

1383

United States Department of the Interior
National Park Service

National Register of Historic Places
Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name R. S. Blome Granitoid Pavement in Grand Forks
other names/site number also identified by street names; see attached maps

2. Location

street & number occurs in three distinct areas in the city; not for publication NA
city, town Grand Forks see maps vicinity NA
state North Dakota code ND county Grand Forks code 035 zip code 58201

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
<input type="checkbox"/> private	<input type="checkbox"/> building(s)	Contributing	Noncontributing <u>NA</u>
<input checked="" type="checkbox"/> public-local	<input type="checkbox"/> district	_____	_____ buildings
<input type="checkbox"/> public-State	<input type="checkbox"/> site	_____	_____ sites
<input type="checkbox"/> public-Federal	<input checked="" type="checkbox"/> structure	<u>1</u>	_____ structures
	<input type="checkbox"/> object	_____	_____ objects
		<u>1</u>	_____ Total

Name of related multiple property listing:
NA

Number of contributing resources previously listed in the National Register NA

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property meets does not meet the National Register criteria. See continuation sheet.

James E. Sperry August 28, 1991
Signature of certifying official James E. Sperry, State Historic Preservation Officer (North Dakota) Date

State or Federal agency and bureau _____

In my opinion, the property meets does not meet the National Register criteria. See continuation sheet.

Signature of commenting or other official Date

State or Federal agency and bureau _____

5. 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:)

Peth Roland 11/5/91

Signature of the Keeper Date of Action

Signature of the Keeper

Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)

Transportation-Road-related (vehicular)

Current Functions (enter categories from instructions)

Transportation-Road-related
(vehicular)

7. Description

Architectural Classification
(enter categories from instructions)

NA

Materials (enter categories from instructions)

foundation NA

walls NA

roof NA

other Portland Cement, Granite,
Stone, Rubber, Asphalt

Describe present and historic physical appearance.

See continuation sheets.

See continuation sheet

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This historic paving material, patented under the name R.S. Blome Granitoid, was laid in the three oldest residential districts in Grand Forks, North Dakota between 1910 and 1911. The materials of which it is constructed are Portland cement, crushed granite, crushed stone, angular granite and sand. The distinguishing feature of this pavement, which was intended to be both functional and possibly aesthetic, is a scored surface which resembles cut stone. The practical value of the pavement was that it provided a harder, less resilient surface for motorized vehicles, while ensuring a somewhat roughened surface to enable horses a better grip.

The patent document very precisely describes the two-course concrete surface: a prepared road bed, arched appropriately, onto which is lain a six inch layer of unbound gravel (macadam). The following layers, laid in five foot sections, consist first of a five inch section of cement, crushed granite and other stone and sand. Each section was sealed with an asphalt and rubber mixture that allowed for expansion between sections. Another practical feature of these sections was that they could be removed in units to allow easy access to underlying utilities if necessary, without defacing neighboring sections. Once utility work was completed, replacement Granitoid could be lain and scored. Unfortunately, this feature of the patent has been largely ignored as is evident from random utility cuts and the incompatibility of asphalt patching.

The two inch finish layer consists of Portland cement and carefully screened, angular granite chips measuring no less than 1/8 of an inch and no more than 3/8 of an inch. The use of angular, monument granite, instead of the standard rounded river pebbles, was intended to ensure a solid bond with the cement and to eliminate the dislodging of gravel that is so common to ordinary concrete surfaces. The angular chips, today, remain securely bonded to the concrete material.

The drying surface was then lightly brushed to prevent slipperiness. Most importantly, the curing concrete surface was scored both longitudinally and cross-wise, giving stone-like impressions approximately 4" by 9". Unlike the patent illustration, which specifies a grid-like scoring pattern, the Grand Forks Granitoid is scored as a running bond with the

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resulting appearance of cut stone. The patent instructions do not detail the technique for executing the scoring, however, in Duluth, Minnesota, newspaper accounts mention the use of a "bridge" constructed above the drying surface. From this vantage workers drew chalk lines to indicate transverse scoring, and after having impressed these lines, finished the section by scoring perpendicular joints. One former public works employee in Grand Forks recalls that horses or mules were used to pull the bridge apparatus along as lines were incised. (Richmond)

Still today, a number of decorative bronze name plates embedded into the pavement identify the manufacturer: "Established 1888. GRANITOID. R.S. Blome. Chicago. 1907." The locations of these plates are noted on the attached maps. In some areas, Granitoid surfaces are framed by cut sandstone curbing and in a few sections, armored curbs or "buggy guards" are still intact. In some highway construction manuals of the period that describe the Granitoid method, sandstone and cut granite curbing are recommended for concrete streets (Blanchard, pp. 1384). These features, also indicated on the attached maps, lend further association with the transitional age between horse drawn conveyance and motor vehicles.

The condition of the pavement varies from fairly continuous sections marred only by slight settling and narrow cracks measuring no more than one half inch across, to fragmented and paved over areas that have been interrupted by random utility cuts. Both asphalt and modern concretes have been used in some areas for patching and filling cracks. Aside from poorly executed patching, surfaces retain essential qualities of scoring and granite-like appearance that give the material its significance. In spite of harsh weather conditions, snow removal, periodic sanding and eight decades of use, the angular granite aggregate remains securely lodged with no evidence of erosion from the concrete matrix.

A photograph of these streets taken in 1932 at the corner of Fourth Avenue South and Chestnut Street, depicts the presence of cracks that, when compared with the same surfaces today, do not appear to have progressed or increased in number. This suggests that most of the cracks originated early in the life of the pavement and were probably a consequence of curing and initial

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settlement. Further evidence of the material's stability is gained from the smooth rounded crack edges which suggest that existing cracks are quite old.

This nomination encompasses all extant Granitoid streets, including accompanying sandstone curbing where present. All of this material satisfies the seven criteria of integrity in terms of original location, historic setting, relevant materials, design and engineering qualities. Where Granitoid survives, its distinctive granite components and scoring make it readily identifiable as a historic pavement.

The residential area which frames these Granitoid streets constitutes some of Grand Forks earliest and most affluent building stock as well as important examples of multi unit and moderate income housing. Late nineteenth and early twentieth century architectural styles of Queen Anne, Neoclassical, Italianate, Colonial Revival and Craftsman are represented in the areas included in this nomination. Belmont School, built in 1902, several churches including the Congregational and Art Deco United Lutheran churches, as well as a number of residential properties along Reeves and Belmont Drives are individually eligible for historic and architectural values. A triangular park-garden at the pivot of Minnesota Avenue and Fourth Avenue South is one of the neighborhood's most significant features.

Trees planted along the streets at or near the time of the Granitoid paving now provide a deep canopy above the streets. Because of the two lane dimension of this pavement, the visual character of these neighborhoods is an intimate web of narrow streets, two and three story building profiles and mature trees and plantings that emphasize the period between 1880-1910.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

nationally statewide locally

Applicable National Register Criteria A B C D

Criteria Considerations (Exceptions) A B C D E F G NA

Areas of Significance (enter categories from instructions)

Invention
Engineering
Community Planning and Development
Transportation

Period of Significance

1910 - 1941

Significant Dates

1910/1911

Cultural Affiliation

NA

Significant Person

NA

Architect/Builder

R. S. Blome Company of Chicago

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

See continuation sheets.

See continuation sheet

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Granitoid Pavement is nominated under Criterion A for its association with a transitional period in transportation history, and under Criterion C for exceptional engineering properties and distinctive materials representing the period of technological experimentation in the use of Portland cement-based artificial stone. This pavement is significant in that it is a vanishing, and perhaps rare example of its type, employing a patented method of construction specifically designed for use at the time of shifting emphasis from horse-drawn conveyance to motor vehicle travel. Extensive research and national inquiry revealed no other patents or descriptions for an artificial stone street surface of this type.

The use of Granitoid in Grand Forks and its relatively short period of use nationally marks the transition from horse drawn transportation to motor vehicles. In the first decade of the century, it was noted that the declining ration of buggy to motor vehicle traffic was changing the character of stresses to road surfaces. The soft, resilient pavements of previous years were no longer suitable and many manuals and journals forecast the use of concrete paving to meet the needs of motorized traffic. In fact, a 1908 commentary acclaims the transitional value of Granitoid as a material not only capable of providing sanitary benefits and high durability, but as a medium that satisfied both horse and buggy conveyance as well as the growing demands of the auto age. This commentator stated that, in light of the passing age of horse-drawn transportation, the Blome Co. patent offered a harder, durable surface ideally suited to the new stresses of automobile traffic (Dewey, pp. 369)

The fact that some of these Granitoid streets are framed by armored curbs or "buggy guards" further associates the streets with this period. The streets are, in fact, a composite of elements that belong to an important era in transportation history - the growing obsolescence of horse and buggy transportation, and the technological innovations designed to meet the age of the automobile.

Grand Forks was a rapidly developing area at this time in the state's history and this pavement became an important component of the established residential neighborhoods of the city. By 1910 Grand Forks was the home of the University of North Dakota,

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and an important railroad hub and regional distribution center for the booming agriculture business. The leaders of commerce built large, impressive homes in what is now the near south side of the city and near the banks of the Red River in the north of the city. Others structures in the area are middle class houses, most of which retain their historic appearance. Along Fourth Avenue South, Belmont Elementary, built in 1902 and is still in service.

These late nineteenth and early twentieth century homes still stand and retain their historic character and integrity. Most are still committed to their original function as single family homes. Some of these are individually listed on the National Register and many more are eligible on an individual basis or as contributing members of a large, eligible historic district.

With regard to community planning and development, the Granitoid streets were the subject of much well-documented discussion and debate preceeding their construction. The project represented a considerable dollar increase in home ownership committment, as indicated by the property tax rolls (Hoffbeck). It also created a tremendous change not only in the appearance of the neighborhoods but a dramatic improvement in the quality of life.

Before the installation of Granitoid, the annual spring thaw and summer's heavy rains transformed the city's streets into an intractable sea of mud, impassable by pedestrians and carriage alike. Several solutions were tried, including cedar paving blocks. A scrap of this cedar block pavement survives in this area. However, swelling and "popping up" of these block following rain created serious transportation problems and the tendency of the Red River to flood its bank left these surfaces mired in mud.

Facing the burden of special assessment for first time pavements, property owners had a vested interest in the quality and longevity of the chosen material, especially since future maintenance could not be guaranteed by city government (Blanchard, pp. 1506) After much debate, residents resolved to have a high quality pavement installed that would last long "after it was paid for." The hard, unyielding Granitoid material was a welcome innovation. Relieved of the ankle deep

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mud and buggies stuck in the streets, homeowners were newly linked with their places of business in the commercial district of downtown Grand Forks.

As an engineering product, Granitoid was a result of nationwide experimentation and patenting of Portland cement-based products that were used predominantly in wall construction and exterior ornamentation. Granitoid, though patented, was one of many artificial stone media that came into use during this period, and may be seen as a by-product of the progressive use of Portland cement that began around 1860 in the United States. Experiments with concrete based pavements were being carried out in various parts of the country before the turn of the century, beginning with the first use of a Portland cement-grouted macadam pavement in Rochester, New York in 1893 (Blanchard, pp. 1151).

"Granitoid" is a term which appears in instances other than those exemplified by the Blome patent of 1907. An example of this is a surviving sidewalk pavement in St. Louis, Missouri. Here, sidewalks bear the brass name plates, however the name "Bruner" distinguishes this from the Blome product. The Bruner Granitoid was not, however, employed as a roadway material and was confined to sidewalk paving (Hamilton).

In the state of New Hampshire a patented material known as "Granolithic" was used exclusively for sidewalk pavements and, similarly to R. S. Granitoid, identified the product with embedded bronze name plates. Few of these sidewalks are known to survive (Garvin). In Fitzgerald, Georgia, much of the historic building stock as well as some of the community's sidewalks employed another "granitoid" variant. Here, a locally manufactured material produced by the Fitzgerald Granitoid Company was used extensively in window sills, arch blocks, keystones, chimney and sidewalk tiles and porch columns. This "granitoid" makes a strong visual contribution to walls and sidewalks throughout the community and is today, one of Fitzgerald's most important character-defining qualities. (Alliance Review)

Regarding street pavements, a related example of R. S. Granitoid was laid down in Duluth, Minnesota, also between 1909-1910, as that state's first concrete road surface. The Duluth example

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differs only slightly from the North Dakota Granitoid in that it conforms to the grid scoring specified in the patent document. The extent of surviving Granitoid in Duluth today is limited to one street for a length of less than four blocks, and exhibits neither the brass plates nor the armored curbs of the Grand Forks Granitoid.

In addition to the Duluth example, only two other occurrences of Granitoid have been located in the cities of Spokane and Seattle, Washington. The Spokane example consists of two perpendicular, mostly uninterrupted blocks found on Manito Boulevard that exhibit the patent illustrated grid scoring. In Seattle's Capitol Hill a small grid scored segment was found in context with continuous armored curbing or "buggy guards." The Grand Forks Granitoid is by the far the most extensive Granitoid found to date and is unique in its running bond scoring.

The method of scoring Granitoid, though not formally described in the patent, was apparently hand-done (Duluth Herald) - the transverse "joints" scored first and the perpendicular joints scored secondly. Scoring was reportedly executed by using chalk lines and trowels, probably from a bridge constructed above the wet surface. That the scoring was hand-done is evidenced by the irregularities in spacing and alignment that are visible in all examples of Granitoid. The running bond scoring of the Grand Forks Granitoid, distinguished from the grid bond depicted in the patent document, may have been used to increase the pavement's structural performance and, as a consequence, attained an unusual degree of aesthetic quality (Richmond).

The fact that the Grand Forks example was scored differently in a manner that simulated cut-stone masonry suggests that the desire of area residents to obtain a high quality street surface that was not only functional, but aesthetic as well. In construction manuals and in the patent description, the material's attractiveness is not mentioned. Function and durability appear to have been the only objectives, while in Grand Forks, aesthetics seems to have played a significant role in the use of the patent. This is why, even if other examples are found in the future, it is almost certain they will lack the use of a running bond scoring - making the Grand Forks example more unusual. It may well be that this aesthetic feature of the Grand Forks

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example improved the structural performance of the crown; the running bond scoring may have allowed for greater plasticity of the highly rigid Portland cement material.

The Grand Forks Granitoid is important in the history of artificial stone as a variant of that medium and for its apparently rare survival rate nationwide. Its design and construction were conceived and carried out in such a manner as to produce an arched crown that was self supporting and would not collapse. It was engineered to be more durable than other pavements because of the nature of its constituents and was engineered to minimize slipperiness. It may be concluded that that this pavement was eminently successful because the structure has endured eighty years, well beyond the lifespan of ordinary concrete and asphaltic pavements.

Granitoid was described in an early Highway Engineering Handbook of 1918, as was not, therefore, an obscure material as might easily be concluded from its very limited survival today (Blanchard, pp. 1204). The presence of Granitoid in Grand Forks is both by virtue of North Dakota's relative lack of frenzied urban growth and redevelopment pressures found in other parts of the country where Granitoid was laid, and by virtue of its strength and durability.

The years which followed saw a rapid decline in urban horse traffic, edged out by increased use of motorcars. As other types of pavement were sought throughout the United States, Granitoid slipped into obscurity. In its time Granitoid was ideally suited to the milieu for which it was intended. Its limited occurrence today cannot be a gauge of its original distribution. For example, contract listings during the period indicate that a number of contracts for Granitoid were let throughout the country in a variety of settings and climates, including extreme four seasons climates and mild tropical ones. No doubt the increased use of standard concrete and petroleum based pavements made Granitoid an inaffordable luxury.

Granitoid's short-lived appearance was a result of several factors - the need for a durable street surface in a severe climate, the need for a hard surface which would accommodate

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increasing use of the automobile, the aesthetic sensibilities of the wealthy and influential property owners who simply "wanted the best" and, very importantly, the ongoing developments in the manufacture and patenting of artificial stone materials.

Today, eighty year later, and still in serviceable condition, the Granitoid has far outlived other contemporary road materials and continues to provide a distinctive road surface ideally suited to modern automobile traffic.

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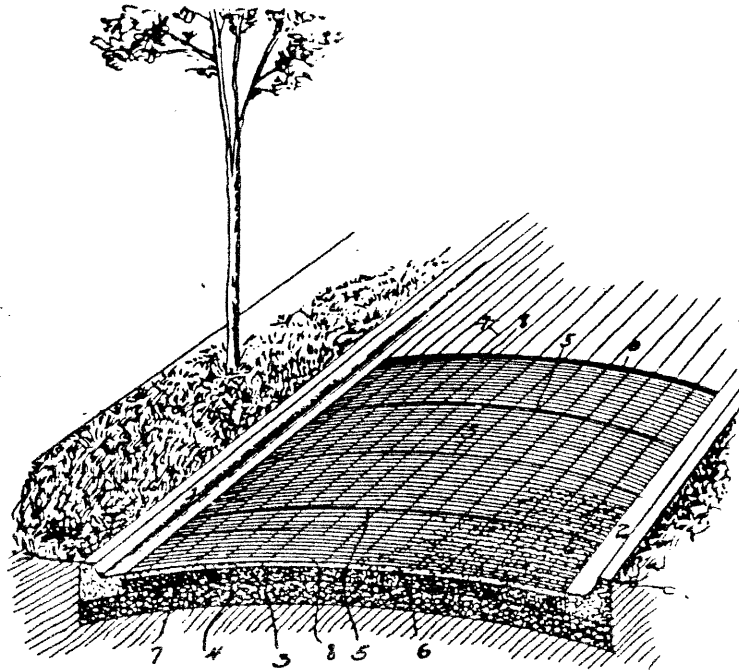
No. 856,105.

PATENTED JUNE 4, 1907

W. J. SINEK & R. S. BLOME.

PAVEMENT AND METHOD OF MAKING THE SAME.

APPLICATION FILED NOV. 17, 1906.



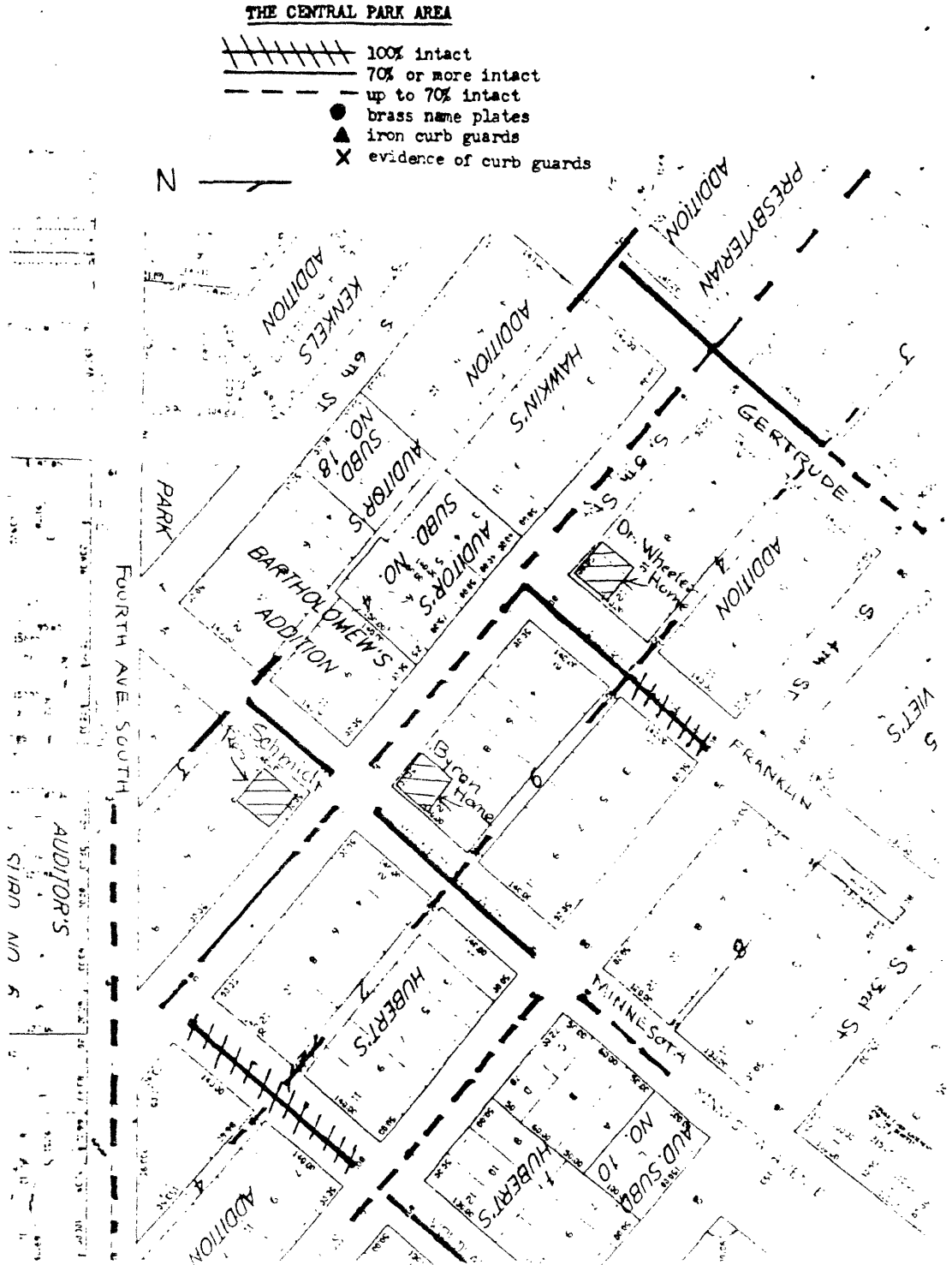
Witnesses,
J. Mann
Walter M. Fuller

Inventors,
William J. Sinck
Rudolph S. Blome
 By *Offield T. ...*
Attys.

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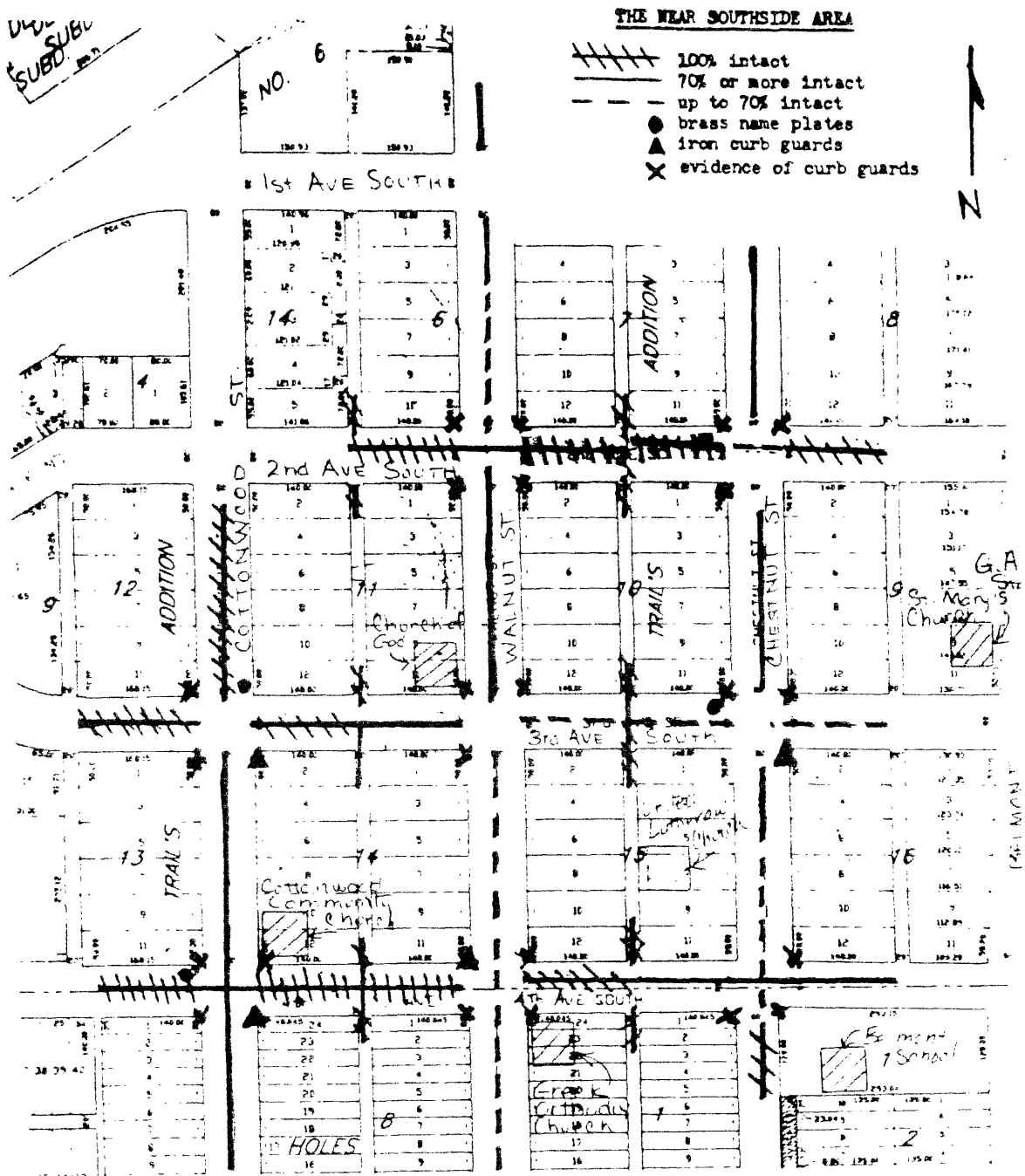
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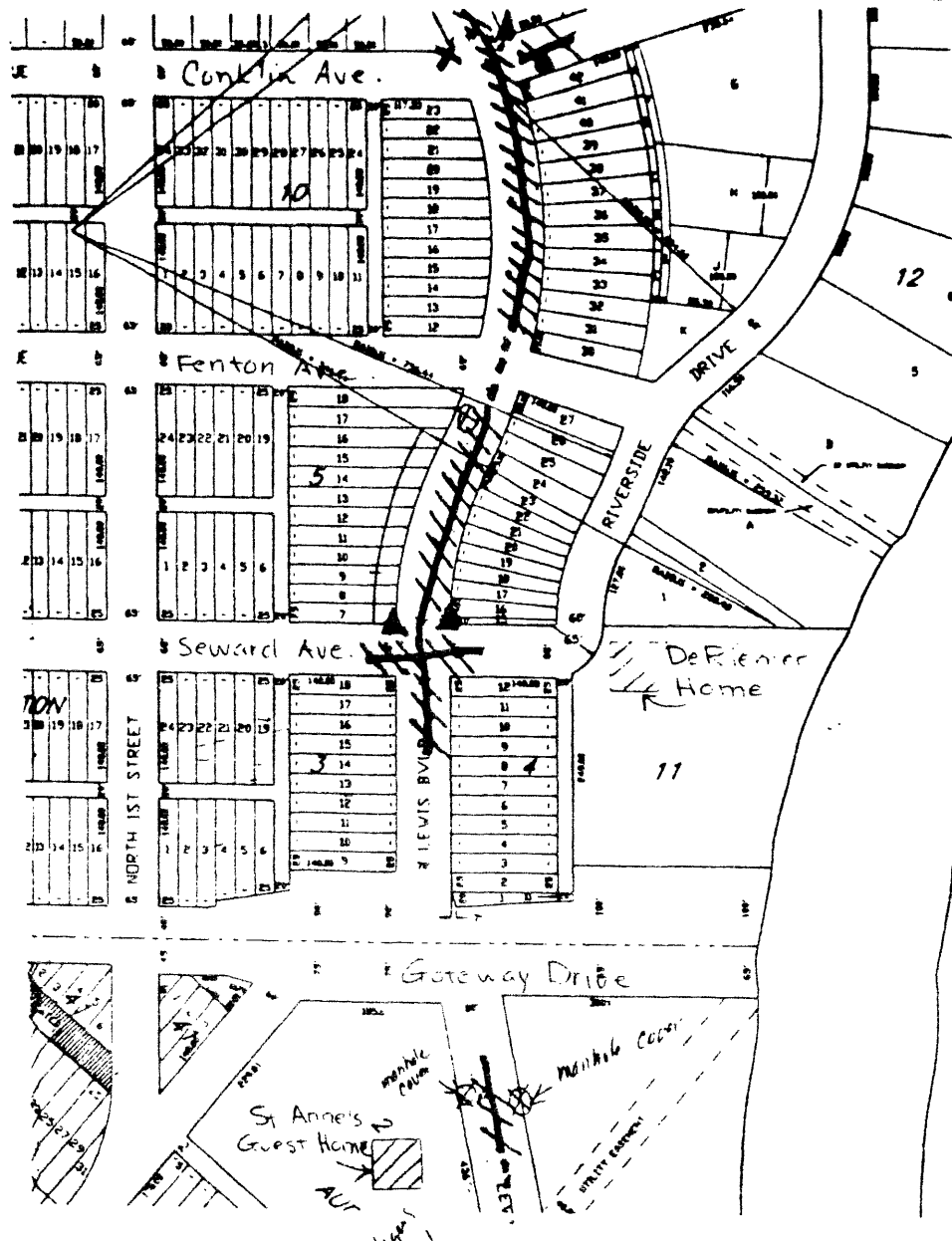
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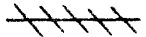
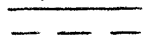




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THE LEWIS BOULEVARD AREA

-  100% intact
-  70% or more intact
-  up to 70% intact
-  brass name plates
-  iron curb guards
-  evidence of curb guards



9. Major Bibliographical References

See continuation sheet.

Previous documentation on file (NPS): NA

- 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 # _____

See continuation sheet

Primary location of additional data:

- State historic preservation office
- Other State agency
- Federal agency
- Local government
- University
- Other

Specify repository: _____

10. Geographical Data

Acreage of property 55 acres
Near Southside Area.

UTM References

A

1	4	6	4	7	1	0	0
Zone		Easting		Northing			

 |

5	3	0	9	2	9	0
Northing						

C

1	4	6	4	7	2	6	0
Zone		Easting		Northing			

 |

5	3	0	8	8	2	0
Northing						

B

1	4	6	4	7	2	6	0
Zone		Easting		Northing			

 |

5	3	0	9	2	2	0
Northing						

D

1	4	6	4	7	0	0	0
Zone		Easting		Northing			

 |

5	3	0	8	8	1	0
Northing						

See continuation sheet

Verbal Boundary Description

See continuation sheet.

See continuation sheet

Boundary Justification

See continuation sheet.

See continuation sheet

11. Form Prepared By

name/title Sally & Clyde Morris/Lauren McCroskey, Architectural Historian, SHSND
 organization State Historical Society of ND date August 23, 1991
 street & number 612 E. Blvd, Ave, ND Heritage Center telephone (701)224-2672
 city or town Bismarck state ND zip code 58505

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10.

Verbal boundary:

For purposes of simplification, the UTM coordinates serve to define the three general paving districts in which Granitoid is located (see enclosed maps). However, street curbing within these three specified localities where Granitoid occurs, constitutes the official boundaries for this nomination.

Boundary justification:

Street curbs logically form the boundaries for this resource since all of the nominated Granitoid is contained within them. The nomination includes only the Granitoid pavement and does not encompass standing structures found in context with the streets.