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

OMB No. 1024-0018

United States Department of the Interior
National Park Service

SENT TO D.C.
7-1-98

NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM

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

1. Name of Property
historic name White and Company's Goose Lake Tile Works
other names/site number Jugtown Tile Works site (11-Gr-70)

2. Location
street & number 5010 N. Jugtown Road not for publication ___
city or town Morris vicinity X
state Illinois code IL county Grundy code 063 zip code 60450

3. State/Federal Agency Certification
As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this X nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property X meets ____ does not meet the National Register Criteria. I recommend that this property be considered significant ___ nationally ___ statewide X locally. (___ See continuation sheet for additional comments.)

William L. Acheson ISHPO 6-25-98
Signature of certifying official Date

Illinois Historic Preservation Agency
State or Federal agency and bureau

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

_____ _____
Signature of commenting or other official Date

_____
State or Federal agency and bureau

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

_____ _____
Signature of Keeper Date of Action

5. Classification
Ownership of Property (Check as many boxes as apply)
___ private
___ public-local
_X_ public-State
___ public-Federal

Category of Property (Check only one box)
___ building(s)
___ district
_X_ site
___ structure
___ object

Number of Resources within Property

Contributing	Noncontributing	
0	0	buildings
1	0	sites
0	0	structures
0	0	objects
1	0	Total

Number of contributing resources previously listed in the National Register None

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

6. Function or Use
Historic Functions (Enter categories from instructions)
Cat: Industry/Processing/Extraction Sub: Manufacturing Facility

Current Functions (Enter categories from instructions)
Cat: Landscape Sub: Park

7. Description
Architectural Classification (Enter categories from instructions)
N/A

Materials (Enter categories from instructions)
foundation Sandstone
roof N/A
walls Brick and Limestone
other

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

8. Statement of Significance
Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)
____ A Property is associated with events that have made a significant contribution to the broad patterns of our history.
____ B Property is associated with the lives of persons significant in our past.
____ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
_X_ D Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

____ A owned by a religious institution or used for religious purposes.
____ B removed from its original location.
____ C a birthplace or a grave.
____ D a cemetery.
____ E a reconstructed building, object, or structure.
____ F a commemorative property.
____ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

Archaeology/ historic-non-aboriginal

Period of Significance 1855-1866

Significant Dates 1855
1858

Significant Person (Complete if Criterion B is marked above) N/A

Cultural Affiliation N/A

Architect/Builder N/A

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

9. Major Bibliographical References

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

Previous documentation on file (NPS)

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

Primary Location of Additional Data

___ State Historic Preservation Office
_X_ Other State agency
___ Federal agency
___ Local government
___ University
___ Other

Name of repository: Illinois State Museum Research and Collections Center

10. Geographical Data

Acreage of Property 2.73 acres

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

	Zone	Easting	Northing		Zone	Easting	Northing
1	16	389710	4577720	3	16	389870	4577750
2	16	389870	4577720	4	16	389710	4577750

___ See continuation sheet.

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

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

11. Form Prepared By
name/title Floyd Mansberger/Excavator & Researcher & Mark Benson/Cultural Resource Technician
organization Illinois Department of Natural Resources & Fever River Research date September 25, 1997
street & number 524 S. Second telephone (217) 524-5462
city or town Springfield state IL zip code 62701

Additional Documentation
Submit the following items with the completed form:

Continuation Sheets

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

Photographs
Representative black and white photographs of the property.

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

Property Owner
(Complete this item at the request of the SHPO or FPO.)
name _____
street & number _____ telephone _____
city or town _____ state _____ zip code _____

Narrative Description

This section is excerpted from the 1995 technical report "Early Industrialized Pottery Productions in Illinois: Archaeological Investigations at White and Company's Gooselake Stoneware Manufactury and Tile Works, Rural Grundy County, Illinois" by Floyd Mansberger, Fever River Research.

The Goose Lake Prairie State Natural Area is a large (2,538 acre), state-owned (Illinois Department of Natural Resources) marsh and prairie preserve located along the bottoms south of the Illinois River near the confluence of the Des Plaines and Kankakee rivers (figures 1-3). The environmental setting, cultural history, and summary of previous cultural resource investigations in this area has been summarized in Hassen and Schroeder (1987).

Goose Lake is the remnant of glacial Lake Cryder, a 13,000-year-old wide expansion of the Chicago Outlet River. Mesic prairie is found on the higher gravel bars associated with the river. Soils within the park consist of High Gap silt loams (which formed under forest vegetation on sandy outwash and sandstone residuum), Calamine-Bryce Variant Complex silty clays (which formed in clayey lake bed sediments) and Faxon silty clay loam (which formed under grasses on shallow loamy deposits over bedrock) (Fehrenbacher et al, 1984).

The first European settlers into what was to become Grundy County began to arrive in the late 1820s. Unlike neighboring areas which were predominately timber, Grundy County was settled slightly later because it was predominately prairie vegetation (Sauer, 1916). In 1828, William Marquis traveled overland from the Wabash Country and settled along the Illinois River Valley near the mouth of Mazon Creek. In 1833, settlers arrived in what were to become the villages of Wauponsee in Vienna Township and Mazon in Mazon Township. By June 1835, when the government land sales began, only a handful of settlers had located in the region (Warner and Beers 1874). The first settlers to reach nearby Morris probably did not arrive until 1834 (Sauer, 1916).

The impetus for much of the initial settlement in this region was the speculation and development of the Illinois and Michigan Canal which connected Lake Michigan (at Chicago) with the Illinois River at La Salle (Sauer, 1916). Although begun in 1836, the Canal was not completed until 1848. With the completion of the Canal, the region experienced dramatic growth and was directly responsible for the development of Chicago as well as other upper Illinois River communities such as Lockport, Joliet, Morris, Seneca, Marseilles, Ottawa, Utica, LaSalle, and Peru.

The impact of the I & M Canal was both immediate and immense. What had previously been a trickle of commerce between east and west swelled into a continuous flow of people and materials moving in both directions. A major shift occurred as the Midwest's "hub" became Chicago instead of St. Louis... (National Park Service n.d.:n.p.).

Narrative Description (continued)

The decade of the 1850s was a period of tremendous growth for the upper Illinois River Valley region. During this period, Grundy County increased from a population of 3,021 (in 1850) to slightly over 10,000 in 1860 (Warner and Beers, 1874)[1].

The large, poorly drained area around Goose Lake was difficult to farm and remained largely undeveloped throughout much of the nineteenth century. During this time, the area developed as a major sport hunting district and many prominent individuals hunted waterfowl at Goose Lake, "the famous duck hunting place southeast of Morris" (Morris Herald, January 12, 1909). Unfortunately for the nineteenth-century outdoorsmen, the draining of the lake was detrimental to the wildlife and the recreational activities that it spurred. The Morris Herald Holiday Supplement (1888) noted that Goose Lake

> was a hunter's paradise, and known alike west and east as 'Goose Lake'. Many a hunting party came from 'away down East', New York, New Jersey and the land of Penn, to this lake to shoot geese and ducks, but unfortunately for the Nimrods, our friend Osborn became the owner of the fee and concluded it would pay better converted into a pasture to feed cattle than to raise ducks and geese for other men to shoot, and drained the water off, so the place where it stood has become dry land, and the would-be Nimrods must seek other localities to gratify their hunting inclinations.

Although Grundy County was known during the nineteenth century as "mainly a farming county", several significant industries developed in this region at an early date, partially because of its location along the Illinois and Michigan Canal (Warner and Beers, 1874). By 1870, the census indicated over 40 manufacturing

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[1] Historical and economic context for the Illinois and Michigan Canal can be obtained in Sauer (1916), Lamb (1987), and Rathbun (1980). Title of the Illinois and Michigan Canal was transferred to the Illinois Department of Conservation in 1974 for development into hiking and biking trails, camping and interpretive programs. In 1984, the Federal government recognized the significance of this corridor and created the Illinois and Michigan Canal National Heritage Corridor, the first of its kind in the United States. The objectives of the Illinois and Michigan National Heritage Corridor Commission is "to coordinate and assist the State and local governments, in developing the historical, recreational, and economic development of the Corridor...."

Narrative Description (continued)

establishments which employed 168 hands with a capital investment of $132,000 (Warner and Beers, 1874).

Coal mining was an extractive industry that played a dramatic role in the development of Grundy County. Warner and Beers (1874) state that besides many 'strippings', or thin deposits, which supply the farmers with fuel, a continuous coal seam, uniformly three feet thick, underlies the whole county..." The 1877 Grundy County Directory (Lawrence and Thompson, 1877) noted that

> The coal measures [of Grundy County] are the grand repositories of mineral wealth, by far the most important and valuable at present known within the limits of the State. They furnish an inexhaustible store of mineral fuel, in addition to the valuable deposits of iron ore, potter's clay, fire clay and building stone, which abound in the same localities....
>
> Throughout Grundy County, so far as demonstrated, the measures contain a single seam, averaging about three feet in thickness, and varying in depth from 30 to 160 feet. This seam furnishes one of the best, if not the best, quality of coal to be found in Northern Illinois.... which is largely in demand in Chicago.

Some of the first coal mined in Grundy County was encountered during the construction of the Illinois and Michigan Canal (Morris Herald Holiday Supplement,1888). Later several shaft mines were excavated. In 1874, a coal mine shaft was indicated immediately east of the abandoned Jugtown Pottery and Tile Works (Warner and Beers, 1874). Circa 1928, the Northern Illinois Coal Company began strip mining of shallow coal resources in Felix and Goose Lake townships (Morris Herald, undated in Goose Lake Vertical file), an activity that has dramatically altered the Grundy County landscape.[2]

Quality stoneware clays are generally found in close association underlying coal beds. In Grundy County these clay resources range in thickness from a few inches to ten and twelve feet.

> As this clay is often quite pure, it forms a valuable material for the manufacture of fire-brick and pottery, and is sometimes fully equal in value to the coal seam which it underlies.... There are several large brickyards in the county using both the clay that overlies the coal beds and also that from beneath, and an excellent quality of brick can be produced (Lawrence and Thompson, 1877).

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[2] An interesting description of the coal mining industry in Grundy County is available in the Morris Herald (February 18, 1909).

Narrative Description (continued)

One such deposit that became well known was the deposits along the western edge of Goose Lake. As the directory continues to state, "There are also beds of potter's clay in the county, and some years ago there was a large establishment engaged in the manufacture of domestic earthenware, drain tile and sewer pipe" (Ibid).

Worthen, in his Geology of Illinois (1870) discusses the clay resources of Grundy County

> The only bed known and worked, is that previously noticed, as occurring near the west end of Goose lake, and extensively used, at Jugtown, in the manufacture of a good grade of domestic earthenware, together with drain-tile and sewer-pipes. The bed consists of more or less thoroughly decomposed clay shale and fire clay of the coal measures, containing many fragments of coal, thoroughly mingled, and deposited in a low part of the old river channel, which contains Goose Lake, by the current of the river which formerly flowed there. The mixed character of the materials has given much trouble to the potters. The bed has been worked to a depth of about fifteen feet.

William White, a potter from New York state, teamed up with financier Charles Walker of Chicago and beginning in the middle 1850s began to exploit the rich clay resources around Goose Lake. Similarly, other potters established workshops along the upper Illinois River. Early family-operated workshops such as the Kirkpatrick pottery near Vermillionville were established by the late 1830s (Gums, Mounce, and Mansberger, 1994). By the 1870s and 1880s, large factories specializing in stoneware had developed at Utica, Ottawa, La Salle and Morris (Mounce, 1988; 1989).

An ancillary industry was the production of brick, drainage tile, and terra cotta. Morris was well represented by all three industries. John Buck, one of the earliest brick manufacturers in the area, established a brick and tile works along Nettle Creek near the north edge of the community sometime prior to 1888 (Morris Herald Holiday Supplement, 1888). Shortly thereafter Jacob Griggs and Edward Steep operated a second firm that "turned out slathers" of drain tile and brick". The 1874 plat indicates several additional brick makers in the Morris vicinity including J. B. Martin (originally from Fayette County, Pennsylvania who arrived in Morris in 1862), I. H. Oliver (Sullivan County, New York; arrived in 1859), Ambrose Crumb (Chenango County, New York; arrived in 1847) and Alexander Telfer (Scotland; arrived in 1855). By the late nineteenth century, specialized brick companies such as the Ottawa Fire Clay and Brick Company as well as the Standard Fire Brick Company at Ottawa were established (Nattinger, 1900).

Additionally, this region of the Illinois River valley had become a major supplier of sewerage pipe and drainage tile. In 1877, La Salle County produced 130,000 feet of sewerage pipe (worth $38,000) and 250,000 feet of drain tile (worth $22,000) (Baldwin 1877). Similarly, by the 1880s, the surrounding upland regions around Streator became primary producers of drain tile and brick. By 1880, Illinois produce

Narrative Description (continued)

$189,708 worth of drain pipe, which ranked second in the country behind Ohio, who produced over $834,000 worth of drain pipe (Department of the Interior, 1883). During the early years of drain tile production, the center of the industry was along the upper Illinois River valley, but by the later nineteenth century, the industry shifted into the central upland regions of the state.

Several terra cotta companies developed along the Illinois and Michigan Canal at Morris and nearby Ottawa. The Chicago Fire Proofing Company and the Excelsior Brick Company were both located immediately east of Morris along the north side of the river. The Chicago Fire Proofing Company, with its principal office in Chicago and manufacturing plant at Morris, had a shaft mine which supplied the factory with an inexhaustible supply of clay. This company was touted as "One of most extensive of its kind in the country, and [was] doing a very extensive business" shipping its product to Chicago, Kansas City, St. Louis, Atlanta, Des Moines and other major cities." (Morris Herald Holiday Supplement, 1888). Similarly, the Pioneer Fire-Proof Construction Company, organized in 1885 was located in Ottawa and was said to be "the leading works of the kind, not only in the United States but in the world" (Nattinger, 1900).

Although the firm of White and Company was not successful, having ceased production in 1866, it established a production system in Illinois that contrasted dramatically to the more traditional ceramic workshops around the state. The following discussion places the Goose Lake Stoneware Manufactury and Tile Works (and the associated company town that developed around it) into a context that stresses workshop organization and ownership, site location and structure, power sources, production methods, kiln technology, and the seasonality of production.

THE TILE WORKS SITE (11-GR-70)

Today, the remains of White and Company's Goose Lake Stoneware Manufactury and Tile Works is represented by two separate archaeological sites, the Pottery Works site (11-Gr-69) and the Tile Works site (11-GR-70) located only 230 meters apart. The remains of White and Company's Tile Factory, variously referred to as the Pipe, Drainage Tile and Sewerage Tile Works, is located along the north side of Pine Bluff Road approximately one-half mile east of the intersection of Pine Bluff and Jugtown roads. The terrain is slightly rolling, sloping towards the dry lake bed towards the north as well as towards a small drainage ditch towards the west. A small unnamed tributary is located immediately adjacent to the site along the southeast [3].

[3] Mrs. Winterbotton noted that "This stream has never been named. It is known as the slough. If I could christen it, I should call it "nameless"" (Winterbottom n.d.).

Narrative Description (continued)

Upon first visiting this site in 1985, although the majority of the farm buildings had been dismantled at this location, a barn (originally the drying shed for the Tile Works) and machine shed (originally the Jugtown School) were both extant (Figures 4 and 5). Upon arriving on-site in 1991 to conduct the field investigations, both structures had been destroyed and the site was in dense, grassy vegetation. By the summer of 1993, the site had become even more overgrown making the initial field investigations difficult[4].

The documentary information hinted at the structure of this site and the preliminary survey had documented the presence of at least one kiln and the large drying shed. Unfortunately, the fact that the Rogers family had occupied and improved this site (with farmhouse, tenant house and numerous farm outbuildings) during the early to middle twentieth century, was a mixed blessing. Since the site had been continually occupied throughout the twentieth century, the site had not been plowed. As such, the kiln remains were in excellent condition. Unfortunately, though, the continued occupation through the 1960s resulted in numerous additional structures, subsurface features and middens that made interpreting the nineteenth century component much more difficult.

Shovel Test Strategy

Since the surface visibility at this site was very poor (0% with heavy vegetation) during the summer of 1993 and the controlled surface strategy employed at the Pottery Works site was not feasible, the field strategy at the Tile Works site consisted of excavating a series of screened shovel tests. The shovel test strategy was employed in an attempt to determine the relative density of various artifact classes around the kiln structures and hopefully identify differential activity areas at this site. Although the strategy did work, it was not as ideal as the controlled surface collections conducted at the Pottery Works site and did not produce as fine-tuned results. Results of the computer generated surface distribution maps are summarized in Figures 6 through 9.

A total of 90 shovel tests were excavated and slightly over 1,000 artifacts were collected during the process. Based on the analysis of this material, this site (less the domestic component that may extend to the north and east) is approximately 105m by 105m in size, encompassing 11,025 square meters (2.73 acres; Figure 6). The artifact density at the Tile Works site averaged 11.6 artifacts per shovel test. Unfortunately, it is difficult to compare the artifact density between the two sites because of the differing collection strategies. Table 8 summarizes the artifacts collected during the shovel testing strategy.

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[4] At that time, the site was in shoulder height weeds. Upon the removal of these weeds we discovered that many of them were poison wild parsnip which caused several of the field workers to break out in large, photo-toxic blisters.

Narrative Description (continued)

Unlike the Stoneware Manufactury site (11-Gr-69) (where waster sherds predominated), kiln furniture and tile fragments predominated at the Tile Works Site. Both the number and weight of the tile fragments indicate dense concentrations of waster sherds in an arc around the west and southwest sides of the kilns (Figure 7). The greatest concentration of tile fragments was 24 tile fragments (2600gms) per shovel test which was located within the western end of the drying shed (Figure 7). It is interesting to note that with the distribution of tile weight, three distinctive concentrations of debris were recognized which potentially correspond to each of the three kilns.

Table 1
Functional Classes of Artifacts*,
Controlled Surface Collection,
Tile Works Site (11-Gr-70)

	Number	Percent
I. Architectural Items	69	11.8
II. Domestic Items	7	1.2
III. Kiln Furniture	86	14.7
IV. Drainage Tile and Collars	413	70.6
V. Crockery Wares	10	1.7
	585	100.0

* Less brick, stone, coal and clinkers

The number and weight of kiln furniture nearly paralleled the distribution of tile fragments (Figure 7). The greatest density of kiln furniture was located immediately adjacent to the southwest corner of the drying shed. The maximum number of kiln furniture in a single shovel test was 12 (1500gms). Stone distribution appears heaviest immediately west of Kilns 1 and 2, and south/southwest of Kiln 3 (Figure 8). The heaviest stone concentration was 15 fragments per shovel test (732gms). It is suspected that the peak in stone distribution (particularly stone number) indicates the possible location of the kiln doors. If so, both Kilns 1 and

Narrative Description (continued)

2 had doors in their west side and Kiln 3 had a door in the south/southwest side.

The distribution of brick was far more complicated to understand than the stone. The greatest concentration of brick was 6 (1300gms) fragments per shovel test. Both the number and weight of brick indicated two concentrations that also corresponded to concentrations of architectural items (particularly nails and window glass; Figure 8). Concentration A, although only associated with very light architectural debris, was located immediately north of the suspected location of the drying shed in an area where we encountered subsurface brick foundations that might have been associated with a boiler foundation. Concentration B was located along the western edge of the site, approximately 10m northwest of the drying shed. It is not known whether Concentration B represents a structural signature associated with the Tile Works or farmstead occupations, or simply represents dumped materials. The remainder of the brick seems to be concentrated in the same area as the kiln furniture and tile fragments, was not associated with architectural remains and probably represents redeposited materials (ie. dumped material).

The greatest concentration of architectural items was located in the center of the drying shed and consisted of 7 artifacts per shovel test (Figure 9). This represents a strong structural signature that correlated well with the location of the drying shed. A second structural signature was located approximately 10m northwest of the drying shed (and correlated with a concentration of brick fragments).

Clinkers, a waste by-product of the coal burning kilns and steam boiler, were distributed widely across the site. The densest concentration of clinkers consisted of 36 clinkers (340gms) per shovel test and was located along the south/ southwest edge of the site. Based on weight, a secondary concentration was identified immediately north of Kiln 1.

Nineteenth century domestic artifacts were poorly represented in the artifacts recovered from this site. The small number that were collected, consisting predominately of aqua bottle glass fragments, were concentrated along the southern edge of the site (Figure 9). Within this area we encountered a single stone foundation that might represent the remains of the boarding house documented on the Doran map (Doran, 1863).

Excavations

Although the surface visibility was very poor, we had visited the site during the spring when the vegetation was down and the vague outlines of three kilns could be discerned. With the knowledge of the kiln locations in mind, we laid out a single north/south test trench hoping to pass through the center of all three kilns (Figure 10). The objectives of excavating this test trench was to assess the integrity and structure of the three kilns identified at the site. Additionally, we hoped to excavate opposite quarters of one kiln in order to better understand the construction and physical characteristics of the kiln structures. As it turned out, this was an

Narrative Description (continued)

excellent strategy. All the kiln excavations were conducted by hand and required the removal of a large quantity of stone and brick rubble which had accumulated over the surface of these kilns. A total of 23 lineal meters of trench (69 square meters) as well as two large blocks around Kiln 1 (totaling 130 square meters) were excavated by hand. A total of 198 square meters were hand excavated.

Kiln 1, the northern kiln, was the most intact of the three kilns at this site (Figures 11 and 12). A small section of this kiln's chamber floor was still intact and protruded above the present ground surface. Because of the small section of intact chamber floor, it was Kiln 1 that was investigated most thoroughly with opposite quarters being completely excavated.

The outside diameter of Kiln 1 was approximately 7m 67cm. The outer walls, which were approximately 1m 27cm thick, were constructed using quarried Aux Sable sandstone[5]. A ring of fire-reddened earth (bright orange in color) extended two feet from the outer kiln wall. The inner chamber wall of the kiln was lined with a double course (2m-3m wide) of common red brick which created an interior chamber with an inside dimension of approximately 2m 36cm in diameter. The chamber floor was covered with approximately 3cm-5cm of vitrified sand that had been used in the process of stacking wares in the kiln prior to firing.

Kiln 1, as with the other two kilns, had eight fire boxes. When originally constructed, each fire box was approximately 91cm long by 61cm wide at their mouth. The side walls and base of each fire box had been highly vitrified through extensive use. Each fire box tapered inward slightly towards the rear. The original fire box floor, which consisted of a single course of soft mud brick over the sandstone foundation, was located approximately four inches above the 1850s ground surface. Although difficult to determine, we suspect that iron grates were present to raise the fuel (coal) off the floor of the fire box and create a better draft. Several large iron fragments were recovered in the fill above the kiln and may have been fragments of the iron grates.

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[5] For many years, building stone was difficult to come by in this region, chiefly because of the perception of the St. Peter's sandstone as a poor building material. With the discovery of the local Aux Sable sandstone, which was "clearly of a different composition," the stone became heavily used for a short duration during the later nineteenth century, particularly after the Chicago Fire of 1871 (Lawrence and Thompson 1877:23). Quarries of this sandstone are situated along the north side of the Illinois River near the mouth of Aux Sable Creek as well as immediately north of the project area along the north edge of Goose Lake (Warner and Beers 1874).

Narrative Description (continued)

A thin, stone pad was present in front of each fire box and probably functioned as a work surface for the workmen shoveling coal into the fire box. Concentrations of black coal and clinker-rich midden were found above and around the mouth of each fire box.

Original materials lining the flue appear to have been common brick, which did not withstand the high temperatures very well. Each fire box exhibited multiple episodes of rebuilding (See Figure 13). With rebuilding, the size of the fire boxes was greatly diminished. The rebuilt fire boxes remained 91cm in length but were greatly narrowed, in some cases to as little as 30cm in width at their mouth. The rebuilding episodes used several varieties of refractory (or fire) brick. The earliest refractory brick was marked "N. WHITE & SON/FIRE BRICK WORKS/ UTICA N.Y." These brick, which originated from Noah White's Utica Pottery in upstate New York, probably were transported via the Erie Canal, the Great Lakes and the Illinois and Michigan Canal to the rural Grundy County location. Several early repair episodes have fire brick marked "S.B." as well as "J.M.1." The brick marked "J.M.1" may have been produced by the Morris brickmaker J. B. Martin who arrived in Morris in 1862 (Warner and Beers 1874). Later fire brick used in repair work were marked "Chicago" and happened to be the poorest quality of fire brick used in the kiln (Figure 14).

The flues originated at the back of the fire box, stepped up approximately 6" and gradually sloped up to the center of the kiln. The central flue system, located directly beneath the kiln chamber floor, consisted of single-width brick walls radiating like spokes from the center of the kiln. The primary flue extended from the rear of the fire box directly to the center of the kiln and was 38cm to 46cm wide at its widest point. Secondary side flues were approximately 15cm wide at their widest. Around the outer chamber wall was a flue which directed hot gases into the secondary flues. Along the outer chamber wall, the flues were approximately 46cm tall. Vent holes for the hot gases to pass through the chamber floor appear to have been in a ring along the outer chamber wall as well as in a ring approximately 61cm-91cm from the center of the chamber (Figure 15). The center of the chamber, where each of the radiating brick flue walls terminated, was a solid core of brick.

The flue system had been constructed on a brick subfloor which was approximately 30cm thick. This brick subfloor had been constructed on approximately 46cm of stone foundation or subfloor (Figure 15). The narrow flues had been covered by a simple corbeled format (See Figure 16), a technique much less complicated than the alternative arched technique.

The base of the stone foundation was very near the existing ground water table. Rising ground water may have been a problem for the kiln operators. The present ground surface is approximately 43cm above the earlier 1850s ground surface. Demolition debris has effectively sealed the earlier ground surface as well as much of the structural details of the kiln.

Kiln 2, the central kiln, was very similar in size and construction details to Kiln 1 (Figure 17). The brick

Narrative Description (continued)

subfloor was intact and corresponded with the existing ground surface. Although little was preserved above the top of the brick subfloor, the outline of the flue system was visible. The impressions of flue walls and an occasional brick were present, indicating the configuration of the flue system was exactly like that of Kiln 1. Similarly, the size, fire box placement, and flue configuration were all the same as Kiln 1.

The main difference recognized between Kiln 1 and Kiln 2 was the manner in which the kiln fire boxes had been constructed. The fire boxes of Kiln 2 originally were lined with large pieces of tabular limestone laid with their bedding plane parallel with the wall of the fire box. A double course of common brick was then laid lining the walls of the fire box (See Figure 13). The stone side wall exhibited no vitrified surface and suggests that the fire boxes were originally lined with fire brick even with this stone side wall. It appears that this was an effort to shield the sandstone foundation from the extreme heat of the fire box and that the kiln operators were having difficulty with the durability of the local sandstone in holding up to the intense heat. Since the fire boxes of Kiln 2 exhibit little evidence of having been rebuilt, this may have been an effective modification on the original kiln design.

Kiln 3, the southern kiln, was the least well preserved of the three kilns (Figure 18). The flue system of this kiln had been completely destroyed except for a few small remnants along the outer chamber wall. The integrity of the brick subfloor and stone foundation had also been badly jeopardized. None-the-less, the size, fire box placement and flue configuration were determined to be similar to both Kiln 1 and 2. Unlike Kilns 1 and 2, the fire boxes of Kiln 3 were constructed using a double course of common red brick without the tabular limestone lining.

One major difference between Kiln 3 and the other two kilns was recognized. Unlike Kilns 1 and 2, which used predominately local quarried sandstone for the foundation and outer walls, Kiln 3 appears to have used water-worn igneous cobbles (probably originating from the local outwash deposits) to create the subfloor. We do not known if the upper stone walls were constructed of the igneous cobbles or with the quarried sandstone. Assuming that Kiln 1 predates Kiln 2, which predates Kiln 3, these simple changes appear to be a continued effort to modify the kiln's construction in order to adapt to the characteristics of the local materials and their ability to withstand heat.

Upon completing the hand excavations around the kilns, a series of backhoe trenches were excavated to further explore for the presence of subsurface features that might be present and associated with the middle nineteenth-century occupation of this site. Three trenches, totaling nearly 122m (1,014 square meters) in length, were excavated. Trench 1 extended our initial hand-excavated trench further to the south and was excavated in hopes of locating remains of the structure indicated on the Winterbottom (n.d.) map. Trenches 2 and 3 were excavated to the west of the kilns (Figure 19). The results of the backhoe trenching were good and through this strategy we were able to document several significant subsurface features that contribute dramatically to our

Narrative Description (continued)

understanding of this early industry in Grundy County.

Several features once associated with structural foundations were uncovered during these investigations. The most obvious structural remains were those associated with the drying shed, a structure that was only recently demolished. Features 11 and 13 both represent foundation walls (approximately 43cm wide at surface and 30cm deep) robbed of their construction materials (Figure 20). In situ burning, in a band parallel to and extending approximately 1.5m south of each foundation trench, suggests that both foundation trenches were associated with the same structure which had recently been destroyed by fire. A small 20cm diameter drainage tile (Feature 12) may have been associated with the structure.

The structure represented by Features 11 and 13 would have been approximately 7m-8m wide, which is inconsistent with the documentary information which suggests that the drying shed was 10m-11m in width by 36m-38m in length[6]. It is possible that Feature 11 may represent an interior wall, and the structure actually extended north to Feature 10. If so, this would make the building approximately 10m in width --consistant with the documentary information. If this is indeed so, then Feature 10 may have been a common wall between two "structures".

Immediately north of the suspected location of the drying shed was another set of foundations (Features 5 and 10). Feature 5 was a much deeper foundation trench which was 30cm wide by approximately 53cm deep. This trench had been robbed of its construction material and the base filled with broken tile and collar fragments representing rubble fill (wasters) from the nearby kilns as well as crockery waster sherds (presumably from the adjacent Pottery Workshop Site). Above this basal layer was a concentration of crockery waster sherds capped by a layer of sandstone rubble. Feature 10, the companion wall trench, was approximately the same width, but not as deep, as Feature 5. It was filled with similar densely packed tile and collar waster sherds. Concentrations of decayed wood fragments were associated with the surface of this foundation wall. If Features 5 and 10 represent a structure, this building was approximately 10m wide by an unknown length.

Two sets of features were found within this second structure. Immediately adjacent to the northern foundation wall was Feature 6 which is suspected as being the foundations of a steam engine that had been set into a shallow depression. This feature consisted of four single courses of brick, laid approximately 18cm-23cm

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[6] The variability in the size of this building is due to two separate building assessments which were done prior to the demolition of the structure. One stated that the building was 33' by 117', the other 36' by 126'.

Narrative Description (continued)

apart on packed clay subsoil fill (with an occasional crockery waster sherd in the fill). This fill, which was approximately 6cm thick, had been exposed to intense heat and was bright red. Based on the fire-reddened soil, this steam boiler was approximately 2m in width by an unknown length. Spread between the brick and the adjacent foundation trench was 5cm-8cm of mixed fill consisting of burnt soil, disintegrated sandstone, unfired (or raw) clay, and window glass. This feature was capped with 13cm of course sandstone rubble, tile and collar fragments. Adjacent to the south edge of this feature was another 20cm ceramic drain tile, set into a trench that appears to have cut through the south edge of this feature. It appears that this drain trench may have been set in place when this steam boiler was in operation (Figure 21).

Approximately 4m south of the steam boiler foundation, we encountered another set of features (Features 8 and 9) that were similar to those previously described. Feature 8 was a depression, approximately 15cm deep, with an intensely burned base which had been fire-reddened to a depth of 11cm. Sitting on the blackened surface of this depression was a single, large stone (possibly representing a support or pad). Based on the fire-reddened soil, this feature was approximately 1.37m in width. The fill within the depression consisted of disintegrated sandstone, burnt soil, tile and collar fragments, unworked (or raw) clay, and an occasional fragment of crockery waster sherds. This fill was very similar to that capping the boiler foundation (Feature 6). Immediately adjacent to, and apparently installed after the abandonment of this feature, was another 8" drainage tile set into a trench. It is assumed that this feature might represent an earlier boiler foundation or a related piece of machinery (Figure 22).

Immediately north of the structure represented by Features 5 and 10, was a linear, basin-shaped feature running slightly northeast to southwest. The base of this feature was filled with large tile and collar waster sherds and minor amounts of stoneware crockery sherds. The basin shape of this feature was unlike that of the previously discussed foundation trenches. The function of this trench is unknown. Although it did not have water deposited fills in its base, it may have functioned as a drainage ditch. A nearly complete (albeit warped), jigger molded, small jar was also recovered from the base of this feature. The interior of this jar had been coated with a tar-like substance and may suggest that it was a "second," manufactured at the adjacent Pottery Works site and being used in the adjoining Tile Works site as a tar container (which may have been used to seal tile joints or repair leaking roofs).

Approximately 9m south of the drying shed we encountered a single stone foundation wall. Besides the kilns, this was the only foundation we encountered that still had stone remaining within the foundation trench. This foundation wall was approximately 36cm-38cm in width and constructed using local sandstone and mortar. This wall, which extended 30cm beneath the old ground surface, had been dismantled to grade and covered with loose humic fill. The early ground surface associated with the south side of this foundation wall was littered with a thin lens of coal clinkers. Unfortunately, we did not find a second or companion wall for this structure. This may have been due to a large disturbance (Feature 15) which probably originated from the demolition of

Narrative Description (continued)

the schoolhouse during the 1980s. This foundation wall is in close proximity to the few domestic remains located at this site (see Figure 9) and, as such, may suggest that the structure represented by Feature 14 may represent the remains of the boarding house. This is also consistent with Claude Rogers statement about the "hotel's" location in relationship to his corn crib.

Except for Feature 14, all the foundation walls had been robbed of their building materials and filled with rubble, particularly tile waster sherds and kiln furniture, but also with some crockery waster sherds. Very few crockery waster sherds were found on the surface of this site or during the excavations of the adjacent kiln structures. The large crockery sherds found in these foundation trenches suggest that someone may have transported several loads of sherds from the adjacent Pottery Workshop Site to fill holes around the site after demolition of the buildings.

Associated with the building foundations were several lines of drainage tile. Three 20cm drain tile running east/west and encountered in Trench 2 may have originated near each of the adjacent kilns. It appears that each of these drain tile lines were laid with the use of collars. The function of these drain tile probably was to drain the area around the kiln bases. Two drainage tile lines were encountered in Trench 3. The northern (Feature 16) was another 20cm diameter line. Feature 18 was a much larger, 36cm tile laid without collars. The presence of these drain tile hint at the problems the potters may have been having at this location with the high water table.

Feature 17 was an unusual feature encountered in Trench 3. This feature was a long (8m 69cm), narrow (46cm), wood lined, U- shaped trench that extended 1.5m beneath the existing ground surface. It had been constructed using dimensional lumber (See Figures 23 and 24). The base of the feature was immediately above the ground water table. Two large posts appear four feet from its southern end. The dating and function of this feature has been difficult. It appears that this feature post-dates the construction of the large drainage tile immediately adjacent to the south (Feature 18). Additionally, although they were badly rusted, it appears that this feature was constructed using wire-drawn nails which would suggest that this feature has a very late nineteenth- (post-1890) or early twentieth-century construction date. It is our opinion that this feature might represent the remains of a subfloor auger system for an early corn crib probably associated with the Rogers' occupation. As such, it would not have been associated with the Tile Works.

Upon completion of the archaeological excavations, the kilns were covered with washed sand (to prevent further mechanical damage by the brick rubble fill) so that at some future date these structures might be reopened and interpreted by IDNR. All backhoe trenches were backfilled.

Summary of Site Structure

Based on the analysis of the archaeological and archival data, a better understanding of the structure of

Narrative Description (continued)

the Tile Works Site has developed. The focal point of site was the three large, combination stone and brick kilns, oriented in a north/south line. A low, probably shed-roofed frame structure potentially surrounded the kilns and connected them to the adjacent drying shed and workshop. The illustration of the kiln structures on the Winterbottom (n.d.) map hints at the structure of the buildings.

Immediately west of Kiln 2 was the large drying shed. This structure was documented as being 10m-11m by 36m-38m in size (3,587 to 4,214 square meters) and functioned as storage for unfired or "green" ware prior to being fired in the kilns. Immediately north of the drying shed appears to have been located a second structure of equal size. Although this structure was recognized only by a slight structural signature, subsurface features (robbed foundation trenches and two boiler foundations) clearly marked its location. Oral tradition maintains that the drying shed was cut in half by the Rogers family and the second half moved to another adjacent farm. As William Miller (1974) noted, when the Rogers brothers purchased the property, "the main building was cut apart, half moved about a quarter of a mile away to become a barn, the other half remaining, also used as a barn..." When told this account, I had always thought that the half of the barn removed from the site had been cut off the west gable end. The archaeology suggests that the other half of the structure may potentially have been attached to the north end of the drying shed. This "second" structure would have enclosed the boiler, steam engine and die-press machinery necessary for tile production.

The location of the boarding house has been more problematic. A light scatter of domestic debris was located south of the drying shed and might represent a midden associated with the boarding house. Similarly, the single stone foundation wall (Feature 14) located in this general area might represent the remains of this structure. This would have placed the boarding house at the head of a long U-shaped lane leading from the public road.

Another potential structure was identified along the western edge of site based solely on the surface artifact signature. No testing has been conducted in this area and as such, no subsurface verification of this structure has been obtained. If indeed present, this may represent the barn identified on the Winterbottom map.

At least two artesian wells were also very important fixtures at this site. One was located near the south edge of the site and associated potentially with the boarding house. The second was located near the west end of the drying shed. Ray Rogers (6/16/1991) noted that "there were four or five flowing wells, artesian. One stood west of where the old barn stood. This well squirted water twenty-eight feet in the air and was capped and used by Uncle George [Rogers]"

Industrialized ceramic manufactury sites produced a wide range of non-biodegradable waste in the form of kiln furniture, waster sherds, coal clinkers, as well as brick and stone from kiln repair. Waste from this production site appears to have been discarded in a band around the perimeter of the site, particularly along the

Narrative Description (continued)

west and south. The densest concentration appears to have originated from the west end of the drying shed, as if a door was located at this spot. Similarly, dense concentrations of waste emanate from the south side of Kiln 3. Unlike Kilns 1 and 2, which appear to have doors within their west walls, Kiln 3 appears to have had a door in the south wall. A secondary concentration of kiln furniture and clinker waste was located immediately north of Kiln 1.

The domestic sites identified on the Winterbottom map probably were located along the adjacent ridge running north and east of the Tile Works. An old dirt road bed, lined with large outwash boulders, runs north from the northeast corner of the Tile Works, potentially leading to some of the houses as well as the clay source along the edge of the adjacent Goose Lake.

Statement of Significance

White and Company's Goose Lake Tile Works)11-Gr-70) is eligible for listing in the National Register of Historic places under Criterion D for historic/nonaboriginal archaeology, for the information potential about the tile industry, commerce, and lives of the workers associated with the community that was established around the Tile Works. The period of significance for this site is 1855, when the company began operating, to 1865, when the company closed. The site is locally significant of listing in the National Register.

William White's Goose Lake Stoneware Manufactury and Tile Works, organized in late 1855, closed in 1866, in rural Grundy County, represents one of the first (if not the first) attempts at large-scale production of stoneware and drainage tile in Illinois. Contemporary ceramic workshops were generally small, non-mechanized, family affairs that produced wares for local markets. In contrast, White and Company's workshops were large, industrialized affairs which employed over 40 individuals with a substantial company town that developed around the industrial works.

Research Questions

The archaeological work done at the White and Company's Goose Lake Tile Works (11-Gr-70) can contribute the following primary questions, which can be answered using available data. Secondary questions asked here can only be answered with information that can only be gained through further excavation of the site.

Primary Questions

Q. What was the method of tile production done at the site?
A. Predominately hand production methods, and White and Company introduced industrialized production methods to the area as explained below in the section: Production Methods: Drain Tile.

Q. What was the result of industrialization?
A. In Illinois, this marked the beginning of the mechanization of the traditional craft industry, an industry rooted in conservatism as explained below in the section: Kiln Structure and Firing technology.

Q. What was the structure of the community associated with the Tile Works?
A. The community was composed of mainly low income immigrants as explained below in the section: Site Structure and Community Organization.

Statement of Significance (continued)

Q. What type of wares were produced at the Tile Works?
A. Hand-produced sewage tile predominated with minor production of jigger-molded wares as explained below in the section: Wares Produced.

Q. Did the wares produced here vary from other manufacturies regionally?
A. TheTile Work wares were very similar to those being produced elsewhere in the Upper Illinois valley region as explained below in the section: Wares Produced.

Secondary Questions

Q. What type of kiln was used for the production of drain tile?
A. These kilns were updraft kilns as explained below in the section: Kiln Structure and Firing Technology, but further excavation is needed to determine if they are beehive or bottle style updraft kilns.

Q. What was the exact layout of the community associated with the Stoneware Manufactury?
A. The Winterbottom map is assumed to be correct, but further excavation revealing foundations is the only way to prove this.

Q. What structures besides the kilns were located at the Tile Works site?
A. The available maps show some sheds, but further excavation will reveal more foundations and features.

Site Location

In the middle 1830s, with the speculation brought on by the construction of the Illinois and Michigan Canal, potters began to eye the upper Illinois River valley. One such potter that located in this area in 1836 was John Kirkpatrick --one of the first potters to recognize the stoneware production potential of this area (Gums, Mounce and Mansberger 1994). With the completion of the canal in 1848, it was not long before potters began to realize the economic potential of a pottery workshop along this transportation corridor. The excellent transportation facilities that it provided, especially to the booming community of Chicago, was unequaled in northern Illinois. By the 1870s, several potteries had become established in both Grundy and LaSalle counties (Mounce, 1988, 1989).

The primary reason that the Goose Lake Pottery was situated at this rural Grundy County location was because of the quality stoneware clay resources discovered at Goose Lake, presumably by Charles Walker. This was one of the most extensive stoneware clay deposits within close proximity to Chicago and easily accessible by the Illinois and Michigan Canal. The presence of extensive coal resources nearby was also of interest to the potters. With the establishment of a partnership with Charles Walker, William White began construction of the

Statement of Significance (continued)

pottery and tile works near the clay source.

White's selection of a site along the Illinois and Michigan Canal was no doubt influenced by his previous knowledge of his father's pottery works along the Erie Canal in Upstate New York. White's Utica Pottery in New York State was situated at a very successful location. Not only were raw materials moved into the region via the canal, but finished products were moved out of the region via the Erie Canal into a market area dramatically increased by the canal's presence. Similarly, other major pottery centers, such as at East Liverpool (Ohio), had been established along these successful transportation corridors during the 1840s and early 1850s (Fryman, 1983).

Ultimately, White's selection of a site near the clay source at Goose Lake was detrimental to the success of the company. Unfortunately for William White, the pottery workshop was located several miles, via poorly developed roads, from the port community of Morris, which made it difficult to transport the finished product to the canal at Morris. Had White established his pottery works at the canal and transported the raw materials to his workshop, the history of this firm may have been significantly different.

Summary of Archival Information

The Doran map archived at the State Archives in Springfield, Illinois (Doran, 1863; See Figure 1) indicates only two structures at this location. It is suspected that these two structures represented the factory workshop and boarding house. The Winterbottom map has much more detail and documents the presence of the tile works, a boarding house, and a single structure indicated as "Barns." To the east of this complex of structures was documented six domestic structures (occupied by the Collis, Helman, Kingsbury, Woods, Baxter, and Hawkins families).

The main building at the Tile Works Site, as indicated on a map prepared by Mrs. Mary Winterbottom (1850-1898), consists of three large kiln chimneys and a large gable-roofed structure projecting through a lower story building that encompasses all four structures. Smoke appears to be billowing out of two end chimneys associated with the gable roofed structure (See Figure 16).

Based on the Winterbottom map, the boarding house apparently was situated south of the kilns and was a fairly large structure. Claude Rogers noted that "A big hotel used to sit about 20 yards down [south?] from our crib here at the farm" (Claude Rogers, Joliet Herald-News, July 21, 1968). The barns indicated on the Winterbottom map appear to have been located north of the kilns, potentially within the adjacent agricultural field. Similarly, the domestic sites documented on this map probably were situated along the ridge running

Statement of Significance (continued)

northeast from the Tile Works Site (11-Gr-70)[7].

As with the Pottery Works Site, the 1860 Federal Population Census correlates well with the Winterbottom map. Twelve households were enumerated within the census for this area of the community. Based on the analysis of the census, the population totaled approximately 59 individuals ranging in age from a few months to a 49-year-old potter. The average median working population was only 29 years of age (the youngest was Mary Hillard, a domestic servant; the oldest was Antoine Harned, a 49-year-old potter). The oldest Illinois-born child was five years of age. Consistent with the young age of the population, as well as the pattern recognized at the Pottery Works Site, all of the individuals were landless. The personal property values of these individuals was low, averaging only $24 (ranging from a low of $0 to a high of $125). Those individuals with personal property values averaged only $69 --much lower than that associated with individuals from the nearby Stoneware Manufactury Site (11-Gr-69).

The working population at the Tile Works Site was represented by eight different nativities. New York State, the home of William White, represented 34.8% of the workers, followed by England (representing 26.1% of the workers) and Germany (representing 17.3% of the workers). Additionally, Ohio and Scotland were represented by 8.7% each and Ireland with 4.3% of the workers.

Unlike the situation at the Pottery Works site (where 12 different occupations were listed in the census), only 3 occupations were listed at the Tile Works site. These included potters (representing 82.6% of the workers), coal miners (representing 13.0%), and a single domestic servant (representing 4.4%). The domestic servant was located in Wayne and Eliza Kingsbury's household, presumed to be the location of the boarding house indicated on the Winterbottom map. Although Kingsbury was listed as a potter, eight additional unmarried potters were also listed as living within this household, and as such, it is believed to represent the boarding house.

Ownership Organization

Contemporary pottery workshops, whether redware or stoneware, generally were owned and operated by a single master craftsman. With the introduction of industrialized workshops, more machinery, larger physical

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[7] This area was overgrown with young, woody vegetation during our investigations. By the summer of 1994 this vegetation had been removed. Although in grass with low surface visibility in 1994, waster sherds and an occasional domestic artifact was encountered in this area during a site visit and suggests that intact domestic scatters are probably located along this ridge.

Statement of Significance (continued)

plants and a larger work force all required capital investments generally greater than the average craftsman could afford. In an effort to separate the financial and technical aspects of the business, potters and merchant middlemen became common business partners (Myers, 1980, 1984). As Ketchum (1987) notes, these merchants supplied capital to invest as well as the necessary market for sales.

William White, although coming from a successful pottery family from New York State, relied on the financial well-being of Charles Walker, a Chicago businessman, for investment capital. With Walker's financial backing, William White was able to establish a system of production that was valued at over $20,000. In contrast, in 1859, when Decius Clark and Christopher Fenton established the American Pottery Company in Peoria, they incorporated and went public with their stock company selling shares to whoever would buy them. With both early attempts at industrialized production, outside capital was necessary and was a dramatic contrast to the small farmer/potter who often worked with little investment capital.

Site Structure and Community Organization

In Illinois during the 1850s, industrial production similar to William White's Goose Lake Stoneware Manufactury and Tile Works were uncommon. Few potteries in the state employed as many men. Even more dramatic, those few endeavors that were of this size were located in an urban fringe setting, such as at Peoria or Upper Alton. Without an available community to draw upon, it was necessary for White to establish a company town to supply the numerous workers and their families with housing and other necessary services such as schools and stores. The result was the establishment of an industrial company town centered around ceramic production --one of the few of its kind in Illinois. As the Morris Herald Holiday Supplement (1888) noted, "Quite a little town sprang up here, which was called Jug Town."

Jugtown was not a planned community. The community, consisting predominately of small single-family houses with an occasional store, school and boarding house, was scattered around the two industrial facilities (pottery and tile works) that were the focal point of the community. Around the pottery works, an informal square developed with workers housing on two sides, White's house and pottery workshop on the north side, and a road on the south side. A flagpole and public well were located in the square. Across the road was the community's garden and a few additional houses.

At its height (circa 1860), the community of Jugtown consisted of approximately 114 individuals living within 21 households. Beside potters (who comprised 55.8% of the working population), a potter's apprentice, domestics (servants), coal miners, teamsters, an apprentice shoemaker, laborers, a gardener, farmers and farmhands, a clerk, and a boarding housekeeper were all living within the community. Although the small population was of mixed nativity, the individuals living within Jugtown were predominately foreign born or from the Mid-Atlantic Region of the United States (predominately New York State), each comprising 44.2% of the population (See Table 2). Foreign-born workers hailed from Scotland (4.7%), Germany (9.3%), England

Statement of Significance (continued)

(18.6%) and Ireland (11.6%). New England and Midwestern workers were rare and comprised only 11.6% of the population.

Table 2
Nativity of Working Population at Jugtown, 1860
(1860 U.S. Census of Population)

	Pottery Works		Tile Works		Combined Works	
Occupation	#	%	#	%	#	%
New England						
Vermont	1	5.0	0	0.0	1	2.3
Connecticut	1	5.0	0	0.0	1	2.3
Massachusetts	1	5.0	0	0.0	1	2.3
Total	3	15.0	0	0.0	3	6.9
Mid-Atlantic						
Pennsylvania	1	5.0	0	0.0	1	2.3
New York	10	50.0	8	34.8	18	41.9
Total	11	55.0	8	34.8	19	44.2
Midwest						
Ohio	0	0.0	2	8.7	2	4.7
Foreign Born						
Scotland	0	0.0	2	8.7	2	4.7
Germany	0	0.0	4	17.4	4	9.3
England	2	10.0	6	26.1	8	18.6
Ireland	4	20.0	1	4.3	5	11.6
Total	6	30.0	13	56.5	19	44.2
TOTALS	20	100.0	23	100.0	43	100.0

Additionally, the community's population was young, with little accumulated personal nor real property wealth -- a characteristic indicative of the formative years of development for this region and community. Except for William White, who was enumerated as a farmer, none of the community owned property. Potters,

Statement of Significance (continued)

whose median age was only 27 years, had a median personal property value of only $17.50. In comparison, William White had a personal property valued at $1,300. Others, such as coal miners, laborers, gardeners, farmhands, and housekeepers had personal property values much higher than the potters, ranging from $87.00 to $139.00.

The industrial component at this community consisted of two distinctive localities --one apparently devoted to crockery production while the other was devoted to tile production. Each facility was an independent production center with its own workshop, drying sheds, kilns and worker's housing. Each site appears to have had three kilns present and represents an industrial pattern distinctively different from earlier farmer/potters or farmer/tile manufacturers who generally had only a single kiln. Although areas of concentrated industrial waste (such as broken pottery and tile as well as kiln furniture and clinkers) were identified during the 1991 and 1993 archaeological investigations conducted by Fever River Research at the Tile Works site (11-Gr-70) and the pottery site (11-Gr-69), waste disposal was haphazard around the site.

Work Schedule and Seasonality

Increased mechanization of the pottery industry had an impact on many aspects of the trade. One such change that occurred early in the industrialization process was the modification of the seasonal work cycle associated with the farmer/potter and small workshop to a continual year-long production cycle. The schedule of traditional farmer/potters, like their rural farming neighbors, was ruled by the passing seasons. As such, potters often worked during times of slack agricultural activity. Like his Illinois counterparts, Daniel Clark (a potter from New Hampshire), turned ware during the summer and early fall, glazed as time permitted, and generally fired the kiln sometime thereafter, "most commonly in June" (Myers, 1984).

Additionally, cold weather made potting very difficult. Besides making it tough on the potter, who constantly had wet hands, the clay became difficult to work --particularly if it froze. As an anonymous Alton potter wrote in the 1840s, "The weather is milder now than it was at this time last year, for we were obliged then to cease work, from the frost being so severe..." (Foreman, 1941).

With the capital investments associated with industrialized production, it became necessary to extend the work season to maximize on the production output. Factory systems attempted to make the work season as long as possible, and as close to a 12-month work cycle as possible. Unfortunately, this was not easy to accomplish in the northern part of the state where winters can be harsh. More industrialized workshops attempted to alleviate the effects of the cold weather by venting heat from the cooling kilns to the workshops. With multiple kilns in operation, heat could be constantly channeled into work rooms to extend the work season throughout the winter.

With increased industrialization and a longer work season, the potters schedule was influenced more by

Statement of Significance (continued)

market demands --although still often tied strongly to the agricultural cycle (i.e. need for fruit jars during fall harvest season), than by their need to tend to crops. Unlike conditions with the traditional farmer/potter when seasons could be predicted, economic shifts and lack of sales could not be predicted and made for irregular work schedules with the industrialized potter.

Although an economic need existed for continual year round production, weather did not always allow such a luxury, even during the more industrialized late nineteenth century. Apparently, employees of White and Company worked a 10-month work season (1860 U.S. Industrial Census). Although White and Company had employed three kilns at the Tile Works site (and potentially also at the Pottery Works site), he apparently had not channeled the heat from the cooling kilns into the workshop to extend the work season. None-the-less, some evidence does exist that an effort was being made to extend the work season into the cooler months. Spacers with fabric impressed finger indentations indicate the use of gloves to protect the hand from the cold weather when loading the kilns. The presence of kiln furniture with fabric glove impressions at the Pottery Works site emphasizes the attempt to continue working through cold weather.

Power and Fuel Sources

The switch from a family-operated craft industry to a factory system of production was also paralleled by a change in power requirements. More intensified industrial activity required more efficient sources of energy. The farmer/potter generally relied on horse and hand power. His simple horse-driven pug mill, used to grind and mix clay, may have been supplemented with a foot-powered kick wheel. More mechanized production was generally associated with steam power. Although wood-fired steam engines were available, they were most efficiently used with coal. By the late nineteenth and early twentieth centuries, natural gas and fuel oil played a major role in the ceramic industry. The 1860 Federal Industrial Census indicated that both coal and wood were being used by the White and Company potters. Unlike contemporary Illinois potters, White and Company had $2,500 worth of coal stockpiled at the Tile Works site. The 1991 and 1993 archaeological investigations revealed an abundance of coal clinkers at both the Pottery and Tile Works sites.

Production Methods: Drain Tile

As Winsor (1975) noted, tile works were simple affairs. From nearby clay pits, clay was transported to the production site where it was ground and then placed in a pug mill where it was mixed with water to a proper consistency. With assistance of steam power, the clay was extruded through a die as a continuous cylinder then cut into approximate two foot lengths with a wire. Wet, or "green" tile were then set aside, sometimes outdoors, to air dry. After sufficient time air drying, the tile were loaded in the kiln. The kiln was then fired, and after it had cooled, the tile were then removed and stacked in the tile-works yard awaiting transportation to the local or regional markets. Although only a few hands were needed to operate the tile machinery, the handling of clay, green tile, and fired wares was a labor intensive operation requiring large numbers of unskilled laborers.

Statement of Significance (continued)

Many tile manufacturers were primarily farmers and operated as farmer/tile manufacturers, similar to the traditional farmer/potter strategy. Robert Tucker's Tile factory, built on his farm northeast of Palmyra (Macoupin County) was constructed in 1878 and represents a similar structure, typical of middle to late nineteenth-century tile operation (Brink McDonough and Company, 1879). Besides manufacturing tile, Tucker also farmed 160 "broad and rich acres..." (Biographical Publishing Company, 1891). Another farmer/tile manufacturer was R. G. McCullough, who had his farm and tile works illustrated in the Peoria County Atlas (Andreas, 1873).

Unlike these smaller operations, White and Company's tile works were a large industrialized operation that employed 40 individuals and produced 2,800 tons of tile valued at $28,000 per year (U.S. Government,1860). Few industrialized plants such as the one at Jugtown were in Illinois during the late 1850s. One of the only contemporary tile works found in the 1860 Federal Industrial Census for Illinois was that operated by Castle Harrison and Company (Madison County). Although the capital investments were similar between these two companies, Castle Harrison and Company produced a much higher value of tile ($172,000) with far fewer men (only 12) than White and Company's tile works. With its 24-horsepower steam engine, it is possible that Castle Harrison and Company had superior equipment.

The structure of both White and Company's and Castle Harrison and Company's industrial tile works probably were similar to A. O. Howell's Tile Factory, which was constructed in 1877 north of Urbana (Champaign County) and illustrated in the Champaign County Atlas. This factory, which was constructed at a cost of $5,000, consisted of a large two-story frame structure with a 25-horsepower steam engine which powered a pug mill, extruder and conveyor. The large drying shed was 275 feet in length, and two rectangular kilns were in operation. Howell employed six full-time workmen and had the potential to produce 15,000 tiles per day (Winsor 1975; Brink, McDonough and Company, 1878). Figure 26 illustrates the structure of two similar tile works in operation near Morris during the late nineteenth century.

Kiln Structure and Firing Technology

Once pottery has been shaped into its desired form, it must be air dried to remove water and burned (or fired) to harden the clay. A kiln is "a furnace or chamber, or series of chambers, in which clay products are burned" (Ceramic Products Cyclopedia, 1928). As Barka (1973) points out, all kilns have at least four main components which include 1) a base or kiln floor to place the pottery upon, 2) a source of heat, 3) a means of transferring the heat from the source to the ware through fireboxes and flue system, and 4) an envelope or chamber to confine the heat to the ware. The following discussion will center around the combustion chamber (consisting of fireboxes and flue system), upper or ware chamber, and chimney.

Unlike the low temperature firing technology associated with earthenware production, stoneware

Statement of Significance (continued)

production utilized high temperature firing technology. Generally, keeping other factors such as fuel type equal, the greater the temperature desired, the more fireboxes needed. Redware kilns (low fired earthenwares) therefore required fewer fireboxes than stoneware kilns (high fired technology) and were far easier to operate than the more sophisticated stoneware kilns. When discussing kiln structure and firing technology, three variables are of significance and include 1) firing duration, 2) kiln temperature, and 3) kiln atmosphere (presence or absence of oxygen) (Rice 1987).

Kilns are classified in several different manners. Kilns that are loaded with ware, fired, allowed to cool, and then unloaded are referred to as periodic kilns. Continuous kilns have chambers that are constantly hot with a conveyor system for transporting wares through the kiln. The product enters the kiln in a green state and leaves it fired. During the nineteenth century, the vast majority of kilns were of the periodic variety. It was not until the development of natural gas as a fuel during the early twentieth century that continuous kilns became practical.

Another way of characterizing kiln structures is by the method of heat dispersal through the kiln. Early, less efficient kilns are known as updraft kilns. In an updraft kiln, the hot gases exit the fire box, pass directly through the chamber floor, around the ware stacked in the chamber and directly out the ceiling of the chamber which acts as the chimney. Updraft kilns were known for their "hot spots" and non-uniform heating. Sophisticated subfloor flue systems were developed, particularly with the more sophisticated updraft stoneware kilns, to better distribute the heat around the entire kiln chamber.

More sophisticated updraft kilns attempted to prevent the hot gases from coming into contact with the pottery ware. These kilns, which have walls that completely encompass the ware and prevent the hot gases from contacting it, are known as muffle kilns (Ceramic Products Cyclopedia, 1928). Muffle kilns, which prevent flashing or bluestoning, were seldom used in nineteenth-century stoneware production.

To alleviate many of the problems with heat control, more sophisticated downdraft kilns were developed during the late nineteenth century. In a downdraft kiln, the hot gases leave the fire box, hit a wall within the kiln chamber which deflects the heat up the wall of the kiln chamber where it is deflected off the ceiling of the kiln and is drawn down the center of the chamber. Located within the center of the floor of the chamber is the mouth of a sub-floor flue that is connected to a large free-standing external chimney. A distinctive characteristic of downdraft kilns is the tall chimney (with multiple kilns arranged around it) necessary to create the draft to draw the hot gases up the outer wall and back down to the floor of the chamber. Unlike updraft kilns where the subfloor flue system directs heat to the chamber floor, the subfloor flue system in a downdraft kiln directs the heat away from the chamber floor.

Downdraft kilns, although more uniform in heat distribution, were much more difficult to fire than the

Statement of Significance (continued)

simpler updraft kilns and were not utilized in Illinois until at least the 1880s. Traditional stoneware updraft kilns, with their multiple fireboxes (generally 8), continued in use throughout the late nineteenth century. The industrialized Monmouth Pottery continued using updraft kilns until 1904-05. With the availability of natural gas, the final transition was the installation of continuous tunnel kilns, which in 1935 could be installed at a cost of $40,000 (Martin and Cooper 1983).

During the early to middle nineteenth century, two forms of periodic, updraft kilns were utilized by the earthenware potter. One was rectangular in plan while the other was circular (Figure 27). Both kiln forms have great antiquity. Rectangular kilns were common with the Romans for burning brick and tile while small round kilns (with either one or two fireboxes) were used for fine earthenware production. Throughout the Middle Ages, rectangular kilns were commonly used for tin-glazed earthenware production, especially on the Continent. By the seventeenth century, German stoneware production relied heavily on rectangular kilns (Greer, 1977, 1979; Rhodes, 1968; Musty, 1974). Barka (1973) implies that the circular kiln has an English heritage while the rectangular kiln may have a Continental European or Germanic heritage.

The rectangular, periodic, updraft kiln has been documented all along the eastern seaboard for both earthenware and stoneware production (i.e. Rupp, 1978-80; Russ, 1990; Barka, 1973). One of the earliest documented stoneware kilns in the United States is a rectangular kiln that was in operation during the early to middle eighteenth century in Yorktown, Virginia (Barka, 1973). A specialized form of rectangular kiln which is often constructed into the side of a hill and associated with southern alkaline-glazed stoneware production is the groundhog kiln (Greer, 1977, 1979). Ketchum (1987) notes that the earliest kilns within New York State were rectangular shaped. Watkins (1968) also notes that rectangular kilns were often used for redware production. Although the rectangular, updraft kiln was presumably easier to construct than the round updraft kiln, it was less uniform in heat distribution than its round counterpart.

Although more common with brick and tile production, rectangular kilns for ceramic production were rare in Illinois, and when present were associated with specialized production (i.e. yellowware). An anonymous English-born potter working in Alton described the 1840s rectangular kiln constructed in that community:

> We have built our new kiln, and a very pretty one it is, too; and, as Americans say, "I guess it will shine when it is fired full of glost ware:" which circumstance will not be long before it takes place; and then I should like for the whole of you to be here, that you may see the reward of a persevering industry. Our old slip kiln, not being large enough for our present purposes, we have built another this week, which is 21 feet long by 5 feet wide (Foreman, 1941).

The rectangular kiln described in use at Alton presumably was associated with the manufacture of a specialized product (refined yellowwares). Other than rectangular kilns being used for the production of tile and

Statement of Significance (continued)

brick, no other rectangular kilns are known that produced ceramic wares in Illinois.

The most common form of kiln used in Illinois throughout the nineteenth century was the round, periodic, updraft kiln, which was often referred to as a "bottle" (with its distinctive chimney) or "beehive" (lacking the tall chimney) kiln because of its distinctive shape. In the United States, one of the earliest documented round kilns (with five fireboxes) was excavated by Alain Outlaw near Asheboro, North Carolina. This kiln, used for the production of earthenwares, was in operation during the late eighteenth century (Outlaw, 1975). The earliest redware in the Midwest appears to have been manufactured using round, updraft kilns (Mansberger, 1994).

Unfortunately, little documentary or archaeological information is available detailing kiln structures in early Illinois or the greater midwest. Besides the White and Company kilns, which are updaraft kilns, the only other kiln structures that have been excavated in Illinois are the Ebey/Brunk Pottery kiln and the Elizabeth kiln. The Ebey/Brunk Pottery kiln was located in the central Sangamon River Valley immediately southeast of Springfield and was used for the production of redwares during the late 1820s through middle 1850s[8]. The Elizabeth Pottery kiln was a large, late nineteenth-century redware kiln located in Jo Davies County near Elizabeth, and was excavated by the senior author for the Illinois Department of Transportation (Mansberger, 1994).

Archaeological data suggests that early redware kilns in Illinois were small, two-firebox affairs. Data on early redware kilns suggest that they averaged approximately 10' in outside diameter with an interior chamber area of approximately 62-64 square feet. These early kilns appear to have free standing chamber walls with a simple frame structure surrounding them. At the Ebey/Brunk Pottery Site, the frame structure had been supported on stone piers surrounding the brick-walled kiln. Compared to the later redware kiln excavated at the Elizabeth Pottery site, these early structures were relatively impermanent (less substantially constructed), lacking the massive stone outer support walls and subfloor structure that was present at the Elizabeth Pottery site. With an outside diameter of 25', the early stoneware kilns such as those uncovered at the Tile Works site were much larger than the redware kilns. Additionally, they were much more substantially constructed to withstand the tremendous heat associated with stoneware production.

The early redware kilns had a chamber that was approximately 25% smaller than the post Civil War kiln excavated at Elizabeth. In contrast, contemporary mid-century stoneware kilns, such as those present at the Tile

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[8]. This site was excavated by Robert Sherman, with Sangamon State University, in 1976. Artifacts and notes from these excavations are currently located at the office of Fever River Research, Springfield.

Statement of Significance (continued)

Works site, were even more substantially constructed than the Elizabeth Pottery kiln and had a floor area which was over 200% larger than the early redware kilns and 139% larger than the late redware kilns[9]. Additionally, unlike the redware kilns, which only had two fireboxes per kiln, the stoneware kilns excavated at the Tile Works Site all had eight fireboxes. Unfortunately, no other kiln structures have been professionally investigated in Illinois. Similarly, few studies are available for the surrounding states. Besides the Frankfort, Kentucky kiln excavated by Genheimer (1989), no other redware kilns are known to have been professionally investigated in the Midwest. Similarly, the only known stoneware kilns investigated by professional archaeologists have been in Iowa (Gradwohl, 1974; Reynolds, 1967, 1969; Schroeder, 1979; Schulte, 1974; Finney and Rogers, 1955)

The number of fireboxes present gives a clue as to the temperature reached in firing the kiln. Earthenware needed fewer fireboxes, stoneware needs more. Redware kilns generally had two opposing fireboxes. White's Tile Works kilns all had eight fireboxes. Besides the number of fireboxes, the type of fuel also affected firing temperatures. Redware kilns used wood. Only the stoneware kilns at the Tile Works used coal.

With more sophisticated downdraft kilns, the number of fireboxes generally range from 8 to 12, according to the kiln diameter (Ceramic Products Cyclopedia, 1928). According to the Ceramic Products Cyclopedia (1928), the number of fireboxes was about one-third the diameter of the kiln in feet and the type of firebox was dependent on the ware to be burned and character of fuel used (see also Hamell, 1978-80). Additionally, during this period, sophisticated subfloor flue systems, such as that associated with the kilns at the Tile Works site, were developed for even heat distribution.

Firing failures were catastrophic to the potter and often resulted in the total loss of the wares within a kiln. Kiln failure was caused by several factors, including both under and over-fired conditions. Another source of firing difficulty was caused by the potter bringing the kiln up to the proper temperature too quickly. The early phase of firing the kiln, known as "watering off" or "smoking", resulted in driving off the remaining water within the clay. If brought up to temperature too quickly, moisture expands explosively, often causing defects in wares and even causing collapse of the kiln. Excessive moisture can originate from multiple sources, including the ground surrounding the kiln. High water tables at the Tile Works site may have caused such problems.

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[9] It is difficult to compare chamber volume (ware holding capacity) between kilns based on archaeological data. Although we can determine the floor area of the chamber based on its diameter, we cannot assess the chamber wall heights. The Ceramic Products Cyclopedia (1928:106) notes that the usual rise of the walls is one fourth of the diameter of the kiln.

Statement of Significance (continued)

Glaze Characteristics

By the middle 1850s, lead-glazed earthenware production in Illinois was quickly becoming a thing of the past. Since the early 1830s, salt-glazed stoneware production had been practiced in Illinois. Salt-glaze technology is slightly more complicated than the low-fire lead-glaze technology. To salt glaze pottery, the potter gets the kiln to the proper temperature and then introduces salt into the kiln through special holes along the upper wall or ceiling of the kiln structure. Upon coming into contact with the hot gases, the salt (NaCl) vaporizes and the sodium (Na) adheres to the exposed surfaces of the crockery as well as the kiln. Although long-term exposure to lead-glaze technology also has its detrimental health concerns for potters (Mansberger, 1994), salt glazing had a more immediate affect on careless potters. The by-product of salt glazing is chlorine (Cl) gas, which is extremely poisonous and was known for overcoming many a careless potter throwing salt into the hot kiln chamber.

Unlike lead glazing, which is a slip glaze applied to the surface of the crockery, salt glazing is applied as a vapor in the kiln chamber. The kiln operators do not have control of where the vapor adheres or does not adhere. As such, salt glaze accumulates on the interior surfaces of the kiln and is also detrimental to the longevity of the kiln structure, unlike lead glazing. Similarly, the hotter temperatures associated with salt-glazed stoneware production are also much harder on the kiln structure than low temperature redware production.

With the introduction of more sophisticated downdraft kilns, new glazes were introduced in the midwest. Bristol glaze derives its name from the English port city by the same name and consists of a thick, white enamel glaze that was introduced into the eastern U.S. markets during the 1880s. Bristol glaze was first introduced into the Illinois market during the 1890s. The last salt-glazed wares produced in Illinois were manufactured during the early twentieth century. At the Monmouth Pottery the last kiln of salt-glazed wares was fired in 1902 (Martin and Cooper, 1983). Only salt-glazed wares were produced at the Goose Lake Stoneware Manufactury and Tile Works.

Wares Produced

Industrial production at William White's workshop consisted of both stoneware crockery and drainage (sewerage) tile. Based on the 1860 Federal Industrial Census, tile production comprised nearly 85% of White andCompany's revenue. This was a dramatic contrast to contemporary potters who were producing minor amounts of drainage tile.

The tile produced by White and Company was extruded and ranged from 20cm to 30cm inside diameter. Most tile were approximately 61cm in length and slipped on their interior surfaces. These tile represented a relatively new commercial product that was just beginning to be used by the Illinois consumer --particularly within the urban environment.

Statement of Significance (continued)

Failure of the Goose Lake Stoneware Manufactury and Tile Works

As discussed earlier, the location of the pottery works at the clay source, not along the transportation route (i.e., railroad and canal at Morris), was a major problem to the success of White's pottery. The transportation of the bulky finished product over poorly developed, swampy roads was extremely costly. But this was not the sole reason that the firm failed. Another factor that apparently had a dramatic affect on the failure of this company was the Economic Panic of 1857 and the depression that followed. Money was tight for both consumer and producer and probably contributed to the inability of Charles Walker to meet the demand on the $10,000 note that he had taken to fund the pottery.

Another potential reason for the failure of this firm may have centered around partnership difficulties between Charles Walker and William White. Although an important aspect of large industrial operations was the separation of technical and financial management, it is important that both parties meet their obligations. It is not known whether the failure of the White's firm to meet the conditions of the note given by Walker was due to production difficulties at the factory, marketing problems caused by the location of the factory, or poor expectations on the ability to repay the $10,000 note taken by Walker.

It is interesting to note that the Morris Herald Holiday Supplement (1888) had its own perspective on the demise of the local pottery works. Although the paper cites the transportation problems as the primary reason for the pottery works decline, it also notes that the Civil War may have made it difficult to find able-bodied workmen. It is unlikely that this conflict had a direct impact on the failure of this firm, since it appeared to survive through 1865. Additionally, it seems unlikely that after the legal battles between White and Walker that they would enter into another partnership. Additionally, Walker's death occurred soon after the abandonment of the Jugtown Tile Works.

SUMMARY AND CONCLUSIONS

Our research has documented that the Tile Works site (11-Gr-70) retains a high level of archaeological integrity and has the potential to yield significant information regarding this early industry. As such, as per Criterion D for archaeology, this site is eligible for inclusion on the National Register of Historic Places. The site is a significant historic-non-aboriginal site with emphasis on production and commerece. The period of significance for the site is 1855 to 1866. The site contains detailed surface data (artifact scatters) as well as subsurface features (such as foundation remains) that contribute to our detailed understanding of this early industry as well as the quality of life associated with the inhabitants of this community. The presence of these features allow us to gain insights into the structure of this community, the mechanics of tile production, and the quality of life associated with both the workers, associated townspeople, and the community leader (White) that are not readily attainable through the documentary records. It is recommended that this site be preserved as an

Statement of Significance (continued)

important document relating to the early development of the industrialized pottery workshop in Illinois. The excavation of traditional tile works sites such as White and Company's Goose Lake Stoneware Tile Works in rural Grundy County have great potential for answering a wide range of questions relating to the changing traditional craft industries.

Unlike similar sites located in urban areas and often with poor subsurface integrity, White and Company's Goose Lake Tile Works has retained extremely fine subsurface integrity. Further research comparing this assemblage to other tile works sites will allow a better understanding of the regional tile centers as well as the idiosyncratic behavior of various potters. Unfortunately, few contemporary urban or farmstead sites have been investigated in this region, making statements about the market catchment very difficult. Future studies of regional farmstead and urban sites may shed light on the market areas exploited by pottery centers such as White and Company's Goose Lake Tile Works.

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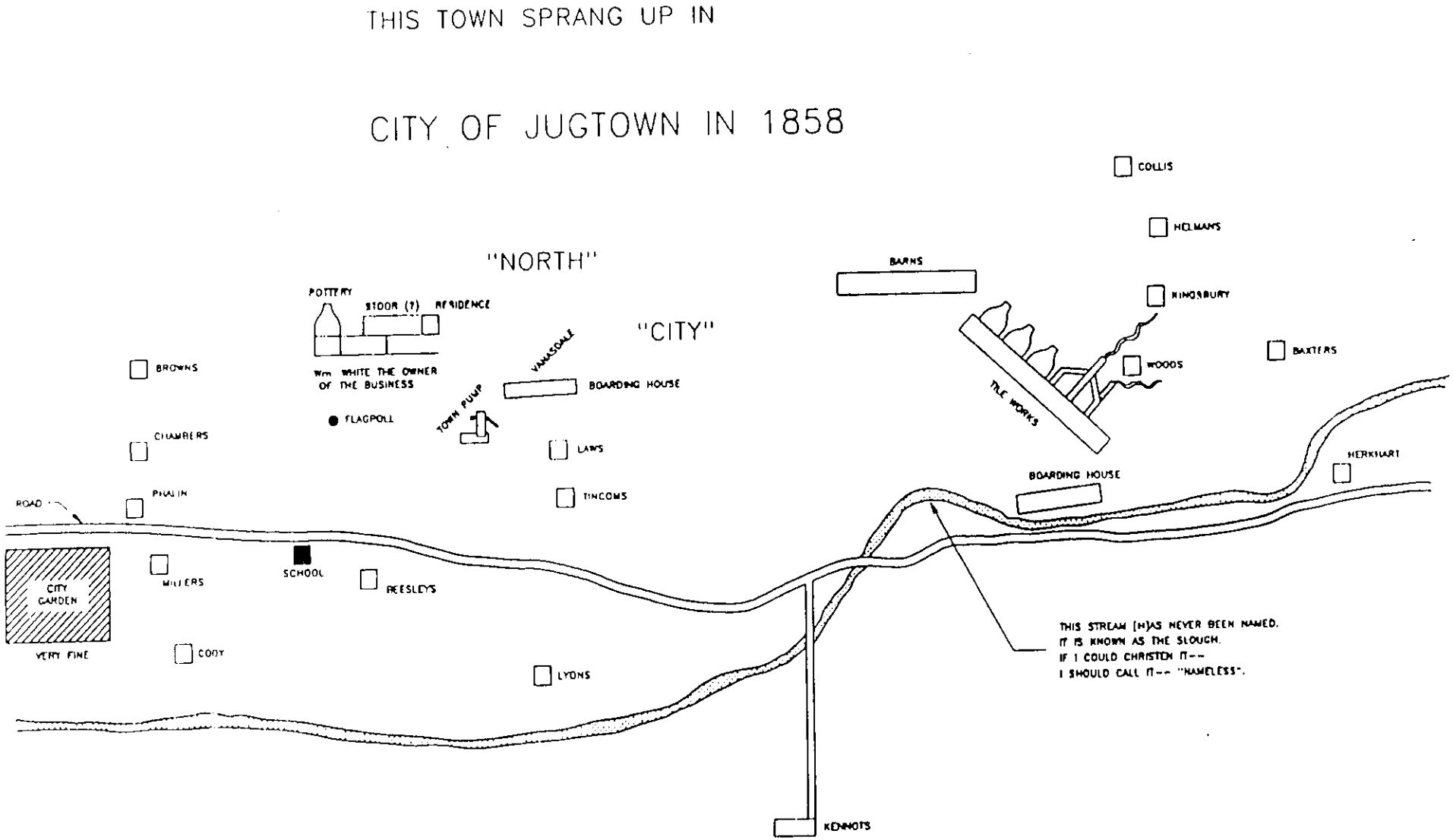


Figure 3. Clarification of hand drawing of "Jugtown" done by Mrs. Mary Winterbottom.

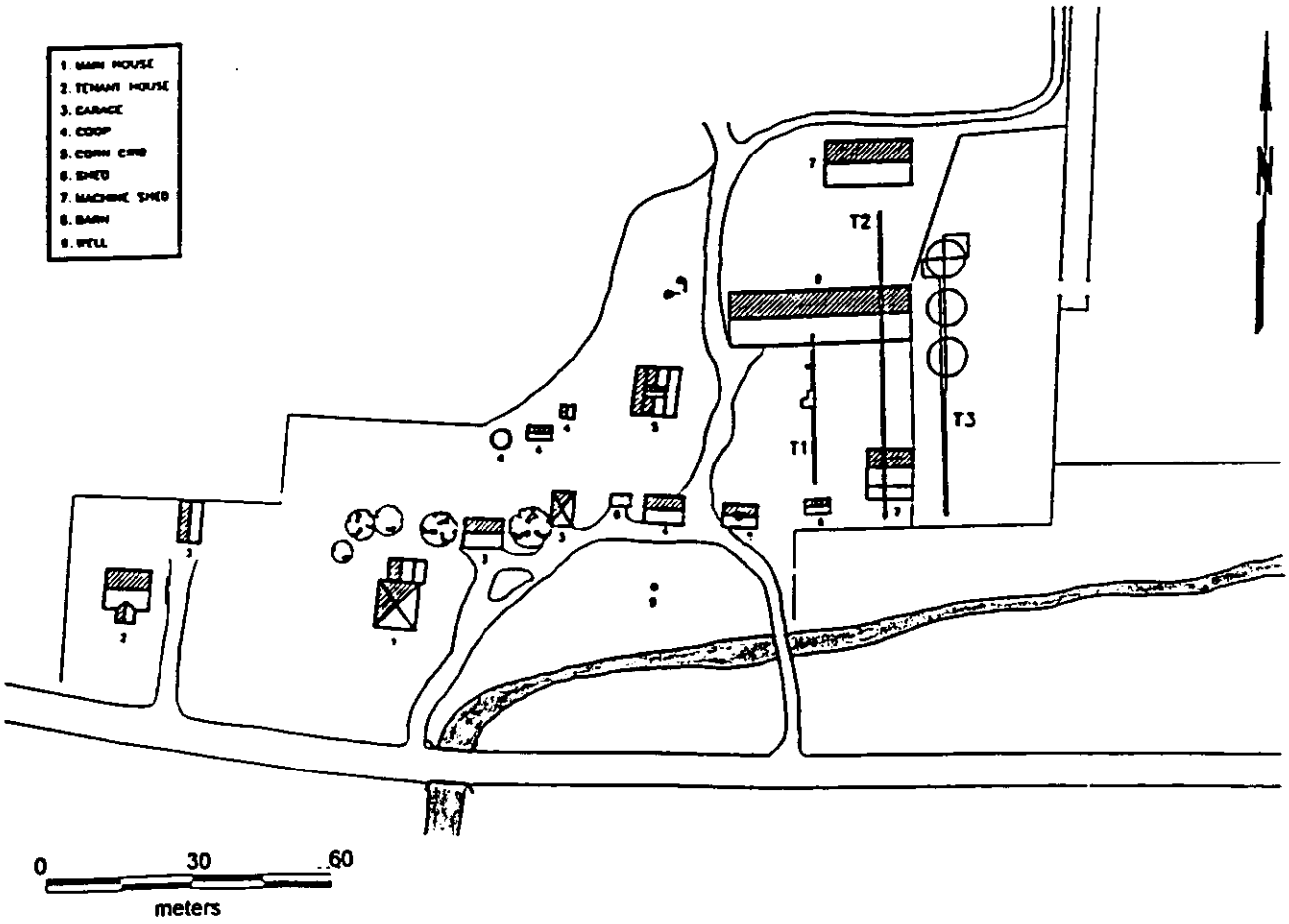


Figure 4. Map of the Tile Works Site (11-Gr-70) illustrating buildings present during the middle 1960s in relationship to our test excavations.

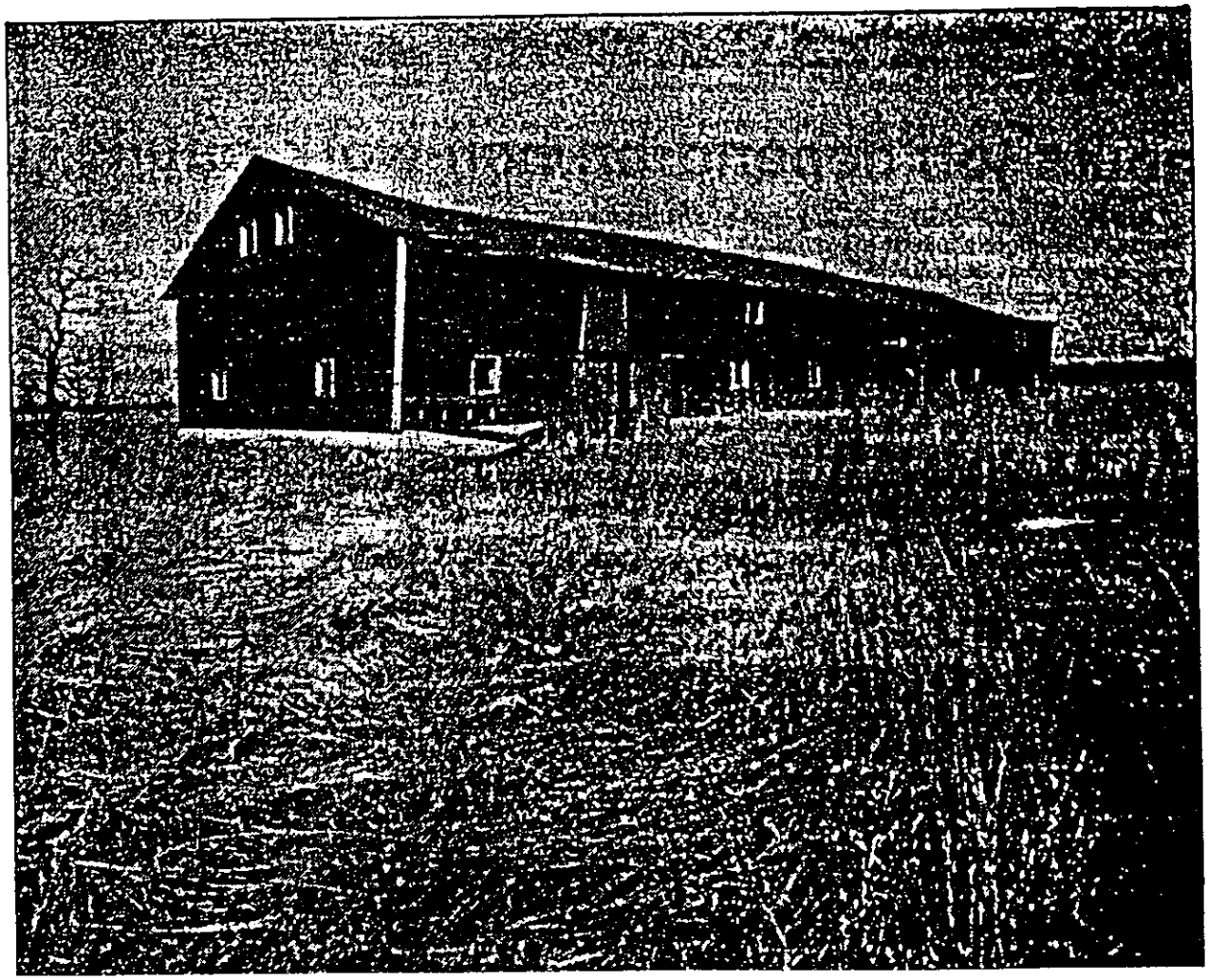


Figure 5. View of the drying shed at the Tile Works Site (11-Gr-70) as it appeared in the late 1980s prior to its demolition.

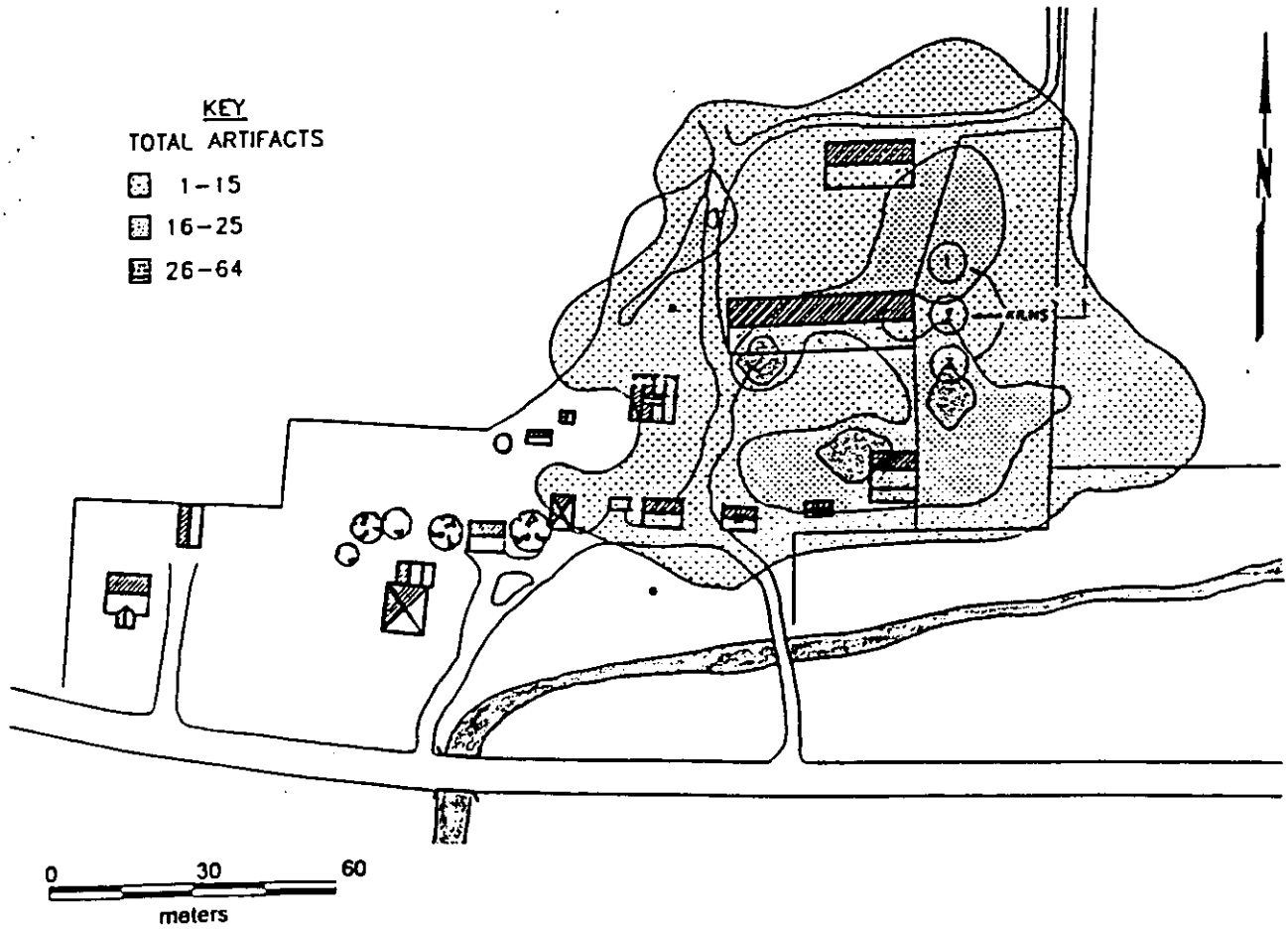
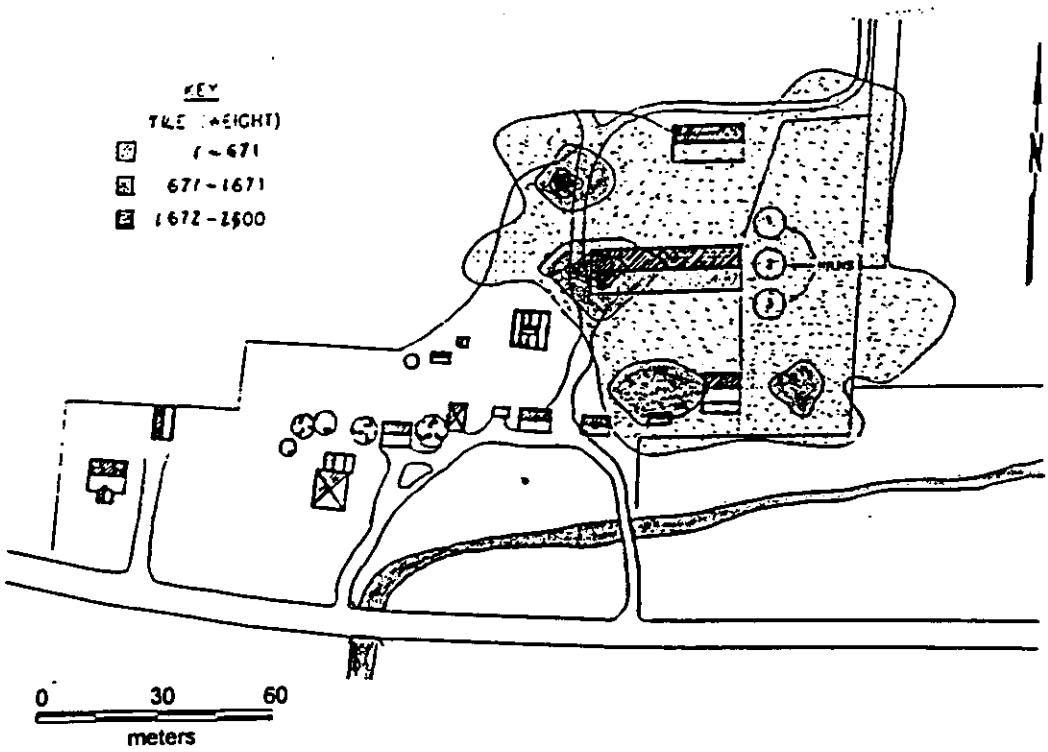


Figure 6. Total artifact distribution at the Tile Works Site (11-Gr-70).



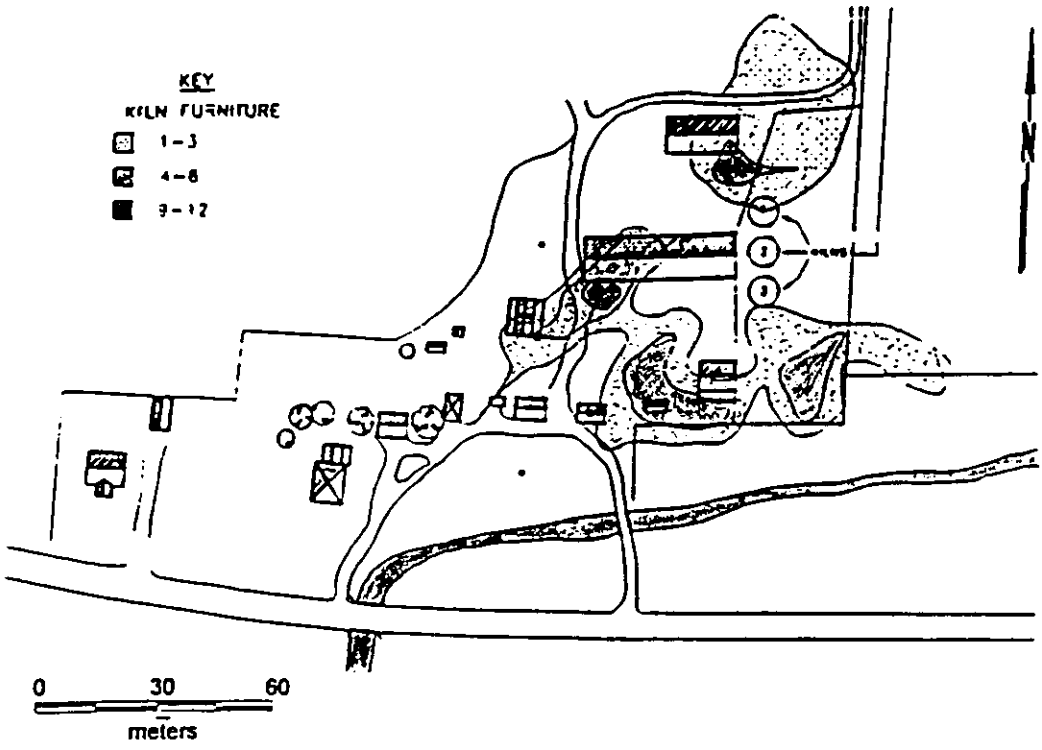
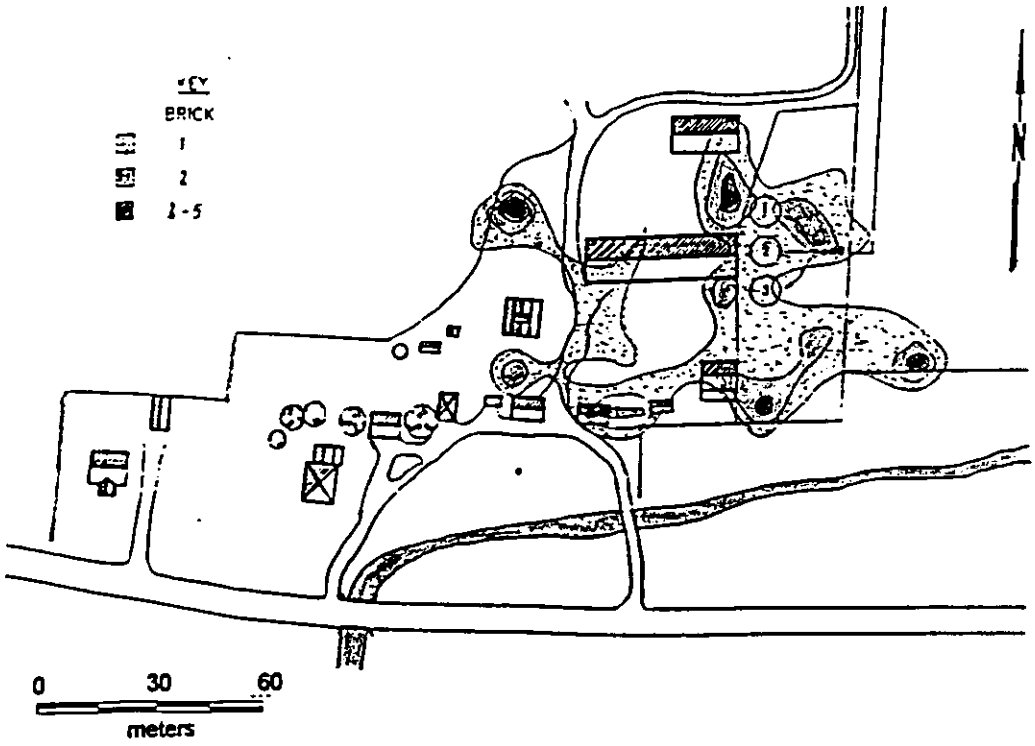


Figure 7. Distribution of tile weight (top) and kiln furniture (bottom) at the Tile Works Site (11-Gr-70).



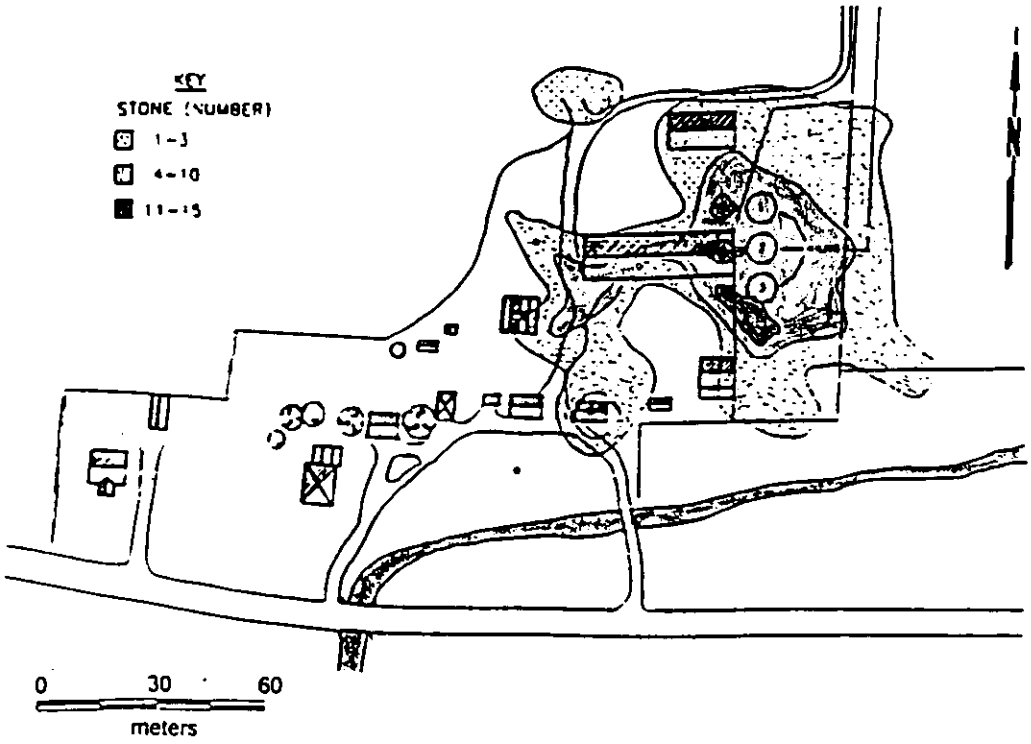
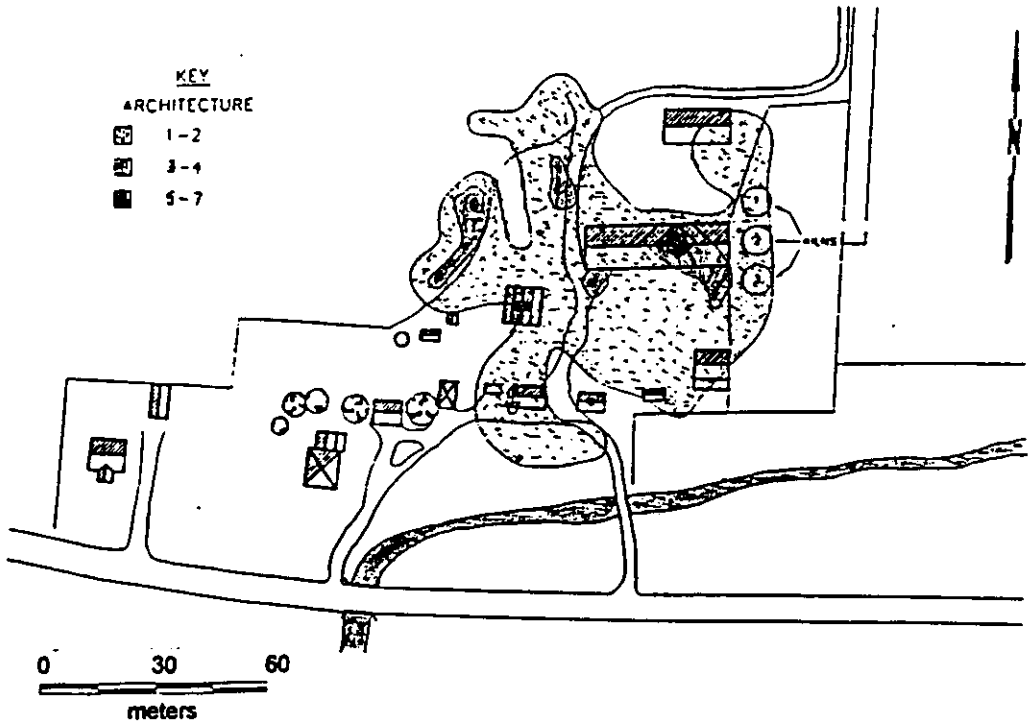


Figure 8. Distribution of brick (top) and stone (bottom) at the Tile Works Site (11-Gr-70).



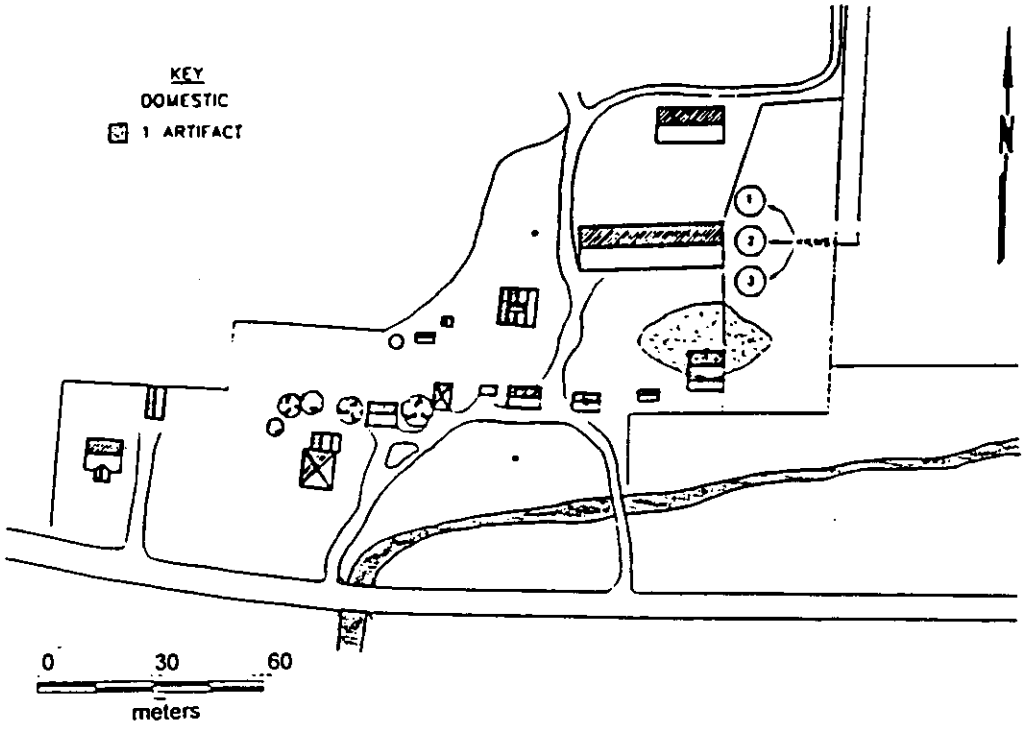


Figure 9. Distribution of architectural artifacts (top) and domestic artifacts (bottom) at the Tile Works Site (11-Gr-70).

Figure 10. View of the hand excavated trenches at the Tile Works Site (1L-Gr-70). Kiln 1 is in the foreground.

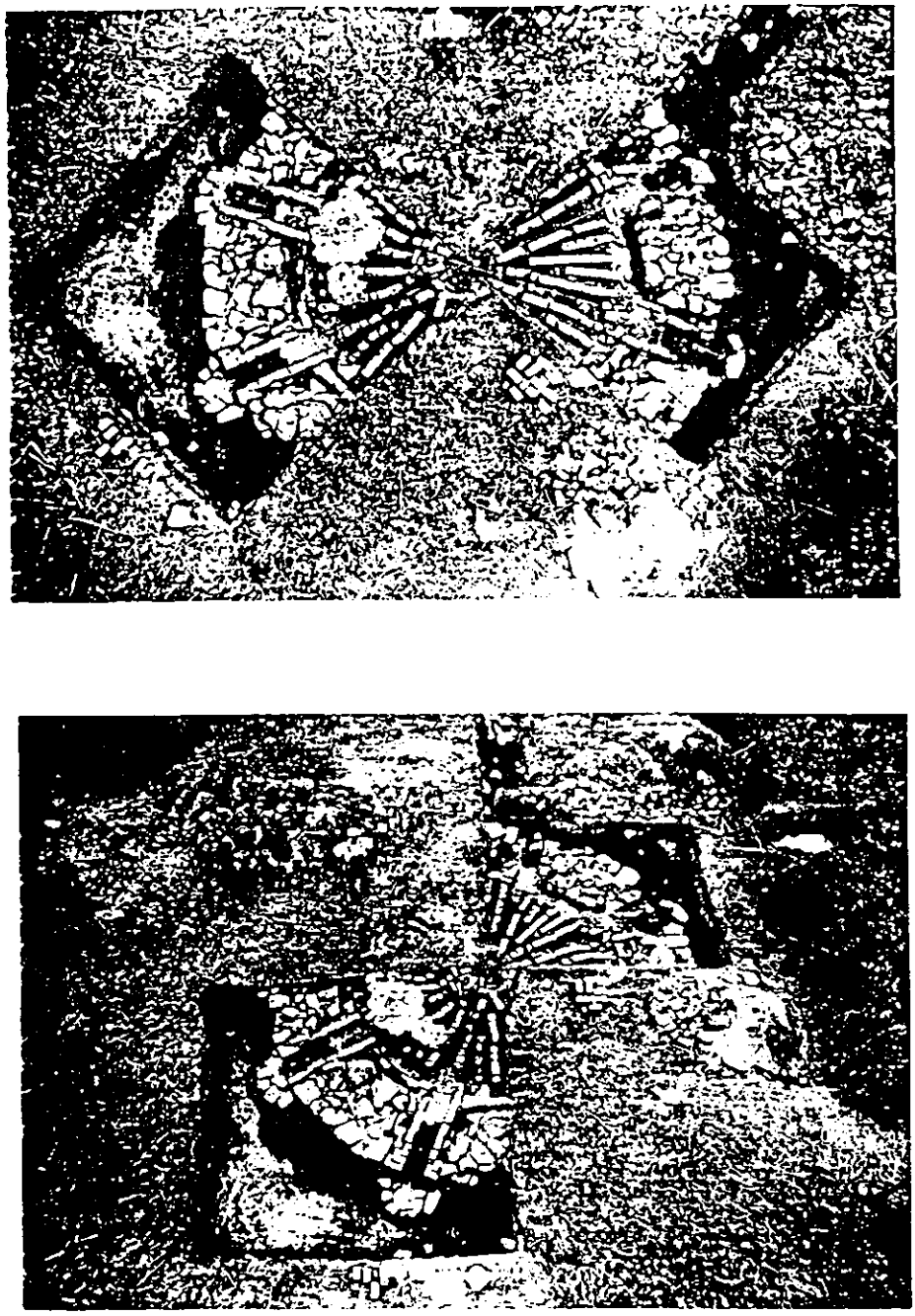


Figure 11. View of Kiln 1, Tile Works Site (11-Gr-70).

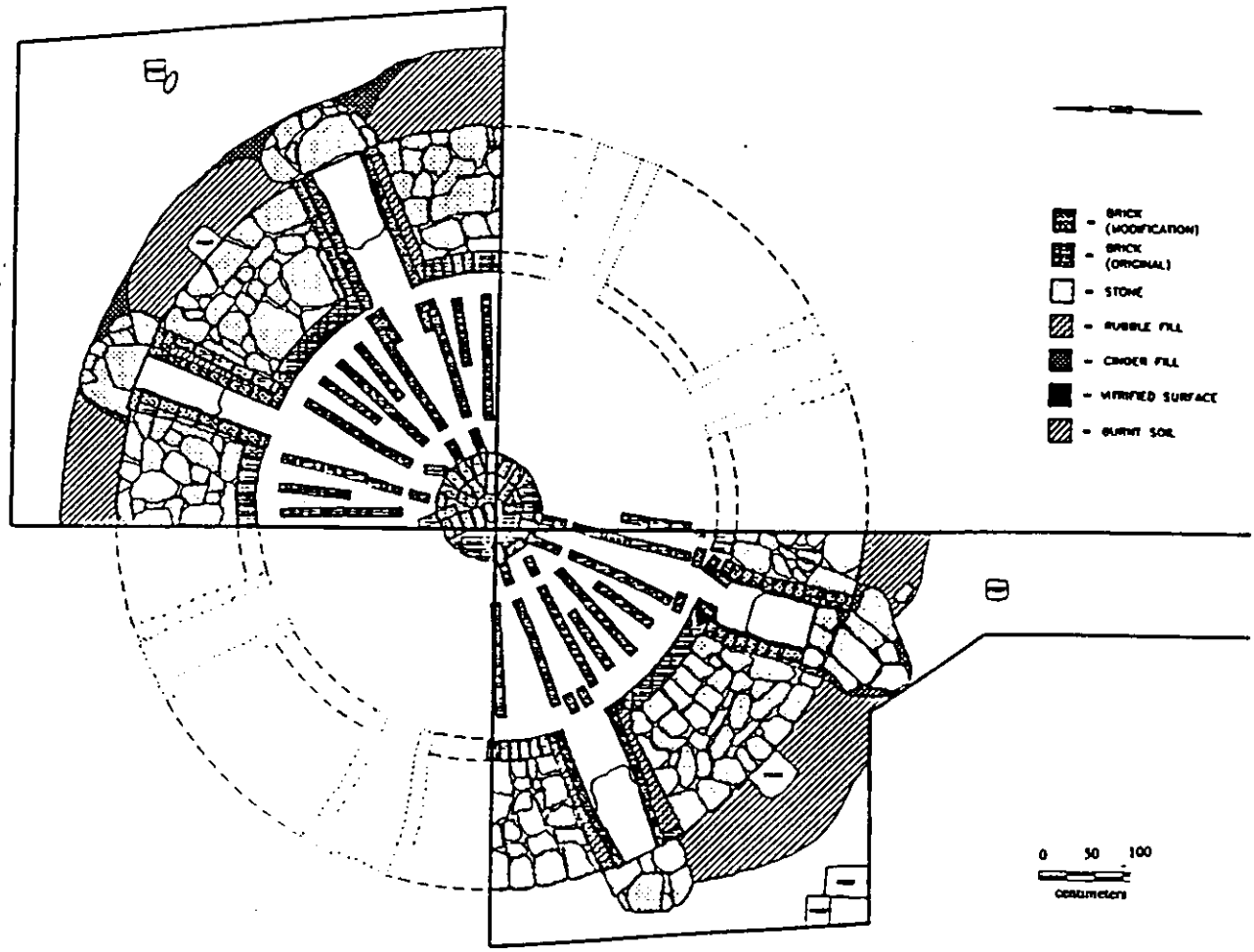


Figure 12. Plan view of Kiln 1, Tile Works Site (11-Gr-70).

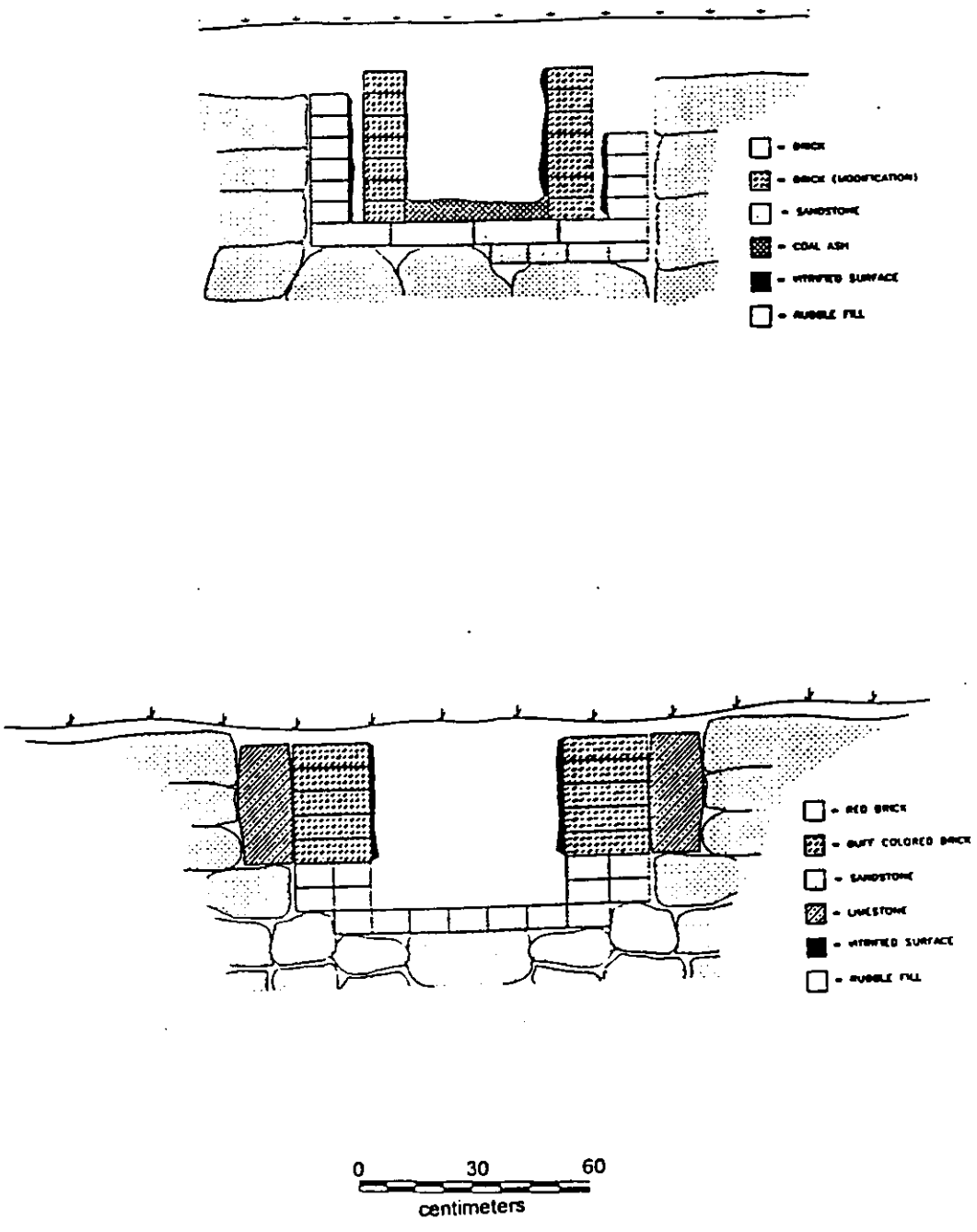


Figure 13. Section through fire box of Kiln 1 and 2, Tile Works Site (11-Gr-70).

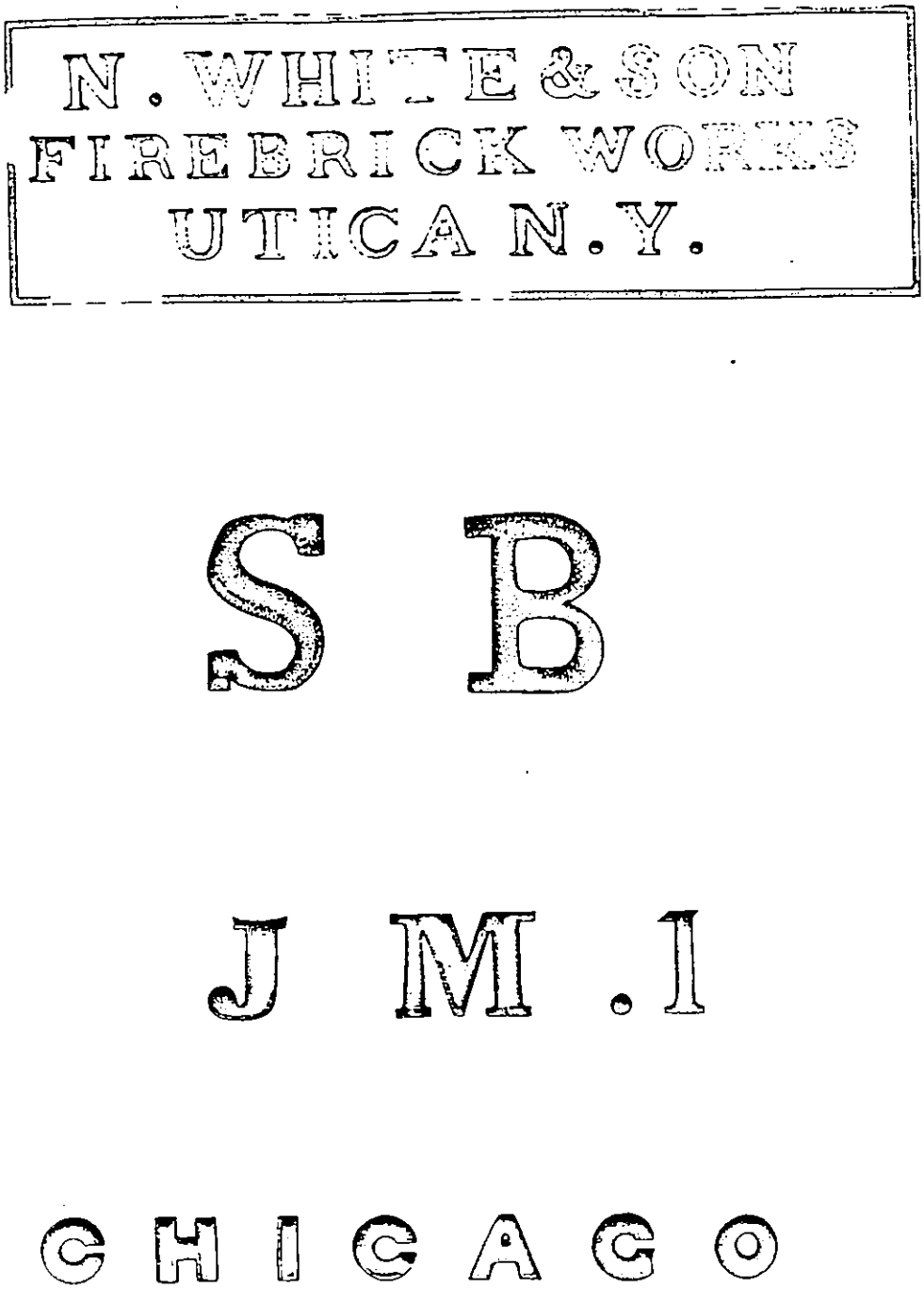


Figure 14. Impressed fire brick from the Tile Works Site (11-Gr-70).

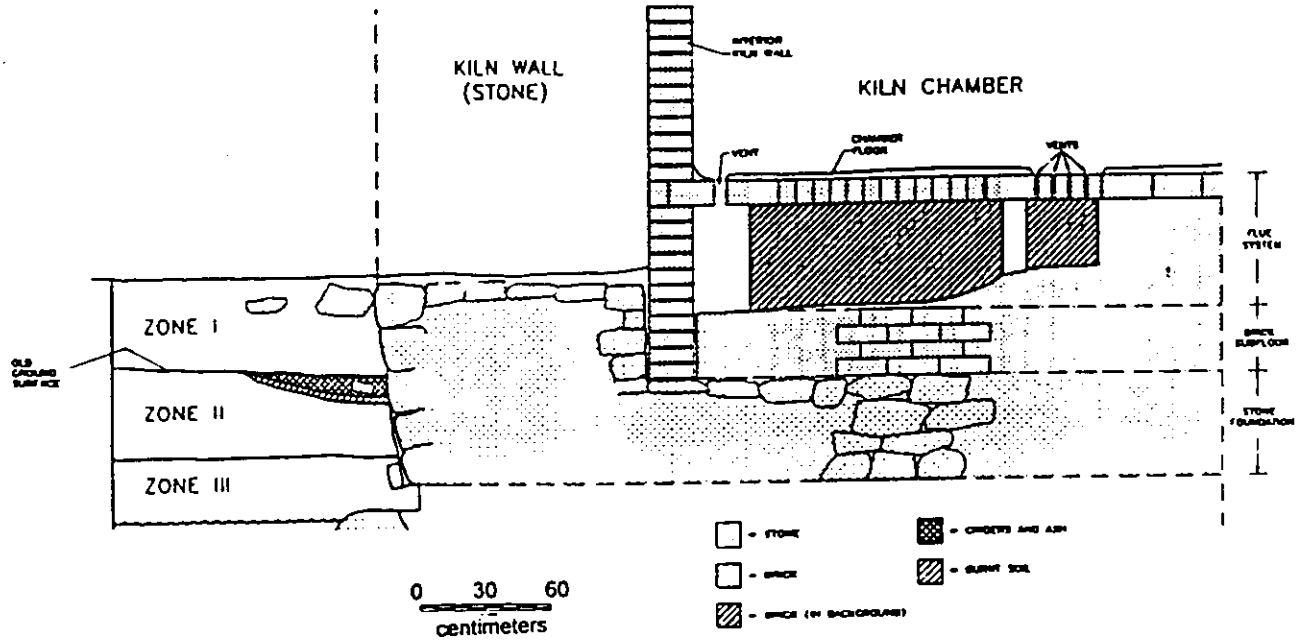


Figure 15. Idealized sectional view through base of Kiln 1, Tile Works Site (11-Gr-70).

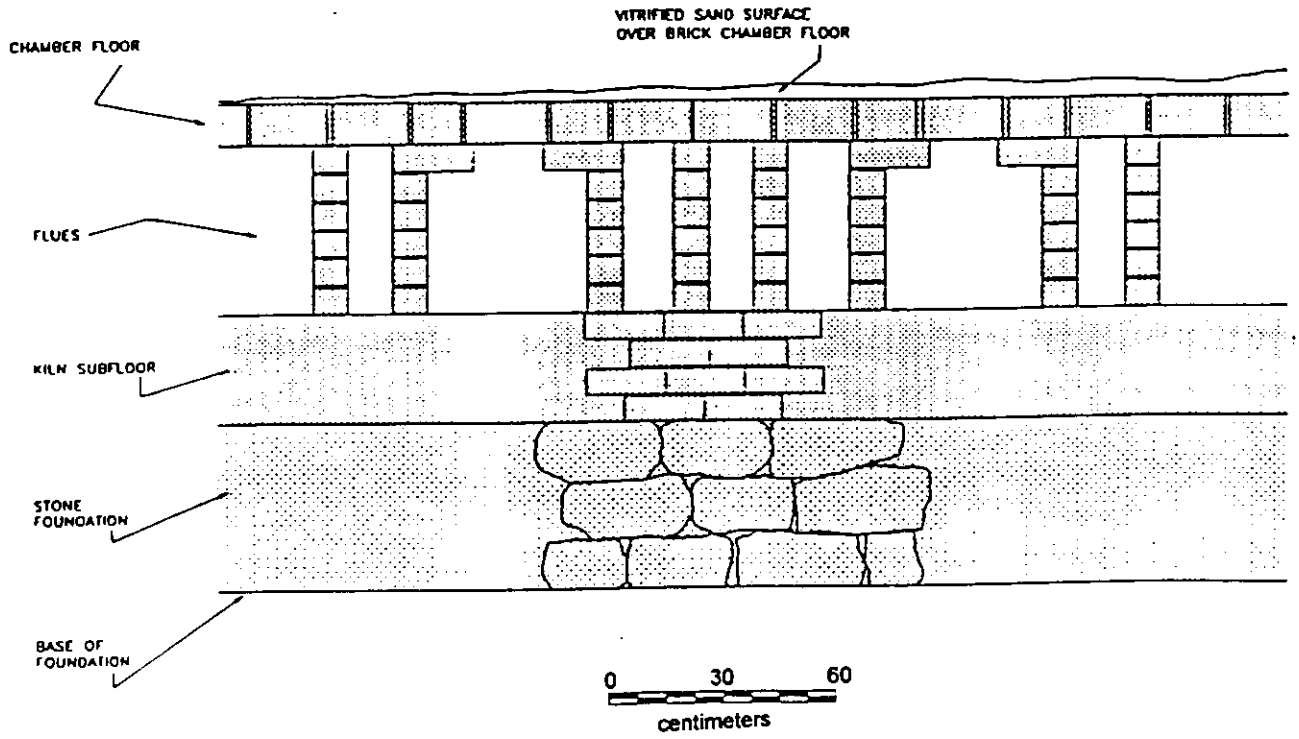


Figure 16. Idealized sectional view through the sub-chamber floor of Kiln 1, Tile Works Site (11-Gr-70).

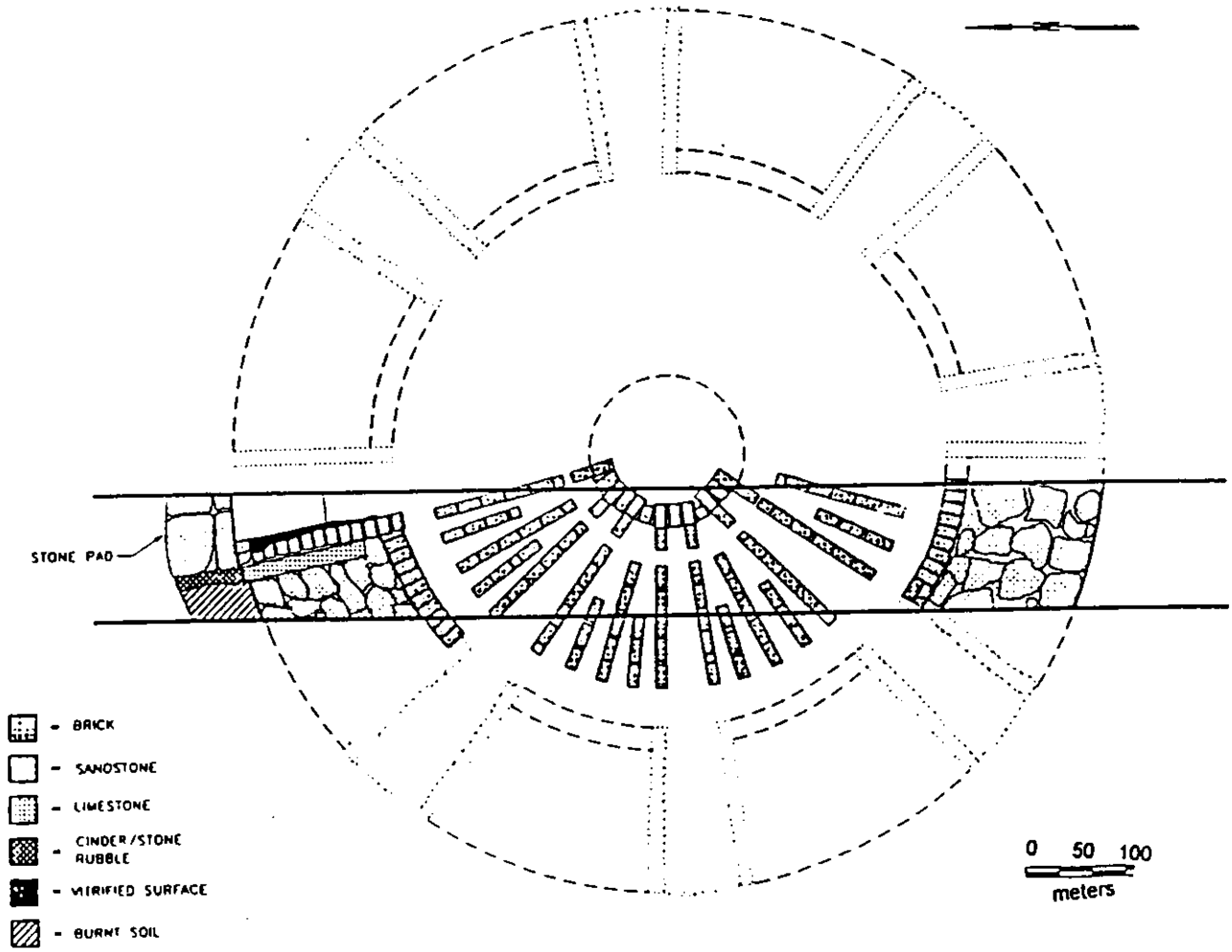


Figure 17. Plan view of Kiln 2 at the Tile Works Site (11-Gr-70).

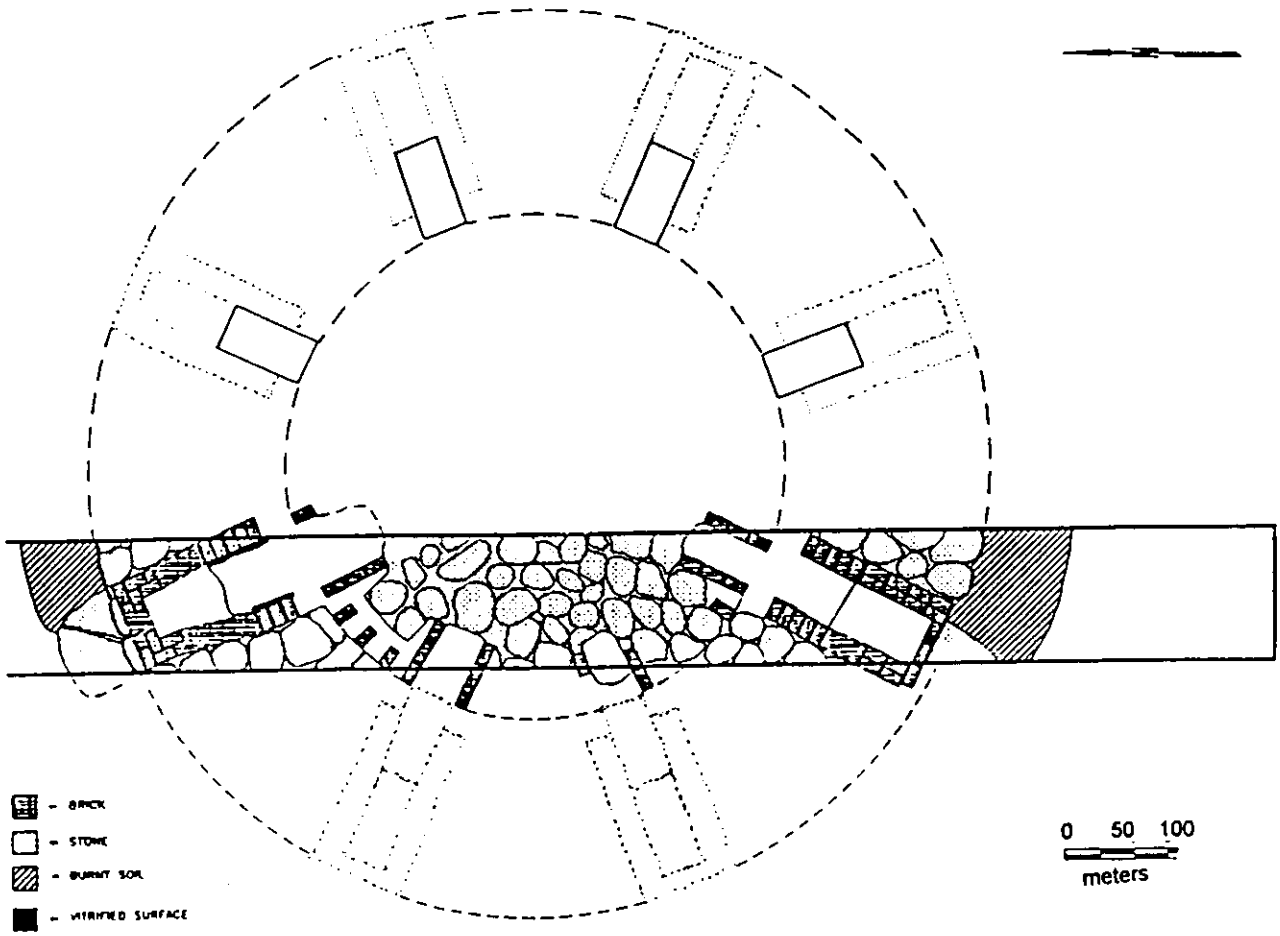


Figure 18. Plan view of Kiln 3 at the Tile Works Site (11-Gr-70).

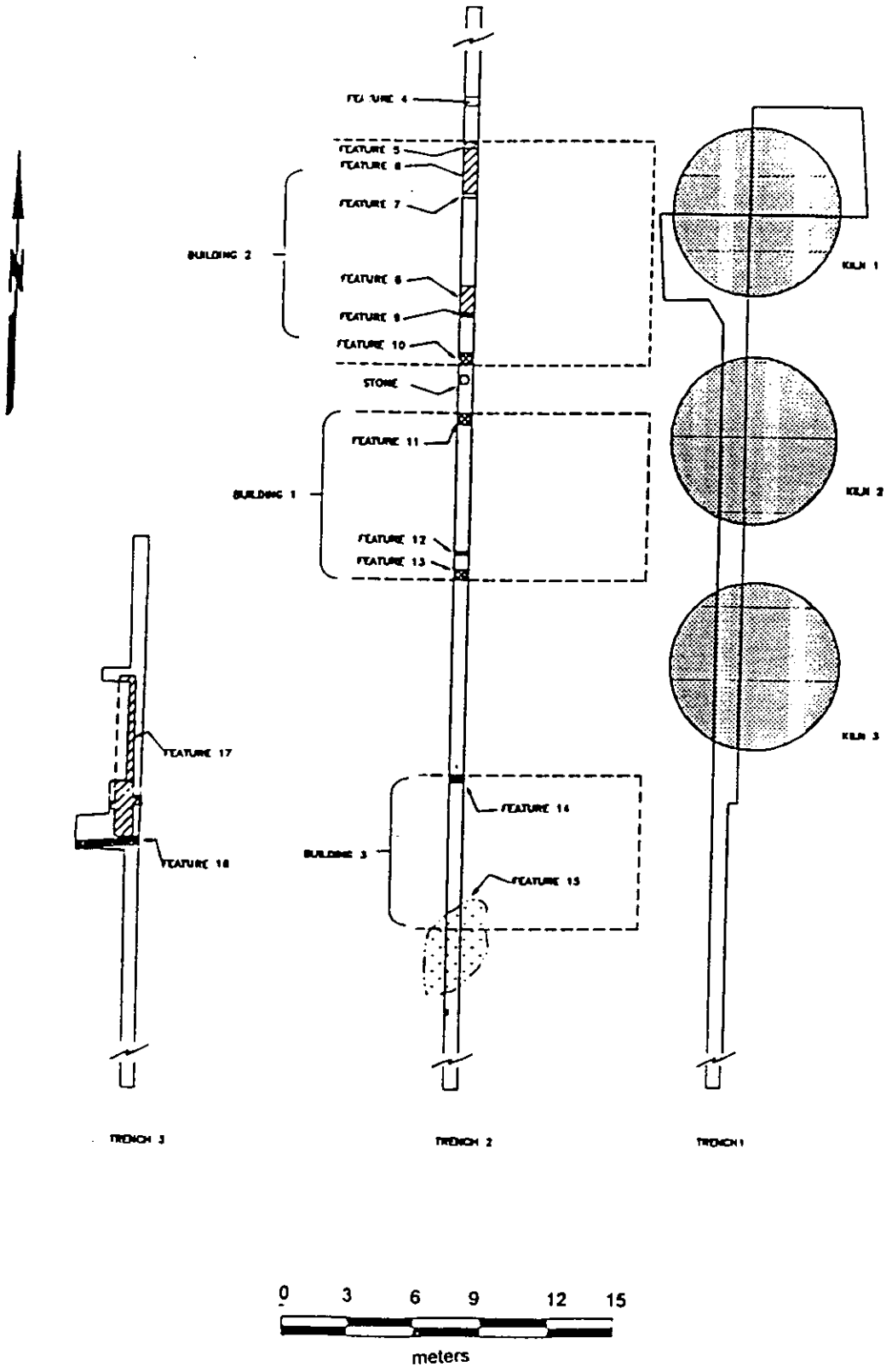


Figure 19. Location of backhoe test trenches and features in relationship to Kilns 1 through 3, Tile Works Site (11-Gr-70).

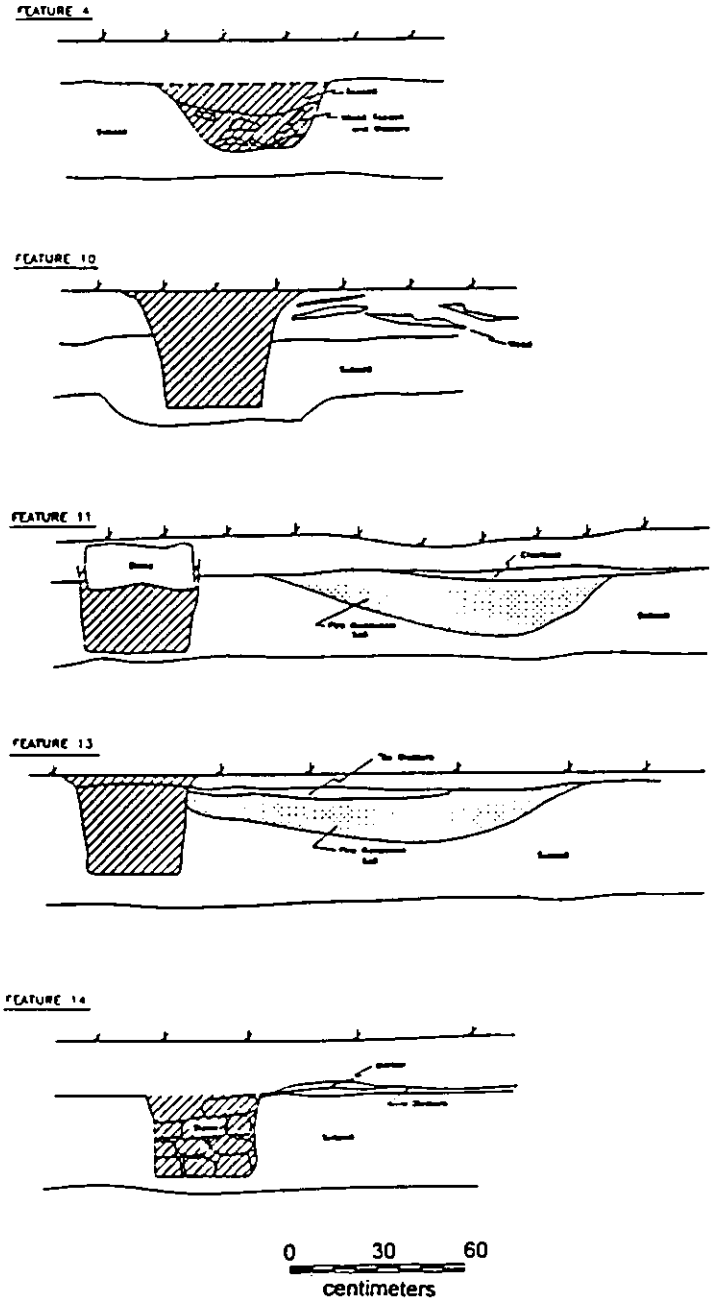


Figure 20. Sectional view of miscellaneous features at the Tile Works Site (11-Gr-70).

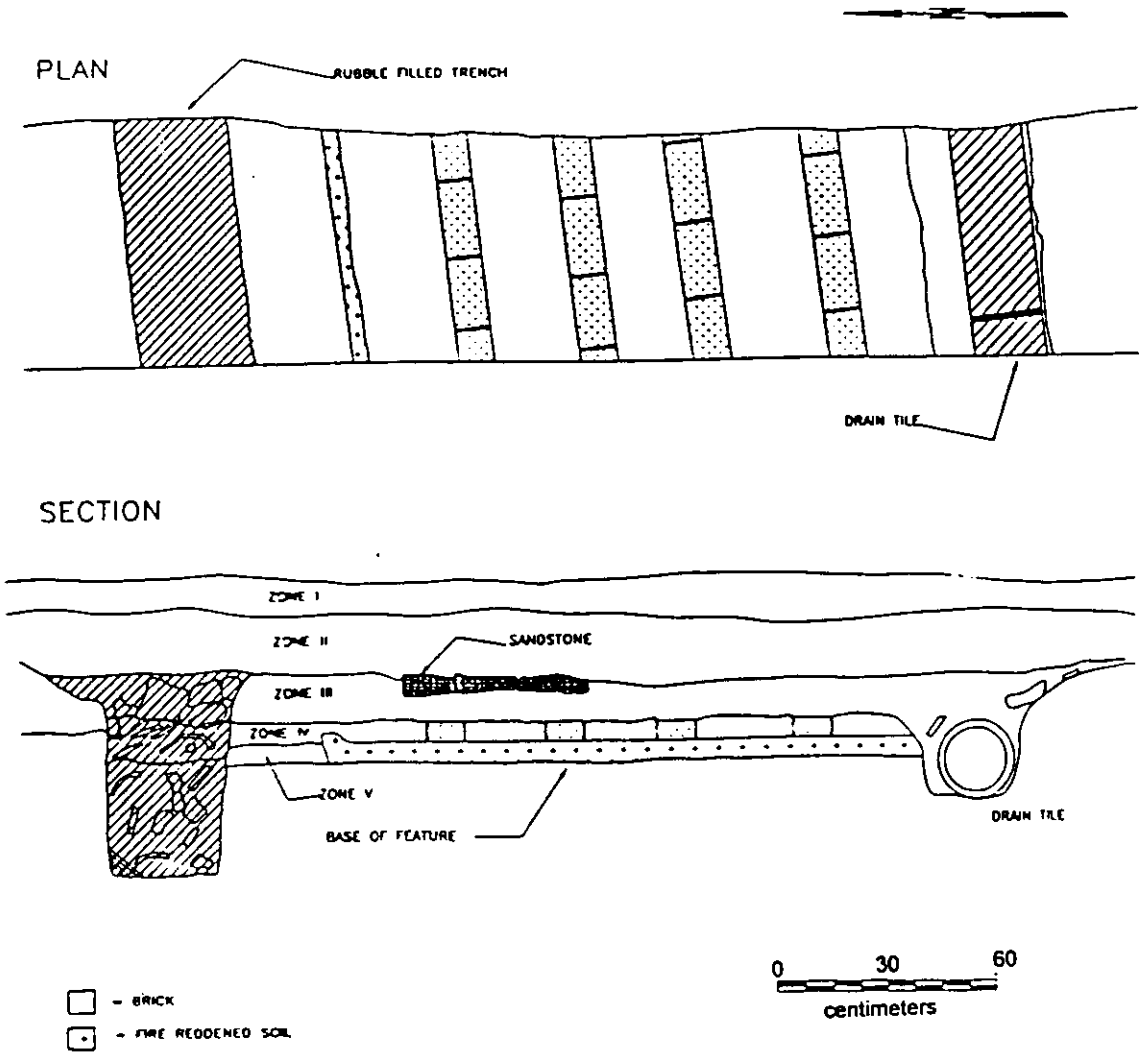


Figure 21. Plan and sectional view of feature 6 at the Tile Works Site (11-Gr-70).

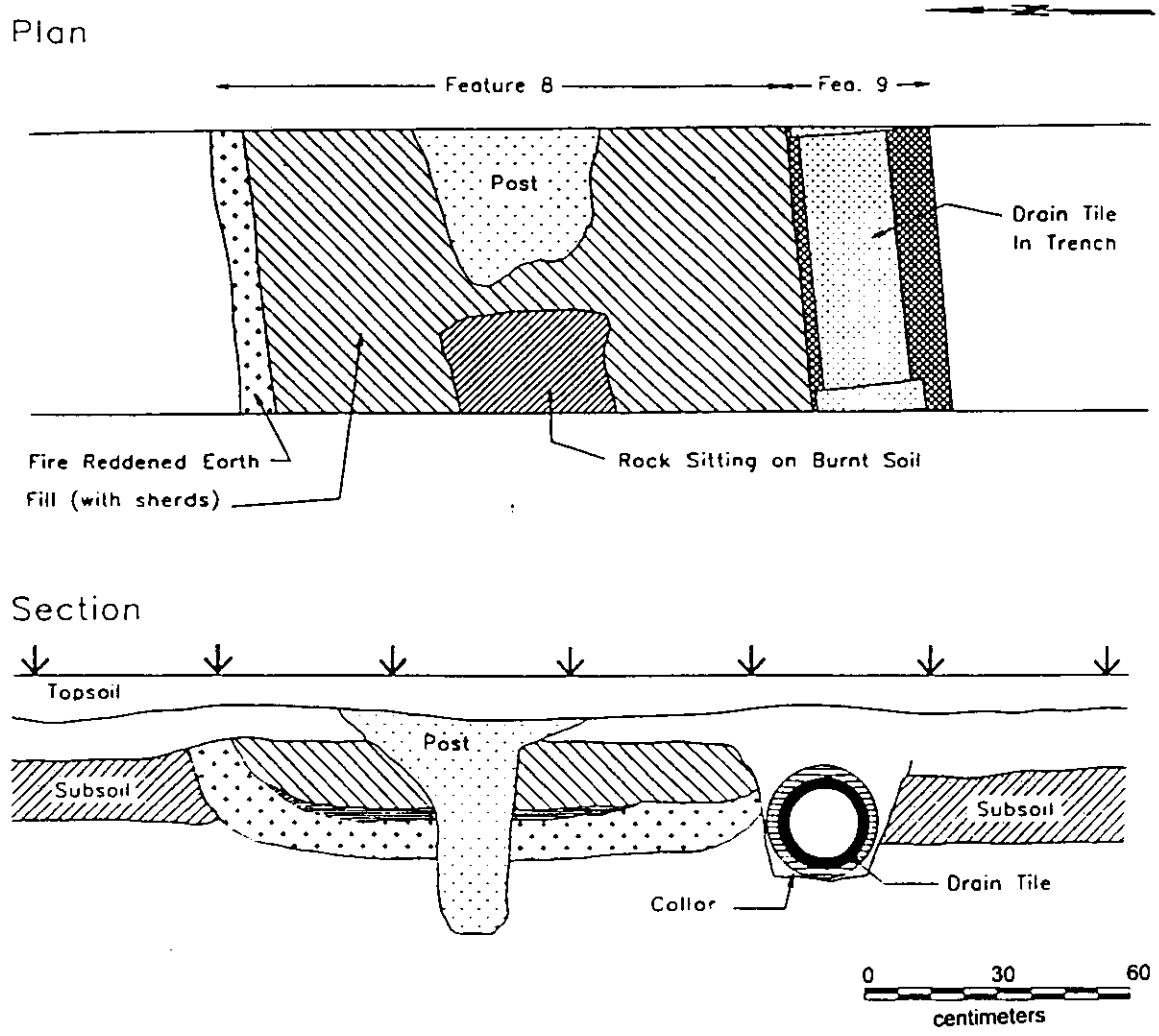


Figure 22. Plan and sectional view of features 8 and 9 at the Tile Works Site (11-Gr-70).

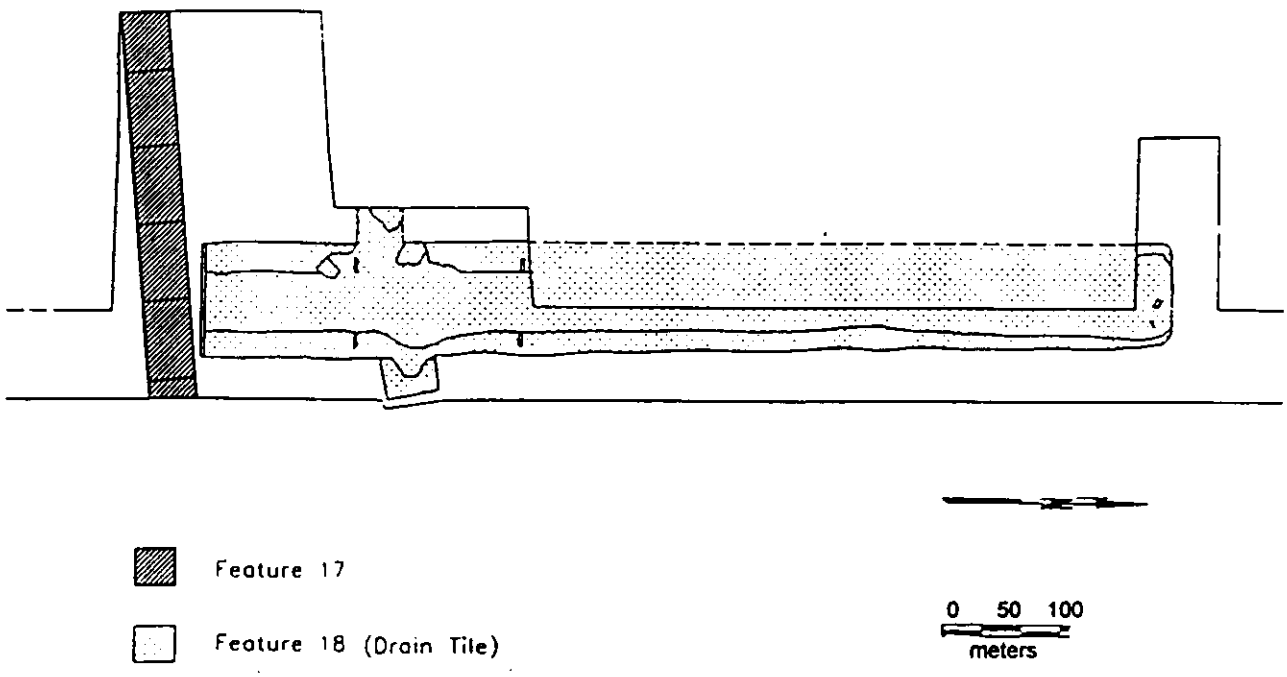


Figure 23. Plan view of feature 17 at the Tile Works Site (11-Gr-70).

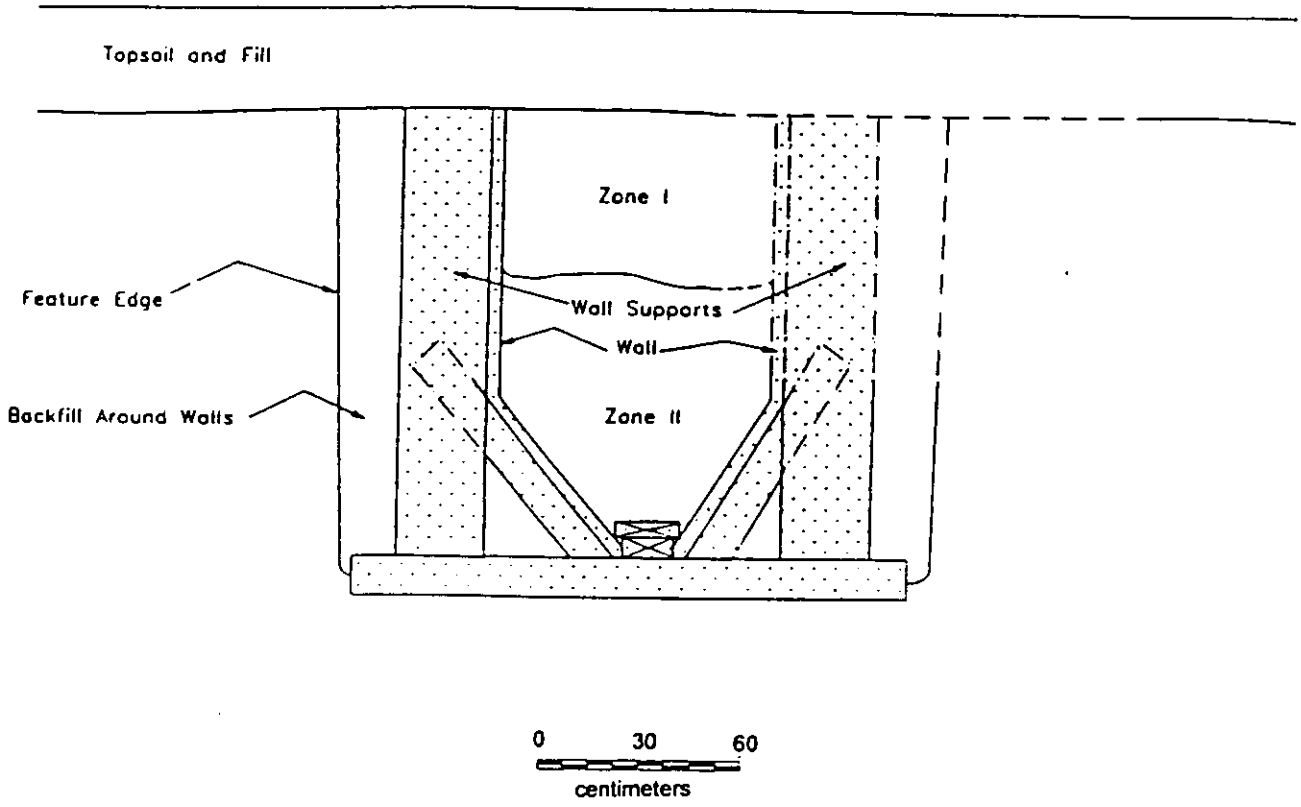


Figure 24. Sectional view of feature 17 at the Tile Works Site (11-Gr-70).

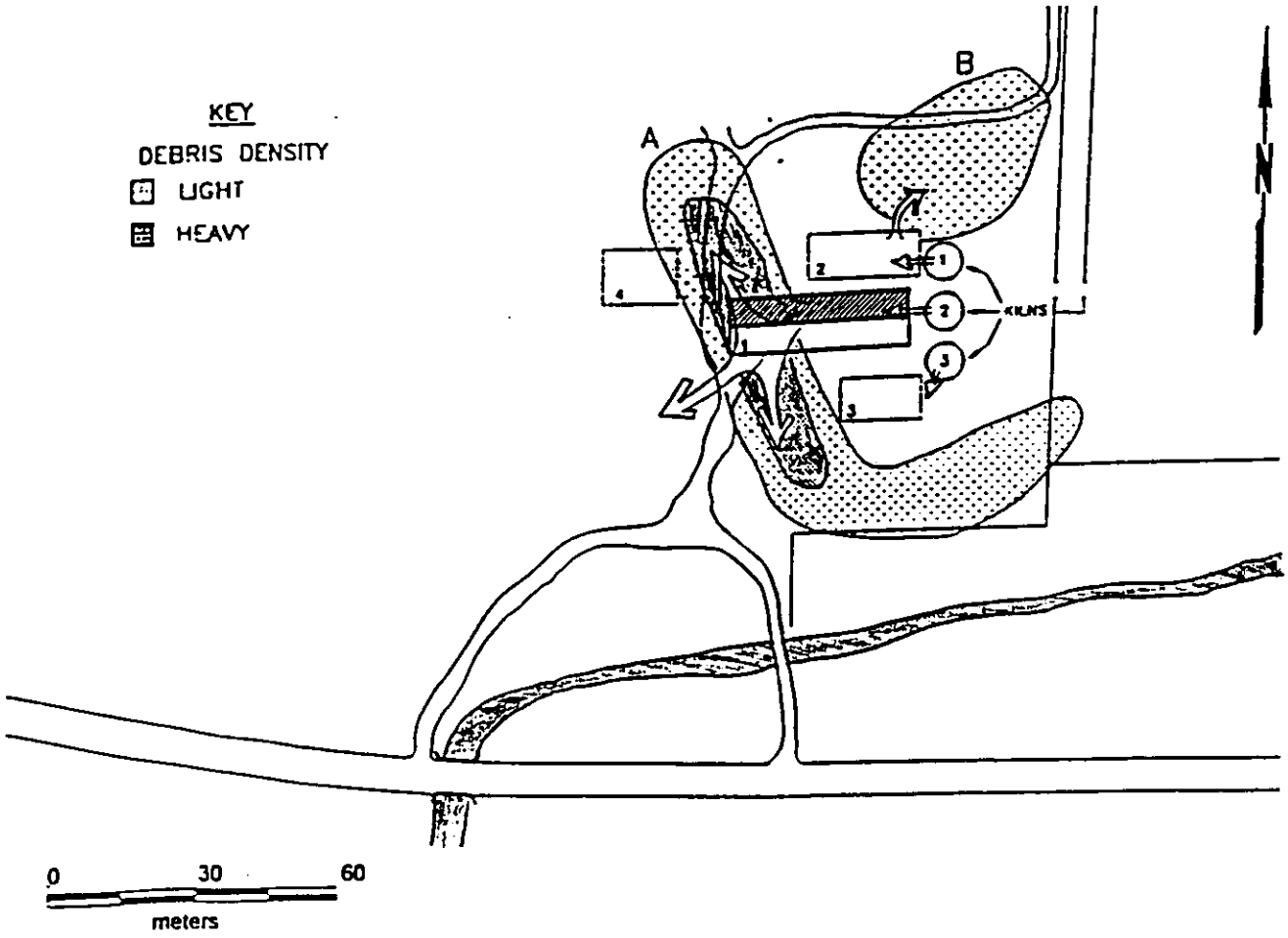


Figure 25. Interpretation of the structures of the Tile Works Site (11-Gr-70) based on the analysis of the surface collections and subsurface testing. Building 1 is the Tile Works, Building 2 the steam engine and/or workshop, Building 3 is the boarding house while Building 4 may represent a barn or similar outbuilding.

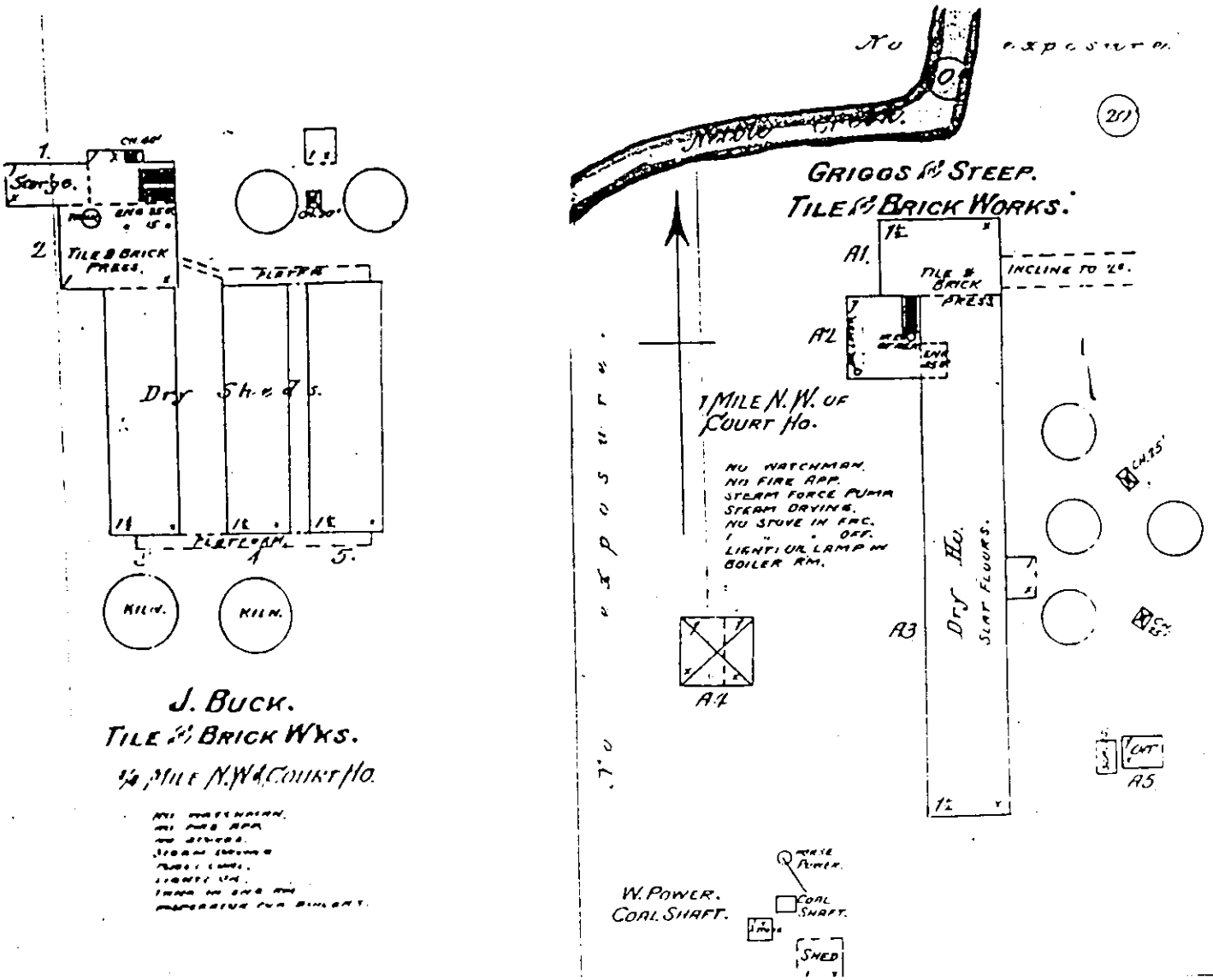


Figure 26. Structure of two late nineteenth-century tile works near Morris, Grundy County, Illinois (Sanborn Fire Insurance Company 1889).

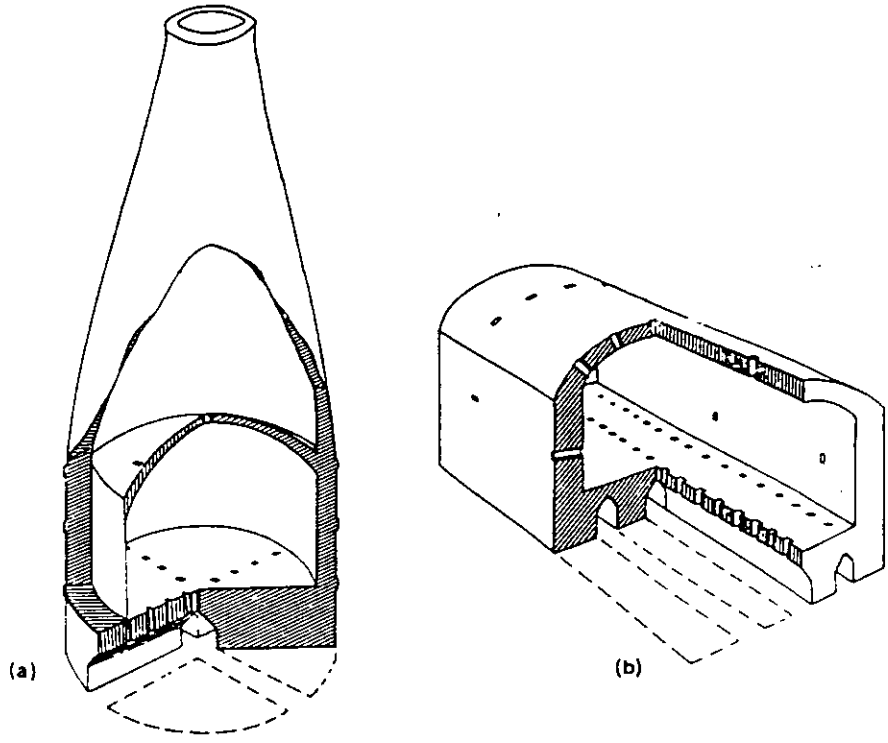


Figure 27. Comparison of round (bottle) and rectangular updraft kilns (from Pendery 1985:115).

Figure 28. Drain tile recovered from the Tile Works Site (11-Gr-70).

United States Department of the Interior

NATIONAL PARK SERVICE
1849 C Street, N.W.
Washington, D.C. 20240

IN REPLY REFER TO:

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AUG 14 1998

WEEKLY LIST OF ACTIONS TAKEN ON PROPERTIES: 8/03/98 THROUGH 8/07/98

KEY: State, County, Property Name, Address/Boundary, City, Vicinity, Reference Number, NHL, Action, Date, Multiple Name

CALIFORNIA, LOS ANGELES COUNTY, House at 1011 S. Madison Ave., 1011 S. Madison Ave., Pasadena, 98000959, LISTED, 8/06/98 (Residential Architecture of Pasadena: Influence of the Arts and Crafts Movement)
CALIFORNIA, LOS ANGELES COUNTY, House at 1050 S. Madison Ave., 1050 S. Madison Ave., Pasadena, 98000960, LISTED, 8/06/98 (Residential Architecture of Pasadena: Influence of the Arts and Crafts Movement)
CALIFORNIA, LOS ANGELES COUNTY, House at 1233 Wentworth Ave., 1233 Wentworth Ave., Pasadena, 98000962, LISTED, 8/06/98 (Residential Architecture of Pasadena: Influence of the Arts and Crafts Movement)
CALIFORNIA, LOS ANGELES COUNTY, House at 380 W. Del Mar Blvd., 380 W. Del Mar Blvd., Pasadena, 98000961, LISTED, 8/06/98 (Residential Architecture of Pasadena: Influence of the Arts and Crafts Movement)
CALIFORNIA, LOS ANGELES COUNTY, House at 574 Bellefontaine St., 574 Bellefontaine St., Pasadena, 98000958, LISTED, 8/06/98 (Residential Architecture of Pasadena: Influence of the Arts and Crafts Movement)
CONNECTICUT, HARTFORD COUNTY, Old North Cemetery, 1921 Main St., Hartford, 98000964, LISTED, 8/06/98
GEORGIA, BANKS COUNTY, Fort Hollingsworth--White House, Wynn Lake Rd., 2 mi. SE of Hollingsworth, Hollingsworth vicinity, 98000973, LISTED, 8/06/98
GEORGIA, FULTON COUNTY, Ashby Street Car Barn, 981 Ashby St. NW, Atlanta, 98000972, LISTED, 8/06/98
GEORGIA, FULTON COUNTY, Freeman Ford Building, 75 John Wesley Dobbs Ave., Atlanta, 98000958, LISTED, 8/06/98
GEORGIA, GREENE COUNTY, Bethesda Baptist Church and Cemetery, Jct. of Cty Rd. 120 and Cty Rd. 129, Union Point vicinity, 98000967, LISTED, 8/06/98
GEORGIA, NEWTON COUNTY, Covington Historic District, Roughly Covington City S of US 278, Covington, 98000969, LISTED, 8/06/98
GEORGIA, NEWTON COUNTY, Newborn Historic District, Roughly the entire city limits of Newborn City, Newborn, 98000970, LISTED, 8/06/98
ILLINOIS, CALHOUN COUNTY, Brussels Historic District, Roughly along Main and Community Sts., Brussels, 98000981, LISTED, 8/06/98
ILLINOIS, CLAY COUNTY, Clay County Jail, 195 Main St., Louisville, 98000986, LISTED, 8/06/98
ILLINOIS, COOK COUNTY, Illinois Industrial School for Girls, 733 N. Prospect Ave., Park Ridge, 98000978, LISTED, 8/06/98
ILLINOIS, GRUNDY COUNTY, White and Company's Goose Lake Tile Works, 5010 N. Jugtown Rd., Morris vicinity, 98000976, LISTED, 8/06/98
ILLINOIS, GRUNDY COUNTY, White and Company's Goose Lake Stoneware Manufactury, 5010 N. Jugtown Rd., Morris vicinity, 98000982, LISTED, 8/06/98
ILLINOIS, HARDIN COUNTY, Cave-In-Rock, 0.5 mi N of the town of Cave-In-Rock, Cave-In-Rock, 98000984, LISTED, 8/06/98 (Caught in the Middle: the Civil War on the Lower Ohio River MPS)
ILLINOIS, JACKSON COUNTY, Camp Mather--Camp Logan, 10765 IL 13, Shawneetown, 98000983, LISTED, 8/06/98 (Caught in the Middle: The Civil War on the Lower Ohio River MPS)
ILLINOIS, JERSEY COUNTY, Fulkerson, Col. William H., Farmstead, 1510 N. State St., Jerseyville vicinity, 98000977, LISTED, 8/06/98
ILLINOIS, JERSEY COUNTY, Hamilton Primary School, 200 ft. W of the jct. of Otteville and McClusky Rds., Otterville, 98000975, LISTED, 8/06/98
ILLINOIS, SANGAMON COUNTY, Illinois Route 4--North of Auburn, Curran and Snell Rd., Auburn vicinity, 98000979, LISTED, 8/06/98
ILLINOIS, SANGAMON COUNTY, Lincoln Colored Home, 427 S. Twelfth St., Springfield, 98000985, LISTED, 8/06/98
IOWA, WOODBURY COUNTY, Bailey, George A. and Mary Tinkel, House, 423 10th St., Correctionville, 98000929, LISTED, 8/05/98
LOUISIANA, WASHINGTON PARISH, Franklinton High School, 527 Main St., Franklinton, 98000988, LISTED, 8/06/98
LOUISIANA, WASHINGTON PARISH, Greenlaw House, 613 10th Ave., Franklinton, 98000987, LISTED, 8/06/98
MASSACHUSETTS, HAMPDEN COUNTY, Carreau Block, 640-642 Chicopee St., Chicopee, 98000993, LISTED, 8/06/98
MICHIGAN, CHARLEVOIX COUNTY, Porter, John J. and Eva Reynier, Estate, 01787 MI 66 S, South Arm Township, 98000269, LISTED, 8/03/98
MINNESOTA, KOOCHICHING COUNTY, Bridge No. 5721, MN 65 over Little Fork R., Silverdale vicinity, 98000717, LISTED, 7/13/98 (Iron and Steel Bridges in Minnesota MPS)
MISSOURI, ST. LOUIS INDEPENDENT CITY, Laclede Building, 408 Olive St., St. Louis, 98000994, LISTED, 8/06/98
NEW YORK, CHENANGO COUNTY, Smithville Valley Grange No. 1337, NY 41, Smithville Flats, 98001009, LISTED, 8/06/98
NEW YORK, LEWIS COUNTY, St. Mark's Church, Jct. of West Main and Elm Sts., Port Leyden, 98001003, LISTED, 8/06/98 (Historic Churches of the Episcopal Diocese of Central New York MPS)