resources; therefore, this report focuses on the complex history and properties of the dimension limestone industry and evaluates the resources associated with that industry located within the Section 5 APE.

Project historians who meet or exceed the Secretary of the Interior's standards for Section 106 work identified and evaluated historic properties relating to the dimension limestone industry within the APE for this project. Historic properties were identified and evaluated in accordance with Section 106, National Historic Preservation Act (NHPA) of 1966, as amended, and CFR Part 800 (Revised January 2011), Final Rule on Revision of Current Regulations, December 12, 2000, and incorporating amendments effective August 5, 2004.

Numerous quarries, mills, and related resources are present throughout the Salem Oolitic Limestone Belt; such resources may constitute a larger, significant historic landscape relating to the dimension limestone industry in Monroe County. This report analyzes three distinct limestone areas within the APE: Hunter Valley, Reed, and North Clear Creek. From each of these areas, historians delineated three landscape historic districts, which are recommended eligible for inclusion on the National Register of Historic Places (NR).

Within each of these recommended eligible landscape districts, the historians delineated those resources possessing sufficient integrity to "Contribute" to eligibility. Historians identified twenty-two Contributing resources and only two Non-contributing resources within their recommended historic property boundary for Hunter Valley Historic Landscape District. The Reed Historic Landscape District contains nineteen Contributing resources and four Non-contributing resources. Within the North Clear Creek Historic Landscape District, historians identified forty-seven Contributing resources and eight Non-contributing resources. The natural and manmade features at these three districts represent a unique limestone landscape, which convey the history of the extraction and processing of this nationally important building stone in a powerful way.

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[1] Michael Baker Jr., Inc., "Historic Property Report, Additional Information, I-69 Evansville to Indianapolis: Tier 2 Studies, Section 5, SR 37 South of Bloomington to SR 39" (Prepared for the Federal Highway Administration/Indiana Department of Transportation by Michael Baker Jr., Inc., Moon Township, PA, January 2012).

Introduction

This report documents the methodology and findings of eligibility for dimension limestone resources in the Area of Potential Effects (APE) for the Section 5 Tier 2 Study of the I-69 Evansville to Indianapolis project. In accordance with Section 106, National Historic Preservation Act (NHPA) of 1966, as amended, and 36 CFR Part 800, a Historic Property Report (HPR) was prepared for Section 5 in 2008.[2] In 2011, as part of the Additional Information Study, historians visited previously-surveyed properties contained in the 2008 HPR to document any changes that occurred within the intervening years, surveyed pre-1967 properties in APE addition areas (based on new information), and surveyed properties constructed between 1954 and 1967 (recent past) in the remainder of the APE. The results of the 2011 study were reported in an Additional Information (AI) report.[3] The AI Report did not include an evaluation of dimension limestone resources; therefore, this report focuses on the complex history and properties of the dimension limestone industry and evaluates the resources associated with that industry located within the APE.

The authors recognize the national importance of the Indiana limestone industry and are aware of the fact that numerous quarries, mills, and related resources are present throughout the Salem Oolitic Limestone Belt and that such resources may constitute a significant regional historic landscape. Accordingly, this report analyzes three distinct limestone areas that were identified within the APE: Hunter Valley, Reed, and North Clear Creek.

Project Background

The 2008 Section 5 HPR identified six Non-contributing limestone-related properties within the APE. These included Star Quarry (105-115-35093); C & H Stone Company Mill (105-115-35098); Maple Hill Quarry (105-055-35099); Vernia Mill (105-055-25072); Reed Quarry (105-055-25063); and B.G. Hoadley Quarry and Mill (105-055-25071). Since the publication of the Section 5 HPR in 2008, it was brought to the attention of the project historians that there was an error in the dating of the mill at C & H Stone Company (105-115-35098), originally part of the Maple Hill property; the mill building was identified as "modern" in the HPR, but subsequent research indicates that it, and the associated quarry, date to circa 1930. Because of this, and in order to evaluate the property's more recent past (1954-1967), project historians reevaluated the C & H Stone Company Mill and adjacent Maple Hill Quarry. Similarly, project historians found that the State Register-listed Borland House and Carl Furst Stone Company Quarry (Carl Furst Stone Company) was omitted from the 2008 HPR because it was erroneously documented to be outside of the Section 5 APE. The historic property boundary of the Furst Quarry, in fact, intersects the Section 5 APE along its westernmost boundary, so it needed to be evaluated for

[2] Federal Highway Administration (FHWA) and the Indiana Department of Transportation (INDOT), "I-69 Evansville to Indianapolis Tier 2 Studies: Historic Property Report, Section 5 SR 37 south of Bloomington to SR 39", January 8, 2008.
[3] Michael Baker Jr., Inc., "Historic Property Report, Additional Information, Section 5."

National Register of Historic Places (NR) eligibility as well. As part of a "reasonable and good faith effort" to carry out appropriate identification of historic properties (36 CFR 800.4[a]), project historians reexamined all limestone-related resources within the APE to ascertain if more research could result in alternate recommendations of eligibility for those resources.

Preliminary research and site visits revealed two limestone areas (for the purposes of this report, limestone area refers to a grouping of limestone quarries, mills, and related resources but does not necessarily imply the existence of a NR-eligible historic district) within the Section 5 APE. Historians believed that these two limestone areas, North Clear Creek and Hunter Valley, could benefit from additional study as a historic landscape. Initially, the Reed Quarry was analyzed as part of the Hunter Valley limestone area. After additional consideration, this property, which is located east of the Hunter Valley limestone area and separated from the rest of the area by SR 37, was analyzed individually because of its physical separation from the rest of Hunter Valley (caused by SR 37 and modern residential development) and because it was opened several decades after many of the quarries in the Hunter Valley limestone area. For the purposes of this report and per historic records, the Hunter Valley limestone area is comprised of the B.G. Hoadley Mill and various properties acquired by the Consolidated Stone Company and later by the Indiana Limestone Company, Inc. (ILCO), including the Hunter Brothers Mill and Quarry, the Star Mill and Quarry, the Johnson Quarry, the Norton Quarry, the Vernia Mill, the Wycks Mill, the Crescent Mill and Quarry, and the Leonard Mill. The Reed limestone area is comprised of the historic Reed quarries, currently owned by Reed Quarries, Inc., and the former Hoadley quarries, currently owned by Stonelake Corporation. Within the APE, the North Clear Creek limestone area is comprised of the Furst Quarry and the Maple Hill Quarry and Mill (today quarried by Hoadley Company; the mill is owned and operated by C & H Stone Company). The location of these limestone areas is shown in Figure 1.

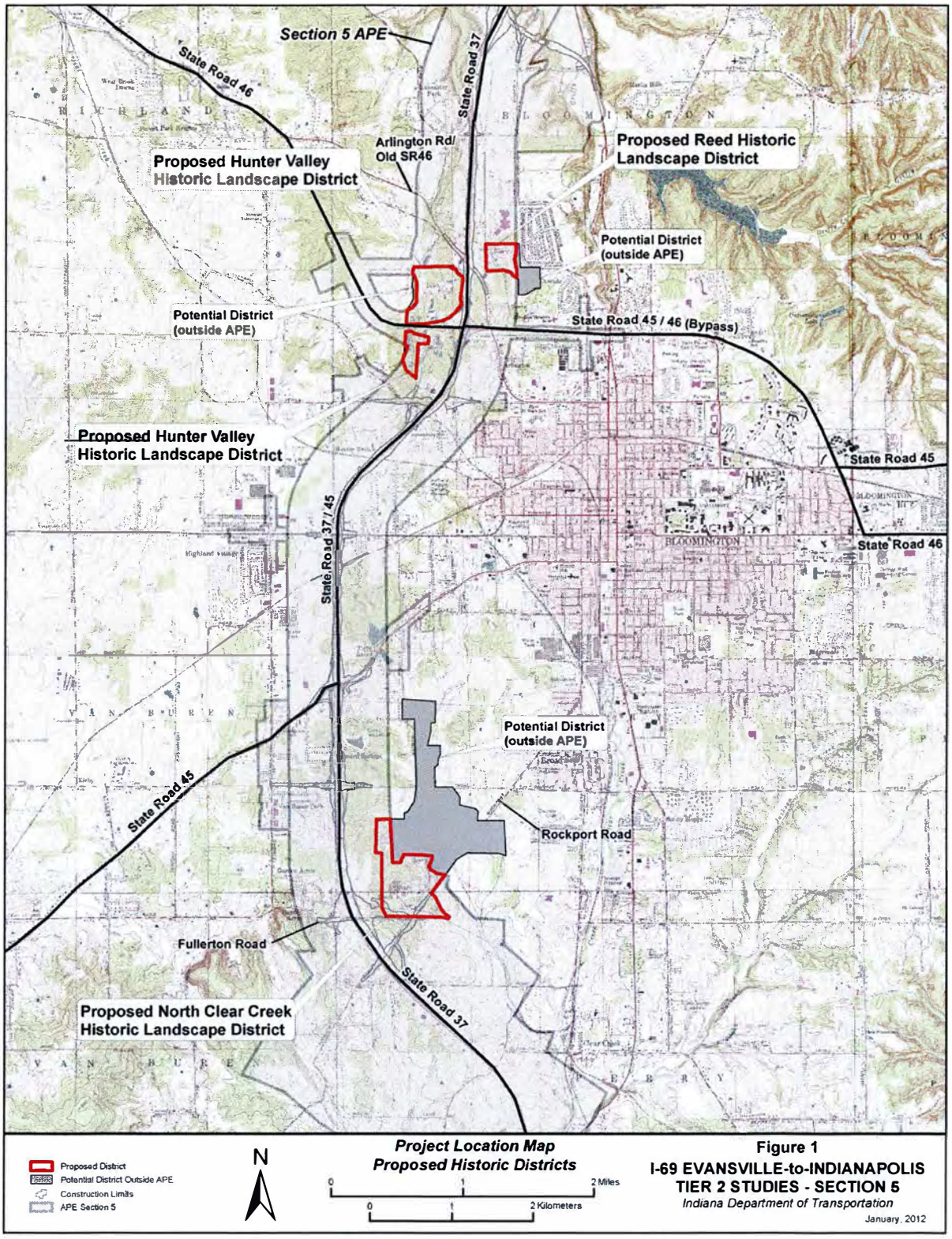

Figure 1. Project Location Map.

Methods

NR bulletins provided the foundation for the evaluation of these limestone areas. In addition to NR bulletins 15 and 16, limestone-related resources dealing with the process and industry of mineral extraction may be characterized as *mines* and evaluated (in part) by following the guidelines provided in the NR Bulletin 42: *Guidelines for Identifying, Evaluating and Registering Historic Mining Sites*.[4] Project historians also relied heavily upon the NR Bulletin 30: *Guidelines for Evaluating and Documenting Rural Historic Landscapes* when reevaluating limestone-related resources within the Section 5 APE.[5]

The 2008 HPR gave a general understanding of the locations and histories of quarries and mills associated within the North Clear Creek, Hunter Valley, and Reed limestone areas. The HPR provided a general quarrying context from which additional research began, but in order to properly identify and evaluate limestone areas, the historians needed a more detailed context. To research this context, historians consulted primary and secondary sources including, but not limited to, historic aerial photography, historic topographical quadrangle maps, historic atlas and railroad maps, various local limestone publications and directories, county histories, historic photographs, discussions with property owners, and multiple on-site visits/surveys. The context proved essential to establishing a period of significance for each of the limestone areas and provided information regarding property types, which was especially helpful for identifying Contributing and Non-contributing resources within each of the areas.

Unlike traditional NR historic districts primarily containing buildings and structures, a rural historic landscape district is generally dominated by a large area of land and has a proportionately lower concentration of buildings, structures, and objects. A rural historic landscape district is defined as "a geographical area that historically has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features."[6] Evaluating limestone-related properties as rural historic landscapes allows areas in which individual components may lack significance or integrity to be examined as a grouping of resources with potential to reflect the broader significance of the limestone industry in southern Indiana. While the individual quarrying and milling operations grew and changed (and in some cases continue to grow and change), project

[4] Bruce J. Noble, Jr., and Robert Spude, *National Register Bulletin [42]: Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties* (Washington, D.C.: U.S. Department of the Interior, National Park Service, National Register, History and Education, Revised 1997).
[5] Linda Flint McClelland, J. Timothy Keller, Genevieve P. Keller, and Robert Z. Melnick, *National Register Bulletin [30]: Guidelines for Evaluating and Documenting Rural Historic Landscapes* (Washington, D.C.: U.S. Department of the Interior, National Park Service, Cultural Resources, Revised 1999).
[6] McClelland, et al., *NR Bulletin 30,* 1-2.

historians assessed each limestone area's ability to reflect the historic day-to-day "occupational activities of people engaged in traditional work such as mining ...."[7]

When examining each area, project historians included the most prominent mining structures and features (mills and quarries), in addition to waste piles, water supply features, roads and railroad networks, and any related, historic-period equipment and machinery. The spatial organization or layout of each landscape was studied to better understand the process of extracting, milling, and shipping limestone; changes evident in this spatial organization, some of which result from technological changes to the process itself, were noted. Throughout the study, project historians were mindful of the eleven landscape characteristics described in the NR Rural Historic Landscape bulletin. These include, land uses and activities; patterns of spatial organization; response to the natural environment; cultural traditions; circulation networks; boundary demarcations; vegetation related to land use; buildings, structures, and objects; clusters; archeological sites; and small-scale elements.[8]

Project historians applied the NR criteria to each of the limestone areas (Hunter Valley, Reed, and North Clear Creek). Each has a slightly different period of significance, though all are significant under Criterion A for their contribution to the broad patterns of history, namely for their contributions to the Indiana Salem Oolitic limestone industry. (The significance of each property is discussed in more detail under the chapter in this report titled NR Eligibility Evaluations and Recommendations.) The period of significance for each of the recommended NR districts starts with the beginning date of the earliest extant quarry or mill at each site and ends in 1967, which is 50 years older than the estimated I-69 project completion date of 2017. The year 1967 also coincides with a general transition in limestone quarrying techniques.

Within the APE, historians delineated the most defensible boundaries for the recommended NR districts. First, historic maps and limestone histories helped to define a boundary during the period of significance. Recognizing that the boundaries for each of the three proposed NR historic districts should encompass a "concentration or continuity of historic landscape characteristics" and that some of the resources within each of the traditional limestone areas had changed since the period of significance, historians attempted to select boundaries that included land with both historic significance and integrity. Per NR Bulletin 30, "peripheral areas having a concentration of non-historic features" were excluded.[9] In general, boundaries were drawn around historic and current property lines, along creeks and roadways, and excluding areas of Non-contributing mining activities and highway features.

In reference to historic mining landscapes, the NR Bulletin 30 describes specific threats to mining resources:

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[7] McClelland, et al., *NR Bulletin 30,* 2.
[8] McClelland, et al., *NR Bulletin 30,* 3.
[9] McClelland, et al., *NR Bulletin 30,* 25.

> Modern methods of extraction may alter integrity....However, an open pit mine that has operated since the historic period retains its integrity, if recent extraction methods have been similar to those practiced historically and if the character of the pit is similar, although greater in size, to that of the historic period.[10]

Project historians evaluated the integrity of each district as a whole and each resource within the district, by considering the seven qualities of historic integrity: location, design, setting, materials, workmanship, feeling, and association. Two sections from the NR Bulletin 42, related to *setting* and *association*, in particular, provided guidance to project historians while assessing historic integrity of mining properties within the Section 5 APE:

> Other modern intrusions include recent mining activity that can compromise integrity of setting through the introduction of newer mass mining systems that destroy the historic mining property or leave it isolated...
>
> Integrity of association will exist in cases where mine structures, machinery, and other visible features remain to convey a strong sense of connectedness between mining properties and a contemporary observer's ability to discern the historical activity which occurred at the location.[11]

In sum, the historians paid particular attention to each limestone area's "spatial organization, physical components, and historic associations" in evaluating eligibility.[12] Changes and threats to historic integrity were considered, Contributing and Non-contributing resources were identified, and overall integrity of each landscape district was weighed based on the ratio of Contributing to Non-contributing resources in order to determine the viability of the entire limestone area for listing in the NR. In general, only resources within the APE were identified and evaluated as part of this study. However, resources located outside of, but within close proximity to, the APE and that were currently or historically linked with the properties being evaluated were also noted in the identification and evaluation phases. In the case of the Furst Quarry, all resources within the property's State Register boundary were identified and evaluated in this study because they had been previously identified in the documentation prepared for its nomination to the State Register.

[10] McClelland, et al., *NR Bulletin 30,* 27.
[11] Noble and Spude, *NR Bulletin 42,*21.
[12] McClelland, et al., *NR Bulletin 30,* 21.

Historic Context[13]

The geologic history of south-central Indiana left limestone deposits accessible, at first for harvesting from the surface and later for mining as dimension, or building, stone. Beginning in the nineteenth century, the dimension limestone industry helped create a unique manmade mining landscape in the region and influenced the economic and cultural life of the people who worked and lived in the area. Indiana limestone has constructed local and national buildings, ranging from modest residences to massive public structures. Limestone from this small area in Indiana is found in buildings and structures all over the world.[14] In the United States, the Chicago Tribune Tower, the National Cathedral in Washington, D.C., the Boston Federal Reserve Bank, Yale Graduate School, and a number of other churches, banks, federal buildings, university buildings, hospitals, skyscrapers, libraries, houses and businesses were built or faced with Salem Limestone from Monroe County.[15]

Limestone in Monroe and Lawrence counties possessed certain qualities that made it superior to other mineral deposits in the state or nation. The belt of Salem Limestone running through the south and central part of Indiana, begins along the Ohio River in Harrison and Floyd counties, and extends northwest as far as Montgomery and Fountain counties.[16] The formation was deposited in the Mississippian Period, about 340 million years ago, when a shallow inland sea covered the land of present-day Indiana.[17] Settlers realized the section of Salem Limestone centered on Monroe, Lawrence, and to a lesser extent Owen, counties made a good building material: it was sturdy but soft enough to be malleable, and was not prone to splitting.[18] After it was extracted, the stone hardened into a durable material and could also be carved.[19] Limestone in the region was relatively close to the surface, making extraction easier than in more northern parts of the state, where the bedrock has been buried with thick deposits of glacial till. These characteristics made the limestone running from Stinesville (in Monroe County) to Bedford (in Lawrence County) unique.[20] The rock was first termed "Oolitic Limestone" during a geological reconnaissance of the state in the 1830s and re-defined as "Bedford Oolitic Limestone" as part of

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[13] Historic Context section written by Weintraut & Associates, Zionsville, IN.
[14] John R. Hill, "Indiana Limestone," *Indiana University Geological Survey*, http://igs.indiana.edu/MineralResources/Limestone.cfm (accessed January 5, 2012).
[15] Buildings constructed of limestone from Monroe County are too numerous to list in this text. For additional information on specific buildings, see Katherine Ferrucci, *Limestone Lives: Voices from the Indiana Stone Belt* (Bloomington: Indiana University Press, 2004); Bill McDonald, *Short History of Indiana Limestone* (Bedford: Lawrence County Tourism Commission, 1995).
[16] John B. Patton and Donald D. Carr, *The Salem Limestone in the Indiana Building-Stone District,* Department of Natural Resources Geological Survey Occasional Paper, vol. 38 (Bloomington, IN: Department of Natural Resources, 1982), 4.
[17] McDonald, *Short History of Indiana Limestone*, 1-2; Peter Benjamin Steel, *Cutters of Stone* (Fort Collins, CO: Documenta Productions; Indianapolis: Indiana Historical Society documentary, 1997).
[18] McDonald, *A Short History of Indiana Limestone*, 2; Patton and Carr, *The Salem Limestone in the Indiana Building-Stone District,* 1, 5.
[19] McDonald, *A Short History of Indiana Limestone*, 12.
[20] McDonald, *A Short History of Indiana Limestone*, 2; Patton and Carr, *The Salem Limestone in the Indiana Building-Stone District,* 4-5; Steel, *Cutters of Stone.*

a later reconnaissance in 1859-1860.[21] Since 1901, the stone in this region has been termed Salem Limestone.[22]

As in other regions of the United States with natural stone deposits, the earliest Euro-American use of limestone in Indiana was probably quite localized. Surface collection was the easiest way to use the stone in foundations or for an entire building. Visible outcrops of limestone, as well as stream-bed deposits, also provided sources for small-scale extraction.[23] In southern Indiana, field stone and cut-block homes dates to the 1820s and 1830s. Within the Section 5 APE, Daniel Stout constructed a limestone I-house in 1828 of locally-gathered material (105-035-25035/NR, 1973). Edward Borland used local limestone in the foundation of the Borland House (105-055-35020) in 1830, which is now part of the State Register-listed Borland House and Carl Furst Stone Company Quarry.[24] The first story of the Murphy-May House (105-115-40051, no longer extant), was constructed of hand-cut stone blocks in circa 1840.[25] In Greene County, within the Section 4 APE, the side-gabled, dual entry Alexander Gilmore House (055-324-55049) was constructed circa 1870 of locally-quarried, cut stone blocks.[26]

Even where stone was easily extracted, the development of a broad market for limestone depended on transportation. The lack of a navigable river or uniform road system limited the portability, and commercial potential, of limestone in south-central Indiana during the first years of statehood. Despite the poor transportation system, the first commercial quarry opened in 1827, just eleven years after Indiana became a state. Richard Gilbert opened a quarry in the Stinesville area, in northern Monroe County; stone extracted from the quarry went to local building projects.[27] Stone quarried in Monroe County was limited to local use, as the material for fences, culverts, tombstones, bridge foundations, and as foundations for buildings such as the first Monroe County Courthouse.[28]

When the railroad was constructed through the limestone belt, physical geography gave the region a relative advantage. Railroad surveyors recognized that the gently rolling hills on which the belt is situated was "less rugged" than the dissected uplands bordering it to the east and west,

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[21] T.C. Hopkins and C.E. Siebenthal, *"The Bedford Oolitic Limestone of Indiana," in Indiana Department of Geology and Natural Resources Annual Report 21* (Indianapolis: Department of Geology and Natural Resources, 1896), see notes on 298.
[22] Patton and Carr, *The Salem Limestone in the Indiana Building-Stone District*, 7.
[23] Patton and Carr, *The Salem Limestone in the Indiana Building-Stone District,* 10. Examples of limestone pieces in stream beds occur in several places in southern Indiana, such as Dearborn County, where early English settlement homes, retaining walls, and culverts are all constructed of stone from nearby water sources. *See*: *Dearborn County Interim Report*, especially York Township, and Weintraut & Associates, "Historic Property Report: Collier Ridge Road over West Fork Tanner's Creek, CSX Railroad to Bonnell Road" (Prepared for FHWA/INDOT, August 2011).
[24] Duncan Campbell and Kristen Brennan, State Register of Historic Places Nomination Form for Borland House and Carl Furst Stone Company Quarry, Bloomington, Monroe County, Indiana (on file at the Indiana State Historic Preservation Office, Indianapolis, 1999), Sect. 7, p. 1.
[25] FHWA/INDOT, "I-69 Tier 2 Studies: Section 5," 101.
[26] FHWA/INDOT, "I-69 Evansville to Indianapolis Tier 2 Studies: Historic Property Report, Section 4, US 231 to SR 37" August 29, 2006, 179-180.
[27] McDonald, *A Short History of Indiana Limestone*, 7.
[28] Joseph A. Batchelor, *An Economic History of the Indiana Oolitic Limestone Industry* (Bloomington, IN: School of Business, Indiana University, 1944), 7-9.

making it a good location to lay track.[29] The first railroad completed through the area was the New Albany & Salem Railroad (later, Louisville, New Albany & Chicago and eventually the Monon Line), constructed through Bloomington in 1853 and through Stinesville to the north in 1854. Quarries could easily locate near the track and the arrival of the railroad created new potential markets for Indiana's limestone industry, as large blocks of stone could be transported via rail.[30] The importance of the railroad is suggested in Joseph Batchelor's *An Economic History of the Indiana Limestone Industry*. Batchelor documents fourteen quarries opened in the "Limestone Belt" by 1870. With the exception of Richard Gilbert's quarry, all quarries were opened in 1853 or later.[31]

The opening of new quarries required a larger labor force in the county. European immigrants comprised a significant portion of workers and owners in the industry. Some English immigrants, who had experience quarrying and carving stone deposits in their home country, were attracted to Indiana's stone deposits. David Reed came to the United States from England in 1871 and started a quarry, Tomlinson and Reed, with a business partner the same year.[32] John Hoadley, also from England, came to the United States at age twelve and began his career as a machinist in New Albany. He eventually moved to Monroe County where, in 1876, he started his quarry business.[33] David Reed, continued to operate many stone companies in the area including Reed Station in Bedford, and brought twenty Italian workers to his quarries in 1882.[34] The influence of European carvers is not evident in the architecture of the county's modest stone towns, but is present within the city of Bloomington where homes finished by European carvers "have a distinctly Mediterranean flavor."[35]

The number of quarries and the associated labor force increased with the popularity of Indiana limestone, particularly from the 1870s through the 1890s. This was due, in part, to significant fires in Chicago (1871) and Boston (1872) which created a demand for less flammable building materials.[36] Limestone and sandstone were the most common stones used in the rebuilding of Chicago.[37] The construction of Chicago's City Hall in 1878, using Indiana limestone from the Tomlinson and Reed quarry, also helped the building material gain a more regional and national prominence.[38] Because Salem Limestone was relatively soft when quarried but hardened after being taken out of the ground, it was easier to quarry than the more brittle Niagara limestone

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[29] Steven Visher, "The Indiana Oolitic Limestone Industry," *Economic Geography* 7:1 (January 1931), 54.
[30] Visher, "The Indiana Oolitic Limestone Industry," 54; Batchelor, *Economic History of the Indiana Oolitic Limestone Industry*, 8.
[31] Batchelor, *Economic History of the Indiana Oolitic Limestone Industry,* 10.
[32] William Mullen, "Cutting Edge," *Sunday: The Chicago Tribune Magazine*, September 24, 1989, Sec. 10, 15.
[33] B.F. Bowen & Co., *History of Lawrence and Monroe Counties, Indiana: Their People, Industries and Institutions* (Indianapolis: B.F. Bowen & Co., 1914), 611.
[34] "Limestone Industry Timeline," Indiana Bedrock, http://indianabedrock.org/timeline.pdf (accessed January 9, 2012).
[35] *Monroe County: Interim Report* (Indianapolis: Historic Landmarks Foundation of Indiana, 1989), xvi.
[36] McDonald, *A Short History of Indiana Limestone*, 12; Batchelor, *Economic History of the Indiana Limestone Industry*, 23-33.
[37] Batchelor, *Economic History of the Indiana Oolitic Limestone Industry,* 24.
[38] Visher, "The Indiana Oolitic Limestone Industry," 51.

found in Illinois and other states. Indiana limestone also held up better under exposure to coal smoke in cities.[39]

In the East, limestone's light color offered a contrast to the darker granite and brownstone that dominated the landscape after the Civil War.[40] This preference was bolstered by the rise of the Beaux Arts style in the last years of the nineteenth century, which commonly featured limestone as a building material.[41] Prosperity during the Gilded Age led to large building projects, as the nation's wealthiest citizens commissioned estate houses and "sumptuous town residences."[42] The Vanderbilt family commissioned several homes constructed with Indiana limestone, including their Newport residence "The Breakers" and the "Biltmore" in Ashville, North Carolina, both completed in 1895.[43]

Technological changes in limestone quarrying and milling reduced production costs, starting in the late nineteenth century. The steam channeler, which made stone extraction possible, reportedly used the labor of two men to accomplish what had previously required twenty-five workers.[44] By 1875, John Matthews in nearby Ellettsville had introduced the first stone channeling machine in the area.[45] Other advancements followed; steam power applied to drills and derricks lowered extraction costs. At mills, the introduction of mechanized gang saws in 1885 and diamond saws in 1895, similarly made production and finishing more efficient.[46]

As limestone's popularity rose, favorable commodity rates helped the industry expand its market. Though Indiana limestone enjoyed a significant market outside the Midwest, as late as 1881 the majority of limestone products went to projects in Indiana, Illinois, or Kentucky. By 1891, distribution expanded to a broader national presence and Indiana producers reported New York as their biggest market.[47] An 1896 report listed Indiana limestone as the building material for residences, public buildings, and office buildings in Illinois, Iowa, Kentucky, Massachusetts, Missouri, New York, Virginia, and Wisconsin.[48] Rail companies made commodity rates on limestone shipments to New York such that it was as inexpensive to ship from the Midwest as it was to ship from a closer quarry in New Jersey, New England, or even within the state of New York (prices would increase in later years).[49]

Railroad use expanded in the late nineteenth and early twentieth centuries and prompted the development of new quarry districts in the limestone belt. Railroad companies constructed three

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[39] Batchelor, *Economic History of the Indiana Limestone Industry*, 24; Mullen, "Cutting Edge," 16.
[40] Batchelor, *Economic History of the Indiana Limestone Industry,* 23-24.
[41] James C. Massey and Shirley Maxwell, *House Styles in America: The Old-House Journal Guide to the Architecture of American Home* (New York: Penguin Studio, 1996), 169-172.
[42] Batchelor, *Economic History of the Indiana Limestone Industry,* 29-30.
[43] McDonald, *Short History of Indiana Limestone*, 24-25.
[44] Batchelor, *Economic History of the Indiana Limestone Industry,* 40.
[45] McDonald, *Short History of Indiana Limestone*, 19; Batchelor, *Economic History of the Indiana Limestone Industry,* 39-40.
[46] Batchelor, *Economic History of the Indiana Limestone Industry*, 42-43.
[47] McDonald, *Short History of Indiana Limestone*, 28.
[48] Hopkins and Siebenthal, *"*The Bedford Oolitic Limestone of Indiana*"*, 414-427.
[49] Batchelor, *Economic History of the Indiana Limestone Industry*, 32.

short lines in the Bloomington and Bedford area, totaling fifteen miles, to transport limestone. Competition among railroads led to new track in other parts of the district and created more opportunities for quarrying.[50] A line to Harrodsburg, south of Clear Creek Station and outside the APE, opened up more quarries as did the construction of the Bloomington Southern Railroad short line rail, which began in 1907 and paralleled the Monon (outside the APE).[51] Easier transportation, combined with limestone's popularity, allowed the industry to experience "fairly continuous" growth from the 1890s—excepting some economic recession, most notably the depression following the panic of 1893—into the first decade of the twentieth century.[52]

The popularity of Salem Limestone made potential Hoosier quarries a good investment and introduced a speculative component to the industry. Investors from Illinois, New York, Kentucky, and Ohio were drawn to the industry's growth.[53] These investors bought land in the stone belt in anticipation of rail or quarry development. Company names—such as the Chicago and Bloomington Limestone Company and the Cleveland Quarry—reflect the presence of these outside investors.[54] In some instances, quarries were opened to provide material for a single project—or even as a leverage point for bidding on a project—and either closed following the project's completion or continued "on a half-hearted basis."[55]

Spurred by the construction of the railroad switch, the Hunter Valley limestone area northwest of Bloomington opened in the 1890s during the era of "increased demand" when Indiana limestone gained a significant regional and national presence.[56] The region was tapped first for commercial quarrying by the Morton C. Hunter Stone Company in 1891. The Hunter Company conducted a number of core drillings that showed a rich deposit of Salem Limestone in the area, which led to the construction of the Hunter Switch off the Louisville, New Albany, and Chicago Railroad (later Monon). The Hunter Company immediately began to quarry and also constructed a stone mill on site.[57] The Chicago and Bloomington Stone Company (1892) and the Norton Stone Company (1892) also developed quarries in the district. The Norton Stone Company constructed a mill shortly after opening its quarry.[58] Perry, Matthews, and Perring started the Crescent Quarry (1893), and Star Stone Company opened Star Quarry (1895). Consolidated Stone Company bought the Norton quarry in 1895 and the Hunter Quarry in 1896. There were seven active quarries and two mills located within the district by 1896; an additional two mills operated in Bloomington.[59]

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[50] Batchelor, *Economic History of the Indiana Limestone Industry*, 92-93.
[51] Richard Simons and Francis Parker, *Railroads of Indiana* (Bloomington, IN: Indiana University Press, 1997), 168.
[52] Patton and Carr, *The Salem Limestone in the Indiana Building-Stone District,* 5.
[53] McDonald, *Short History of Indiana Limestone*, 26.
[54] McDonald, *A Short History of Indiana Limestone*, 25-26.
[55] Visher, "The Indiana Oolitic Limestone Industry," 53.
[56] Batchelor, *Economic History of the Indiana Limestone Industry,* 33, 36
[57] Hopkins and Siebenthal, *"*The Bedford Oolitic Limestone of Indiana,*"* 366.
[58] Hopkins and Siebenthal, *"*The Bedford Oolitic Limestone of Indiana,*"* 366.
[59] Hopkins and Siebenthal, *"*The Bedford Oolitic Limestone of Indiana,*"* 366-367.

Southeast of Hunter Valley, the Clear Creek area (east of the APE) struggled to quarry limestone until the Indiana Stone Railway was built. The Clear Creek area was thought to contain "large and promising outcrops of Oolitic Limestone," but lacked a viable rail line.[60] The *Annual Report of the Department of Geology and Natural Resources* noted the Cleveland Quarry, located in Clear Creek at some distance from a nearby railroad, had been abandoned by 1896.[61] The construction of the Indiana Stone Railway in 1899, which was a branch of the Monon, opened the area to more quarrying activities.[62] (The Clear Creek area became more active in the twentieth century.)

Though the Norton and Hunter companies erected mills in Hunter Valley, stone companies in the limestone belt usually milled off-site in the late nineteenth century. For example, the Chicago and Bloomington Limestone Company sent their quarried stone to Chicago mills for sawing and finishing.[63] If they were not working through a broker or supplying stone for a specific project, stone companies often shipped their rough blocks to stone yards located in city centers for finishing.[64] These yards offered slab or block stone in-stock for builders, along with other masonry tools. Some yards had mills and performed finishing and carving on site. Some stone companies milled block stone on the quarry site and noted the advantage of not paying freight rates for shipping "waste" stone that could be removed prior to shipping.[65] The efficiency, and subsequent savings, of vertical integration could be hampered if a stone yard cut ties with quarries that did their own milling.[66]

In the early twentieth century, limestone was a significant component of Bloomington's relatively diverse local economy of education and manufacturing.[67] A building boom, similar to the one in the late nineteenth century that gave Indiana limestone its regional and national prominence, struck again in the 1920s.[68] The Indiana stone industry increased its marketing efforts in this era, targeting architects and architectural schools, contractors, and the general public.[69] The Hunter Valley and Clear Creek areas continued to expand, with new quarries and mills, opening in or near established districts.

The Hunter Valley limestone area and the Clear Creek limestone area both expanded in the first decades of the twentieth century. The mills that Consolidated Stone Company operated (or built) in 1892 and 1896 had burned in 1918 and 1921, respectively. In 1923, Vernia Mill (105-055-25072) was built to replace them. The mill is no longer extant. The tramway, though

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[60] Hopkins and Siebenthal, "The Bedford Oolitic Limestone of Indiana," 373.
[61] Hopkins and Siebenthal, "The Bedford Oolitic Limestone of Indiana," 376.
[62] Oliver Lockhart, *The Oolitic Limestone Industry of Indiana*, Indiana University Studies nos. 9 and 10, Bloomington, Indiana, September 1910, 77.
[63] Hopkins and Siebenthal, "The Bedford Oolitic Limestone of Indiana," 366.
[64] McDonald, *Short History of Indiana Limestone,* 32-33.
[65] Batchelor, *Economic History of the Indiana Limestone Industry,* 45.
[66] McDonald, *Short History of Indiana Limestone*, 33.
[67] Patton and Carr, *The Salem Limestone in the Indiana Building-Stone District,* 6.
[68] Scott R. Sanders, *Stone Country* (Bloomington, IN: Indiana University Press, 1985), 26.
[69] Batchelor, *Economic History of the Indiana Limestone Industry*, 209-211.

deteriorated, is clearly discernible on the landscape.[70] In the Clear Creek area, the Monarch Stone Company had opened a quarry on the site of former farmland in circa 1902. The Red Hog quarry, owned by the Clear Creek Quarries Company, opened east of Monarch near modern State Road 37.[71]

As more quarries were established, mills became increasingly noticeable on the Hoosier landscape. By 1916, approximately 25 percent of limestone was produced or finished at an Indiana mill.[72] Stone producers increased marketing efforts promoting the stone as a building product.[73] Rail remained integral to the growth of the stone district; reasonable rates assisted the shipping of cut stone from mills to distant markets.[74] Blocks of limestone were transported by rail to nearby or distant mills for finishing. Stone passed through mill and saw buildings on narrow-gauge railroad to be squared off or sliced. Finished stone traveled by rail to its final destination where it served as foundations, decorations, and veneer. The absence of a rail line to transport the stone stalled the opening of valuable quarries. For example, limestone operations in the North Clear Creek area along Rockport Road (east of modern SR 37) did not open until the late 1920s and were helped by the construction of a railroad switch.[75]

Indiana limestone sales were at an all time high in the 1920s. In 1926, Indiana's limestone industry sold its highest quantity ever of rough blocks. In 1928, the industry had the highest quantity of sales of both sawed and semi-finished stone. In the following year, the industry boasted the largest quantity of cut stone ever sold by mills.[76] Rapid expansions and subsequent mergers caused Joseph Batchelor to call the era from 1919 to 1933 a "Period of Boom, Merger, and Overcapacity."[77]

Around this time, the ILCO organized. Following negotiations that began in 1925, twenty-four dimension limestone industry firms merged into ILCO in 1926. This merger represented more than half of the companies in the region, and the merged ILCO represented 85 to 90 percent of the capacity of the stone belt.[78] In Hunter Valley, Consolidated Stone Company, Crescent Stone Company, Hunter Valley Stone Company, and Star Stone Company participated in the merger.[79]

The formation of ILCO may have created a small boom of new operations. Following the merger, there were only nineteen companies in the district. That number quickly grew; in the next year, owners who "who had sold out to the merger" opened ten new companies.[80]

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[70] FHWA/INDOT, "Historic Property Report, Section 5," 142-143.
[71] Al Hoadley, "History of the Belt" (unpublished manuscript, 1992), Monarch Stone Company essay.
[72] McDonald, *Short History of Indiana Limestone,* 32-33.
[73] Batchelor, *Economic History of the Indiana Limestone Industry*, 209.
[74] McDonald, *Short History of Indiana Limestone,* 32-33.
[75] Al Hoadley, "History of the Belt," Bloomington Limestone Company (unpublished manuscript, 1992), 139-140.
[76] Batchelor, *Economic History of the Indiana Limestone Industry,* 207.
[77] Batchelor, *Economic History of the Indiana Limestone Industry,* 183.
[78] Batchelor, *Economic History of the Indiana Limestone Industry*, 268.
[79] Clay Stuckey, "Gazetteer of Limestone Mills of Owen, Monroe, and Lawrence Counties to 1950," http://bl-libg-doghill.ads.iu.edu/gpd-web/gazetteeroflimestonemills.pdf, (accessed January 9, 2012), Appendix B.
[80] Batchelor, *Economic History of the Limestone Industry*, 268-270.

Additionally, another five stone mills were constructed by stone contractors "who decided that in view of the merger and the increased intensity of competition, they could not survive outside the district."[81] The opening of local mills in the first decades of the twentieth century is a contrast to earlier practices of the late nineteenth century, when most milling took place at distant locations.[82] The B.G. Hoadley Company built a mill in 1928, south of Arlington Road (within the APE), that is still operational.[83]

Some companies that did not participate in the ILCO merger decided it would be advantageous to join with other stone companies. A second merger took place in 1927; the Chicago and Bloomington Limestone Company, Maple Hill Quarry Company (within the APE), and the Hoadley-Cline Cut Stone Company formed the Bloomington Limestone Company (BLCO). Two years later, the company also acquired the Indiana Oolitic Limestone Company.[84] Following this merger, the BLCO acquired three mills, a number of quarries, and operated out of a central office on South Walnut Street in Bloomington.[85] A third merger took place in 1928 between the Shawnee Stone Company (outside the APE) and the Central Oolitic Stone Company (outside the APE).[86]

In this era of "boom, merger, and overcapacity," quarries and mills in the North Clear Creek area, a portion of which is located in the APE along Rockport Road, started operations as part of a "late-developed pocket" of industry activity.[87] Development in the North Clear Creek area—north of the established Clear Creek district and south of Bloomington proper—was greatly aided by the completion of a railroad switch, likely sometime in the late 1920s.[88] Development was also likely responsive to expansion and changes in the industry in the late 1920s and early 1930s; the limestone industry would not be affected by the Depression until the mid-1930s.[89] The Maple Hill Quarries Company, Inc. organized in 1925, and purchased the land for the Maple Hill Mill and Quarry in 1927.[90] The National Register-listed Woolery Stone Company opened in 1928, and the State Register-listed Furst Quarry Stone Company opened in 1929 north of Maple Hill. By 1931, University Quarry (ILCO), Crane (ILCO), and Smith Quarry occupied land or opened quarries in the vicinity north or south of modern Tapp Road.[91] Limestone activities in the North Clear Creek area were also aided by a branch of Clear Creek running through the

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[81] Batchelor, *Economic History of the Limestone Industry*, 268-270.
[82] McDonald, *A Short History of Indiana Limestone*, 32-33.
[83] Stuckey, "Gazetteer of Limestone Mills of Owen, Monroe, and Lawrence Counties to 1950," 18.
[84] Batchelor, *Economic History of the Limestone Industry*, 270.
[85] *Quarries and Mills* 1:2 (1929), available through Indiana Bedrock, http://cdm15078.contentdm.oclc.org/cdm/compoundobject/collection/p15078coll7/id/785/rec/2 (accessed January 9, 2012), BLCp-01-0067; "Interview with Harold Hickman," Indiana Bedrock, http://cdm15078.contentdm.oclc.org/cdm/singleitem/collection/p15078coll7/id/2831 (accessed January 9, 2012).
[86] Batchelor, *Economic History of the Limestone Industry*, 271.
[87] Batchelor, *Economic History of the Limestone Industry*, 183; Eliza Steelwater, National Register of Historic Places Nomination Form for Woolery Stone Company, Bloomington, Monroe County, Indiana (on file at the Indiana State Historic Preservation Office, Indianapolis, 2001), Sect. 8, p. 35.
[88] Hoadley, "History of the Belt," Bloomington Limestone Company essay, 3-4.
[89] McDonald, *Short History of Indiana Limestone,* 39.
[90] Hoadley, "History of the Belt," Bloomington Limestone Company essay; Title research provided by Michael Baker Jr. Inc.
[91] *Map of Indiana Oolitic Limestone District* [cartographic material] (Building Stone Association of Indiana, 1931).

quarry and mill sites, which provided valuable hydraulic power and water supply for milling activities. Companies such as Woolery Stone Company immediately took advantage of the creek, constructing dams as one of its first activities.[92]

Indiana's limestone industry did not immediately feel the effects of Depression, in part due to the ongoing nature of many projects started before the Stock Market crash. Limestone was often used in connection to non-residential buildings, which continued to be constructed in the first years of the 1930s. Public buildings and hospital institutions did not reach their peak of production until 1931; education building had peaked in 1929.[93] As noted above, the Carl Furst Stone Company opened a quarry north of Maple Hill Quarry in 1929, several months before the stock market crashed. By August 1929, the track had been laid on site and land cleared.[94]

The first significant drop in production was evident in 1935 when limestone production fell from the 1922 high of 9.6 million cubic feet to 3.5 cubic feet.[95] From 1934 to 1941, the use of limestone in public buildings significantly dropped, especially after the federal government's New Deal Public Works Administration adopted a resolution in 1935 requiring the use of local materials in building projects.[96]

In addition to the Depression, technological advances in the use of other building materials affected the viability of limestone over the next century. Proponents of the mergers had promised more efficient production and extraction, increased range of sales, and potential to lower costs in a way that would be competitive with the new cheaper emerging building materials.[97] Despite these promises, a number of competitors, including cast stone and concrete, emerged in the 1930s.[98] Other areas of the country, including the state of Alabama, but also Texas and Midwestern states such as Missouri, and Minnesota increased their limestone production capabilities.[99] Production in Texas was in part due to the fact that Indiana stone operators, including ILCO and BLCO, opened quarries in the state finding Indiana quarrying techniques to be easily adapted to the southern state.[100] The Reed Quarry opened in Indiana, east of SR 37 in the Hunter Valley area, shortly after the merger of BLCO. The Reed Quarries were opened by Harry Johnson (of BLCO) and George Reed, the grandson of David Reed. The quarry operated for a time as "Texas Quarries Company," possibly in connection with BLCO's activities out of state.[101]

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[92] Steelwater, Woolery Stone Company, Sect. 7, p. 16.
[93] Batchelor, *Economic History of the Indiana Limestone Industry*, 186.
[94] *Quarries and Mills* 1:2 (1929), BLCp-01-0017.
[95] Patton and Carr, *Salem Limestone in the Indiana Building-Stone District*, 5.
[96] Batchelor, *Economic History of the Indiana Limestone Industry*, 308.
[97] Batchelor, *Economic History of the Indiana Limestone Industry*, 265.
[98] Batchelor, *Economic History of the Indiana Limestone Industry*, 192.
[99] Batchelor, *Economic History of the Indiana Limestone Industry*, 201.
[100] Batchelor, *Economic History of the Indiana Limestone Industry*, 202.
[101] Hoadley, "History of the Belt," Reed essay; Steel, *Cutters of Stone.*

Indiana's stone industry had weathered the first years of the Depression, but did not fair as well in the later years or during World War II. In December 1942, only six quarries and fifteen mills remained opened (compared to the eleven quarries and twenty mills operating in 1931). Some recovery in 1937-1939 was tempered in the early 1940s as trends in building favored cheaper materials. The dimension limestone industry's capacity exceeded its sales, which by 1942 (and during World War II when little building occurred) were at a lower point than they had been in 1918.[102]

During World War II, many of the remaining limestone mills were converted to use in production for the war effort; many more simply closed in the war years, when stone production was a non-essential industry. Wartime conversion could be a costly endeavor, since equipment used for stone milling was not always compatible with the production needs of the military.[103] Woolery Mill on Tapp Road was converted to war production. The Cline and Wylie mills of BLCO produced war equipment and received the Army-Navy Production Award in 1944 "for great achievement in the production of war equipment." The company's Monon Mill was also converted for wartime use, but did not receive the production award.[104] Maple Hill Mill was not used by BLCO during its war activities, according to a history of the company. It is interesting to note that Maple Hill's mill is smaller than the Wylie, Cline, and Monon mills. By the early 1940s, the Monroe County dimension limestone industry had declined to its lowest ebb: the war had effectively shut down operations. Many of the quarry and mill buildings and structures once present on the landscape, connected by the cross-hatched threads of rail lines, were vacant or torn down.

The post-war building boom boosted Indiana's limestone industry. Dimension stone companies began producing "split-faced" stone—thinly cut limestone used as a non-structural veneer. This style of limestone veneer was popular for new homes in the area and was "perfected" by the BLCO, which had absorbed Maple Hill in the late 1920s merger.[105] Within the Section 5 APE, the house William R. Polley House (MB10) at 3030 West Bolin Lane is faced with limestone from the Maple Hill Mill (now C&H Mill).[106] During this post-war era, transportation methods changed as operators increasingly relied on truck transportation, which required less handling and resulted in less breakage. Truck transportation of limestone, which had been introduced in limited use in late 1920s and early 1930s, increased from three percent in 1946 to an estimated twenty to thirty percent in the year 1949.[107]

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[102] Batchelor, *Economic History of the Indiana Limestone Industry*, 349-352.
[103] "Announcement of Army-Navy Production Award given to Bloomington Limestone Corporation, December 9, 1944," Indiana Memory Digital Collections (access via Indiana Bedrock), http://cdm15078.contentdm.oclc.org/cdm/compoundobject/collection/p15078coll7/id/2022/rec/24 (accessed December 19, 2011), BLCp-01-0017.
[104] "Announcement of Army-Navy Production Award," Indiana Bedrock.
[105] "3,500 Men Employed in 37 Mills and 24 Quarries of 24 Stone Firms," *Bloomington (IN) Daily Herald* December 10, 1949; "Limestone Industry Timeline," Indiana Bedrock.
[106] Michael Baker Jr. Inc., "Historic Property Report, Additional Information," 41.
[107] Batchelor, *Economic History of the Indiana Limestone Industry*, 235; "3,500 Men Employed in 37 Mills and 24 Quarries of 24 Stone Firms," *Bloomington (IN) Daily Herald.*

By the late 1960s, the popularity of the unadorned International architectural style, with its emphasis on steel and glass, created less demand for limestone and Indiana's limestone industry declined as a result.[108] The number of active Salem Limestone quarries dropped from thirty-four in 1955 to twenty in 1970. The number of active quarries declined to around eleven by 1981.[109] As was typical in the first part of the twentieth century, Indiana's limestone industry continued to experience fluctuations in demand in the 1980s and 1990s. Within the project area, active quarrying or milling continues at B.G. Hoadley (with locations on Arlington Road and Rockport Road at the site of the former Maple Hill Quarry), Reed Quarry, and at the C&H Stone Company (which operates at the site of the former Maple Hill Mill). Many of the workers and operators at these active operations have family ties to the industry that go back two or more generations.[110] In the APE, the Reed and Hoadley families can trace their involvement in the industry to the nineteenth century.[111]

Modern and historic quarrying has left a mark on the landscape in Monroe County.[112] Vestiges of the limestone industry can be seen near and far. Monroe County's unique geography created natural advantages such that stone extracted from this area built some of the most prominent public buildings of the United States, an achievement evident even in the modern era. Locals and college students come of age swimming in water-filled quarry pits, a popular—though illegal—activity portrayed in the 1979 film *Breaking Away.* Recreational hikers walk along the Clear Creek Trail, maintained by the City of Bloomington, which follows the path of the same rail that shipped stone from the North Clear Creek area. Travelers may notice stone blocks and waste piles stacked along SR 37 and local roads. The same traveler may see roads cut by channelers in areas where limestone was too valuable to waste.[113] In other areas, quarry derricks break above the tree lines as testament to earlier operations. Stone stacks along local roadways and majestic buildings in prominent cities testify to the role of Indiana's limestone industry in creating "the building fabric of America."[114]

The dominant images of the limestone industry as described by Stephen Visher in 1931 are still visible today: *The quarries are conspicuous features of the landscape in the limestone district. The great derricks are often visible for miles. The largest quarries have faces more than a mile long . . .Other effects on the local topography are caused by the numerous short railroads to the scattered quarries, along which cuts are numerous.*[115]

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[108] McDonald, *Short History of Indiana Limestone,* 43.
[109] Patton and Carr, *The Salem Limestone in the Indiana Building-Stone District,* 6.
[110] Most histories of the limestone industry talk about families which had multiple generations working in quarries and mills, including Ferrucci, *Limestone Lives*.
[111] Steel, *Cutters of Stone.*
[112] Patton and Carr, *The Salem Limestone in the Indiana Building-Stone District*, 6.
[113] Sanders, *Stone Country*, 133.
[114] Steel, *Cutters of Stone.*
[115] Visher, "The Indiana Oolitic Limestone Industry," 58.

Production Context

Early nineteenth century methods of limestone production were primitive and localized, and quarries used the natural environment to their best advantage to produce limestone for homes, buildings, walls, and other structures. In the mid- to late-nineteenth centuries, the arrival of rail and the implementation of steam power together expanded the productive and distributive possibilities of quarried limestone. From the late nineteenth to the mid-twentieth century the process and methods of quarrying and milling stone remained quite similar. This production context discusses the common practices in quarrying and milling and expected landscape features.

Quarries

Limestone quarrying takes place in a number of distinct steps. The first step is to identify a suitable location to quarry. In the early nineteenth century, quarries were generally sited on a visible outcrop of stone where extensive stripping would not be necessary.[116] In later years, speculators drilled test cores to locate the best stone beds. In areas where the stone was not visible, or a visible outcropping required further excavation, a stone worker had to first clear the overburden—which included the soil, vegetation, and unusable rock (referred to as "bastard rock" into the twentieth century).[117] Horse-drawn scrapers, shovels, and picks removed this top layer.[118] Difficult to remove bastard rock was sometimes broken up by drilling holes in the rock and then inserting blasting powder. Though effective in removing overburden, blasting had the undesirable consequence of sometimes cracking otherwise good dimension stone.[119] Hydraulic stripping gained popularity in the first half of the twentieth century, and the quarry floors could be cleared by power shovels.[120] Blasting was still used when necessary in the twentieth century, though quarry operators were perhaps more aware of the danger this removal method presented to underlying stone.[121]

Once workers had cleared an area of overburden, efforts turned to cutting the blocks of stone. The channeler was a steam-powered piece of machinery equipped with a series of chisels on one or both sides. (Some operators, including those at Maple Hill Quarry, also experimented with wire saws in the 1930s; these quarries exhibit a smoother cut face when compared with channeler-cut quarries.)[122] Moveable, narrow-gauge rail was laid on a quarry floor, and the channeler moved back and forth, slowly cutting a narrow groove, a few inches deep, during each

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[116] Batchelor, *Economic History of the Indiana Limestone Industry*, 9-10.
[117] *Operations in the Quarrying and Fabrication of Indiana Limestone* (n.d.), Indiana Bedrock, http://cdm15078.contentdm.oclc.org/cdm/compoundobject/collection/p15078coll7/id/2857/rec/1 (accessed January 9, 2012), CSC-001-003.
[118] Scott Sanders, "Digging Limestone," *North American Review* 267:3 (1982), 67; Harley J. McKee, "Early Ways of Quarrying and Working Stone in the United States," *Bulletin of the Association for Preservation* Technology 3:1 (1971), 54.
[119] Sanders, "Digging Limestone," 67; McKee, "Early Ways of Quarrying and Working Stone in the United States," 54.
[120] *Operations in the Quarrying and Fabrication of Indiana Limestone* (n.d.), CSC-001-004; McKee, "Early Ways of Quarrying and Working Stone in the United States," 54.
[121] *Operations in the Quarrying and Fabrication of Indiana Limestone* (n.d.), CSC-001-005; Sanders, "Digging Limestone," 67.
[122] Batchelor, *Economic History of the Limestone Industry*, 237.

pass. By the 1930s, channelers sometimes cut as deep as ten to twelve feet.[123] Some quarries lined five or six channelers on a single track.[124] Once the first strip was cut the length of a quarry, the channeler cut two additional sides crosswise to create a block. (The first, four-sided cut in the quarry floor is a called a key block.) Wedges were inserted at this stage, and the block was pulled loose using a derrick and guy wires. The key block was usually not of good enough quality (due to breakage) to be considered dimension stone, but the removal of the block opened the floor to easier quarrying and allowed workers to drill holes in at the bottom of a block or column so that a derrick could more easily extract the stone.[125] Waste piles stored bastard stone. Quarry pits were usually four to seven channels deep.

Cutters drilled dog holes onto the side of cut rocks to allow the derrick to lift stone blocks from the pit using hooks.[126] The men first pulled the block on its side and then cut it again into smaller pieces before transporting it to another location. If the stone was somehow flawed but of possible use in the future, it was stacked in a grout pile. Good stone was sent to a stacking yard, likely near a rail line where it was seasoned and awaited shipment to a mill. Blocks could also be placed on waiting rail cars directly from a quarry.[127] The seasoning process allowed water within the stone to evaporate. Extraction and seasoning took place in the spring, summer, and fall, as freezing temperatures could cause the water in a block to freeze and crack the stone. Quarry equipment was somewhat mobile; once one pit was exhausted, work often moved to a new location. This meant that waste and grout piles might be moved and transportation networks reorganized. In the case of the Carl Furst Stone Company, stacked stone—likely grout—was used as a railroad trestle. Increased quarry block size in the 1920s led many quarries to replace wood derricks with new steel models.[128]

New techniques were adopted in the modern era (post-1967). Today, water gel explosives frequently remove overburden, allowing for a precisely-timed explosive process that produces less debris. Fork lifts have replaced derricks as a means to transport cut stone. Large chain saws are sometimes used in lieu of channelers.[129] South of the APE, the Elliot Stone Company has developed an underground quarry where heavy overburden exits. Quarrying can take place year-round and leaves a much smaller imprint on the landscape.[130]

Certain buildings supported the business of quarrying. Machine shops were established for equipment repair, and storage buildings sheltered machinery when not in use. Often an office

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[123] *Operations in the Quarrying and Fabrication of Indiana Limestone* (n.d.), CSC-001-006.
[124] Steve Reed, "Quarrying Limestone in Monroe County," (unpublished field project for Folklore F101, Indiana University, Bloomington, Indiana, April 26, 2006), n.p.
[125] Batchelor, *Economic History of the Indiana Limestone Industry,* 39-42; John R. Krueger, "Indiana Limestone Industry Terms," *American Speech* 42:4 (December 1967), 290; Sanders, "Digging Limestone," 67.
[126] Krueger, "Indiana Limestone Industry Terms," 290-291.
[127] Steve Reed, "Quarrying Limestone in Monroe County," (unpublished field project for Folklore F101, Indiana University, Bloomington, Indiana, April 26, 2006), n.p.
[128] Batchelor, *Economic History of the Limestone Industry*, 238-239.
[129] "Stone Country: Region Rich in Quarry Tradition," *Bloomington (IN) Sunday Herald-Times,* October 2, 1988.
[130] McDonald, *Short History of Indiana Limestone*, 50 (fig. 48).

building served as a site for the managerial duties, and at other times, a break room for the workers was a necessary component of the site. At the Furst Quarry, a train car once provided shelter and served as a break room.[131]

Landscape resources associated with a historic or active quarry may include operation and office buildings, structures noted above, as well as transportation and circulation networks. Objects such as derricks, guy wires, grout piles, waste piles, and stacking yards often remain. Archaeological sites include the quarry pit and may also include building and structure ruins. Quarry pits may be stepped or smooth-faced depending on the cutting method. The full pit may not be visible on the landscape. Once the limestone was depleted, the crew sometimes used the pit as a repository for grout and waste. (According to a report from the 1980s, some companies began completely refilling modern pits with the removed overburden, but do not fill older pits to avoid disturbing the ecological environment that developed once those pits were abandoned.[132] However, historians observed aerial photographs that show some evidence of complete infilling occurring at older pits.) Secondary growth may be visible but should not detract from the site's integrity, according to the National Register's *Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties*.[133]

Mills

From the late nineteenth century until about World War II, railroads were the primary means for transporting extracted stone to a mill. As noted above, in the late nineteenth century stone was usually sent via rail from the quarries to stone yards for finishing or to be sold in a blocks. For example, when the Johnson Brothers opened a quarry in Hunter Valley in the 1890s, they transported their stone to mills in Chicago even though local mills were available. The process began to change in the twentieth century as more companies established mills in proximity to the quarries. For example, by the 1930s, BLCO reportedly had three mills in the area, and a fourth by World War II.[134] Therefore, in the first half of the twentieth century, stone companies typically located company mills near the quarries and the railroad spurs to facilitate shipping, whereas in the late nineteenth century, companies were more likely to ship to off-site mills.

Work at mills ranged from simply making the larger blocks a more cost-efficient size for transport, to carving elaborate architectural details. Probably all stone mills undertook the basic level of stone cutting; some mills went further and sawed the stone into facing blocks, lintels, or any number of elements particular to a specific job. Others took the finishing process to its finest degree, carving the stone into column, friezes, and sculptures.

The basic form of mill buildings changed little between the 1910s and 1940s. These tall, gabled buildings featured windows running nearly their full length in order to provide daylight

[131] Campbell and Brennan, Borland House and Carl Furst Stone Company Quarry, Sect.7, p.9 and map 2.
[132] "Stone Country: Region Rich in Quarry Tradition," *Bloomington (IN) Sunday Herald-Times*, October 2, 1988.
[133] Noble and Spude, *NR Bulletin 42,* 14.
[134] "Interview with Mr. Harold E. Hickman," Indiana Bedrock.

(sometimes called daylight mills), and most of the mills in Monroe County were constructed of steel members with metal walls in this period[135]. The Fluck Cut Stone Company mill (outside the APE) illustrates new mill construction at a time when mills were being expanded or constructed in Monroe County. According to an article in an April 1931 publication of the monthly trade magazine, *Quarries and Mills*, the Fluck mill was constructed in just seven weeks by the Abell-Howe Company of Chicago, of units framed with fabricated structural steel on a foundation of reinforced concrete. The building was finished with "obscure glass" and the interior had two-inch tongue-and-groove lumber bolted to the framework. Inside was a 7.5 ton Northern Engineering Works crane on rails twenty-two feet above the floor.

Sawing and planing equipment was located inside the mill. This equipment became more efficient in the 1920s and 1930s. Scabbling planers were used to "square up" blocks of excavated stone. [136] Gang saws, a group of saws used to cut stone into slabs, used saw blades, an abrasive such as chat (a coarse-grained sand), and water to cut through block.[137] Diamond saws, named for their diamond-tip blades, also cut stone with a constant stream of high pressured water. Diamond saws are used for "ripping slabs into strips."[138] The B.G. Hoadley Mill still uses gang saws dating to the 1920s.

The heavy use of water in gang and diamond saws required nearby water sources, such as a pond or a water tank. Streams were sometimes dammed to provide water that was then piped to the sawing area. Therefore, the archaeological remains of dams may be elements of the landscape. In the North Clear Creek limestone area, a dam and pump house are visible from Rockport Road.

Much like at a quarry, machine shops and storage buildings supported the work of the mill. After World War II when truck shipping became more common, a scale house might be constructed at the entrance/exit of the site. Other structures included an office building for managers, as well as a break room for the workers.

Visible characteristics of the landscape of a working mill include the buildings, structures, and objects, noted above, as well as tramways and cranes, used to move heavy stone to different locations. Visible transportation networks may show rail and truck transportation routes. Waste piles are a common element of the landscape, but differ characteristically from those located at quarry pits. Waste piles associated with mills are typically of smaller stone and include the "roughback" remaining after a block has been cut. Finally, Contributing elements may also include slurry ponds, dammed creeks, piping, and electrical lines.

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[135] For instance, in 1928, the H. A. Woolery Stone Mill was constructed (see Steelwater, Woolery Stone Company).
[136] *Operations in the Quarrying and Fabrication of Indiana Limestone* (n.d.), CSC-001-009.
[137] *Operations in the Quarrying and Fabrication of Indiana Limestone* (n.d.), CSC-001-016; Krueger, "Indiana Limestone Industry Terms," 291.
[138] *Operations in the Quarrying and Fabrication of Indiana Limestone* (n.d.), CSC-001-017.

National Register Eligibility Evaluations and Recommendations

Hunter Valley Historic Landscape District

Introduction:

The proposed "Hunter Valley Historic Landscape District" refers to the geographic area northwest of Bloomington, historically bounded (approximately) by Arlington Road to the east and north, West Vernal Pike to the south, and Stout Creek to the west (including 100 yards west of the creek). A location map of the proposed Hunter Valley Historic Landscape District is shown in Figure 1 (page 6) of this report. The historic landscape district is situated within the Hunter Valley limestone area, which is in turn located in the Indiana Limestone Belt of south-central Indiana. This area has been historically well-suited for limestone quarrying and milling due to the large presence of good-quality stone just below the earth's surface, good water supply, and nearby transportation networks (Figures 2 and 3).

The SR 37 and SR 45/46 interchange is the predominant feature located in the center part of and bisecting the larger Hunter Valley limestone area. Much of the valley is comprised of deciduous and coniferous second-growth forest, excepting places of active stone extraction and processing. This includes both operating and vacant limestone quarries and mills, piles of waste-stone, a patchwork of modern and historic roads and paths, and at the southern end of the valley, outside of the proposed landscape district, the site of a former meat packinghouse and a modern police building.

Description of Landscape:

Resources that contribute to the Hunter Valley Historic Landscape District include quarry pits, mill remains, derricks, circular and gang saw buildings, a trailer, roads, rail spurs, and waste piles. Modern features (Non-contributing) include SR 46 (Resource H5), the Bennett's Dump superfund site (Resource H14), and a modern building (Resource H23).

The Hunter Valley limestone area was historically divided into two sections: the property north of Hunter Valley Road (B.G. Hoadley Mill) and the quarries south of Hunter Valley Road. Today, the land is generally divided into thirds: the northern third (outside of the proposed district) is occupied by the B.G. Hoadley Mill and Quarry; the middle third is occupied by vacant quarry properties and reforested land; and the southern third, located below SR 46, contains numerous inactive quarry properties and mill sites. Discernible segments of historic-age (pre-1967) roads and rail spurs are considered Contributing resources (e.g. Resources H13 and H24).

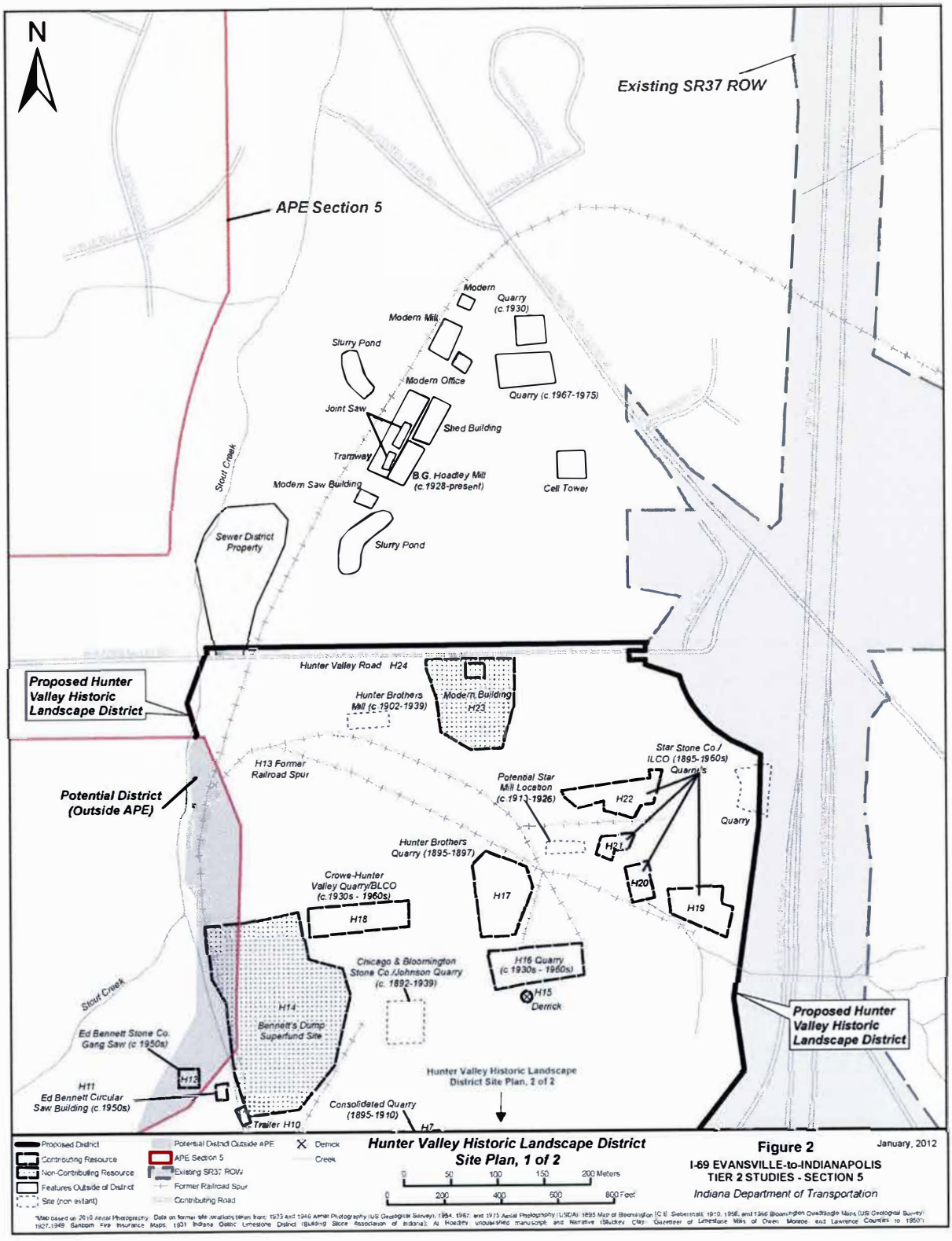

Figure 2. Site Plan: Northern Part of Hunter Valley Historic Landscape District.

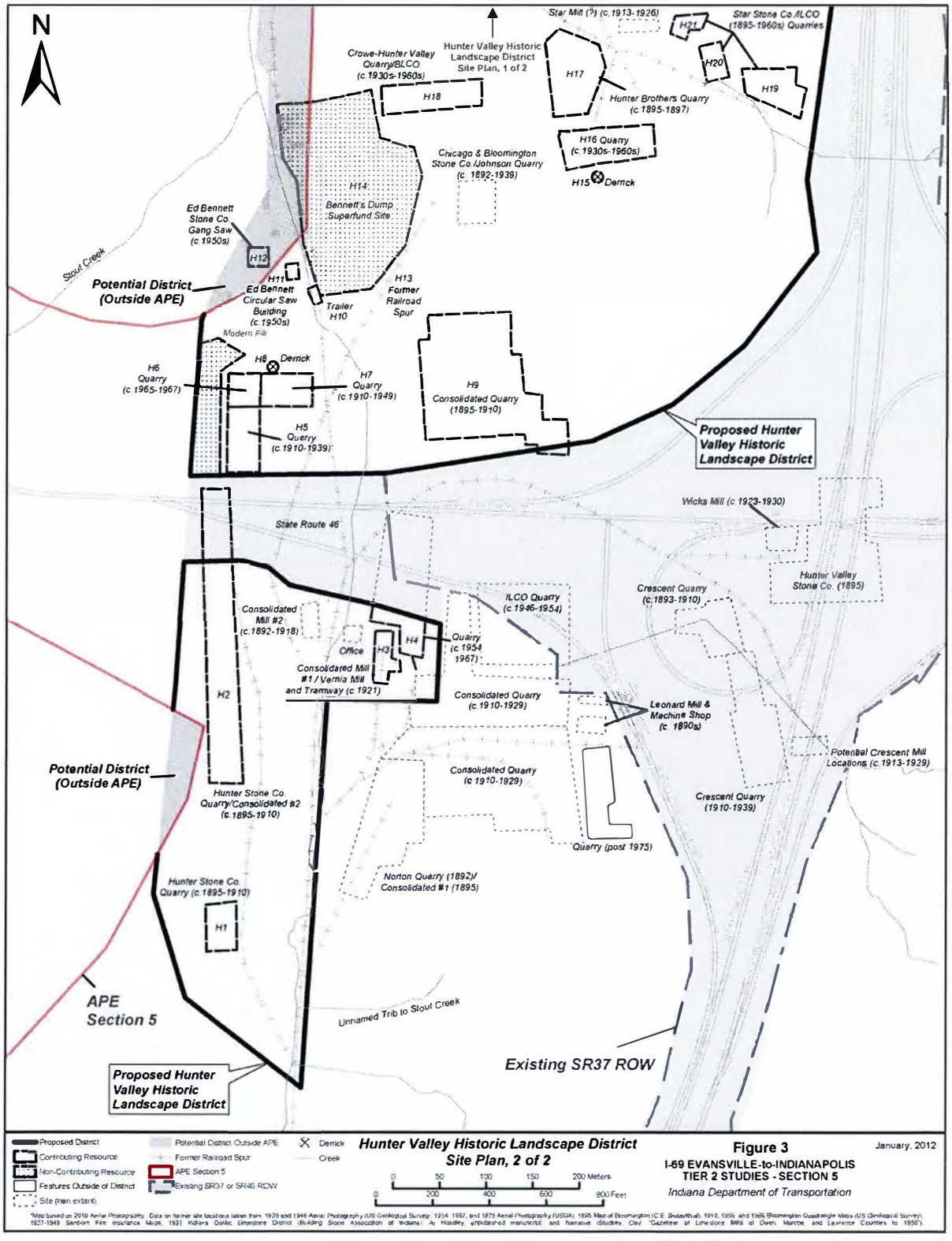

Figure 3. Site Plan: Southern Part of Hunter Valley Historic Landscape District

Because of the high number of modern structures and buildings at the B.G. Hoadley site, it is recommended that the northern third of the Hunter Valley limestone area be excluded from the proposed Hunter Valley Historic Landscape District. When the majority of features at the B.G. Hoadley Mill reach 50 years of age, this property may be reevaluated as a potential Contributing element of the Hunter Valley Historic Landscape District.

The part of the proposed district located north of SR 46 contains Hunter Valley Road (constructed circa 1895-1910), several Contributing rail spurs, several quarry pits, waste piles, and related equipment such as derricks, a Contributing trailer, and two abandoned mill buildings associated with Ed Bennett Stone Company, which are located along the west edge of the district. Modern intrusions in this portion of the district include a newly-constructed access road and a large superfund reclamation site. Rail spurs in the vicinity of the Hunter Brothers Quarry (Resource H16) and Star Stone Company quarries (Resources H19-H22) generally retain the best integrity of those in the district, as they are clearly discernable and portion of graded earth that are intact (though rails and ballast are gone). The southeast area of this part of the district (i.e. that bordering SR 46 on the south and SR 37 on the east) has become reforested since the 1930s. The southern- and eastern-most parts of this area appear to be former farm parcels that were not quarried in the historic period (1892-1967); however, historic aerials do indicate that road and rail spurs passed through the area, and scattered historic-period waste piles are still present. Dense overgrowth prevented the identification and delineation of resources located in this area.

The part of the proposed district located south of SR 46 contains the remains of the circa 1921 Consolidated/Vernia Mill and Tramway, at least two steel derricks, several quarry pits, and waste piles. The remains of the Vernia Mill and Tramway have been identified as a potential archaeological site in the district. Modern intrusions into this portion include large filled and graded areas, the construction of modern access roads, and stone reclamation activities. SR 37 and SR 46, including added travel lanes and a major interchange completed in 2002, have altered the setting by introducing a visual intrusion, interrupting the continuity of the landscape, reshaping the land, and disturbing several quarries and subsurface remains. Rail spurs in the southern portion of the district generally have the poorest integrity, and many have been totally obliterated.

Extant pre-1967 roads in the Hunter Valley limestone area, outside of the proposed district, include Vernal and Arlington pikes (both pre-1892). The road connecting Vernal and Arlington pikes once made a bend directly through the valley, providing access for limestone workers and operators. Today, the only vestige of that former path is the portion of Gourley Pike east of Arlington Pike. The remains of additional rail spurs, all of which possess poor integrity, are scattered throughout parts of the Hunter Valley limestone area outside of the proposed NR district.

A complete list of resources in the proposed Hunter Valley Historic Landscape District follows:

Proposed Hunter Valley NR District Resources				
Map ID	**Name**	**Type**	**Contributing**	**Non-contributing**
H01	Hunter Stone Company Quarry (circa 1895-1910)	Contributing Resource	1	
H02	Hunter Stone Company Quarries/ Consolidated #2 (circa 1895-1910)	Contributing Resource	1	
H03	Consolidated #1/Vernia Mill and Tramway (circa 1921)	Contributing Resource	1	
H04	Quarry (circa 1954-1967)	Contributing Resource	1	
H05	Quarry (circa 1910-1939)	Contributing Resource	1	
H06	Quarry (circa 1965-1967)	Contributing Resource	1	
H07	Quarry (circa 1910-1949)	Contributing Resource	1	
H08	Derrick	Contributing Resource	1	
H09	Consolidated Quarry (circa 1895-1910)	Contributing Resource	1	
H10	Trailer	Contributing Resource	1	
H11	Ed Bennett Circular Saw Building (circa 1950s)	Contributing Resource	1	
H12	Ed Bennett Stone Company Gang Saw (circa 1950s)	Contributing Resource	1	
H13	Former Railroad Spurs	Contributing Resource	1	
H14	Bennett's Dump Superfund Site	Non-contributing Resource		1
H15	Derrick	Contributing Resource	1	
H16	Quarry (circa 1930s-1960s)	Contributing Resource	1	
H17	Hunter Brothers Quarry (circa 1895-1897)	Contributing Resource	1	
H18	Crowe-Hunter Valley / BLCO Quarry (circa 1930s-1960s)	Contributing Resource	1	
H19	Star Stone Company/ ILCO Quarries (circa 1895-1960s)	Contributing Resource	1	
H20	Star Stone Company/ ILCO Quarries (circa 1895-1960s)	Contributing Resource	1	
H21	Star Stone Company/ ILCO Quarries (circa 1895-1960s)	Contributing Resource	1	

Proposed Hunter Valley NR District Resources				
Map ID	**Name**	**Type**	**Contributing**	**Non-contributing**
H22	Star Stone Company/ ILCO Quarries (circa 1895-1960s)	Contributing Resource	1	
H23	Modern Building	Non-contributing Resource		1
H24	Hunter Valley Road	Contributing Resource	1	
		Totals:	**22**	**2**
		Percentage	**92%**	**8%**

Integrity:

The NR identifies seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. This section applies those aspects of integrity to the Hunter Valley Historic Landscape District.

The proposed Hunter Valley Historic Landscape District possesses integrity of *location* because significant mining activities took place in the valley.

The *design* of the Hunter Valley Historic Landscape District is best expressed in the spatial relationship among its historic-period roads; rail spurs; buildings, both standing and ruined; and landscape features, such as quarry pits and waste piles. The spatial relationship between limestone extraction and processing sites and the circulation networks that connected them remains discernible in the majority of the district. Further, the district's integrity of design is evident in the quarry walls, whose markings can be linked with specific methods of stone extraction. The district's integrity of design has been somewhat reduced by the filling or altering of quarry pits in the post-1967 period. For example, some of the Consolidated quarries (near SR 46) have been reconfigured and punctured to redirect the flow of water from the valley.

The Hunter Valley Historic Landscape District's *setting* is defined by the Hunter Valley, a natural feature formed by tributaries of Stout Creek. The main section of the Hunter rail spur followed the bottom lands of one of these tributaries. The dominant landscape features that define the district are scattered quarry pits. Secondary features that contribute to the district's setting include remnants of road and rail circulation networks, stone waste piles, remains of mill buildings, and scattered machinery, such as derricks. Areas outside of the district do not contain intact quarry pits, and the setting in areas bordering the district is defined by a modern by highway construction, modern housing subdivision, and the construction of office parks.

Little, if any, of the *materials* comprising historic railroads and other built features are extant. Besides Vernia Mill and Tramway and the non-extant Hunter Brothers Mill and Star Mill, very

few other buildings existed historically in the proposed district. Vernia Mill is presently in ruins and does not retain a high level of material integrity as an aboveground resource. Historic period waste piles and stacked stone are contributing materials, as are the graded earthen beds of rail and road circulation networks.

The Hunter Valley Historic Landscape District has good integrity of *workmanship*, where visible. The way people fashioned their environment for industrial purposes is highly evident both in the built environment (e.g. remains of buildings and machinery, Resources H3, H11, and H12) and in the landscape features, such as tooling marks and sheer and stepped cuts in the quarry walls. Where visible (above water), many of the quarry pits have stepped ledges, which are evocative of early extraction methods. Limestone extraction is a labor-intensive industry, which demonstrates workers' labor and skill in altering the landscape. The "half-mile" Hunter Stone Company/Consolidated No. 2 quarry (Resource H2), though partially filled, is an impressive quarry pit in the district.

Water-filled quarry pits, large blocks of stone, whether stacked or scattered, and waste piles evoke a unique sense of place and time that contributes to the property's integrity of *feeling* as a late-nineteenth to mid-twentieth century limestone extraction and processing district.

The district's integrity of *association* is strongest among the resources that pertain to limestone extraction. Numerous quarry pits and waste stone piles provide the physical evidence necessary to convey the property's historic significance. However, this integrity of association is less apparent in relation to stone processing, as the few extant milling-related resources do not possess a high degree of integrity.

Despite some loss of integrity, particularly in regard to limestone processing-related resources, the district retains its overall ability to convey its significance. The numerous quarry pits, stone piles, and circulation networks, are present and evoke the feeling of a late-nineteenth to mid-twentieth century limestone extraction "world."

Background/Context:

Hunter Valley limestone area opened in the early 1890s, in an era of "increased demand" for Indiana limestone as it gained a significant regional and national presence.[139]

In 1891, the Morton C. Hunter Stone Company (also identified as Hunter Stone Company) organized and was the first company to open a limestone operation in Hunter Valley. The company conducted substantial core drilling samples and after learning of the value of the stone, built the Hunter Switch from the L, N-A, & C RY (later Monon), over a mile to the Hunter

[139] Batchelor, *Economic History of the Indiana Limestone Industry*, 33, 36.

Valley. The construction of this switch made quarrying feasible within the valley.[140] In 1892, the Chicago and Bloomington Stone Company's Johnson Quarry, Hunter Brothers Stone Company quarry, and Norton Stone Company quarry and mill were developed or constructed.[141] Frequent changes in ownership make it difficult to determine when mills were newly constructed and when mills simply changed names to reflect new ownership. For example, it is possible that the Norton Mill is the same building later referred to as Leonard Mill. The Norton Quarry was approximately 150 yards long and 30 feet deep, and the stone had "few vertical seams" with a "tolerably fine and uniform" grain, including "few large fossils."[142] Perry, Matthews and Perring started Crescent Quarry in 1893, to the east of the Hunter property, and Star Stone Company opened Star Quarry in 1895, north of Crescent Quarry. Within a year, the Star Quarry was 40 feet deep with "six channel cuts" of blue colored stone.[143] In 1895, the Hunter Valley Stone Company opened a quarry adjacent to Crescent Quarry.[144] The Hunter Valley Quarry was worked until 1906, and at that time was 70 feet deep, "the deepest of any north of Bedford."[145]

Consolidated Stone Company bought the Norton Quarry in 1895, renaming it "Consolidated No. 1," and proceeded to purchase the Hunter Quarry in 1896, renaming it "Consolidated No. 2."[146] The Consolidated Stone Company acquired at least three other quarries outside of the Hunter Valley Historic Landscape District. There were seven active quarries and two mills located within the Hunter Valley limestone area by 1896.[147] In 1914, the Consolidated Stone Company and Hunter Brothers' mills were electrified by the Southern Indiana Power Company. It is possible that any electrical distribution system remains may date from as early as this time, though none were identified within the district.[148]

Following negotiations that began in 1925, twenty-four dimension limestone industry firms merged in 1926 to become ILCO. ILCO included more than half of the companies in the region and controlled 85 to 90 percent of the capacity of the stone belt.[149] In the Hunter Valley limestone area, Consolidated Stone Company, Crescent Stone Company, Hunter Valley Stone Company, and Star Stone Company participated in the merger. In 1928, the B.G. Hoadley Company opened a mill at the northern end of Hunter Valley limestone area, north of Hunter Valley Road.

All properties belonging to ILCO, except Vernia Mill, were sold in the 1950s to the Ed Bennett Stone Company. The Ed Bennett Stone Company opened a mill on the property, which operated

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[140] Hopkins and Siebenthal, "The Bedford Oolitic Limestone of Indiana," 366.
[141] Hopkins and Siebenthal, "The Bedford Oolitic Limestone of Indiana ," 366-68.
[142] Hopkins and Siebenthal, "The Bedford Oolitic Limestone of Indiana," 367.
[143] Hopkins and Siebenthal, "The Bedford Oolitic Limestone of Indiana," 369.
[144] Hopkins and Siebenthal, "The Bedford Oolitic Limestone of Indiana," 366.
[145] B.F. Bowen & Co., *History of Lawrence and Monroe Counties,* 366.
[146] Hopkins and Siebenthal, "The Bedford Oolitic Limestone of Indiana," 366.
[147] Hopkins and Siebenthal, "The Bedford Oolitic Limestone of Indiana," 366.
[148] [News item, Indiana Stone Belt] "Bloomington Operators Show Activity," *American Stone Trade,* Volume 13 No. 10, May 5, 1914, p. 14.
[149] Batchelor, *Economic History of the Indiana Limestone Industry,* 268.

for a short time. Remains of the mill still exist in the west-central portion of the property north of SR 46 and are identified as resources H11 and H12. In the early 1970s, SR 37 was constructed through the eastern side of the Hunter Valley limestone area, and in 1999, SR 46 bisected the limestone area (and part of the proposed NR historic landscape district) near Vernia Mill. At that time, the highway construction filled several Consolidated Stone Company/ILCO quarry pits and mill sites. In 1989, the Star Quarry, Inc. acquired many of the limestone properties in the Hunter Valley limestone area, which have most recently transferred to the Ledge Wall Quarry, LLC (2010). The B.G. Hoadley Mill property at the northern end of the limestone area (outside the proposed district) continues to be owned and operated by descendents of the Hoadley family.

Significance/Recommendations:

The Hunter Valley Historic Landscape District is recommended eligible for the NR under Criterion A for its association with events that have made significant contributions to the broad patterns of history. The proposed Hunter Valley district is significant for its association with the theme of industry, as the evolution of the landscape reflects a period of maturation and "increased demand" and a period of "boom, overcapacity, and merger" in the limestone industry.[150] Early limestone industry technology is exemplified in the prevalence of smaller limestone pits with stepped ledges, which are scattered throughout the district. Bloomington was, and is, a top producer of limestone in the nation, and limestone has shaped the national architectural heritage as one of the premier types of domestic building stone, particularly in the 1890 to 1940s period.

Stone from regional quarries built many famous landmarks, and was shipped to every state and numerous countries. A 1914 history of Lawrence and Monroe counties reported that "[t]here is scarcely a city of note on the continent that does not have one or more structures constructed from this valuable material—court houses, state houses, school buildings, great bridges, monumental work, ornamental stone work, etc., all come in for their fair share in the shipments just enumerated as coming from these Monroe County quarries."[151] One author writes of Hunter Valley specifically, "although one of the newest, it is, at the same time, one of the most productive districts in the State."[152] Stone from these quarries produced building material for the Indiana National Bank building on Virginia Avenue in Indianapolis (not extant), the Michigan City Public Library, and the Fulton, Rush, and White county courthouses, among many others.

On a local level, limestone production was a core part of the Bloomington region's economy in the last quarter of the nineteenth through the mid-twentieth century. As a local building material,

[150] Batchelor, *Economic History of the Indiana Limestone Industry*, 33, 36, 183.

[151] B.F. Bowen & Co., *History of Lawrence and Monroe Counties,* 361.
[152] B.F. Bowen & Co., *History of Lawrence and Monroe Counties*, 367.

limestone has been used in the Bloomington region to an extent not found in other parts of the nation, contributing to the region's unusually rich architectural heritage.

The Hunter Valley Historic Landscape District does not appear to be eligible for the NR under Criterion B, as research did not reveal a significant association with an individual of local, statewide, or national importance. Likewise, the Hunter Valley Historic Landscape District does not appear to be eligible for the NR under Criterion C, as none of the individual building represent the work of a master designer or are especially good examples of an architectural style. The district contains few standing buildings, and those that remain (e.g. the Ed Bennett Stone Company circular and gang saw buildings, Resources H11 and H12) are generally utilitarian and their integrity has been compromised by neglect and the removal of equipment. The district is not an architect-designed landscape. Instead, the spatial relationship of its buildings, structures, circulation networks, and natural features (e.g. pits and waste piles) is governed by the functional requirements of quarrying.

The Hunter Valley Historic Landscape District has the potential to be recommended eligible for the NR under Criterion D.

The earliest Contributing properties in the Hunter Valley Historic Landscape District date to 1892; therefore, the period of significance for the district is 1892-1967. The latter date is 50 years older than the estimated I-69 project completion in 2017, and also coincides with a general transition in limestone quarrying techniques. By 1967, very little limestone activity occurred within the Hunter Valley Historic Landscape District.

District Boundary:

The district boundary was drawn to encompass areas having historic significance that also possess integrity. The boundary excludes the majority of the highway intrusion and portions of the landscape that have been altered too drastically to retain integrity. This resulted in a discontiguous district bisected by SR 46. In defining the boundaries for the southern portion of the district, a large area of the former Consolidated Stone Company/ILCO/Bennett property, located near the southwest juncture of SR 46 and SR 37 was excluded. This was done to prevent unnecessary inclusion of Non-contributing resources. Quarry pits and stone waste piles that were evident in 1967 are no longer extant; there is no evidence of road and rail lines, and the stone piles are actively being rearranged, organized, and repurposed. The quarry pit in this area, which is visible from the highway, dates to post 1975. In defining the boundaries for the northern portion of the district, the B.G. Hoadley Mill property, located at the north end of the district, was excluded because there were more Non-contributing than Contributing resources, which affected the property's ability to convey its significance. Of the Contributing resources at the B.G. Hoadley Mill, none appeared to be individually eligible for the NR. The southern and eastern boundaries of the north part of the district are formed by the rights-of-way of SR 46 and

SR 37, respectively. The wooded area adjacent to the northwest quadrant of the SR 46/SR 37 interchange is included in the proposed district because it contains scattered waste piles and remnants of historic-period roads and rail spurs. Resources H2 and H4, though partly filled by the construction of SR 46, were considered Contributing because the extant portions of these resources were large enough to convey their historic significance.

The proposed boundary includes all resources that express the characteristics of the historic landscape. The proposed boundary follows current and historic property parcel lines, roadways, and portions of Stout Creek and contains 113.5 acres.

Reed Historic Landscape District

Introduction:

The proposed "Reed Historic Landscape District" refers to the geographic area east of SR 37 and north of SR 46. The historic landscape district is situated within the Reed limestone area, which is in turn located in the Indiana Limestone Belt of south-central Indiana. A location map of the proposed Reed Historic Landscape District is shown in Figure 1 (page 6) of this report. This area has been historically well-suited for limestone quarrying and milling due to the large presence of good-quality stone just below the earth's surface, good water supply, and nearby transportation networks.

The larger Reed limestone area is a broad geographical area located northwest of Bloomington, currently bounded (approximately) by Prow Road and Arlington Pike to the West, SR 46 to the south, Valleyview and Briarcliff drives to the northeast, and Stonelake Drive to the east. The area is surrounded by development on three sides, including a school (north), subdivision (northeast and east), and commercial or hotel properties (south). The Reed limestone area contains an active limestone quarry and is therefore lightly forested compared to the nearby Hunter Valley limestone area. Most of the area contains limestone-related resources, including a modern mill, piles of waste-stone and organized stacks of stone, historic and modern quarry pits (both operating and abandoned), a patchwork of modern and historic roads and paths, and modern and historic machinery and equipment (Figure 4).

Description of Landscape:

Resources that contribute to the Reed Historic Landscape District include an office building, machine shop, two sheds, three small buildings, and four derricks. Additional historic resources in the district include five quarries, railroad spurs, miscellaneous machinery, and a waste stone pile and stacking area. Modern features (Non-contributing) include two quarries, a mill, a radio antenna, and a waste stone pile. Equipment, including tractors and a channeling machine, contributes to the landscape.

Arlington Pike, Prow Road, and Gourley Pike are the primary extant historic access roads to the Reed Company property. The southern end of the property once had a primary access road stemming from Arlington Pike, along Oak Drive. This road is present, though it now resembles a driveway and does not function in the same capacity that it once did. The Hunter Valley railroad spur was the primary mode of transporting stone out of the district during the historic period. Though the tracks are gone, the railroad beds at the northern end of the Reed Company property are clearly discernible, having been converted to roadways. There are no naturally occurring landscape features that define the Reed limestone area. The aforementioned roadways best demarcate the Reed limestone area.

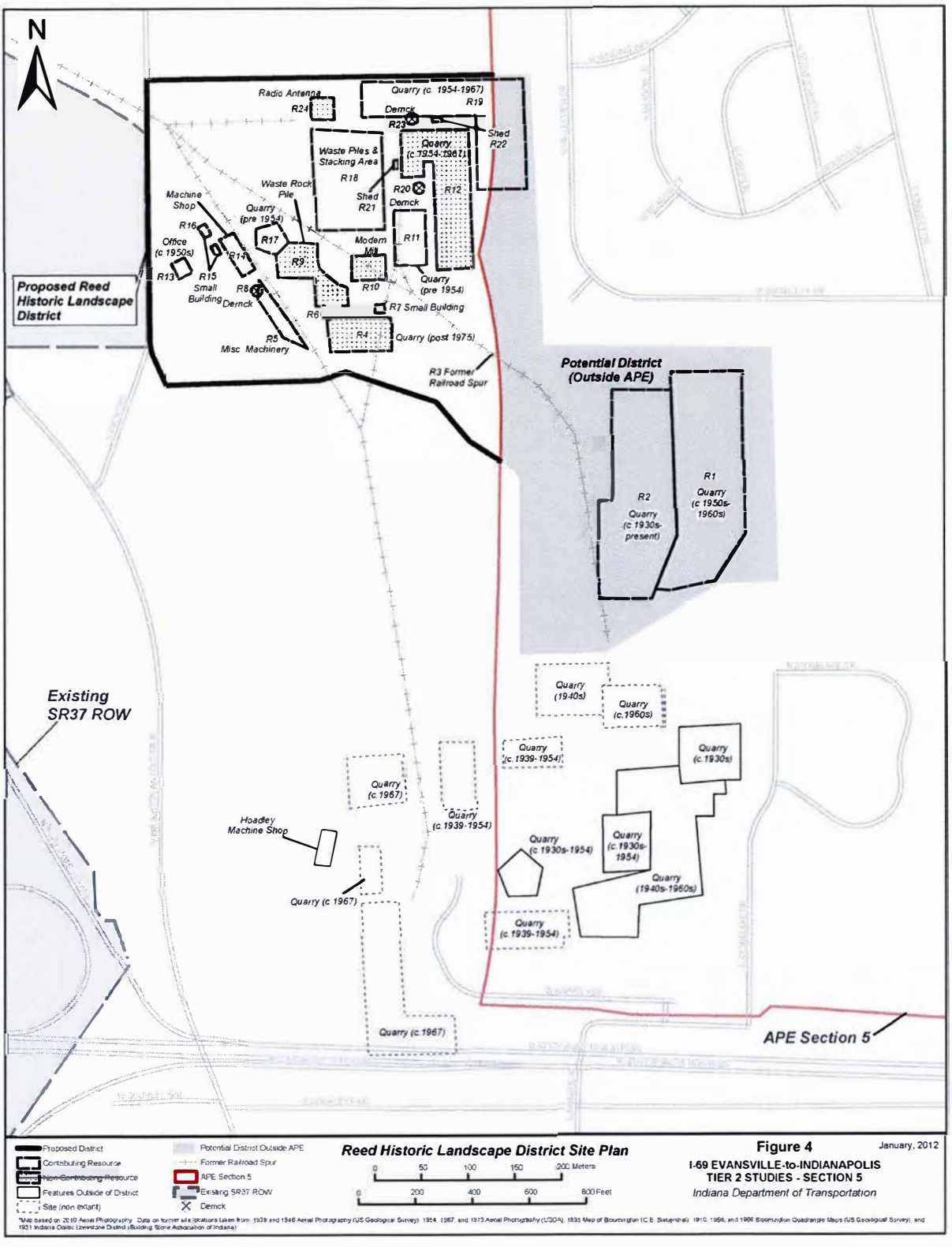

Figure 4. Site Plan: Reed Historic Landscape District.

Quarries from the 1950s and 1960s expanded in the later decades of the twentieth century. Some of these pits (e.g. Resources R1 and R19) continue to contribute to the landscape as they are merely enlarged historic quarry pits, and continue to be quarried with many of the older techniques, machinery, and traditions.

Outside of the Reed Historic Landscape District but at the southern part of the Reed Company property are four extant and eight non-extant quarries and a historic machine shop. This southern area has infilled quarry pits, possibly in preparation for future development on the site. The quarry pits on the eastern edge of the property (also outside the Reed Historic Landscape District) remain intact. These quarry pits and several surrounding large parcels are owned by Stonelake Corporation, which is constructing a housing development also called Stonelake. The largest of the quarry pits is being retained as a lake for the centerpiece of the development. This residential encroachment and the resulting filling of quarry pits have affected the setting in the southern part of the Reed limestone area, as has the construction of SR 45/46 Bypass.

A complete list of resources in the proposed Reed NR District follows:

Proposed Reed NR District Resources				
Map ID	**Name**	**Type**	**Contributing**	**Non-contributing**
R01	Quarry (circa 1950s-1960s)	Contributing Resource	1	
R02	Quarry (circa 1930s-present)	Contributing Resource	1	
R03	Former Railroad Spur	Contributing Resource	1	
R04	Quarry (post-1975)	Non-contributing Resource		1
R05	Misc. Machinery	Contributing Resource	1	
R06	Derrick	Contributing Resource	1	
R07	Small Building	Contributing Resource	1	
R08	Derrick	Contributing Resource	1	
R09	Waste Rock Pile	Non-contributing Resource		1
R10	Modern Mill	Non-contributing Resource		1
R11	Quarry (pre-1954)	Contributing Resource	1	
R12	Quarry (circa 1954-1967)	Non-contributing Resource		1
R13	Office (circa 1950's)	Contributing Resource	1	
R14	Machine Shop	Contributing Resource	1	
R15	Small Building	Contributing Resource	1	
R16	Small Building	Contributing Resource	1	
R17	Quarry (pre 1954)	Contributing Resource	1	
R18	Waste Piles and Stacking Area	Contributing Resource	1	
R19	Quarry (circa 1954-1967)	Contributing Resource	1	
R20	Derrick	Contributing Resource	1	
R21	Shed	Contributing Resource	1	
R22	Shed	Contributing Resource	1	
R23	Derrick	Contributing Resource	1	
R24	Radio Antenna	Non-contributing Resource		1
		Totals:	**19**	**4**
		Percentage	**83%**	**17%**

Integrity:

The NR identifies seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. This section applies those aspects of integrity to the Reed Historic Landscape District.

The proposed Reed Historic Landscape District possesses integrity of *location* because significant mining activities took place on the property.

The *design* of the Reed Company property is best expressed in the spatial relationship among its historic-period roads, rail spurs, buildings, and landscape features such as quarry pits and waste piles. The spatial relationship between limestone extraction sites and the circulation networks that connected them remains discernible in the majority of the district. Further, the district's integrity of design is evident in the quarry walls, whose markings can be linked with specific methods of stone extraction. The Reed Company property remains much as it was historically, except for a large parcel to the center-west, which was quarried and developed after the historic period (1923-67); land outside this central area was excluded from the proposed NR boundaries of the district due to modern quarrying operations and modern development.

The *setting* of the Reed Historic Landscape District is defined by natural and man-made features connected to limestone extraction. The setting of Reed Historic Landscape District has changed in the post-1967 period, primarily because of continuing operation at the quarry; this is an expected change in setting which does not necessarily detract from integrity. Historic-age (pre-1967) quarry pits that continue to operate and expand, if done in a traditional or historic method, can retain integrity even if they exceed the period of significance.[153] Some of the Reed quarries along the eastern boundary of the district (e.g. Resources R1 and R2) fit this description because they existed during the period of significance and have since expanded and changed in a manner consistent with historic techniques.

Materials used in historic-age buildings (e.g. Resources R7, R13, R15, R16, R21, and R22) and in some of the equipment (e.g. Resources R5, R6, R20, and R23) retain integrity, as do stone waste piles. The exterior cladding of the machine shop (Resource R14) has been replaced with modern metal siding; however, this building is still considered Contributing because its significance is better conveyed by its location and design rather than by the type and style of its exterior wall cladding. Much of the materials comprising the historic rail spur network are not extant; only the graded earthen track beds, some now converted to roads, remain and are considered Contributing.

The Reed Historic Landscape District has good integrity of *workmanship*, where visible. The way people fashioned their environment for industrial purposes is highly evident in landscape features such as quarry pits (Resources R1, R2, R11, R17, and R19) and a waste pile and

[153] McClelland, et al., NR Bulletin 30, 27.

stacking area (R18), and in the built environment (e.g. former rail spurs, R3; miscellaneous machinery, R5; derricks, R6, R8, R20, R23; small buildings, R7, R15, R16; an office, R13; machine shop, R14; and sheds, R21, R22). Limestone extraction is a labor-intensive industry, which demonstrates workers' labor and skill in altering the landscape. Resource R2 (ca. 1930s to present) is an outstanding example of a quarry pit in the Reed Company limestone area.

The northern portion of the Reed Historic Landscape District retains a high level of integrity of *feeling*. The circulation patterns and spatial organization are unchanged since the historic period. Water-filled quarry pits, large blocks of stone, whether stacked or scattered, and waste piles evoke a unique sense of place and time that contributes to the property's integrity of feeling as an early- to mid-twentieth century limestone extraction district. The southern portion of the proposed district has less integrity in this area, as large areas of post-1967 quarry operations have changed the feeling of the landscape.

The district's integrity of *association* is strongest among the resources that pertain to limestone extraction. Quarry pits and waste stone piles provide the physical evidence necessary to convey the property's historic significance. However, this integrity of association is less apparent in relation to stone processing, as the extant mill building (Resource R10) is modern and utilizes modern sawing techniques. In addition, the Reed Company property has been continuously operated by the same family for five generations. Operational methods and tradition have remained strong. The link between the property and the events that shaped it is clearly discernible.

Background/Context:

From the late-nineteenth century to the early 1920s, the Reed limestone area was predominantly undeveloped farm land until quarrying began to be established. Quarrying began in the 1920s, during the period of "boom, merger, and overcapacity" in Indiana's limestone industry. The Hoadley Quarry, at the southern end of the Reed limestone area, was first opened circa 1923. This was made possible by the extension of the Hunter Valley Switch railroad spur from the nearby Hunter Valley limestone area. Land north of the Hoadley Quarry was first opened by George Reed shortly after the creation of BLCO, in 1927.[154] George Reed had worked previously for ILCO when he left the army artillery after World War I. He then went to work for the Indiana branch of Texas Quarries, Inc. (based in Austin, TX) in Bloomington, as a manager.[155] It appears that George Reed was instrumental in purchasing the present Reed quarry (in the northern part of the property) while he was working for the Texas Quarries, Inc. Mapping

[154] Hoadley, "History of the Belt," Reed essay; Steel, *Cutters of Stone*.
[155] Ferrucci, *Limestone Lives: Voices from the Indiana Stone Belt,* 76.

of the area shows the land as belonging to the BLCO at one time.[156] The Hoadley and Reed properties grew toward one another along the two rail spurs that connected them.

By 1939, it is clear from aerial photography that quarrying operations in the Reed limestone area had taken a foothold. The landscape began to change as quarry pits dotted the southern portion of the district. Quarrying and limestone operations also opened at the center and northern portions of the Reed limestone area. These were substantially larger than those opened at the adjacent Hunter Valley area in the late-nineteenth and early-twentieth centuries, a change due largely to technological improvements. Between 1939 and 1946, due to the Depression and then World War II, the Reed limestone area does not appear to have grown significantly.

By 1954, however, the physical environment had begun to change. Both Reed and Hoadley companies opened new quarry pits during this time. The quarry at the center of the landscape (R2) did not change. One decade later, the limestone area continued to experience expansion and growth. George Reed purchased the northern part of the property from Texas Quarries, Inc. in 1969. Sometime between 1969 and 1975, Reed purchased the southern part of the property from the Hoadley Company; it had ceased operating when the SR 45/46 Bypass was constructed in the early 1970s. After 1975, large tracts of land were opened in the center of the property. Today, the fourth and fifth generations of Reeds continue to operate the quarry and mill in the northern part of the district, using many of the same traditions and techniques that were used historically.

Significance/Recommendations:

The proposed Reed Historic Landscape District is recommended eligible for the NR under Criterion A for its association with events that have made significant contributions to the broad patterns of history. The proposed Reed district is significant for its association with the theme of industry, as the evolution of the landscape reflects a period of "boom, merger, and overcapacity" in the limestone industry, as well as to post-World War II changes in methods of transport. Moreover, the property is symbolic of an industry that produced a natural resource that contributed to the development of the local community and society in general. Specifically, Bloomington was, and is, a top producer of limestone in the nation, and limestone has shaped the national architectural heritage as one of the premier types of domestic building stone, particularly in the circa 1890 to 1940 period. The Reed Historic Landscape District developed during a period of expansion in the state's limestone industry.

Stone from regional quarries built many famous landmarks, and was shipped to every state and numerous countries. Stone from the Reed district is attributed with the construction of

[156] Hoadley, "History of the Belt," Reed essay; Steel, *Cutters of Stone.*

prominent buildings in Indiana and throughout the nation. Locally, many county courthouses, businesses, and modest homes are clad with Indiana limestone.

On a local level, limestone production was a core part of the Bloomington region's economy in the last quarter of the nineteenth through the mid-twentieth century. As a local building material, limestone has been used in the Bloomington region to an extent not found in other parts of the nation, contributing to the region's unusually rich architectural heritage.

The Reed Historic Landscape District does not appear to be eligible for the NR under Criterion B, as research did not reveal a significant association with an individual of local, statewide, or national importance. Likewise, the Reed Historic Landscape District does not appear to be eligible for the NR under Criterion C, as none of the individual building represent the work of a master designer or are especially good examples of an architectural style. The district contains few standing historic-age (pre-1967) buildings, and those that remain (e.g. the machine shop, R14; office, R13; small buildings R15, R16; and shed, R21) are generally utilitarian and lack distinction in terms of design or architectural style. The district is not an architect-designed landscape. Instead, the spatial relationship of its buildings, structures, circulation networks, and natural features (e.g. pits and waste piles) is governed by the functional requirements of quarrying.

The potential for the Reed Historic Landscape District to be eligible for the NR under Criterion D cannot be assessed until an archaeological survey has been performed.

Because the earliest Contributing resources in the Reed Historic Landscape District date to 1923, the Period of Significance for the district is 1923-1967. The latter date is 50 years older than the estimated I-69 project completion in 2017, and also coincides with a general transition in limestone quarrying techniques.

District Boundary:

The district boundary was drawn to encompass areas having historic significance that also possess adequate integrity. The boundary excludes the majority of the post historic-period mining operations and portions of the landscape that have been altered too drastically to retain integrity, including much of the central and southern parts of the Reed Company property. Portions of the landscape opened to quarrying after 1967 were considered Non-contributing. Quarries (and portions of the surrounding landscape) from the period of significance that continue to operate using historic techniques, were considered Contributing resources. Quarries and portions of the surrounding landscape from the period of significance, but completely filled or dramatically altered after 1967, were considered Non-contributing.

The boundary, containing 30.4 acres, attempts to include all character-defining resources that convey the significance and unique feeling of this remarkable historic landscape.

North Clear Creek Historic Landscape District

Introduction:

The proposed "North Clear Creek Historic Landscape District" refers to the geographic area west of Rockport Road and north of Fullerton Pike. The historic landscape district is situated within the Clear Creek limestone area, which is in turn located in the Indiana Limestone Belt of south-central Indiana. A location map of the proposed North Clear Creek Historic Landscape District is shown in Figure 1 (page 6) of this report. This area has been historically well-suited for limestone quarrying and milling due to the large presence of good-quality stone just below the earth's surface, good water supply, and nearby transportation networks.

North Clear Creek Historic Landscape District references an area that developed as a result of common railroad advantages; within the Section 5 APE, this area was occupied by the Carl Furst Stone Company Quarry and the Maple Hill Mill and Quarry. Outside of the APE, a larger potential district may contain the NR-listed Woolery Mill, the former Sudbury Quarry, the former New Richland Quarry, the former University Quarry, and a segment of the Monon Railroad (now a rail trail). The North Clear Creek Historic Landscape District, for the purpose of this study, is defined and described as it occurs within the APE. The district likely extends beyond the APE, but the study of those resources was outside of the scope of this project (Figures 5 and 6).

The North Clear Creek Historic Landscape District is a geographical area, located southwest of Bloomington, approximately bounded by Tapp Road to the north, Rockport Road to the east, Fullerton Pike to the south, and a property parcel line to the west (near SR 37). Prior to the late 1920s, this area was likely cleared agricultural land; some of the surrounding landscape is still agricultural. The area has been largely buffered from development and other modern intrusions, though a housing development is expanding to the east across Rockport Road. Much of the larger limestone area is comprised of deciduous and coniferous-forested lands, excepting places of heavy industrial activity including both operating and vacant limestone quarries and mills, piles of waste-stone, and a patchwork of modern and historic roads and paths.

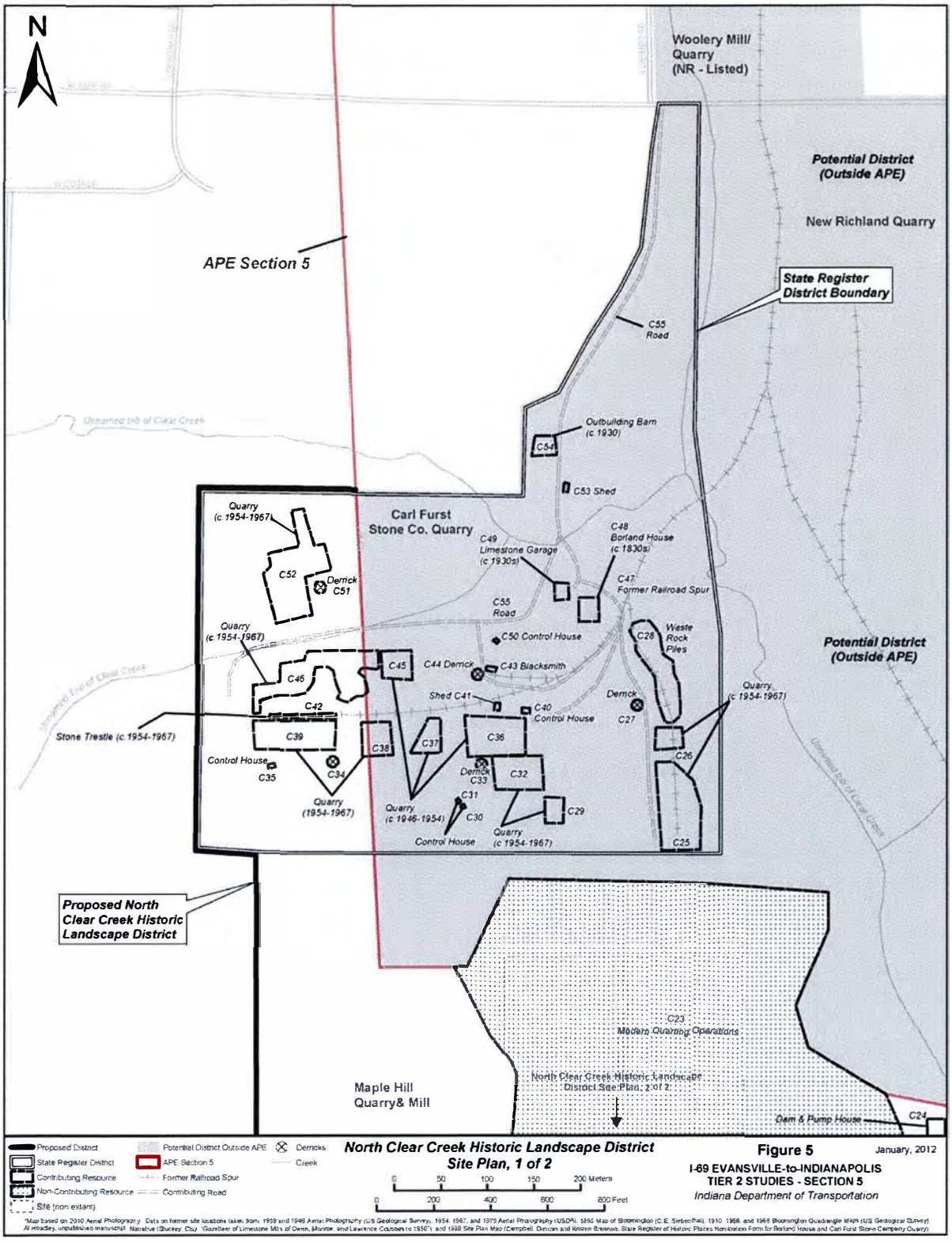

Figure 5. Site Plan: North Clear Creek Historic Landscape District.

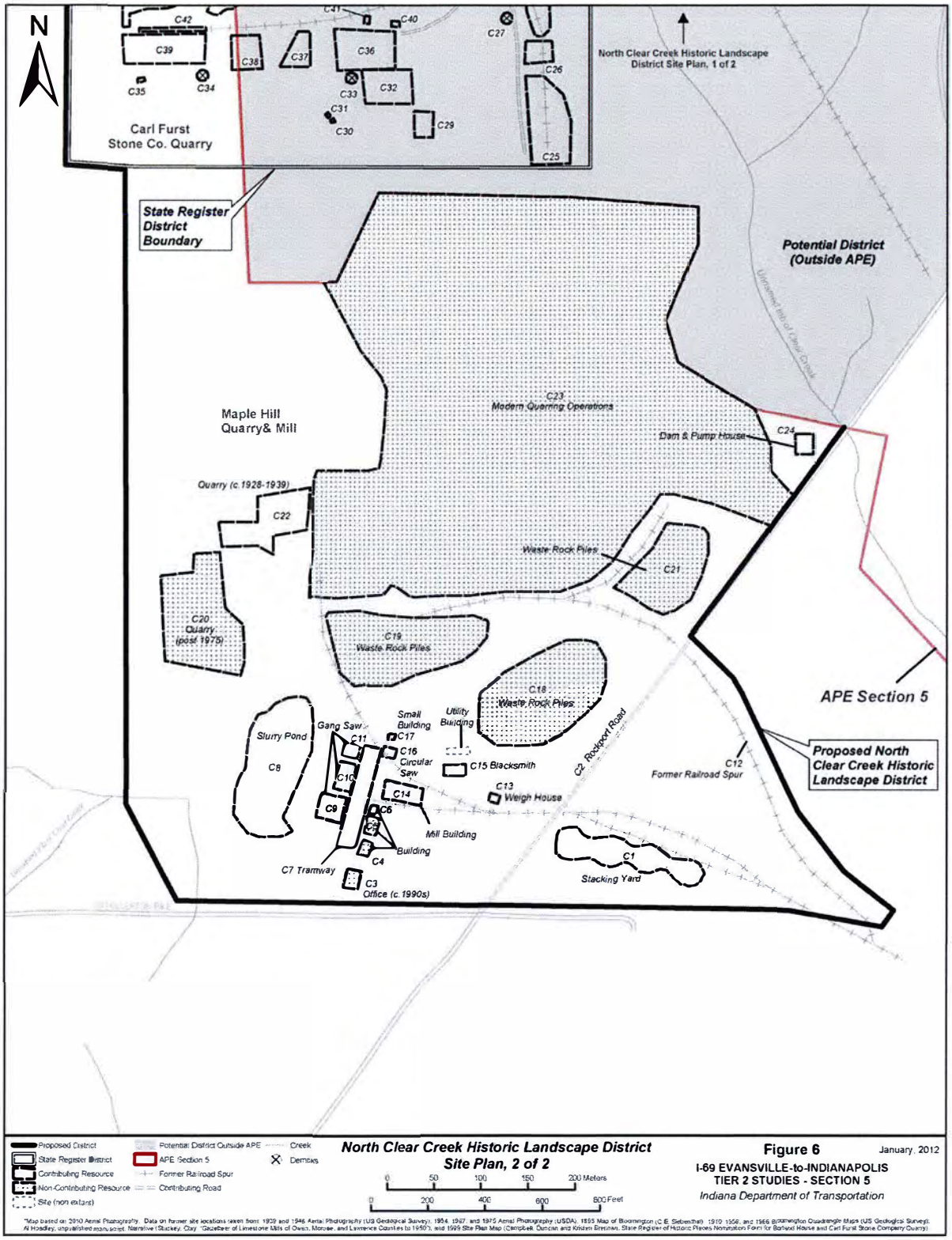

Figure 6. Site Plan: North Clear Creek Historic Landscape District.

Description of Landscape:

Vehicular access to the North Clear Creek Historic Landscape District has historically been granted by three country roads, Tapp Road (on the north), Rockport Road (on the southeast), and Fullerton Pike (on the south), which predate the development of quarries. These roads define parts of the district and historic parcel boundaries and remain the primary mode of transportation in and around the North Clear Creek Historic Landscape District. Within the Section 5 APE, the North Clear Creek Historic Landscape District was parceled into two primary sections by the 1920s: the portion owned by the Carl Furst Stone Company to the north and the portion owned the BLCO (Maple Hill Mill and Quarry), to the south. A series of spur lines connected each of the quarries with the Monon Railroad. Today, most of the railroad features are removed, though in some places the rail bed is a discernable pathway. Much of the Clear Creek Trail (located outside of the proposed historic district) was constructed on top of the former Monon Railroad spur right-of-way. With the exception of the two spur line entrances on Rockport Road (now vehicular roadways), and some places near the Maple Hill Mill, the internal railway network throughout the Maple Hill Mill Quarry and Mill property has been largely eradicated since 1967. In contrast, paths of former rail spurs are evident at the Carl Furst Stone Company property, though no remaining track or ballast exists.

The Carl Furst Stone Company property is also a State Register-listed district called the Borland House and Carl Furst Stone Company Quarry. The property contains one primary building—the Borland House (circa 1830), which was used by the quarry company as an office during the period of significance. Other Contributing buildings on the property include a stone garage (circa 1930), barn, sheds, a blacksmith shop, and smaller buildings such as control houses. The property has a network of intact steel derricks. Other Contributing resources include historic roads; waste piles; quarries, some of which display sheer and stepped ledges, and a stone trestle. There are no Non-contributing resources within the Carl Furst Stone Company property.

Contributing buildings, sites, and structures at the Maple Hill Mill and Quarry include the historic road (Rockport Road) through the proposed NR district, the former railroad spur paths, the tramway, mill building, gang saw buildings, circular saw building, pallet building, utility building, blacksmith shop, weigh house, stacking yard, and slurry pond. Non-contributing resources include the mill office, two associated modern buildings, waste rock piles that developed after the period of significance, and quarry pits that opened or were highly altered after the period of significance.

A complete list of resources in the proposed North Clear Creek NR District follows:

Proposed North Clear Creek NR District Resources				
Map ID	**Name**	**Type**	**Contributing**	**Non-contributing**
C01	Stacking Yard	Contributing Resource	1	
C02	Rockport Road	Contributing Resource	1	
C03	Office (circa 1990s)	Non-contributing Resource		1
C04	Building	Non-contributing Resource		1
C05	Building	Non-contributing Resource		1
C06	Pallet Building	Contributing Resource	1	
C07	Tramway	Contributing Resource	1	
C08	Slurry Pond	Contributing Resource	1	
C09	Gang Saw	Contributing Resource	1	
C10	Gang Saw	Contributing Resource	1	
C11	Gang Saw	Contributing Resource	1	
C12	Former Railroad Spur	Contributing Resource	1	
C13	Weigh House	Contributing Resource	1	
C14	Mill Building	Contributing Resource	1	
C15	Blacksmith	Contributing Resource	1	
C16	Circular Saw	Contributing Resource	1	
C17	Small Building	Contributing Resource	1	
C18	Waste Rock Piles	Non-contributing Resource		1
C19	Waste Rock Piles	Non-contributing Resource		1
C20	Quarry (post-1975)	Non-contributing Resource		1
C21	Waste Rock Piles	Non-contributing Resource		1
C22	Quarry (circa 1928-1939)	Contributing Resource	1	
C23	Modern Quarring Operations	Non-contributing Resource		1
C24	Dam and Pump House	Contributing Resource	1	
C25	Quarry (circa 1954-1967)	Contributing Resource	1	
C26	Quarry (circa 1954-1967)	Contributing Resource	1	
C27	Derrick	Contributing Resource	1	

Proposed North Clear Creek NR District Resources				
Map ID	Name	Type	Contributing	Non-contributing
C28	Waste Rock Piles	Contributing Resource	1	
C29	Quarry (circa 1954-1967)	Contributing Resource	1	
C30	Control House	Contributing Resource	1	
C31	Control House	Contributing Resource	1	
C32	Quarry (circa 1954-1967)	Contributing Resource	1	
C33	Derrick	Contributing Resource	1	
C34	Derrick	Contributing Resource	1	
C35	Control House	Contributing Resource	1	
C36	Quarry (circa 1946-1954)	Contributing Resource	1	
C37	Quarry (circa 1946-1954)	Contributing Resource	1	
C38	Quarry (circa 1954-1967)	Contributing Resource	1	
C39	Quarry (circa 1954-1967)	Contributing Resource	1	
C40	Control House	Contributing Resource	1	
C41	Shed	Contributing Resource	1	
C42	Stone Trestle (circa 1954-1967)	Contributing Resource	1	
C43	Blacksmith	Contributing Resource	1	
C44	Derrick	Contributing Resource	1	
C45	Quarry (circa 1946-1954)	Contributing Resource	1	
C46	Quarry (circa 1954-1967)	Contributing Resource	1	
C47	Former Railroad Spur	Contributing Resource	1	
C48	Borland House (circa 1830s)	Contributing Resource	1	
C49	Limestone Garage (circa 1930s)	Contributing Resource	1	
C50	Control House	Contributing Resource	1	
C51	Derrick	Contributing Resource	1	
C52	Quarry (circa 1954-1967)	Contributing Resource	1	

Proposed North Clear Creek NR District Resources				
Map ID	Name	Type	Contributing	Non-contributing
C53	Shed	Contributing Resource	1	
C54	Outbuilding Barn (circa 1930)	Contributing Resource	1	
C55	Historic Road	Contributing Resource	1	
		Totals:	**47**	**8**
		Percentage	**84%**	**16%**

Integrity:

The NR identifies seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. This section applies those aspects of integrity to the North Clear Creek Historic Landscape District.

The proposed North Clear Creek Historic Landscape District (within the APE) possesses integrity of *location* because the significant mining activities took place in the district.

The *design* of the North Clear Creek Historic Landscape District is best expressed in the spatial relationship among its historic-period roads; rail spurs; buildings, both standing and ruined; and landscape features such as quarry pits, waste piles, and remnants of machinery. The spatial relationship between limestone extraction and processing sites and the circulation networks that connected them remains discernible in the majority of the district, except for a large portion of the Maple Hill Quarry (north of the mill), which was developed or altered after the historic period (Resource C23). Further, the district's integrity of design is evident in the walls of Contributing quarries, whose markings can be linked with specific methods of stone extraction (e.g. Resources C22, C25, C26, C29, C32, C36, C37, C38, C39, C45, C46, and C52). The integrity of design at the Carl Furst Stone Company property and Maple Hill Mill is generally very good. In contrast, the district's integrity of design at the Maple Hill Quarry has been greatly reduced by the filling or altering of all but one of its quarry pits in the post-1967 period.

The North Clear Creek Historic Landscape District's *setting* is defined by the Clear Creek valley. The Monon Railroad spur serving these quarries generally follows the bottom lands of Clear Creek. The dominant landscape features that define the district's setting are scattered quarry pits at the Carl Furst Stone Company site and a tramway and mill buildings at the Maple Hill Mill; the setting at the Maple Hill Quarry is dominated by Non-contributing quarries that reflect modern extraction methods. Secondary features that contribute to the district's setting include remnants of road and rail circulation networks, a stone waste pile, remains of outbuildings, and

scattered machinery, and a dwelling that was formerly used as an office by the Carl Furst Stone Company. The Carl Furst Stone Company Quarry is virtually unchanged since the close of the historic period (1967). The setting at the Maple Hill Quarry has changed somewhat since the early periods of operation, primarily because of continuous quarry operations. Since 1967, modern extraction techniques have resulted in the removal of large swaths of stone creating a barren landscape that is not consistent with the older portions of the district. Adjacent areas outside the district contain forested land on the north, west and south; agricultural land with some scattered dwellings on the south, a housing subdivision on the southeast, and former quarry and mill sites (i.e. New Richland Quarry and Woolery Mill) on the northeast.

The Maple Hill Mill portion of the property contains numerous Contributing buildings or structures that possess good integrity of *materials* (e.g. mill, C14; pallet building, C6; weigh house, gang saw buildings, C9, C10, C11; C13; circular saw building, C16; blacksmith shop, C15; and a small outbuilding, C17). At the Carl Furst Stone Company, the Borland House and garage, C48 and C49; blacksmith shop, C43, barn, C54, and a shed, C53 possess good integrity of materials. In addition some of the scattered machinery, particularly the five derricks at the Carl Furst Stone Company property, retain integrity of materials. Few materials associated with the rail spurs, other than graded earthen beds, are present. Waste piles and stacked stone piles, including those used as a rail trestle, possess integrity of materials.

The North Clear Creek Historic Landscape District possesses good integrity of *workmanship*, where visible. The way people fashioned their environment for industrial purposes is highly evident both in the built environment (e.g. buildings, machinery) and in landscape features, such as tooling marks and sheer and stepped cuts in the quarry walls. Where visible (above water), many of the quarry pits at the Carl Furst Stone Company property have stepped ledges, which are evocative of early extraction methods. The one Contributing quarry at the Maple Hill site (Resource C22) exhibits markings associated with the use of wire saws. Limestone extraction is a labor-intensive industry, which demonstrates workers' labor and skill in altering the landscape.

The North Clear Creek Historic Landscape District possesses integrity of *feeling,* especially at the Furst Quarry, where circulation patterns and spatial organization are unchanged since the historic period. The integrity of feeling at the Maple Hill Mill property is also high since it still has a large number of intact, historic buildings that remain in operation. The integrity of feeling in the Non-contributing area of the Maple Hill Quarry is low since it has modern quarrying activities and lacks evidence of historic mining activities. There is, however, one historic-age quarry pit at Maple Hill that retains a high level of integrity of feeling; it contributes to the district (Resource C22). Water-filled quarry pits, large blocks of stone, whether stacked or scattered, and waste piles evoke a unique sense of place and time that contributes to the district's integrity of feeling as an early- to mid-twentieth century limestone extraction and processing district.

The district's integrity of *association* is strong among resources that pertain to both the extraction and processing of limestone. Integrity of association is strong at the Carl Furst Stone Company site since it was vacated shortly after the end of this study period (1967), and numerous quarry pits and waste stone piles provide the physical evidence necessary to convey the property's historic significance. The Maple Hill Mill also retains a high degree of association, as the mill operates in a similar fashion as it did historically, and the tradition and techniques of the historic period are carried forth in this property.

Background/Context:

Within the Section 5 APE, the North Clear Creek Historic Landscape District represents a "late-developed pocket" of industrial activity that occurred during the limestone period of "boom, merger, and overcapacity."[157] Development in the north Clear Creek area—north of the established Clear Creek district and south of Bloomington proper—was greatly aided by the completion of a railroad switch, likely sometime in the late 1920s.[158] Development was also likely responsive to expansion and changes in the industry in the late 1920s and early 1930s; the limestone industry would not be affected by the Depression until the mid-1930s.[159]

The Maple Hill Quarries Company, Inc. organized in 1925, and purchased the land for the Maple Hill Mill and Quarry in 1927.[160] The National Register-listed Woolery Stone Company opened in 1928, and the State Register-listed Carl Furst Quarry opened in 1929 north of Maple Hill. By 1931, University Quarry (ILCO), Crane (ILCO), and Smith Quarry occupied land or opened quarries in the vicinity north or south of modern Tapp Road.[161] Limestone activities in the north Clear Creek area were also aided by a branch of Clear Creek running through the quarry and mill sites, which provided valuable hydraulic power and water supply for milling activities. Companies such as Woolery Stone Company immediately took advantage of the creek, constructing dams as one of its first activities.[162]

In 1927, Maple Hill purchased 247 acres for the sum of $100,000 from the heirs of Maria Louise Perry. Within two weeks, the company sold the same parcel to the BLCO, with which it had merged.[163] In 1929, the Carl Furst Stone Company paid considerably less than did Maple Hill; that company purchased approximately 200 acres, including the circa 1830 Borland House, from Pearl Neeld, a descendent of Edward Borland, for merely $10,000. (Note that the Borland family had owned all of the land within this proposed district at one time; when the Furst Company purchased the property included was the house built by Edward Borland, one of three

[157] Steelwater, Woolery Stone Company, Sect. 8, p. 35; Batchelor, *Economic History of the Limestone Industry*, 183.
[158] Hoadley, "History of the Belt," Bloomington Limestone Company essay, 3-4.
[159] McDonald, *Short History of Indiana Limestone,* 39
[160] Hoadley, "History of the Belt," Bloomington Limestone Company essay; Title research provided by Michael Baker Jr. Inc.
[161] *Map of Indiana Oolitic Limestone District* [cartographic material] (Building Stone Association of Indiana, 1931).
[162] Steelwater, Woolery Stone Company, Sect. 7, p. 16.
[163] Deed Records and Batchelor, *Economic History of the Limestone Industry*, 270.

brothers of Scotch-Irish ancestry who moved from Washington County, Pennsylvania to Bloomington in 1818. The Borland brothers played a prominent role in early Monroe County; they contributed to the early development of Perry and Bloomington townships and to Indiana University.)[164]

The rail line connecting the North Clear Creek Historic Landscape District to the Monon Railroad arrived in the late 1920s; two spur lines were added through the Furst Quarry by July 15, 1929.[165] Quarries were first excavated immediately south of the Borland House, and stone was left to cure in circular dry stacks near the rail lines. At Maple Hill, the earliest quarries (circa 1930s) were opened immediately north of the mill area, along the rail spurs.

Once World War II ended, there was a general widening of quarry pits at the Maple Hill property, but possibly due to the late impacts of the Depression years, and the slow period during WWII, the area did not grow substantially during this time. In the 1950s, however, Maple Hill significantly expanded its quarries northward toward the Furst property. By 1954, an addition was placed on the eastern end of the Maple Hill Mill building as the company's production capabilities expanded. At the Carl Furst Stone Company property, existing quarry pits were widened in the 1940s, but few new pits were opened. From the 1950s through ca. 1967, Furst continued to expand to the west and north and new quarry pits were opened on the property.

Between 1954 and 1967, the Maple Hill quarries continued expanding north toward the Furst parcel. After 1967, BLCO adopted new quarrying technology and opened new large pits while filling in many of the circa 1930-60 era pits. Today, the Carl Furst landscape looks much as it did in 1967. Around this time, the Carl Furst Quarry was closed.[166]

Significance:

The proposed North Clear Creek Historic Landscape District is recommended eligible for the NR under Criterion A for its association with events that have made significant contributions to the broad patterns of history. The landscape of the proposed district reflects a theme of industry, where the landscape has been shaped or manipulated to provide a product that contributed to the development of a community or society in general. Specifically, Bloomington was, and is, a top producer of limestone in the nation, and limestone has shaped the national architectural heritage as one of the premier types of domestic building stone, particularly in the 1890 to 1940s period. Both Furst Quarry and the Maple Hill Mill and Quarry represent a "late-developed pocket" of industrial activity that occurred at the end of the period of "boom, merger, and overcapacity,"

[164] Campbell and Brennan, Sect.8, p.11
[165] *Quarries and Mills* 1:2 (1929), BLCp-01-0017.
[166] For a complete context history of the Carl Furst Quarry, please reference the State Register Nomination form titled "Borland House and Carl Furst Stone Company Quarry," by Duncan Campbell and Kristen Brennan, 1999.

circa 1919-1933.[167] The Furst Quarry exemplifies circa 1931-1967 quarrying techniques. The quarry pits retain unusually high integrity having essentially been unchanged since operations ceased.

Maple Hill Mill (presently C&H Mill) conveys the evolution of milling techniques from the late 1920s to the present. In addition, the mill illustrates the post-World War II transition to the production of limestone ashlar veneer, which was produced in response to changing architectural styles and a decreasing demand for traditional limestone products. Dimension stone companies began producing "split-faced" stone—thinly cut limestone used as a non-structural veneer in the post war period. This style of limestone veneer was popular for new homes in the area and was "perfected" by BLCO, which had absorbed Maple Hill in the late 1920s.[168] The William R. Polley House, at 3030 West Bolin Lane (Resource MB-10, rated Contributing in the Section 5 AI report), is an example of a property within the APE clad in limestone ashlar veneer cut at the Maple Hill Mill.

On a local level, limestone production was a core part of the Bloomington region's economy in the last quarter of the nineteenth through the mid-twentieth centuries. As a local building material, limestone has been used in the Bloomington region to an extent not found in other parts of the nation, contributing to the region's unusually rich architectural heritage.

The North Clear Creek Historic Landscape District does not appear to be eligible for the NR under Criterion B, as research did not reveal a significant association with an individual of local, statewide, or national importance. Likewise, the North Clear Creek Historic Landscape District does not appear to be eligible for the NR under Criterion C, as none of the individual buildings represents the work of a master designer or is an especially good example of an architectural style. The district is not an architect-designed landscape. Instead, the spatial relationship of its buildings, structures, circulation networks, and natural features (e.g. pits and waste piles) is governed by the functional requirements of quarrying.

The North Clear Creek Historic Landscape District has the potential to be recommended eligible for the NR under Criterion D.

The period of significance begins with the opening of the Maple Hill Mill in 1927 and ends in 1967. The latter year is 50 years older than the estimated I-69 project completion in 2017, and it also coincides with a general transition in limestone quarrying techniques.

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[167] Steelwater, Woolery Stone Company, Sect. 8, p. 35; Batchelor, *Economic History of the Limestone Industry*, 183.
[168] "3,500 Men Employed in 37 Mills and 24 Quarries of 24 Stone Firms," *Bloomington (IN) Daily Herald,* December 10, 1949; "Limestone Industry Timeline," Indiana Bedrock, http://www.indianabedrock.org (accessed November 3, 2011), 60.

District Boundary:

The district boundary was drawn to encompass areas having historic significance that also possessed adequate integrity. The boundary is only defined within the APE; potential district boundaries outside the APE were not studied. Within the APE, the whole of the Furst Quarry possesses integrity, and therefore, the boundaries were drawn to reflect those submitted with the State Register-listed property. At Maple Hill, property boundaries within the APE were drawn to include a majority of the historic parcel owned by BLCO during the period of significance. The concentration of existing landscape features that convey property's significance are contained within the current legal boundaries of the C&H Stone Company and the BLCO parcels. Additional property historically owned by BLCO was excluded from the proposed boundaries because it does not contain any historic-era landscape features. The Non-contributing modern quarries at Maple Hill (C23) were kept within the district boundary because the authors recognize that the potential boundaries of the North Clear Creek Historic Landscape District are much larger than those within the APE that are defined by the present study. Additional potential Contributing features (such as the NR-listed Woolery Mill) are present outside the APE; in light of this knowledge, the historians decided that it would be counterproductive to draw a discontiguous boundary.

The recommended boundary for parts of the North Clear Creek Historic Landscape District within the APE contains 139.3 acres. The previously-listed State Register boundary for the Borland House and the Carl Furst Stone Company property contains 62.7 acres.

Recommendations/Conclusions

Each of the three limestone historic landscape districts discussed in this report is recommended eligible for listing in the NR under Criterion A for its association with industry, where the landscape has been shaped or manipulated to provide a product that contributed to the development of a community or society in general. The Hunter Valley and North Clear Creek historic landscape districts may also be eligible for the NR under Criterion D, as features such as abandoned quarry pits and mill buildings and rail spur remnants have the potential to yield significant information about the evolution of quarrying techniques within their respective periods of significance.

The Bloomington region was, and is, a top producer of limestone in the nation, and limestone has shaped the national architectural heritage as one of the premier types of domestic building stone, particularly in the 1890 to 1940s period. On a local level, limestone production was a core part of the Bloomington region's economy in the last quarter of the nineteenth through the mid-twentieth centuries. As a local building material, limestone has been used in the Bloomington region to an extent not found in other parts of the nation, contributing to the region's unusually rich architectural heritage.

At the Hunter Valley Historic Landscape District, evidence of limestone production is seen in the landscape of the valley, which is dotted with quarries and mill ruins dating from the 1890s to the 1960s. Early limestone industry technology is exemplified in the prevalence of smaller limestone pits with stepped ledges. Other resources include derricks and equipment, remains of buildings, equipment, and circulation networks.

The Reed Historic Landscape District is an example of a multi-generation limestone quarrying operation. The Reed Company property contains quarry pits dating from the 1930s to the present, where the evolution of quarrying techniques can be observed.

The North Clear Creek Historic Landscape District is an example of a "late-developed pocket" of industrial activity in the era of "boom, merger, and overcapacity."[169] The former Carl Furst Stone Company Quarry and the Maple Hill Quarry and Mill are located in this district. The Carl Furst Stone Company property contains quarry pits dating largely from the 1950s to 1960s and displays several small-scale features including outbuildings, derricks, and other related machinery. In contrast, the Maple Hill Quarry contains only one early quarry pit dating from the 1930s and large expanses of quarry pits dating from the 1980s and 1990s. The former Maple Hill Mill (now C&H Mill) largely reflects post-World War II milling techniques, although the mill that may date from circa 1930.

[169] Steelwater, Woolery Stone Company, Sect. 8, p. 35; Batchelor, *Economic History of the Limestone Industry*, 183.

The natural and manmade features at these three districts represent a unique limestone landscape, which convey the history of the extraction and processing of this nationally important building stone in a powerful way.

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Exhibits

A Maps

1. Project Location Map
2. Hunter Valley Historic Landscape District Site Plan, 1 of 2
3. Hunter Valley Historic Landscape District Site Plan, 2 of 2
4. Reed Historic Landscape District Site Plan
5. North Clear Creek Historic Landscape District Site Plan, 1 of 2
6. North Clear Creek Historic Landscape District Site Plan, 2 of 2

B Historic Aerial Photographs

7. Hunter Valley Historic Landscape District/Reed Historic Landscape District/Reed, 1955
8. Hunter Valley Historic Landscape District/Reed Historic Landscape District/Reed, 1967
9. North Clear Creek Historic Landscape District,1954
10. North Clear Creek Historic Landscape District 1967

C. Photo Keys

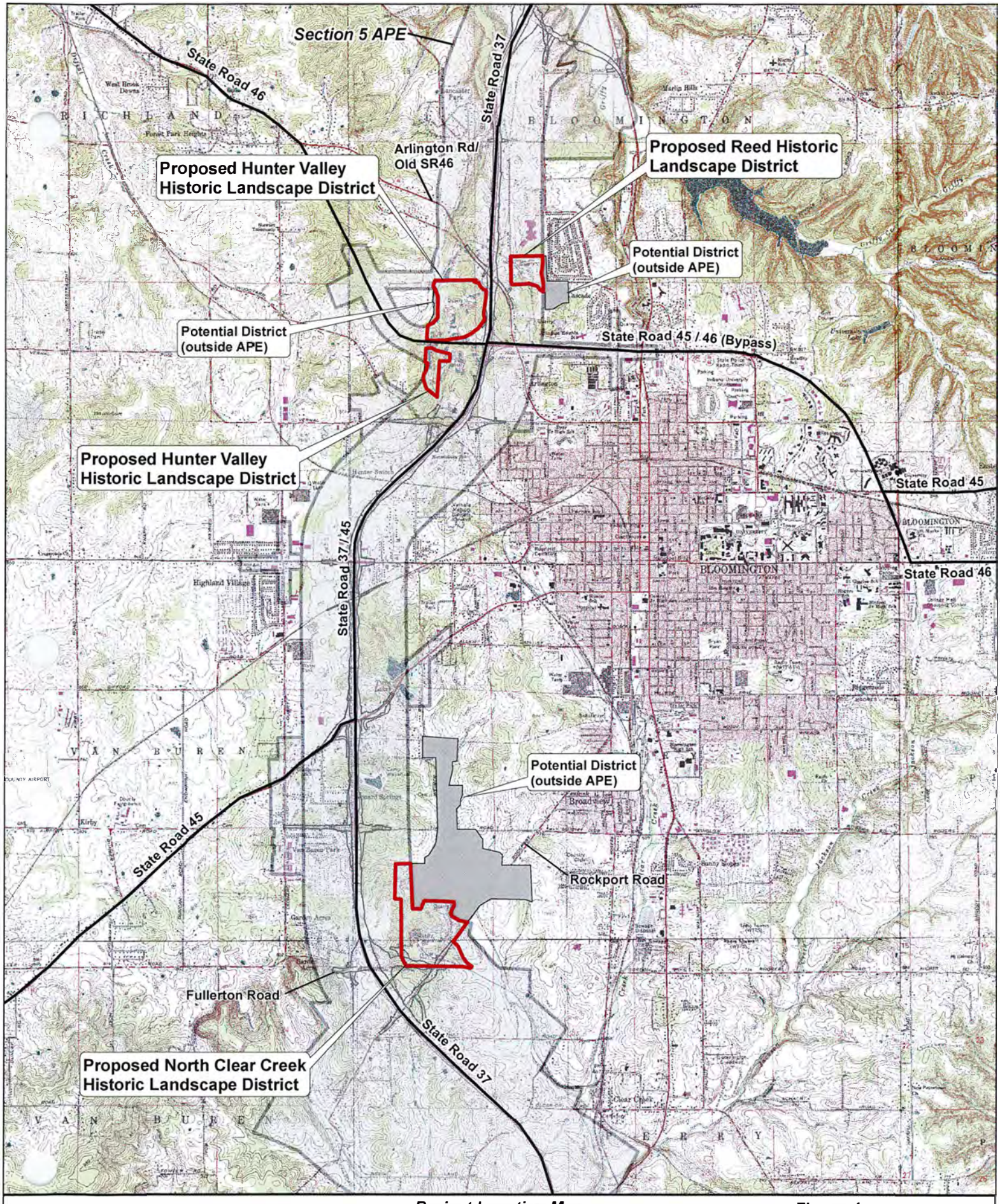
11. Hunter Valley Historic Landscape District, 1 of 2
12. Hunter Valley Historic Landscape District, 2 of 2
13. Reed Historic Landscape District
14. North Clear Creek Historic Landscape District,1 of 2
15. North Clear Creek Historic Landscape District, 2 of 2

D. Photographs

1. Hunter Valley Historic Landscape District
2. Reed Historic Landscape District
3. North Clear Creek Historic Landscape District

A. Maps

1. Project Location Map
2. Hunter Valley Historic Landscape District Site Plan, 1 of 2
3. Hunter Valley Historic Landscape District Site Plan, 2 of 2
4. Reed Historic Landscape District Site Plan
5. North Clear Creek Historic Landscape District Site Plan, 1 of 2
6. North Clear Creek Historic Landscape District Site Plan, 2 of 2



Project Location Map
Proposed Historic Districts

Figure 1
I-69 EVANSVILLE-to-INDIANAPOLIS
TIER 2 STUDIES - SECTION 5
Indiana Department of Transportation
January, 2012

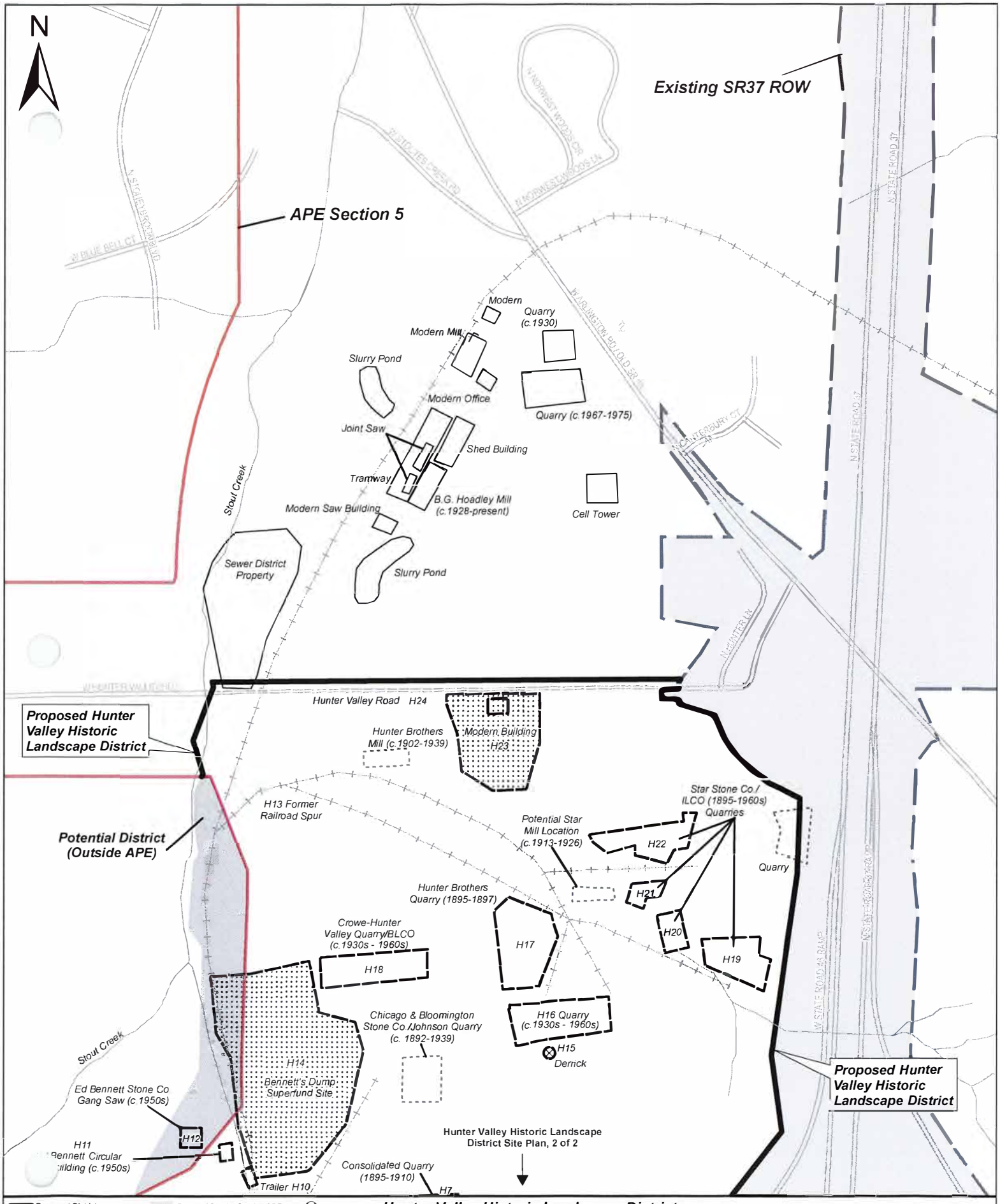


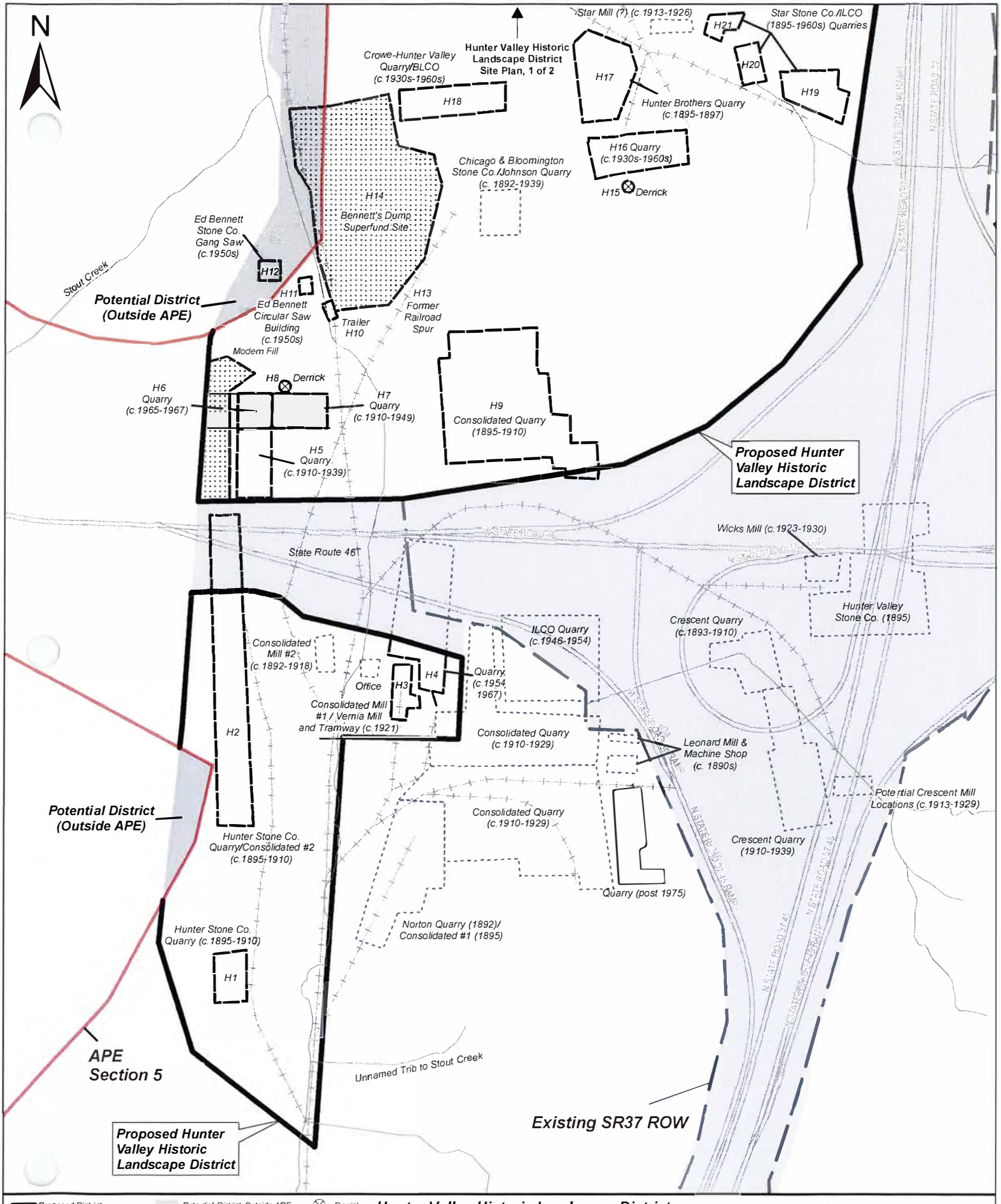
Figure 2

January, 2012

I-69 EVANSVILLE-to-INDIANAPOLIS
TIER 2 STUDIES - SECTION 5

Indiana Department of Transportation

*Map based on 2010 Aerial Photography. Data on former site locations taken from: 1939 and 1946 Aerial Photography (US Geological Survey); 1954, 1967, and 1975 Aerial Photography (USDA); 1895 Map of Bloomington (C.E. Siebenthal); 1910, 1956, and 1966 Bloomington Quadrangle Maps (US Geological Survey), 1927-1949 Sanborn Fire Insurance Maps; 1931 Indiana Oolitic Limestone District (Building Stone Association of Indiana); Al Hoadley, unpublished manuscript; and Narrative (Stuckey, Clay. "Gazetteer of Limestone Mills of Owen, Monroe, and Lawrence Counties to 1950").



Proposed District
Contributing Resource
Non-Contributing Resource
Features Outside of District
Site (non extant)
Potential District Outside APE
Former Railroad Spur
APE Section 5
Existing SR37 or SR46 ROW
Derrick
Creek

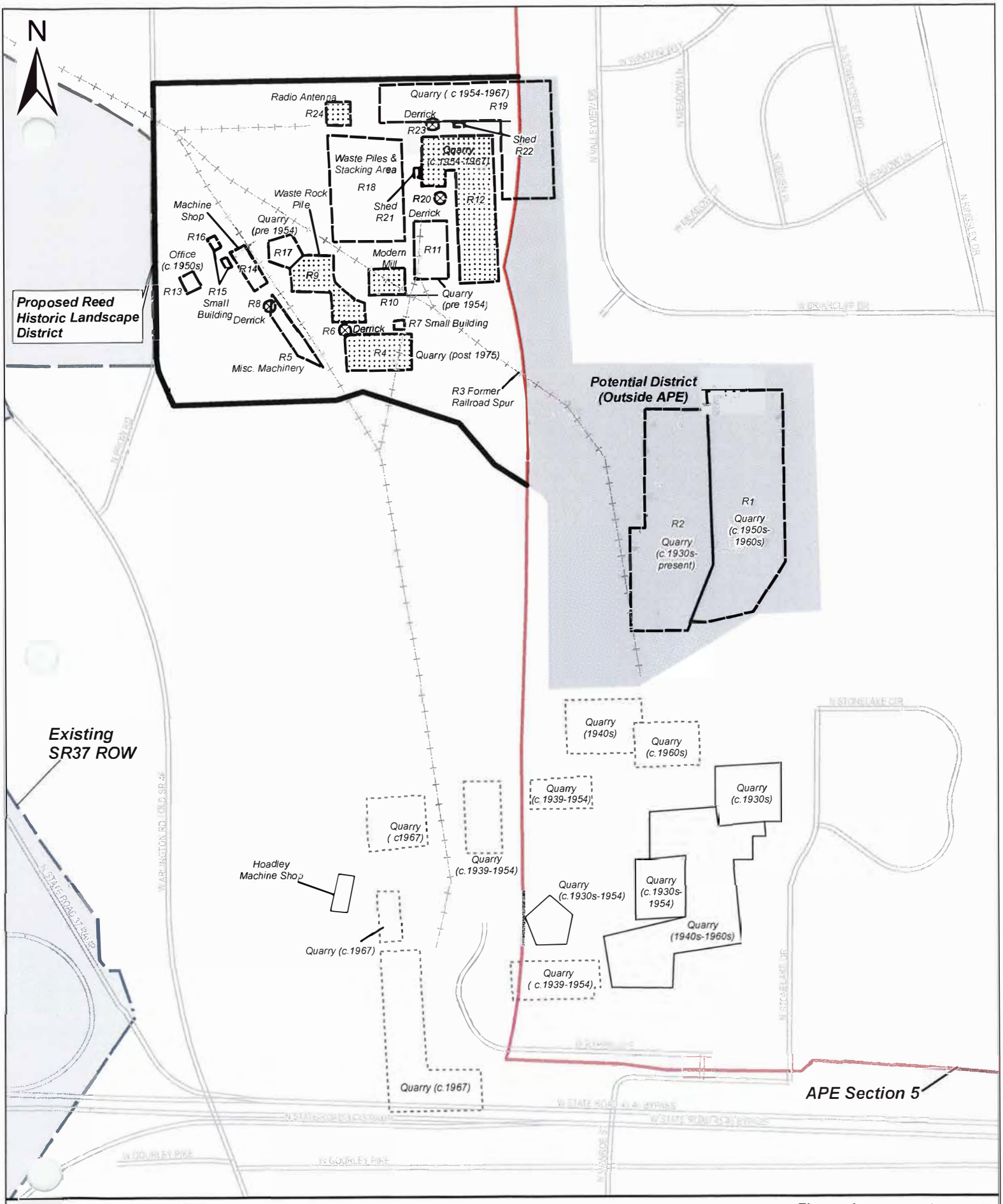
Hunter Valley Historic Landscape District Site Plan, 2 of 2

0 50 100 150 200 Meters
0 200 400 600 800 Feet

Figure 3
I-69 EVANSVILLE-to-INDIANAPOLIS TIER 2 STUDIES - SECTION 5
Indiana Department of Transportation

January, 2012

*Map based on 2010 Aerial Photography. Data on former site locations taken from. 1939 and 1946 Aerial Photography (US Geological Survey); 1954, 1967, and 1975 Aerial Photography (USDA); 1895 Map of Bloomington (C.E. Siebenthal), 1910, 1956, and 1966 Bloomington Quadrangle Maps (US Geological Survey), 1927-1949 Sanborn Fire Insurance Maps; 1931 Indiana Oolitic Limestone District (Building Stone Association of Indiana); Al Hoadley, unpublished manuscript; and Narrative (Stuckey, Clay. "Gazetteer of Limestone Mills of Owen, Monroe, and Lawrence Counties to 1950").



Proposed District
Contributing Resource
Non-Contributing Resource
Features Outside of District
Site (non extant)
Potential District Outside APE
Former Railroad Spur
APE Section 5
Existing SR37 ROW
Derrick

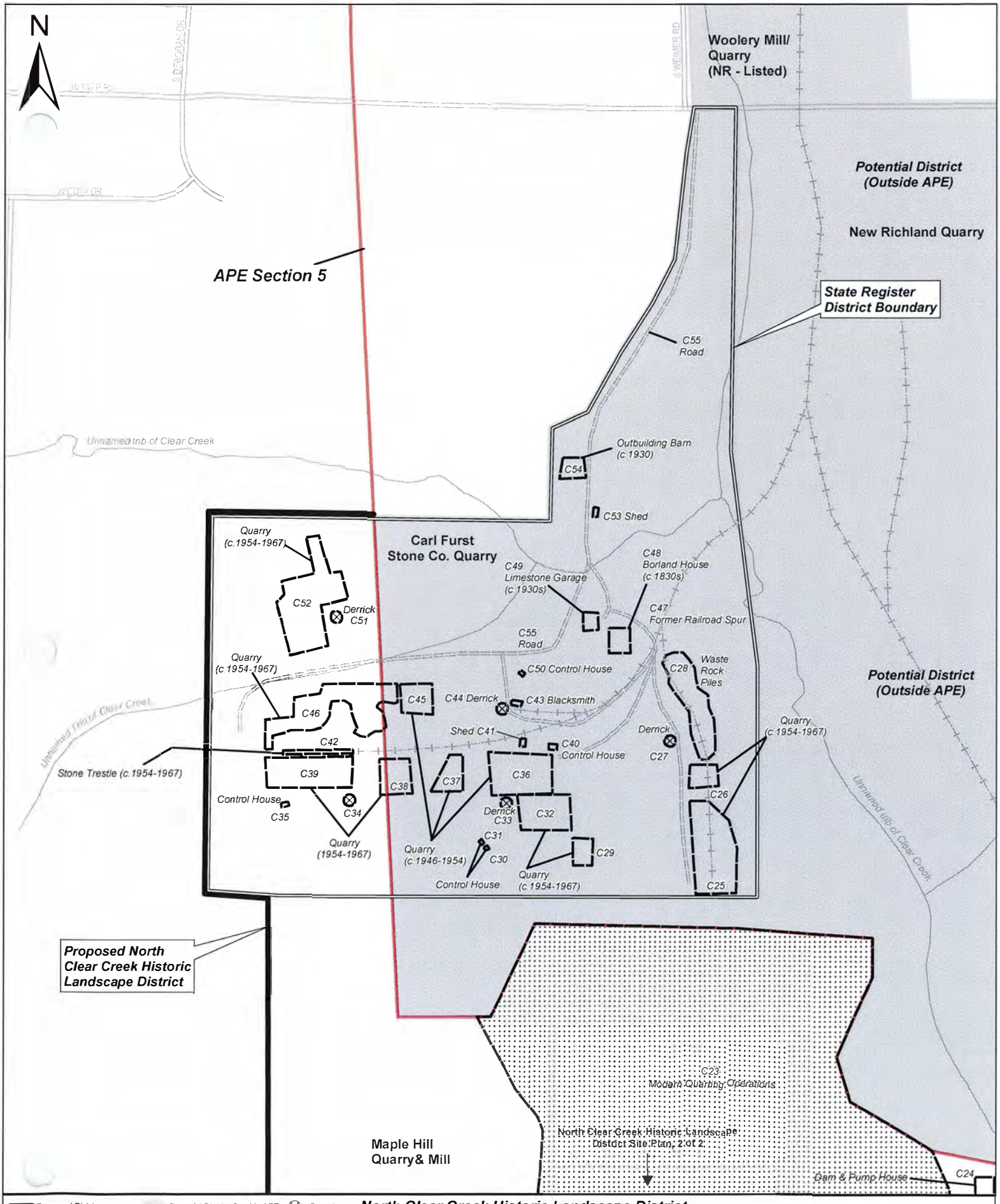
Reed Historic Landscape District Site Plan

0 50 100 150 200 Meters
0 200 400 600 800 Feet

Figure 4 January, 2012

I-69 EVANSVILLE-to-INDIANAPOLIS
TIER 2 STUDIES - SECTION 5
Indiana Department of Transportation

*Map based on 2010 Aerial Photography. Data on former site locations taken from: 1939 and 1946 Aerial Photography (US Geological Survey), 1954, 1967, and 1975 Aerial Photography (USDA), 1895 Map of Bloomington (C.E. Siebenthal), 1910, 1956, and 1966 Bloomington Quadrangle Maps (US Geological Survey), and 1931 Indiana Oolitic Limestone District (Building Stone Association of Indiana)

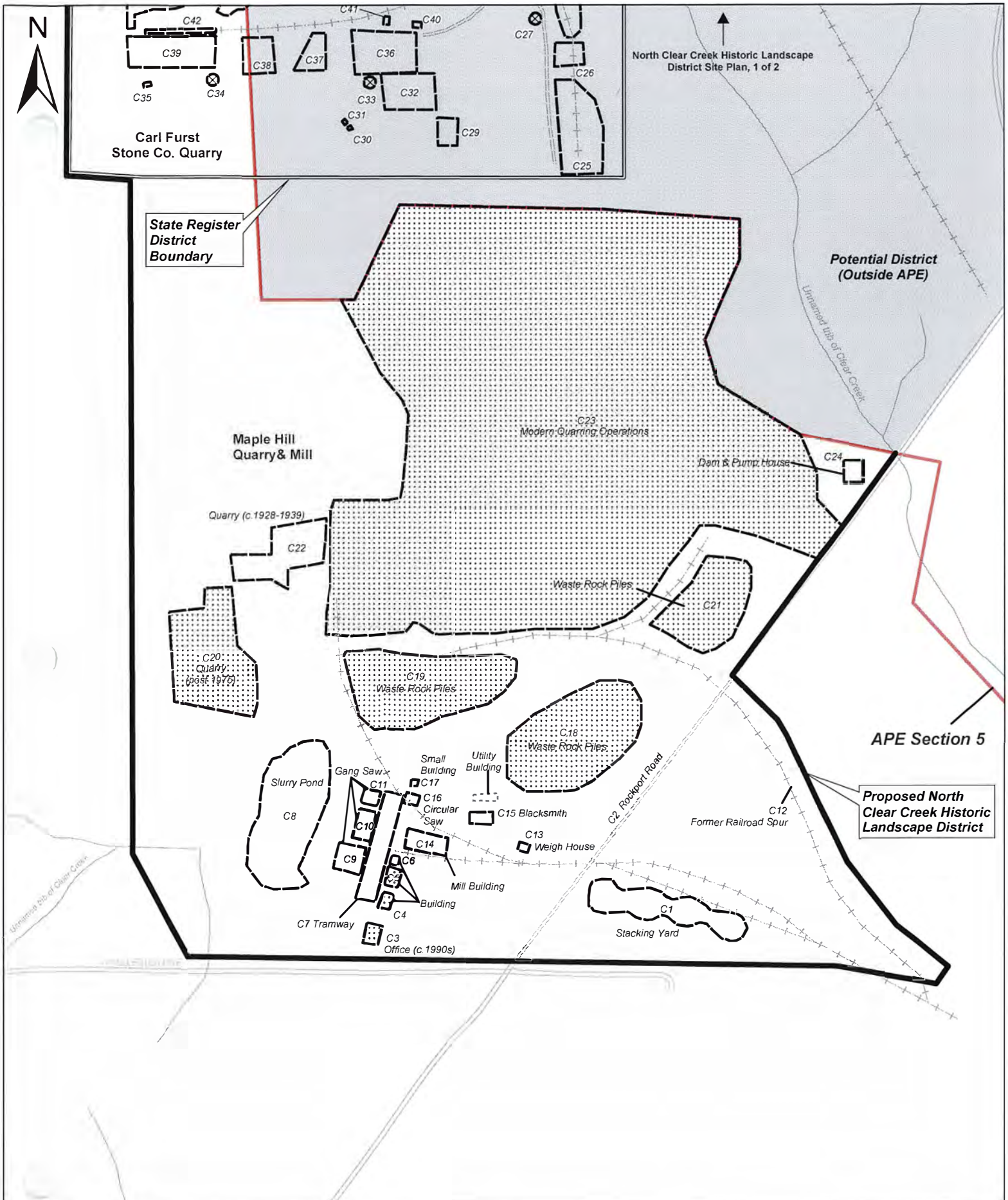


North Clear Creek Historic Landscape District
Site Plan, 1 of 2

Figure 5 January, 2012

I-69 EVANSVILLE-to-INDIANAPOLIS
TIER 2 STUDIES - SECTION 5
Indiana Department of Transportation

*Map based on 2010 Aerial Photography. Data on former site locations taken from: 1939 and 1946 Aerial Photography (US Geological Survey); 1954, 1967, and 1975 Aerial Photography (USDA); 1895 Map of Bloomington (C.E. Siebenthal); 1910, 1956, and 1966 Bloomington Quadrangle Maps (US Geological Survey); Al Hoadley, unpublished manuscript; Narrative (Stuckey, Clay. "Gazetteer of Limestone Mills of Owen, Monroe, and Lawrence Counties to 1950"); and 1999 Site Plan Map (Campbell, Duncan and Kristen Brennan, State Register of Historic Places Nomination Form for Borland House and Carl Furst Stone Company Quarry).



Proposed District
State Register District
Contributing Resource
Non-Contributing Resource
Site (non extant)
Potential District Outside APE
APE Section 5
Former Railroad Spur
Contributing Road
Creek
Derricks

North Clear Creek Historic Landscape District
Site Plan, 2 of 2

0 50 100 150 200 Meters
0 200 400 600 800 Feet

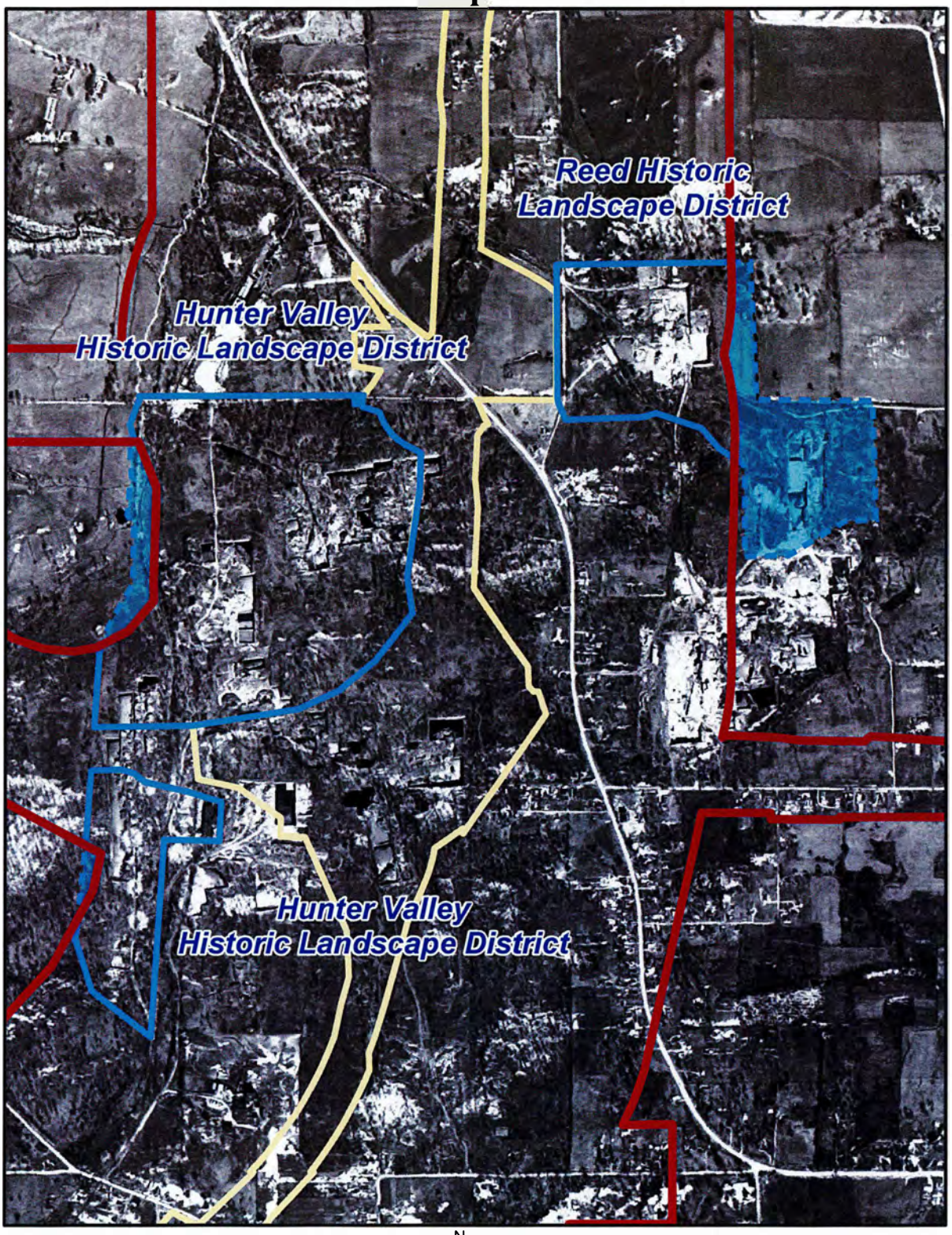
Figure 6 January, 2012
I-69 EVANSVILLE-to-INDIANAPOLIS
TIER 2 STUDIES - SECTION 5
Indiana Department of Transportation

*Map based on 2010 Aerial Photography. Data on former site locations taken from: 1939 and 1946 Aerial Photography (US Geological Survey); 1954, 1967, and 1975 Aerial Photography (USDA); 1895 Map of Bloomington (C.E. Siebenthal); 1910, 1956, and 1966 Bloomington Quadrangle Maps (US Geological Survey). Al Hoadley, unpublished manuscript; Narrative (Stuckey, Clay. "Gazetteer of Limestone Mills of Owen, Monroe, and Lawrence Counties to 1950"); and 1999 Site Plan Map (Campbell, Duncan and Kristen Brennan. State Register of Historic Places Nomination Form for Borland House and Carl Furst Stone Company Quarry).

B. Historic Aerial Photographs

7. Hunter Valley Historic Landscape District/Reed Historic Landscape District, 1955
8. Hunter Valley Historic Landscape District/Reed Historic Landscape District, 1967
9. North Clear Creek Historic Landscape District, 1954
10. North Clear Creek Historic Landscape District, 1967

Figure 7: Hunter Valley Historic Landscape District and Reed Historic Landscape District
I-69 Evansville to Indianapolis Study
Historic Map Base 1955



0 0.1 0.2 0.3 0.4 Miles

N

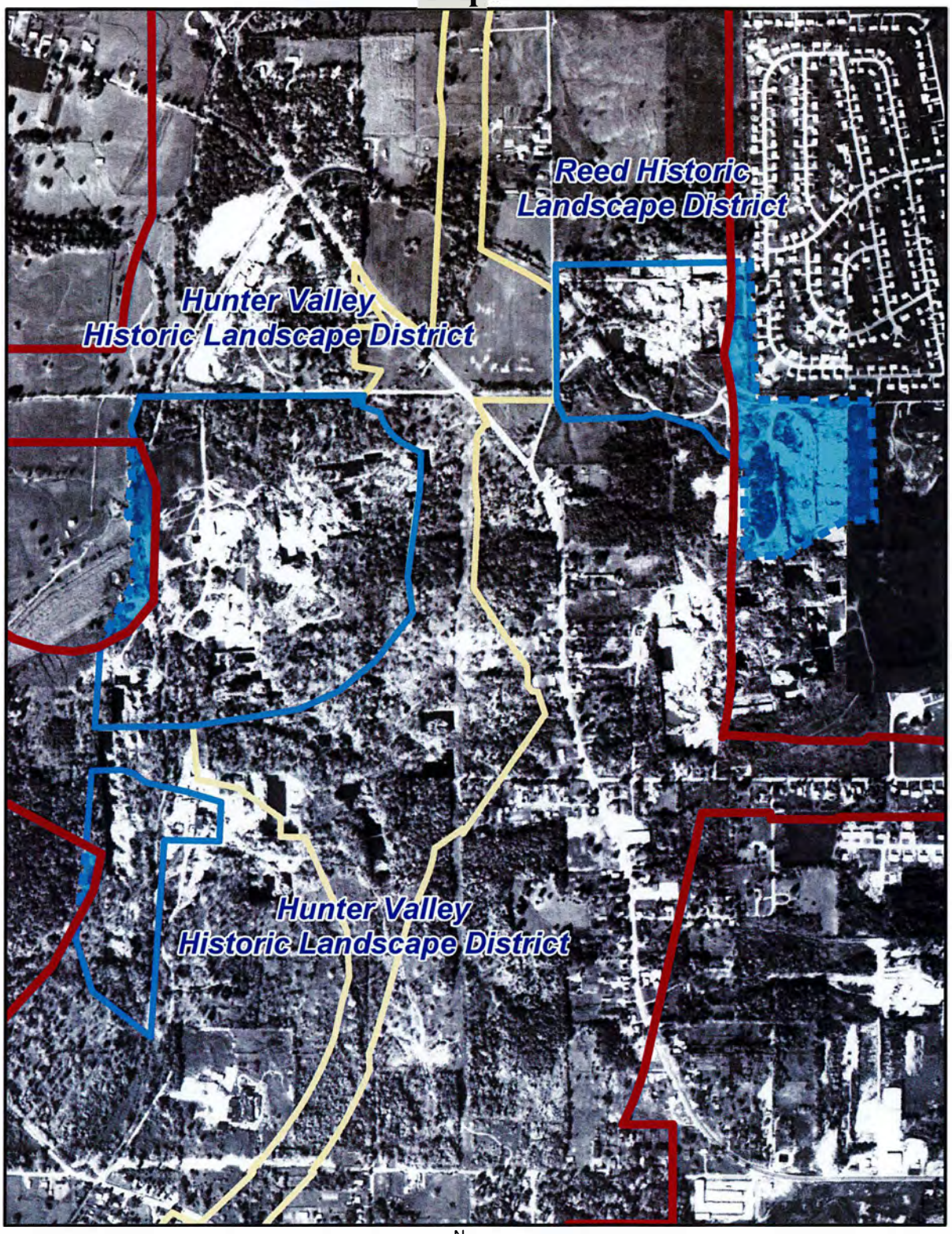
Legend

- Proposed District
- Potential District Outside APE
- State Route 37 Existing ROW
- Area of Potential Effect

Note: GIS Data used to create this map are from the best known sources existing at this time. However, experience shows that many national datasets such as cemeteries, churches, airports, schools, karsts, etc. are not all inclusive. Some national datasets are created on a much smaller scale than that mapped here and as a result have positional inaccuracies. Use of this map should be limited to planning, but should not replace field review or background checks with other sources.

Base: 1955 Aerial Photography, USDA

Figure 8: Hunter Valley Historic Landscape District and Reed Historic Landscape District
I-69 Evansville to Indianapolis Study
Historic Map Base 1967



0 0.1 0.2 0.3 0.4 Miles

N

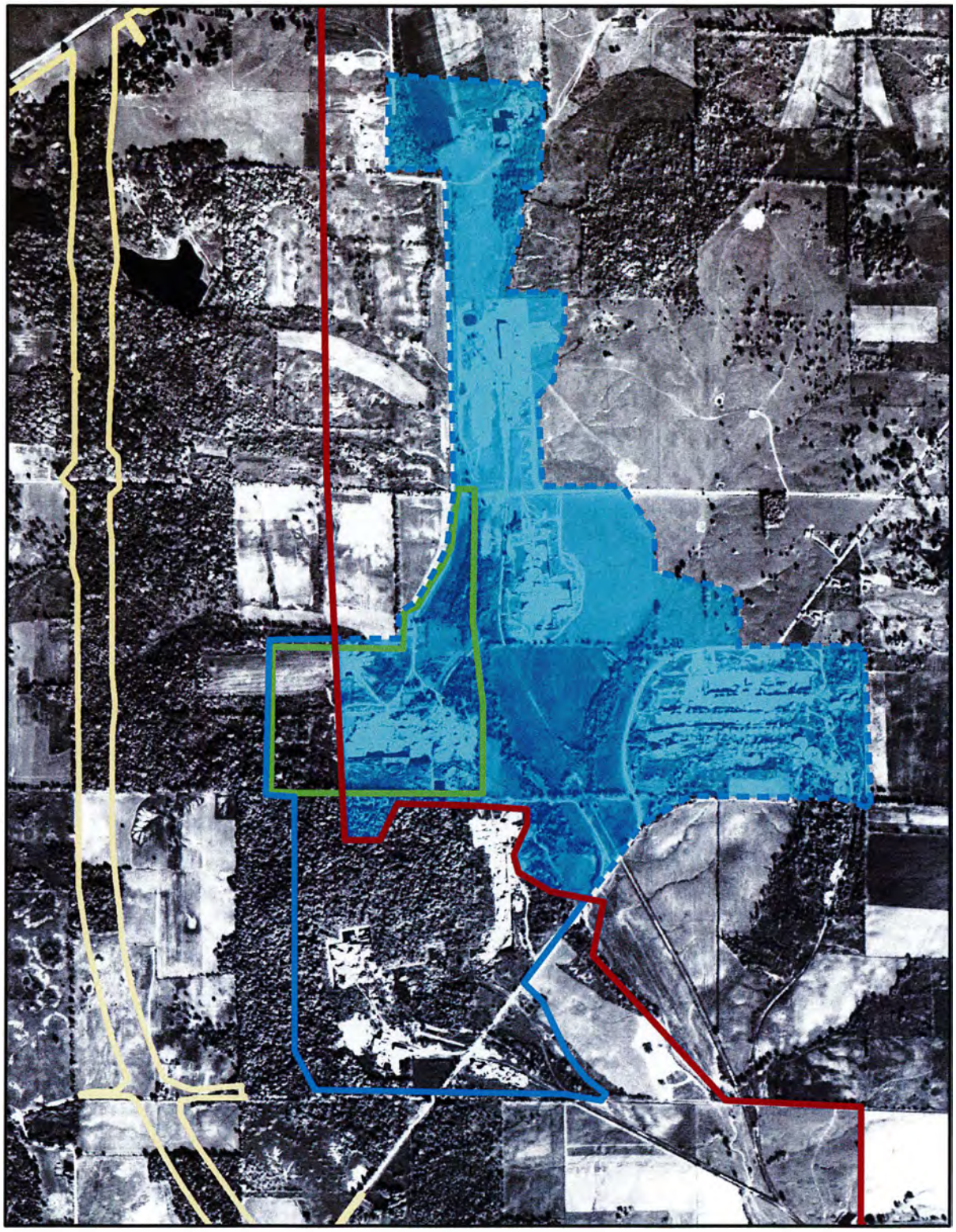
Legend

- Proposed District
- Potential District Outside APE
- State Route 37 Existing ROW
- Area of Potential Effect

Note: GIS Data used to create this map are from the best known sources existing at this time. However, experience shows that many national datasets such as cemeteries, churches, airports, schools, karsts, etc. are not all inclusive. Some national datasets are created on a much smaller scale than that mapped here and as a result have positional inaccuracies. Use of this map should be limited to planning, but should not replace field review or background checks with other sources.

Base: 1967 Aerial Photography, USDA

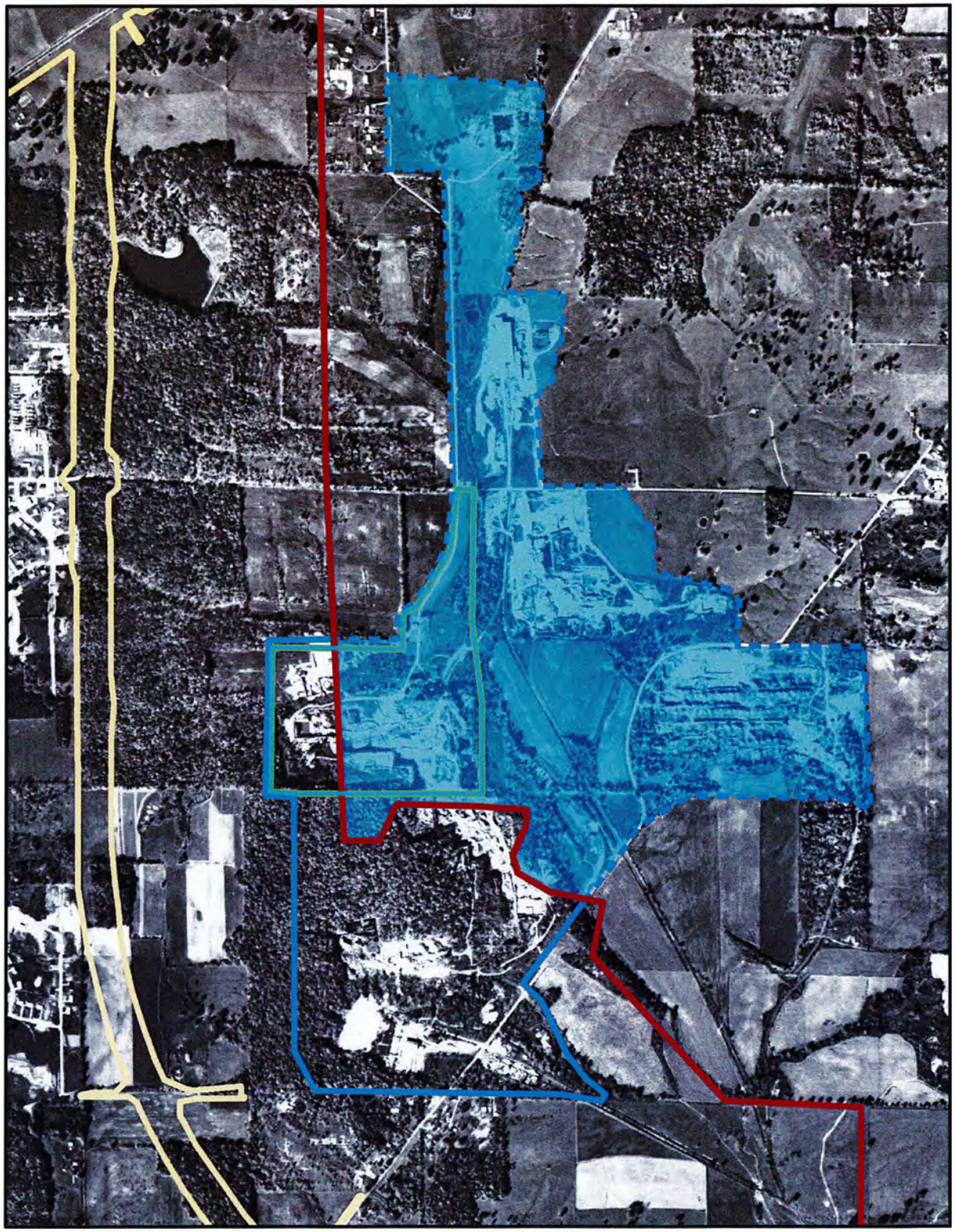
Figure 9: North Clear Creek Historic Landscape District
I-69 Evansville to Indianapolis Study
Historic Map Base 1954



Note: GIS Data used to create this map are from the best known sources existing at this time. However, experience shows that many national datasets such as cemeteries, churches, airports, schools, karsts, etc. are not all inclusive. Some national datasets are created on a much smaller scale than that mapped here and as a result have positional inaccuracies. Use of this map should be limited to planning, but should not replace field review or background checks with other sources.

Base: 1954 Aerial Photography, USDA

Figure 10: North Clear Creek Historic Landscape District
I-69 Evansville to Indianapolis Study
Historic Map Base 1967

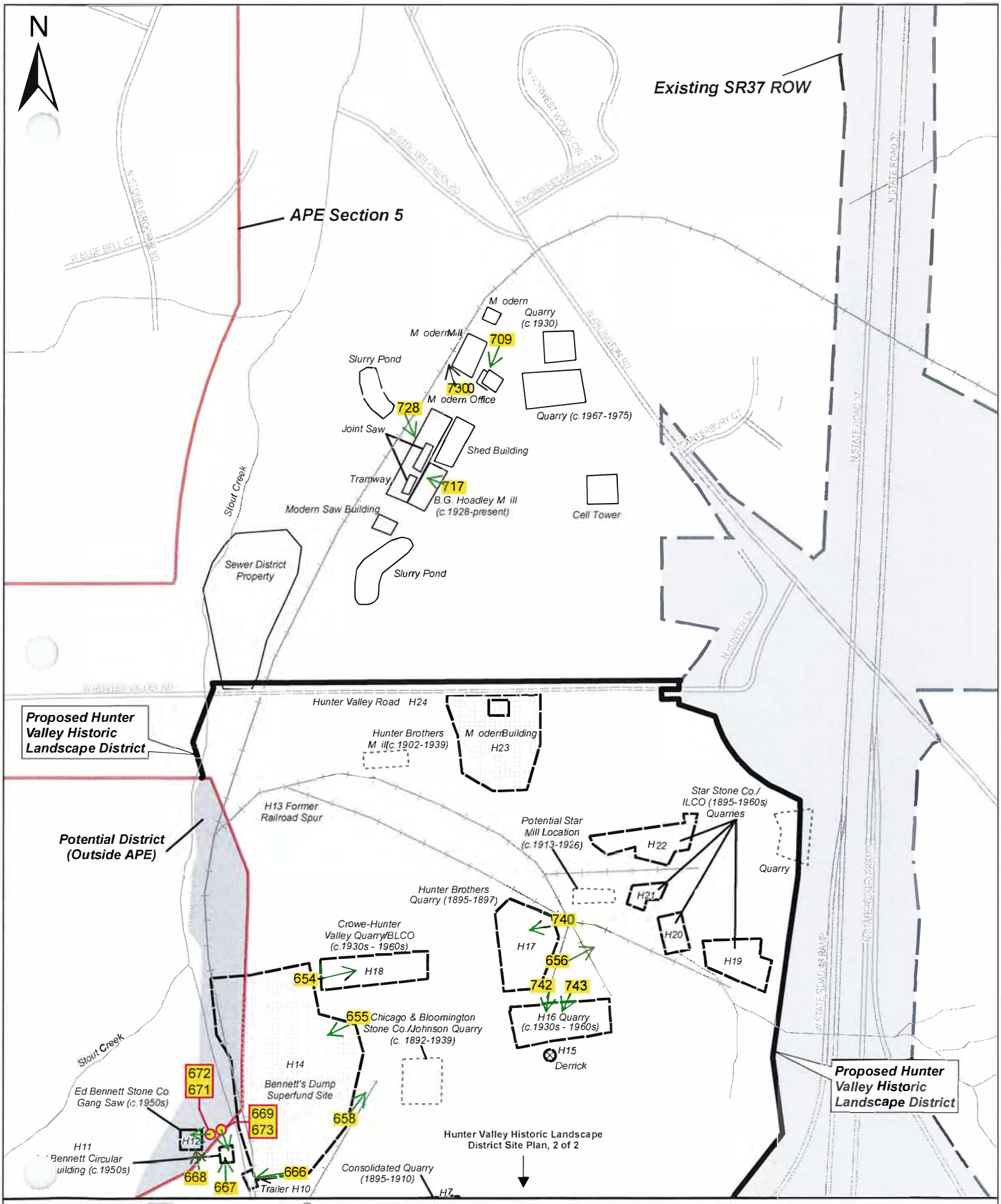


Note: GIS Data used to create this map are from the best known sources existing at this time. However, experience shows that many national datasets such as cemeteries, churches, airports, schools, karsts, etc. are not all inclusive. Some national datasets are created on a much smaller scale than that mapped here and as a result have positional inaccuracies. Use of this map should be limited to planning, but should not replace field review or background checks with other sources.

Base: 1967 Aerial Photography, USDA

C. Photo Keys

11. Hunter Valley Historic Landscape District, 1 of 2
12. Hunter Valley Historic Landscape District, 2 of 2
13. Reed Historic Landscape District
14. North Clear Creek Historic Landscape District,1 of 2
15. North Clear Creek Historic Landscape District, 2 of 2



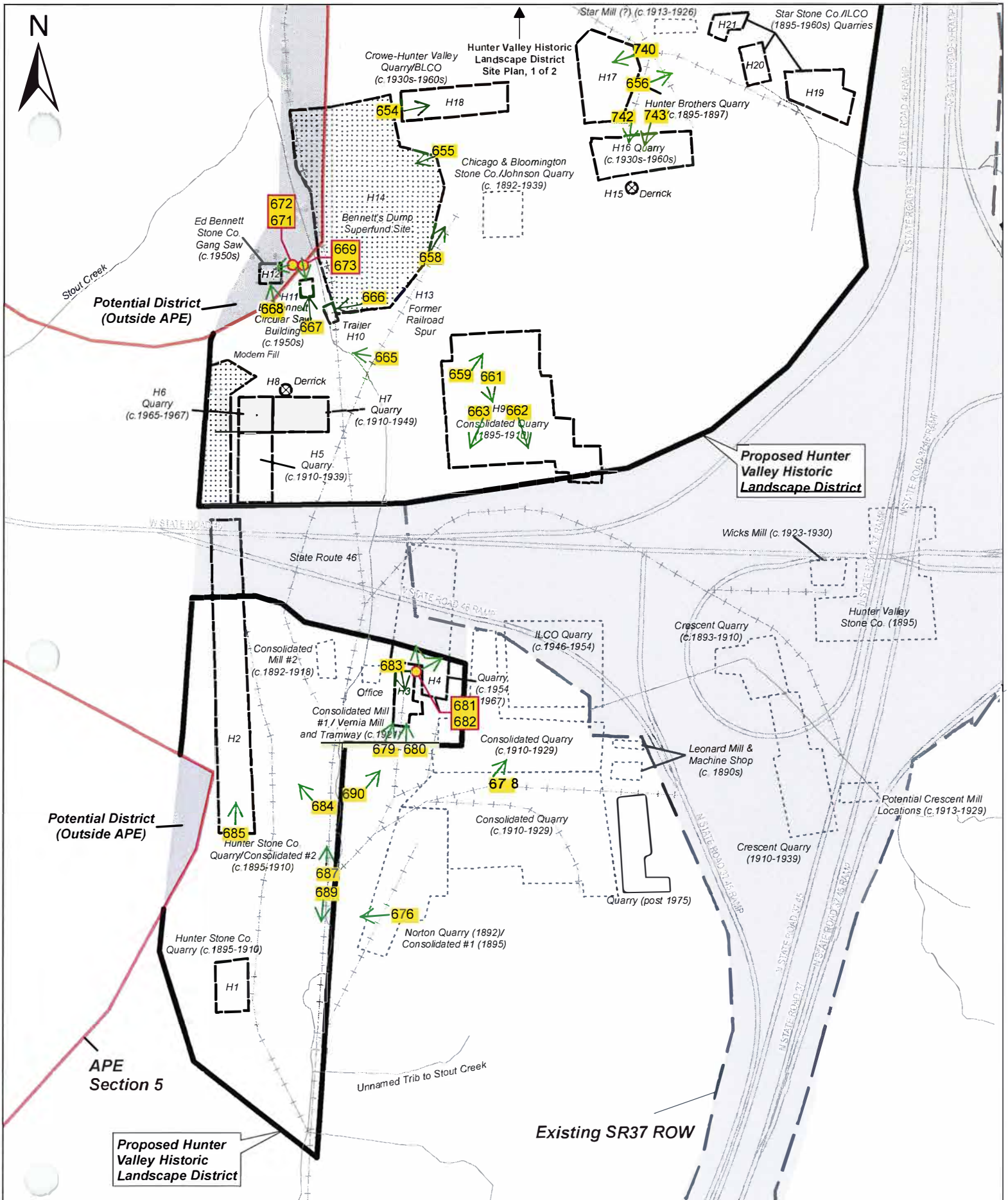
Hunter Valley Historic Landscape District Photo Key, 1 of 2

Figure 11 January, 2012

I-69 EVANSVILLE-to-INDIANAPOLIS TIER 2 STUDIES - SECTION 5

Indiana Department of Transportation

*Map based on 2010 Aerial Photography. Data on former site locations taken from: 1939 and 1946 Aerial Photography (US Geological Survey); 1954, 1967, and 1975 Aerial Photography (USDA); 1895 Map of Bloomington (C.E. Siebenthal); 1910, 1956, and 1966 Bloomington Quadrangle Maps (US Geological Survey); 1927-1949 Sanborn Fire Insurance Maps; 1931 Indiana Oolitic Limestone District (Building Stone Association of Indiana); Al Hoadley, unpublished manuscript; and Narrative (Stuckey, Clay. "Gazetteer of Limestone Mills of Owen, Monroe, and Lawrence Counties to 1950").



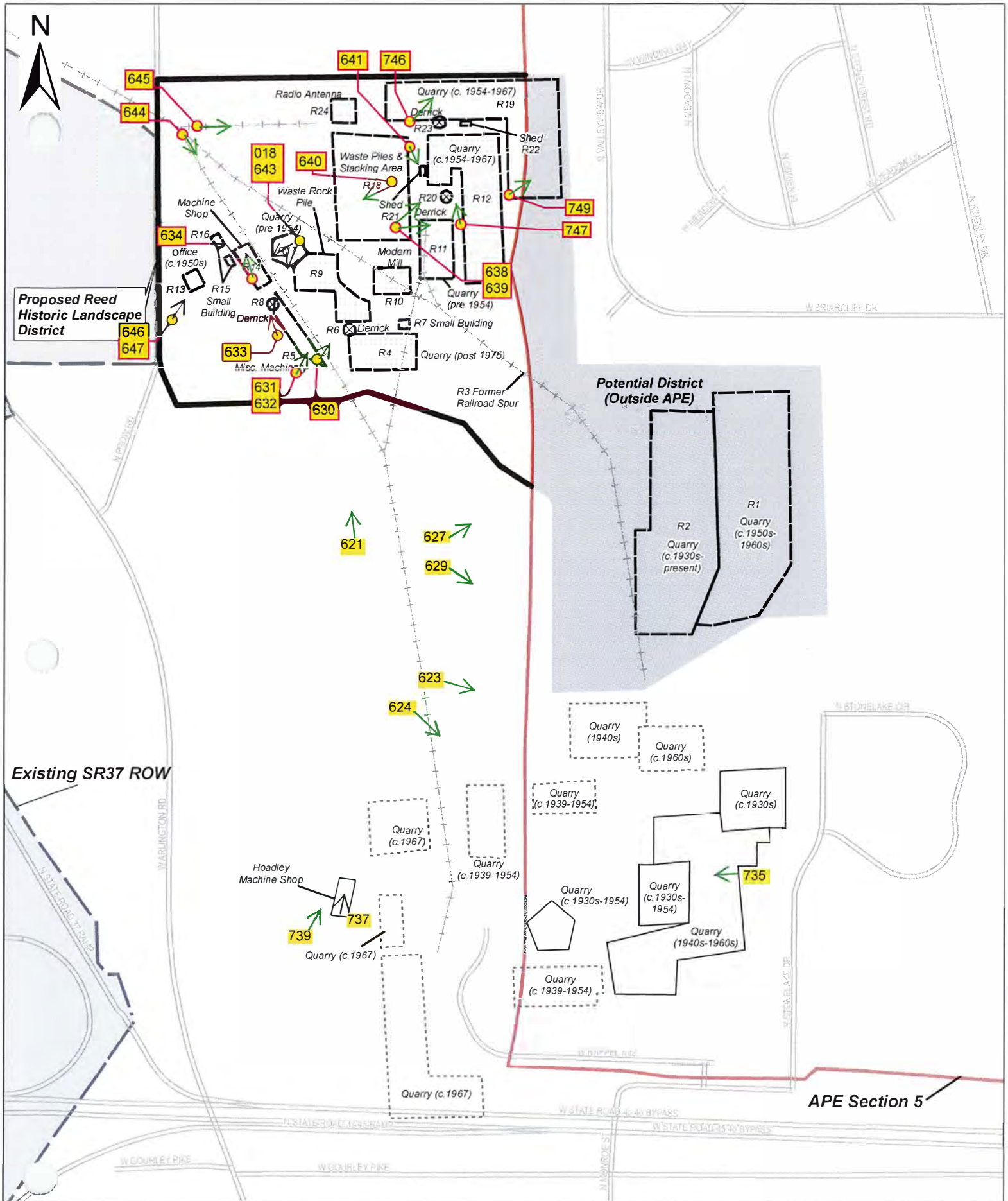
Hunter Valley Historic Landscape District Photo Key, 2 of 2

Figure 12

January, 2012

I-69 EVANSVILLE-to-INDIANAPOLIS
TIER 2 STUDIES - SECTION 5
Indiana Department of Transportation

*Map based on 2010 Aerial Photography. Data on former site locations taken from: 1939 and 1946 Aerial Photography (US Geological Survey); 1954, 1967, and 1975 Aerial Photography (USDA); 1895 Map of Bloomington (C.E. Siebenthal), 1910, 1956, and 1966 Bloomington Quadrangle Maps (US Geological Survey), 1927-1949 Sanborn Fire Insurance Maps; 1931 Indiana Oolitic Limestone District (Building Stone Association of Indiana); Al Hoadley, unpublished manuscript; and Narrative (Stuckey, Clay. "Gazetteer of Limestone Mills of Owen, Monroe, and Lawrence Counties to 1950").



Proposed District
Contributing Resource
Non-Contributing Resource
Features Outside of District
Site (non extant)
Potential District Outside APE
Former Railroad Spur
APE Section 5
Existing SR37 ROW
Derrick
658 Photo Number
Photo Direction

Reed Historic Landscape District Photo Key

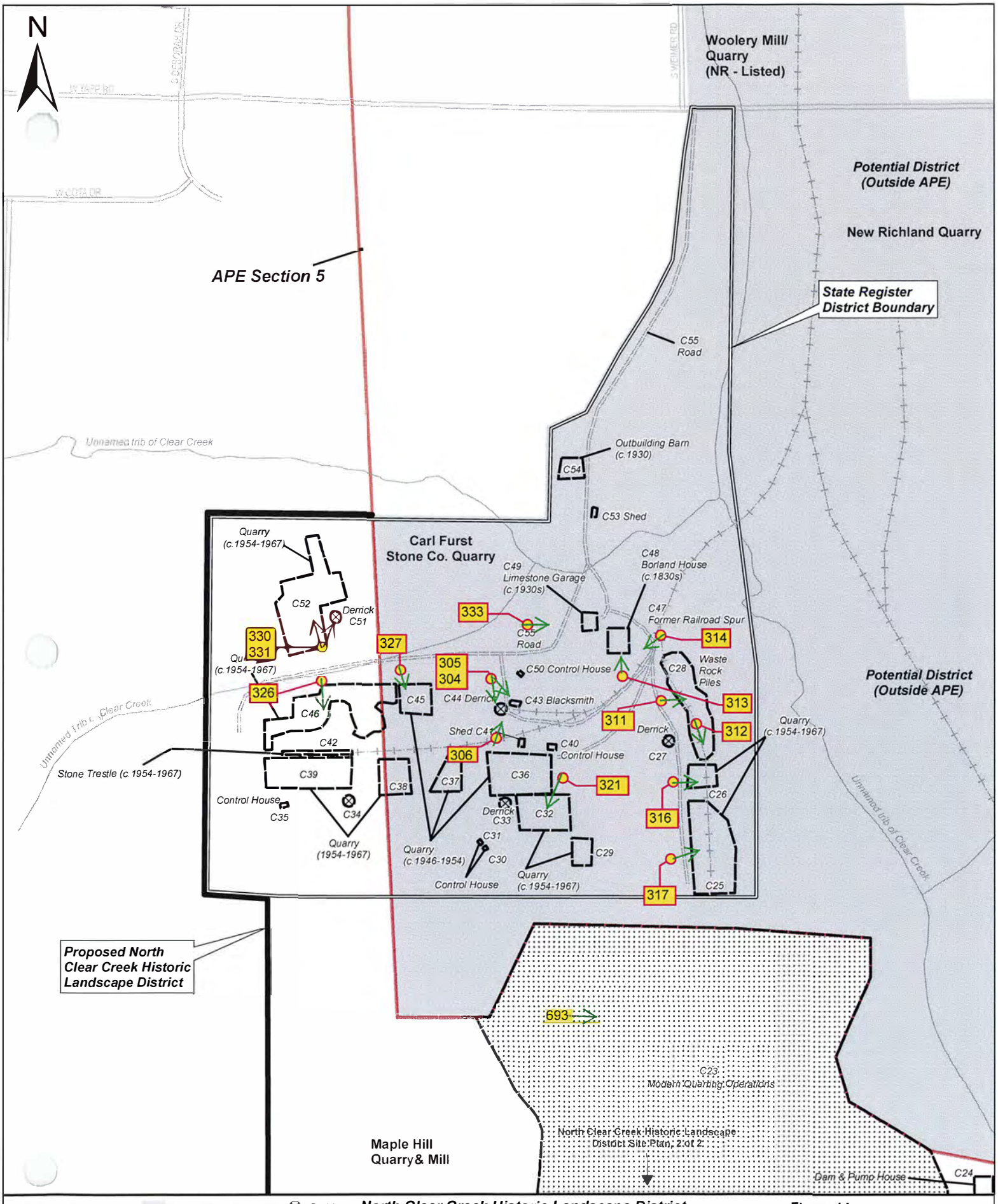
0 50 100 150 200 Meters
0 200 400 600 800 Feet

Figure 13 January, 2012

I-69 EVANSVILLE-to-INDIANAPOLIS TIER 2 STUDIES - SECTION 5

Indiana Department of Transportation

*Map based on 2010 Aerial Photography. Data on former site locations taken from: 1939 and 1946 Aerial Photography (US Geological Survey); 1954, 1967, and 1975 Aerial Photography (USDA); 1895 Map of Bloomington (C.E. Siebenthal); 1910, 1956, and 1966 Bloomington Quadrangle Maps (US Geological Survey), and 1931 Indiana Oolitic Limestone District (Building Stone Association of Indiana).

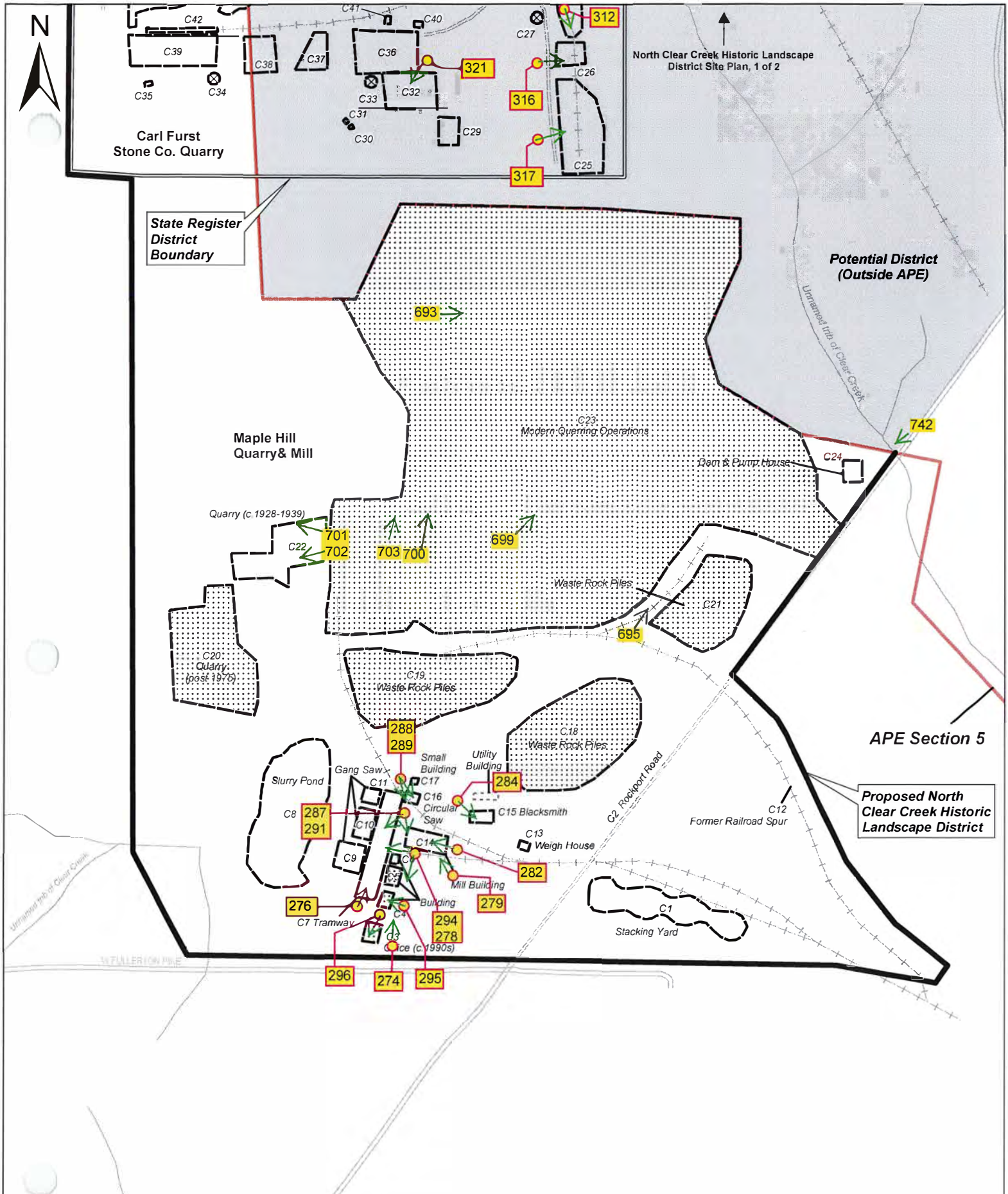


North Clear Creek Historic Landscape District
Photo Key, 1 of 2

Figure 14 January, 2012

I-69 EVANSVILLE-to-INDIANAPOLIS
TIER 2 STUDIES - SECTION 5
Indiana Department of Transportation

*Map based on 2010 Aerial Photography. Data on former site locations taken from: 1939 and 1946 Aerial Photography (US Geological Survey); 1954, 1967, and 1975 Aerial Photography (USDA); 1895 Map of Bloomington (C.E. Siebenthal); 1910, 1956, and 1966 Bloomington Quadrangle Maps (US Geological Survey); Al Hoadley, unpublished manuscript; Narrative (Stuckey, Clay. "Gazetteer of Limestone Mills of Owen, Monroe, and Lawrence Counties to 1950"); and 1999 Site Plan Map (Campbell, Duncan and Kristen Brennan. State Register of Historic Places Nomination Form for Borland House and Carl Furst Stone Company Quarry).



North Clear Creek Historic Landscape District
Photo Key, 2 of 2

Figure 15 January, 2012

I-69 EVANSVILLE-to-INDIANAPOLIS
TIER 2 STUDIES - SECTION 5
Indiana Department of Transportation

*Map based on 2010 Aerial Photography. Data on former site locations taken from: 1939 and 1946 Aerial Photography (US Geological Survey), 1954, 1967, and 1975 Aerial Photography (USDA); 1895 Map of Bloomington (C.E. Siebenthal); 1910, 1956, and 1966 Bloomington Quadrangle Maps (US Geological Survey), Al Hoadley, unpublished manuscript; Narrative (Stuckey, Clay. "Gazetteer of Limestone Mills of Owen, Monroe, and Lawrence Counties to 1950"); and 1999 Site Plan Map (Campbell, Duncan and Kristen Brennan. State Register of Historic Places Nomination Form for Borland House and Carl Furst Stone Company Quarry).

D. Photographs

1. Hunter Valley Historic Landscape District
2. Reed Historic Landscape District
3. North Clear Creek Historic Landscape District

D-1. Hunter Valley Historic Landscape District

Res. No. H2 – Hunter Valley Co/Consolidated #2 Quarry, Hunter Valley, South of 46, Photo #685

Res. No. H2 – West to Hunter Valley Co/Consolidated #2, Hunter Valley, South of 46, Photo #684

Res. No. H3 – Consolidated Mill #1/ Vernia Tramway south, Hunter Valley, North of 46, Photo #679

Res. No. H3 – Consolidated Mill #1/ Vernia Mill east, Hunter Valley, North of 46, Photo #680

Res. No. H3 – Consolidated Mill #1/ Vernia Tramway south, Hunter Valley, North of 46, Photo #683

Res. No. H3- Looking north to Consolid. #1/ Vernia Mill and Tramway, Hunter Valley, South of 46, Photo #690

Res. No. H4 – Quarry looking north,
Hunter Valley, South of 46, Photo #681

Res. No. H4 – Quarry and north to H5 – SR46,
Hunter Valley, South of 46, Photo #682

Res. No. H13 – Former Railroad Spur looking south,
Hunter Valley, South of 46, Photo #689

Res. No. H13 – Former Railroad Spur looking north,
Hunter Valley, South of 46, Photo #687

Outside of District,
Hunter Valley, South of 46, Photo #676

Outside of District,
Hunter Valley, South of 46, Photo #678

Res. No. H9 – Consolidated Quarry looking south,
Hunter Valley, North of 46, Photo #662

Res. No. H9 – Consolidated Quarry looking southwest,
Hunter Valley, North of 46, Photo #663

Res. No. H9 – Consolidated Quarry looking southeast,
Hunter Valley, North of 46, Photo #659

Res. No. H9 – Consolidated Quarry looking northeast,
Hunter Valley, North of 46, Photo #661

Res. No. H10 – Trailer looking south,
Hunter Valley, North of 46, Photo #666

Res. No. H11 Ed Bennett Circular Saw Building south,
Hunter Valley, North of 46, Photo #673

Res. No. H11 Ed Bennett Circular Saw Building interior, Hunter Valley, North of 46, Photo #669

Res. No. H12 Ed Bennett Gang Saw Building east, Hunter Valley, North of 46, Photo #668

Res. No. H12 Ed Bennett Gang Saw Building bay south, Hunter Valley, North of 46, Photo #672

Res. No. H12 Ed Bennett Gang Saw Building bay north, Hunter Valley, North of 46, Photo #671

Res. No. H13 – Former Railroad Spur looking east, Hunter Valley, North of 46, Photo #656

Res. No. H13 – Former Railroad Spur looking north, Hunter Valley, North of 46, Photo #658

Res. No. H14- Bennett's Dump Superfund Site,
Hunter Valley, North of 46, Photo #655

Res. No. H17 - Quarry
Hunter Valley, North of 46, Photo #740

Res. No. H15 – Derrick,
Hunter Valley, North of 46, Photo #743

Res. No. H16 – Hunter Brothers Quarry
Quarry, Hunter Valley, North of 46, Photo #742

Res. No. H17 - Quarry
Hunter Valley, North of 46, Photo #740

Res. No. H16 – Hunter Brothers Quarry
Quarry, Hunter Valley, North of 46, Photo #742

Res. No. H18- Crowe-Hunter Valley BLCO Quarry,
Hunter Valley, North of 46, Photo #654

Stout Creek stream protection measures,
Hunter Valley, North of 46, Photo #665

Outside of District,
B.G. Hoadley, North of 46, Photo #709

Outside of District,
B.G. Hoadley, North of 46, Photo #728

Outside of District,
B.G. Hoadley, North of 46, Photo #717

Outside of District,
B.G. Hoadley, North of 46, Photo #730

D-2. Reed Historic Landscape District

Res. No. R1 and R2 – Quarries looking southeast,
Reed Quarry, Photo #629

Res. No. R1 and R2 – Quarries looking northeast,
Reed Quarry, Photo #627

Res. No. R5 – Misc. Machinery,
Reed Quarry, Photo #631

Res. No. R5 – Misc. Machinery,
Reed Quarry, Photo #632

Res. No. R6 – Derrick and R5 – Misc. Machinery,
Reed Quarry, Photo #630

Res. No. R8 - Derrick,
Reed Quarry, Photo #633

Res. No. R13 Office,
Reed Quarry, Photo #646

Res. No.R13 – Office (limestone lion sculpture),
Reed Quarry, Photo #647

Res. No. R14 – Machine Shop and R17 - Quarry,
Reed Quarry, Photo #018

Res. No. R14 –Machine Shop interior,
Reed Quarry, Photo #634

Res. No.R17 - Quarry,
Reed Quarry, Photo #643

Res. No. 18 – Waste Piles and Stacking Areas,
Reed Quarry, Photo #640

Res. No. R19 – Quarry,
Reed Quarry, Photo #746

Res. No. R19 – Quarry,
Reed Quarry, Photo #749

Res. No. R20 and R23 – Derricks,
Reed Quarry, Photo #747

Res. No. R20 – Derrick (associated machinery),
Reed Quarry, Photo #638

Res. No. R21 - Shed,
Reed Quarry, Photo #641

Outside of District,
Reed Quarry, Photo #739

Outside of District,
Reed Quarry, Photo #737

Outside of District,
Reed Quarry, Photo #735

Outside of District,
Reed Quarry, Photo #621

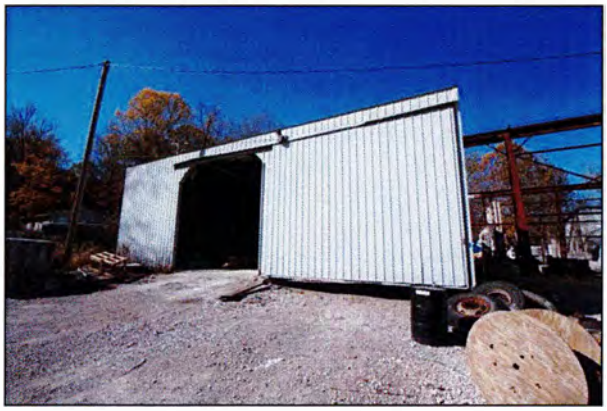
Outside of District,
Reed Quarry, Photo #623

Outside of District,
Reed Quarry, Photo #624

D-3. North Clear Creek Historic Landscape District

Res. No. C3 – Modern Office,
North Clear Creek / Maple Hill Mill, Photo #296

Res. No. C4 – Building and Mill
North Clear Creek / Maple Hill Mill, Photo #274



Res. No. C4 – Building,
North Clear Creek / Maple Hill Mill, Photo #295

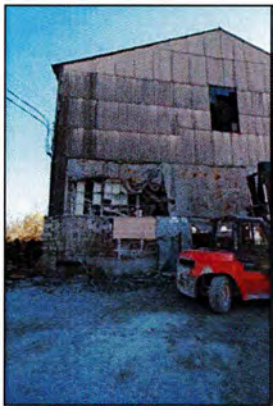
Res. Nos. C5 and C6 – Building and Small Building,
North Clear Creek / Maple Hill Mill, Photo #294

Res. Nos. C6 and C7 – Small Building and Tramway,
North Clear Creek / Maple Hill Mill, Photo #278

Res. No. C7 – Tramway,
North Clear Creek / Maple Hill Mill, Photo #276

Res. No. C7 – Tramway,
North Clear Creek / Maple Hill Mill, Photo #287

Res. No. C14 – Mill Building,
North Clear Creek / Maple Hill Mill, Photo #279



Res. No. C14 – Mill Building,
North Clear Creek / Maple Hill Mill, Photo #291

Res. No. C14 – Interior of Mill Building,
North Clear Creek / Maple Hill Mill, Photo #282

Res. No. C16 – Circular Saw Building,
North Clear Creek / Maple Hill Mill, Photo #288

Res. No. C16 – Interior of Circular Saw,
North Clear Creek / Maple Hill Mill, Photo #289

Res. No. C15 – Blacksmith,
North Clear Creek / Maple Hill Mill, Photo #284

Res. No. C21 – Waste Rock Piles,
North Clear Creek / Maple Hill Mill, Photo #695

Res. No. C22 – Quarry,
North Clear Creek / Maple Hill Quarry, Photo #701

Res. No. C22 – Quarry,
North Clear Creek / Maple Hill Quarry, Photo #702

Res. No. C23 – Modern Quarrying Operations,
North Clear Creek / Maple Hill Quarry, Photo #699

Res. No. C23 – Modern Quarrying Operations,
North Clear Creek / Maple Hill Quarry, Photo #703

Res. No. C23 – Modern Quarrying Operations,
North Clear Creek / Maple Hill Quarry, Photo #700

Res. No. C23 – Modern Quarrying Operations, North
Clear Creek / Maple Hill Quarry, Photo #693

Res. No. C24 – Pump House and Dam,
North Clear Creek / Maple Hill Quarry, Photo #742

Res. No. C25 – Quarry,
North Clear Creek / Carl Furst Quarry, Photo #317

Res. No. C32 – Quarry,
North Clear Creek / Carl Furst Quarry, Photo #321

Res. No. C26 – Quarry),
North Clear Creek / Carl Furst Quarry, Photo #316

Res. No. C43 – Blacksmith,
North Clear Creek / Carl Furst Quarry, Photo #304

Res. No. C28 – Waste Piles,
North Clear Creek / Carl Furst Quarry, Photo #311

Res. No. C44 – Derrick and Equipment,
North Clear Creek / Carl Furst Quarry, Photo #306

Res. No. C47 – Former Railroad Spur,
North Clear Creek / Carl Furst Quarry, Photo #314

Res. No. C47 – Old Roadbed,
North Clear Creek / Carl Furst Quarry, Photo #333

Res. No. C44 – Derrick,
North Clear Creek / Carl Furst Quarry, Photo #305

Res. No. C45 – Quarry (1946-1954),
North Clear Creek / Carl Furst Quarry, Photo #327

Res. No. C47 – Former Railroad Spur,
North Clear Creek / Carl Furst Quarry, Photo #312

Res. No. C48 – Borland House,
North Clear Creek / Carl Furst Quarry, Photo #313

Res. No. C52 – Quarry and No. C51 – Derrick,
North Clear Creek / Carl Furst Quarry, Photo #330

Res. No. C46 – Quarry (1954-1967),
North Clear Creek / Carl Furst Quarry, Photo #326

Res. No. C52 – Quarry and No. C51 – Derrick,
North Clear Creek / Carl Furst Quarry, Photo #331