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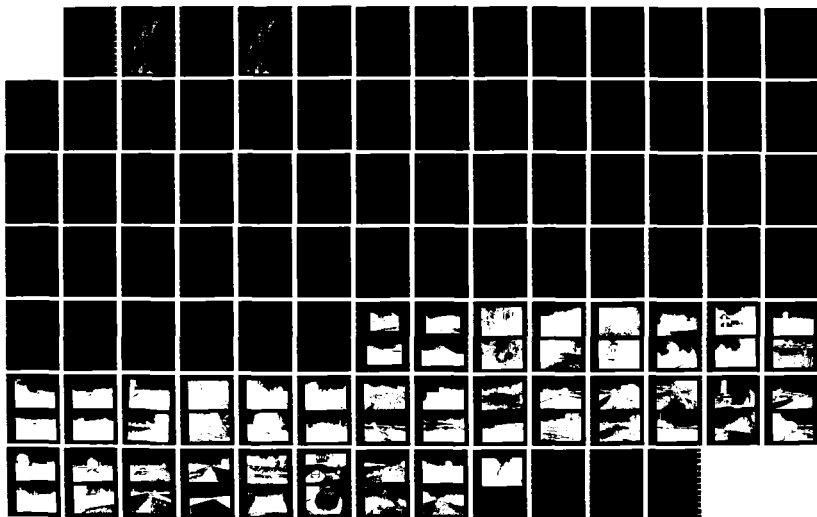
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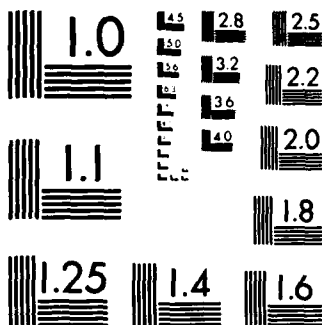
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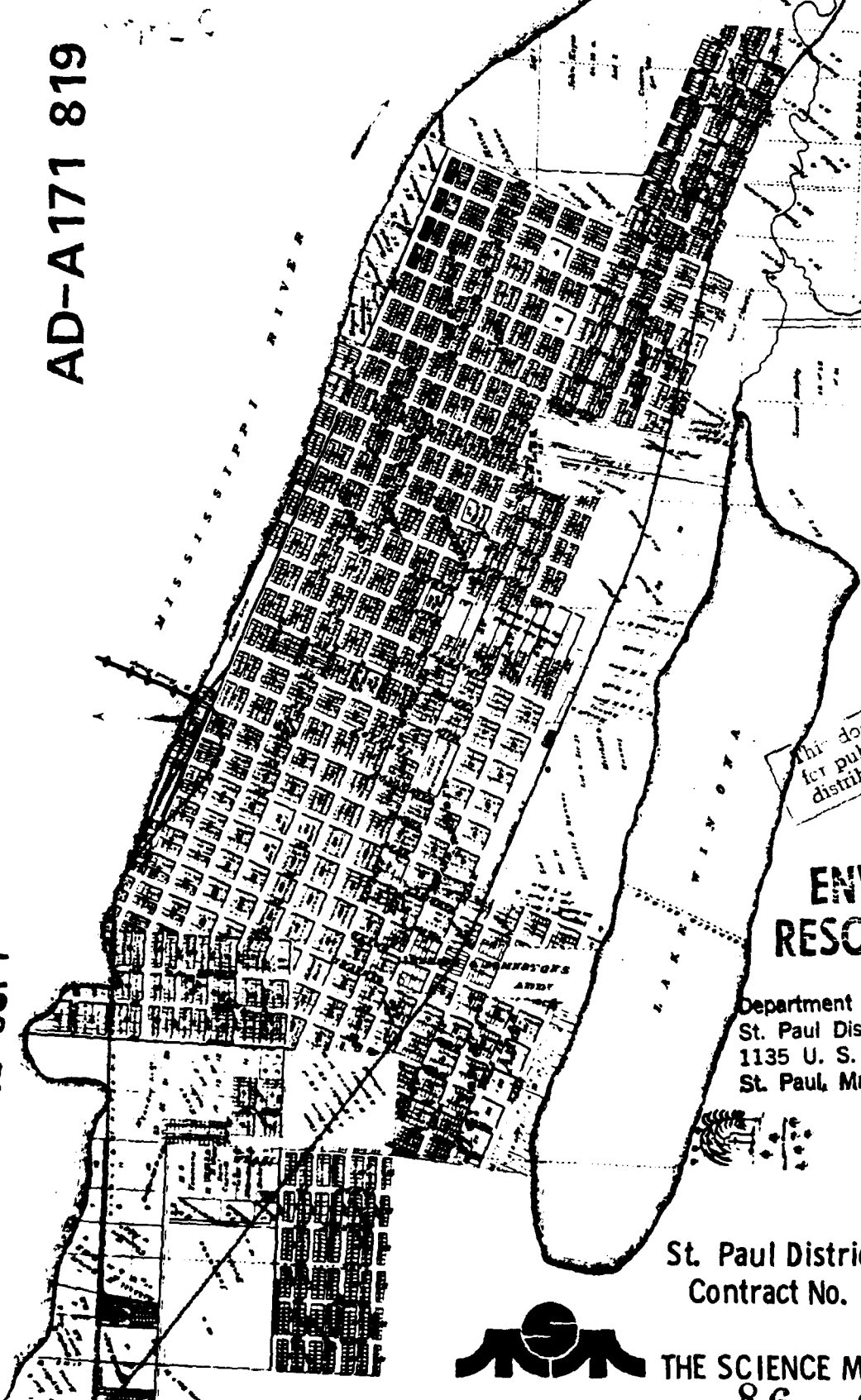


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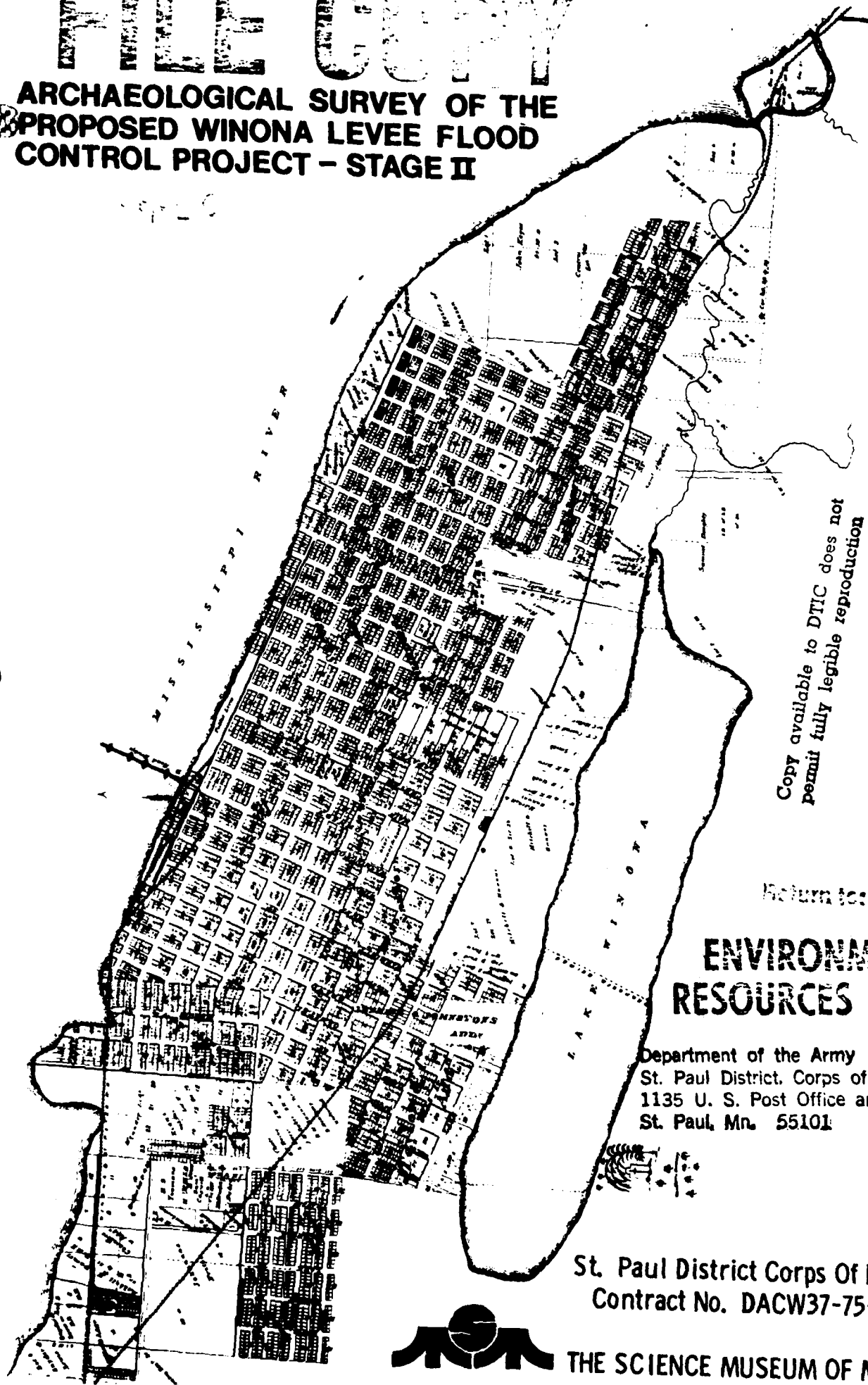
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<p>An archaeological survey was conducted during the months of August and September, 1975, for the determination of potential adverse effects on archaeological sites, of the proposed flood control project at the City of Winona. Stage II of the flood control project refers to the construction of a permanent levee around the City of Winona. There are known archaeologically significant sites within the boundaries of the project, increasing the importance of making an archaeological evaluation of the area.</p> <p>A list summarizing the areas of archaeological concern within the Stage II right-of-way corridor is presented. —</p>				
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THE SCIENCE MUSEUM OF MINNESOTA

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PHILIP S. TAYLOR, DIRECTOR

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November 30, 1975

Roger E. Lake  
Contracting Officer's Authorized Representative  
Environmental Resources Branch/Engineering Division  
St. Paul District Corps of Engineers  
1135 U. S. Post Office and Customs House  
St. Paul, Minnesota 55101

Re: Contract No. DACW37-75-C-0153

Dear Mr. Lake:

I herein submit the preliminary report on the archaeological survey of the proposed Winona Levee Flood Control Project - Stage II. It is my understanding that any comments from individuals in your office or those in the National Park Service will be received within thirty days, after which time the final report will be completed and submitted.

The results of this survey were positive in that a number of areas within the right-of-way corridor were found to have archaeological significance. These areas will require the assistance of a professional archaeologist when the Stage II levee is constructed. Areas of archaeological significance were also located adjacent to the present Stage I levee and will need mitigation if this section is altered in any way.

Any changes that might be made in the proposals for Stage II would require an additional archaeological survey and testing program. Our survey crew covered exclusively those areas outlined on the right-of-way corridor map furnished by Owen Ayres Associates of Eau Claire, Wisconsin.

Sincerely,

  
G. Joseph Hudak  
Curator of Archaeology

GJH/mt

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ARCHAEOLOGICAL SURVEY OF THE PROPOSED  
WINONA LEVEE FLOOD CONTROL PROJECT - STAGE II

U. S. Corps of Engineers - St. Paul District  
Contract No. DACW37-75-C-0153

Submitted by:

G. Joseph Hudak  
Curator of Archaeology  
The Science Museum of Minnesota  
30 East 10th Street  
St. Paul, Minnesota 55101

November 30, 1975

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## I.

## INTRODUCTION

An archaeological survey was conducted during the months of August and September, 1975 for the determination of potential adverse effects on archaeological sites, of the proposed flood control project at the City of Winona. The St. Paul District Corps of Engineers, instrumental in the development of this project, contracted with The Science Museum of Minnesota for the above purpose. There are known archaeologically significant sites within the boundaries of the flood control project, increasing the importance of making an archaeological evaluation of the area.

The final scope of work for this project reads: "The work to be accomplished under this contract consists of archaeologically surveying and testing the complete length of the line of protection and appurtenance for Stage II of the Winona Flood Control Project."

Stage II of the flood control project refers to the construction of a permanent levee around the City of Winona, extending from the mouth of Burns Valley, near Highway 61, to the Chicago-

North Western Railroad yard, located near the Minnesota Highway 43 vehicular bridge to Wisconsin. The Stage II proposal follows the general course of the existing temporary levee which was constructed during and after the 1965 emergency record flood.

Stage II plans also include channel improvements for the Burns Valley Creek, located south of Highway 61. These improvements would involve the restructuring of the present creek channel to better control drainage during high water situations.

This archaeological survey was based on a set of maps prepared for the St. Paul District Corps of Engineers, and furnished to the survey crew by Owen Ayres Associates of Eau Claire, Wisconsin (received 28 June 1975). As agreed upon with the Corps of Engineers' contract representative, The Science Museum of Minnesota's contract obligations relate specifically to these maps, which outline a detailed right-of-way corridor for the length of the Stage II proposed levee. These right-of-way corridor maps were preliminary maps, subject to refinement. For example, the corridor shown for the Burns Valley Creek channel was one of four alternates; responsibility is assumed only for the specific right-of-way outlined in these corridor maps.

Certain areas along the length of the proposed levee were not shown on the maps, because they were still under consideration. In this case, the survey crew worked with other sources, namely maps included in the Draft Environmental Impact Statement done by the Corps of Engineers for the City of Winona in April, 1975. This draft EIS was very helpful in familiarizing the survey crew with the project area.

The sections of this report that follow include a brief account of the survey techniques employed, a detailed account of the actual survey and testing of the right-of-way corridor, a summary of data recovered and subsequent recommendations, a series of appendices, and photographic plates of the survey.

## II.

### SURVEY STRATEGY AND METHODS

The archaeological survey of the proposed Winona Levee was conducted in three phases: a literature search, the actual field survey and testing, and laboratory analysis and report preparation.

#### 1. Literature Search

An examination was made of the site files maintained by the Minnesota State Archaeologist, the Minnesota Historical Society, and the Winona County Historical Society. These files were examined for any recorded sites, reports, records or letters which were pertinent to the archaeology and/or the history of Winona.

The State Archaeologist's files showed record of two prehistoric burial mound groups: one at Levee Park and one on Prairie Island. See Chapter III for more information on these mounds.

References to mound groups were also found in the records at the Minnesota Historical Society. Much information

was gathered concerning early railroad and highway construction, and the early development of the city in terms of land use.

It was determined by the survey crew that certain buildings and structures would be potentially affected by levee construction. For this reason Charles Nelson, Architectural Historian for the Minnesota Historical Society, was consulted. He determined that no adverse effects would be made to any of these structures. See Appendix A for details.

The right-of-way corridor also crosses several state highways. Leslie Peterson, Highway Archaeologist at MHS was consulted for any information concerning sites in these areas. See Appendix B for details.

The Winona County Historical Society furnished much information regarding the early river front activities of the city. This helped in determining which areas could be test excavated for original soil horizons. The County Historical Society also provided details on the history of Burns Valley, and early photographs of that area. These were very helpful in establishing what effect the different changes and improvements in the Burns Valley Creek channel have had on the original, prehistoric setting of the valley.

Local informants provided much information about the history of Winona and Burns Valley. From these informants, knowledge of the many disasters caused by the flooding of the Burns Valley Creek was gathered. Data concerning an original grist mill and mill pond in Burns Valley was recovered from long time area residents. The book I Grew Up in West Burns Valley, written by Winona resident Brother Theodore Voelker, was also helpful in establishing the early history of Burns Valley.

All of the above sources and agencies provided invaluable assistance and time in working with the survey crew; their efforts are much appreciated.

## 2. Field Study

The field survey of the length of the proposed levee was conducted under the hypothesis that archaeological sites did exist within the right-of-way corridor, and that these sites would have to be located and, if needed, be mitigated, prior to additional levee construction. The initial literature search of available records indicated the good probability of finding and defining cultural materials and sites at several locations within the proposed corridor.

Two methods of field survey and testing were used.

The first consisted of testing selected, high potential areas (Prairie Island and Burns Valley) by the use of phosphate analysis. This involved collecting core samples of soil (at arbitrary levels) across a chosen transect within the levee right-of-way corridor. The soil sample was then tested for its relative phosphate content (high phosphate content is an indicator of prolonged human activity). See Appendix C for a complete description of phosphate analysis.

The second method of field survey and testing was the actual testing by excavation of numerous 1x1m (39.4x39.4in) test units, and many informal 20x20cm (7.9x7.9in) shovel tests. The locations of these test units was determined by the field director, based on his knowledge of the history of the areas, and his evaluation of the site potential for each area.

Field equipment used in this survey was provided by The Science Museum of Minnesota and consisted of 1.3mm (0.5in) mesh screens, shovels, a soil probe, compasses, cameras, a 4 X 4 vehicle, and all other tools necessary for complete excavations.

### 3. Analysis and Report Preparation

All materials recovered from this survey were taken to The Science Museum of Minnesota - Anthropology Laboratory where they were cleaned, given accession numbers (A75:3), and catalogued. The cultural material was then subjected to standard archaeological techniques on the basis of morphological comparison to enable identification of cultural characteristics.



### III.

#### SURVEY AND TESTING

Reference is made throughout this narrative to the photographic plates exhibited at the end of this report. These plates are correspondingly located on the enclosed map (see the back cover pocket), along with the approximate locations of all formal test pits and bank cuts.

Testing began in Burns Valley, located south of Highway 61. In the upper portions of Burns Valley, where East Burns Valley Creek and West Burns Valley Creek combine, original soils are still present. This area is farmland and has not been developed to any great degree. Informal testing along the creek channels revealed no significant archaeological materials. However, many natural terraces exist in these upper portions of Burns Valley, with high potential for archaeological sites. If the proposed channel improvements are altered to include these upper parts of the valley, an additional archaeological survey will be necessary.

As presently proposed, channel improvements would start downstream towards the mouth of Burns Valley. This

area was the site of a millpond and grist mill at the turn of the century. Records exist that describe the operation of this grist mill until a final flood washout in the 1920's.

Foundations remain today for the mill dam site, located next to the present creek channel (see Plate Nos. 5 and 6). These foundations were examined by the Minnesota Historical Society to determine any historic value, and were found to have been extensively altered from their original state. See Appendix A for details.

As shown in Plate Nos. 1, 2, 3 and 4 the millpond covered an extensive area. At present this area is a site of recent housing development, with resultant filling and landscaping. The present Burns Valley Creek channel is surrounded by these homes, with backyards forming the terraces above the creek (see Plate Nos. 7 and 8). Formal test excavations were made along this section of the creek. Soils were typically composed of sand, silt and gravel over heavy, compact clay. No archaeological materials were recovered from these formal test units.

Bank cuts were made downstream from the recent housing development, and above the remaining dam foundations, in

an attempt to reach original soils. As shown in Plate No. 9, stratified soils of sand and clay were identified, most likely deposited as a result of the grist mill ponding area and erosion of the upstream areas. Only historic artifacts (clay bricks), were recovered from this bank cut. The original soils in this locality are deeply buried as a result of the above mentioned activities.

The presence of an archaeologist is vital when this section of the creek channel (south of Highway 61) is restructured. Original soil horizons and cultural horizons would most likely be reached as cuts are made for the rerouting and/or deepening of the creek channel.

The Burns Valley Creek channel continues underneath Mankato Avenue and across to Highway 61. Plate No. 14 shows the creek channel immediately east of Mankato Avenue and the flat, cultivated area next to it. Formal test excavations were made on the north side of the channel. Top layers of silty soil with layers of gravel appearing at 30cm suggested the extension of floods and erosional activities into this area. No archaeological materials were recovered from these tests.

The Winona Vocational Technical Institute, located on the opposite side of the creek channel, gave permission for test excavations beyond their parking lot (see Plate Nos. 15 and 16). Again, soils were composed of clay over gravel, with no evidence of cultural remains. The original Burns Valley Creek channel ran through this area, and adjacent to it was located the John Burns home of 1852. (See Appendix D).

As the following quotations indicate, there were many prehistoric and historic Indian-related activities at this site:

When Mr. Burns first took possession of his claim he obtained permission of the Sioux to occupy the land, cut the timber and build a house on it. (p. 275)

At the time he took possession there were two or three large Indian tepees standing in the vicinity of where his house was built. They were about 15 X 20, of the same style and structure as those found on Wabasha prairie and in the mouth of Gilmore valley. This locality was the special home of Wabasha and his family relatives when living in this vicinity. It was sometimes called Wabasha's garden by the old settlers. (p. 275)

Quite a number of Indian graves were on these grounds. Nearly in front of the farmhouse there were two or three graves of more modern burial lying side by side. These were said to be the last resting-place of some of Wabasha's relatives. The Sioux made a special request of Mr. Burns and his family that these graves should not be disturbed. (p. 275)

Source: History of Winona and Olmsted Counties, Chicago, 1883.

At the mouth of Burns Valley on Burns Creek there was in ancient days an Indian pottery kiln, and on the table land on the west side of the creek there has been found evidence of a stone implement making establishment . . . some excellent celts were found there.

Source: History of Winona County, Volume 1, 1913,  
p. 14.

It is imperative that a professional archaeologist be present during any sort of excavation or construction of this segment of the proposed channel improvement. The possibility is very strong that cultural materials would be located here, even though the survey crew did not specifically recover any materials during testing.

The survey continued along the right-of-way corridor, concentrating on the area between Highway 61 and the Winona County Ditch No. 4 (see map). The existing temporary dike follows easterly along Highway 61 and then turns northeasterly across a marshland, following the abandoned Chicago Great Western Railroad bed (Plate Nos. 17 through 21). The proposed permanent levee right-of-way corridor follows this same route.

Formal test excavations were not made for this section of the corridor. The area on both sides of the railroad

bed is marshland with intermittent filled and landscaped areas. The landfill is in preparation for planned industrial activities. Informal testing was done at regular intervals where practical, but yielded no sort of significant cultural material. Soil probes were also made where possible, and showed highly disturbed soils.

The right-of-way corridor continues beyond County Ditch No. 4 along the same abandoned railroad bed. Again, swamps and marshlands are located on both sides, allowing for no formal testing. A former city dump is located within the corridor next to the railroad bed. Dredge spoil deposits have been made in this area, near the new Peerless Chain Company building. Because this entire area was so greatly disturbed there was very little potential for locating an archaeological site (see Plate Nos. 22 through 25). Informal testing and soil probes where possible revealed no archaeological materials and no recognizable original soils.

Plate Nos. 27 through 43 record the right-of-way corridor continuing along the waterfront industrial area of Winona. This area is bounded by the new Peerless Chain Company building at the east end of town, and the old Peerless

Chain Company building next to Levee Park. This entire section has been greatly altered through industrial development over the last 150 years. Winona originally developed as a sawmill center, with transportation provided by railroad lines and river traffic.

Informal testing and bank cuts were made at accessible points within the right-of-way corridor along the waterfront area. Soil probes were also made in an attempt to reach original, undisturbed soils. Neither the testing nor the probes were successful in locating archaeologically significant materials. However because of the past history of this area close archaeological scrutiny should be maintained during construction activities.

Levee Park is the next site along the right-of-way. This is a known archaeological site, as mentioned in the introduction. Mounds were recorded by N. H. Winchell in 1884; they had reportedly been disturbed by relic-hunters and by some construction prior to that date. The mounds were covered with fill in 1890, with an imitation mound constructed over the original site. In 1965 this imitation mound was also covered, as the level of the park was raised again.

No testing was done because of these repeated alterations. Original soils would now be located approximately two meters below the surface. It is very important that this part of the proposed levee construction be done with an archaeologist present. If any sort of excavation is involved for relandscaping the park or adding to the existing levee, it is probable that original soil and/or cultural horizons would be exposed.

Plate Nos. 46 through 49 show the final segment of the right-of-way corridor. The corridor runs across the railroad switch yard located underneath the Highway 43 bridge. This entire area has been very badly disturbed by railroad construction and operations starting in the 1870's. Originally, and historically, this site was the location of an Indian village, as documented in the following quotations:

At this time the railroad started its building program in earnest. A roundhouse was built around the early 70's, then followed the shops, etc. The ten acres where the shops now stand was once covered by Indian graves and the pole scaffoldings erected to hold the bodies of the dead. The claim on which the shops now stand sold for \$80.00. The Indian village was known as the Wabasha's Keox-ah.

Source: R. E. Miles, A History of Early Railroading in Winona County, 1958, p. 13.



The lands cultivated by the Sioux, under the management and instruction of Mr. Reed, were in the mouth of what is now called Gilmore valley, the bottom lands in front of the residence of C. C. Beck. Prior to this the same locality had been used by generations of Sioux squaws for cultivation after their primitive manner. This was the favorite planting-grounds of Wabasha's village, although other localities were also used for purposes of cultivation . . . The main village of this band was on the slough at the upper end of the prairie, near where the railroad machine-shops are now located. (p. 153-154)

Jabez McDermott built a log shanty on his claim, a little southeast from where the shops of the Winona & St. Peter railroad now stand. The roof was a covering of bark. All of the material for this shanty was taken from the Indian tepees which stood near by. This locality was the site of Wabasha's village - the village of the band of Sioux of which he was the chief, and their general gathering-place. There were seven or eight of their cabins standing when McDermott made a claim of their village. (p. 188)

These Indian tepees were constructed with a framework of posts and poles fastened together by withes and covered with broad strips of elm bark. The roof was peaked, the bark covering supported by a framework of poles. For the sides the strips of bark were of suitable length to reach from the ground to the eaves. They were oblong in shape, about 15 X 20 feet, the sides about four or five feet high. The bark covering was fastened by poles outside secured by withes. No nails or pins were used in their construction. Inside they were provided with benches, or berths, from two to three feet wide and about two feet from the ground, extending around three sides of the hut. These seats, or sleeping-places, were composed of poles and bark. Some sawed lumber was also used about these tepees. The lumber, boards and planks, found there by the early settlers was probably taken from the river, brought down by floods from wrecks of rafts.

Source: History of Winona and Olmsted Counties, 1883, pp. 153, 154 and 188.

The survey crew excavated formal test units in this area. No archaeological materials were recovered because the site has been extensively covered with fill and used as a scrap yard. The preceeding literature quotations support the prehistoric and historic value of the area, and show cause for a qualified archaeologist's field evaluation during levee construction. Chances are great that at the time of excavation, original cultural materials may be recovered.

This segment of the proposed levee completes plans for Stage II of the Flood Control Project according to the right-of-way corridor maps. The existing permanent levee (Stage I) begins west of the railway switch yard and ends at the limits of Minnesota City, via Pelzer Street (the dike road), and the Prairie Island Road (also a dike road).

At the time of construction of Stage I no archaeological survey was made. This, together with the fact that there is a known archaeological site on Prairie Island, prompted the survey crew to extend its work to include this portion of the levee. Both sides of the dike roads were surveyed and tested where possible to find the limits of construction activity and to locate any remaining original soils.

Plate Nos. 50 through 52 show the dike roads (Pelzer Street and the beginning of Prairie Island Road), and the close proximity of both railroad tracks and slough areas to the roads. Informal testing was done at several points along these roads, but yielded no archaeological materials.

Prairie Island itself is the site of a known mound group that has been covered by the permanent dike. Five formal 1x1m test units were placed on the property near the location of these mounds (see Plate Nos. 53 through 55). A thin sample of archaeological materials was recovered, consisting of flakes and ceramic body sherds. No conclusive data was found as to any specific cultural attributes. See Appendix D for the site survey forms.

Informal testing was conducted for the entire length of Prairie Island where possible. These tests were done in 50m or 100m intervals in the park sections and around the marshland, slough areas. Soils were found to be sand and silt over gravel in the park areas, suggesting landscaping. No archaeological materials were recovered from these informal tests.

The entire Stage I area, consisting of the existing permanent levee, still has potential for exhibiting

archaeological materials. The mound group and the data from the test units show conclusive evidence for early cultural activities. The presence of the mounds necessitates the presence of a qualified archaeologist should further construction or fortification of the levee be done.

## IV.

## SUMMARY AND RECOMMENDATIONS

This survey was successful in locating archaeological sites and potential site areas within the right-of-way corridor. This information should aid in determining the archaeological effects of the proposed permanent levee. It is hoped that the success of this survey will lead to the realization of the need for archaeological evaluations of other areas outside the right-of-way corridor that may also be involved in the construction of the levee, i.e. fill sources.

The following list summarizes the areas of archaeological concern located within the Stage II right-of-way corridor:

1. Burns Valley Creek: the entire right-of-way corridor south of Highway 61. This is a very high potential site area. Any sort of excavation for restructuring or rerouting the channel should be done with the assistance of a qualified archaeologist.

2. Waterfront, industrial area: from the new Peerless Chain Company to Levee Park. This section has potential for exhibiting sites of both historic and prehistoric importance, based on available historic records. An archaeologist should be consulted if any below ground excavation is needed for levee construction.
3. Levee Park: this contains a recorded archaeological site. Any sort of excavation or construction should be done with the assistance of a professional archaeologist.
4. Chicago Northwestern Railroad switch yard: although testing did not reveal any archaeological materials, the existing literature references support the theory that there may be a deeply buried historic and/or prehistoric habitation site in this area. A qualified archaeologist should be consulted if any excavation is needed for levee construction.

At the time of actual levee construction, the above listed areas will require an in-field archaeological evaluation. It is recommended that efforts be directed towards meeting this requirement as a precaution against potential site destruction.

APPENDIX A

LETTERS: CHARLES W. NELSON





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SAINT PAUL, MINNESOTA 55101

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ARTS AND SCIENCE FUND

September 5, 1975

Charles Nelson  
Minnesota Historical Society  
Building 27, Fort Snelling  
St. Paul, Minnesota

Dear Charles:

In regard to our discussion of last week concerning the Winona Levee survey being conducted by the Science Museum, we have prepared the following list of "sites" for your review and comment:

1. Swing bridge (no photo) - structure:

The railroad switch yard adjacent to this bridge supposedly at one time was the site of an historic Indian village, and later, a button factory. No buildings or structures remain today, to the best of my knowledge. Nancy Woolworth has more information on this.

The swing bridge itself, and the switch yard, will be indirectly affected by levee improvements, but are adjacent to the proposed right of way line.

2. Terminal station (see photo) - building:

This too will be indirectly affected but is close to the proposed right of way.

3. Steamboat Wilkie (no photo)

Again, indirectly affected, but needs comment; there will be some changes in Levee Park, close to the Steamboat.

Page 2  
Charles Nelson  
September 5, 1975

4. Universal Northern, Inc. (see photo) - building:

Brick building, adjacent to right of way line. Located east of Bay State Milling.

5. Badger Foundary (no photo) - building:

An abandoned building, located south of the city underground reservoir (near swing bridge). Again, indirectly affected.

The above sites are located on or near the waterfront and the existing levee. The following sites are located in the Burns Valley area.

6. Grist Mill (see photo) - foundations:

Referred to in Theodore Voelker's book; is now in the present creek channel and will be directly affected by channel improvements.

7. Creamery (see photo) - building:

Will be directly affected; may or may not be the original creamery.

8. Budget Furniture (see photo) - building:

Local informants say that this building formerly was a saloon and that a blacksmith shop was located to the left side of the building (looking at the photograph). Will be indirectly affected, but is close to the right of way line.

9. West Burns Valley home (see photo) - building:

No address was obtained; Burns Valley creek runs behind the house. Channel improvements would indirectly affect the house.

Page 3  
Charles Nelson  
September 5, 1975

10. John Burns home (no photo)

Originally located at Burns Valley; two or three historic Indian burials were located on the property.

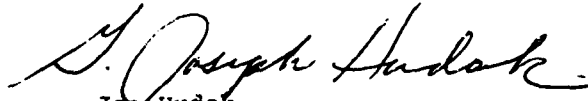
Reference: History of Winona County  
Volume 1, page 14, 1913.

"At the mouth of Burns Valley on Burns Creek there was in ancient days an Indian pottery kiln, and on the table land on the west side of the creek there has been found evidence of a stone implement making establishment... some excellent celts were found there."

No local residents know of the exact location of this house, or whether or not it is still standing. (Location in Sec. 35-107-7 Winona Township.)

I hope that this list gives you enough information; I would still appreciate spending a day in Winona with you, looking over these sites, and will be in contact with you shortly.

Thank you.

  
Joe Hudak

GJH/njc

Encl.



# MINNESOTA HISTORICAL SOCIETY

Fort Snelling Branch (Building 25), Fort Snelling, St. Paul, Minnesota 55111 • 612-726-1171

21 October 1975

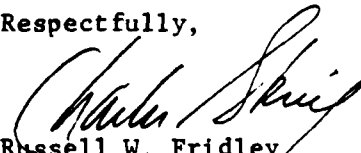
Mr. G. Joseph Hudak  
Science Museum of Minnesota  
30 East Tenth Street  
Saint Paul, Minnesota 55101

Dear Mr. Hudak:

RE: Winona Levee Survey / Winona, Minnesota

The proposed development areas for the Winona Levee project which is being undertaken by the U.S. Army Corps of Engineers was viewed by Charles W. Nelson, Architectural Historian for the Minnesota Historical Society, following your request of 16 October 1975. Each of the ten sites listed in your letter of 5 September 1975 to Mr. Nelson was visited. Of these it appears that -- if the present development plan is followed -- there will be no adverse effects on the listed sites with the exception of Site #6 (Grist Mill foundations in Burns Valley area). It has been determined, however, that the site of the Grist Mill has been extensively altered and portions thereof destroyed to the point that historic, architectural, and archaeological integrity is nil. The Grist Mill site, therefore, has been found not to meet the criteria of eligibility for the National Register of Historic Places, and the effect of this project on this site is of no further concern to the Minnesota Historical Society.

Respectfully,

*for* 

Russell W. Fridley  
State Historic Preservation Officer

cc: Charles Skrief, Environmental Assessment Officer  
Charles Nelson, Architectural Historian

APPENDIX B

LETTERS: LESLIE D. PETERSON



# THE SCIENCE MUSEUM OF MINNESOTA

30 EAST 10TH STREET

SAINT PAUL, MINNESOTA 55101

PHILIP S. TAYLOR, DIRECTOR

AREA CODE 612

222-6303

ARTS AND SCIENCE FUND

October 8, 1975

Leslie D. Peterson  
Highway Archaeologist  
Minnesota Historical Society  
Fort Snelling Branch (Bldg. 25)  
Fort Snelling  
St. Paul, Minnesota 55111

Dear Les:

As you know, The Science Museum is preparing an archaeological survey report of the proposed Winona Levee.

Part of the proposed levee cuts across Highway 61 and then continues up into the Burns Valley area (near Highway 43).

Any information that you could provide concerning archaeological materials or sites in this area, or any professional notions you may have about this area would help in this effort.

Thank you.

Sincerely,

G. Joseph Hudak  
Curator of Archaeology

GJH/mt



# MINNESOTA HISTORICAL SOCIETY

Fort Snelling Branch (Building 25), Fort Snelling, St. Paul, Minnesota 55111 • 612-726-1171

October 30, 1975

Mr. G. Joseph Hudak, Archaeologist  
Science Museum of Minnesota  
30 East 10th Street  
St. Paul, Minnesota 55101

Mr. Hudak:

Re: Winona Levee/Burns Valley

In response to your request of 8 October 1975 for information concerning cultural resources in the vicinity of Burns Valley Creek near Winona, I have outlined herein the results of surveys conducted in that area in recent years under the Highway Archaeology program. The only major survey near the Winona levee consisted of a field review of T.H. 43 from T.H. 61 to I-90. This proposed highway alignment follows the length of West Burns Valley and only approaches your project area near its northeastern terminus. These surveys have resulted in the recording of five prehistoric archaeological sites and one historic site within the proposed right-of-way:

21-WN-16 (Habitation)  
21-WN-19 (Mounds)  
21-WN-27 (Habitation)  
21-WN-28 (Habitation)  
21-WN-29 (Mound)  
Voelker & Groff Brickyard

None of these sites, however, falls within your presently described project limits for the Winona levee. Since surveys have indicated that Burns Valleys do contain a considerable quantity of both historic and prehistoric cultural data, any alterations or extensions outside the present proposed limits should certainly be subjected to close scrutiny.

Sincerely,

Leslie D. Peterson  
Highway Archaeologist

LDP:lt

APPENDIX C

PHOSPHATE ANALYSIS



### Phosphate Analysis

Testing soil horizons for phosphate content is not an entirely new idea. During the 1920's and 1930's scientists such as O. Arrhenius of Sweden developed laboratory methods by which soil samples could be measured for their phosphate content. What has recently been published (Eidt: 1973: 206-10) is a quick, simple, inexpensive, and reliable method for phosphate analysis in the field.

Phosphate enrichment of the soil occurs as a result of certain human activities due to the accumulation of urine, feces, refuse and decomposition of human and animal cadavers. For the same reasons these soils will also show an enrichment in calcium and nitrogen, but due to such processes as leaching and oxidation the chemicals are lost to a great extent over the years. Phosphate, however, possesses the useful traits of remaining bound to the original deposition site with almost no horizontal migratory tendencies and of remaining relatively stable over archaeological time spans. (ibid: 173: 206).

This analysis was used as an aid in the placement of excavation units, in order to achieve the most efficient and productive use of time and labor.

One of the favorable points about this field test is the minimum of both equipment and preparation time involved.

The only equipment needed is:

1. Two 100 cc plastic bottles with plastic droppers.
2. One laboratory tripod stand
3. One box No. 42 ash-free filter papers (9cm. dia.)
4. One standard 1" soil probe
5. One knife

Chemicals needed include:

1. 5N hydrochloric acid
2. Chemically pure ammonium molybdate
3. Chemically pure ascorbic acid (in 1 g capsules)
4. Distilled water.

Preparation is equally simple. Two solutions are needed.

Solution A is prepared by mixing 30 ml of 5 N HCl to 5 g of ammonium molybdate completely dissolved in 100 ml of cold distilled water. This can be done anytime in advance.

Solution B is made by dissolving 1 g of ascorbic acid in 200 ml of distilled water. This solution must be prepared daily,

which is the reason for carrying it in pre-measured 1 g capsules. One important precaution pointed out by Eidt in regard to the preparation and execution of this field test is that of cleanliness of equipment. The glassware involved can easily become contaminated by phosphate resulting from contact with rubber stoppers, modern soaps, or impure water, resulting in false readings.

In brief, the field procedure involves first collecting soil samples "taken at intervals of 10-25 m along selected transects." After "positive tests are obtained, the investigator can lay out a grid net for more systematic soil sampling" (ibid: 1973: 208).

The actual test is made by placing about 50 mg of soil in the center of a filter paper which is setting on the laboratory tripod. Then two drops of Solution A are added, followed 30 seconds later by two drops of solution B. In this process, solution A is used to extract the phosphate and solution B is used as a reducing agent.

"A half minute after solution B has been added to the soil sample, high phosphate concentrations will appear as dark blue lines radiating outward from the center. Their length and density will increase with time. Weaker phosphate amounts

take longer to appear. Under normal circumstances, it is recommended that all readings be made at the 2-minute point, and that none be taken after that interval" (ibid: 1973: 209).

"Once each sample is given a number value (observer scored), it can be plotted on whatever grid has been selected and isolines drawn to illustrate the approximate outlines of settlements" (ibid: 1973: 209).

In conclusion, this technique of testing phosphate enrichment can be very useful (as demonstrated at this instance) to the archaeologist. Employed correctly it has the possibilities of removing much of the guesswork and thus, can save much time and labor. It is a simple, quick, and inexpensive tool to use. But this method does have limitations which should always be kept in mind. First, there are some restrictions as to soil conditions under which long-term phosphate enrichment is possible, and this must be taken into account prior to testing. Secondly, the numerical values assigned to test results are highly dependent on individual judgement and, therefore, I believe it is essential that one researcher carry out the entire observation and recording procedure.

APPENDIX D

SITE SURVEY FORMS

NOTE: This appendix includes specific information that is not available to the general public; therefore it will appear only in those reports intended for the State Archaeologist and certain individuals of other State and Federal agencies who regularly review archaeological data.

US ARMY CORPS OF ENGINEERS  
ST PAUL DISTRICT  
SITE SURVEY FORM

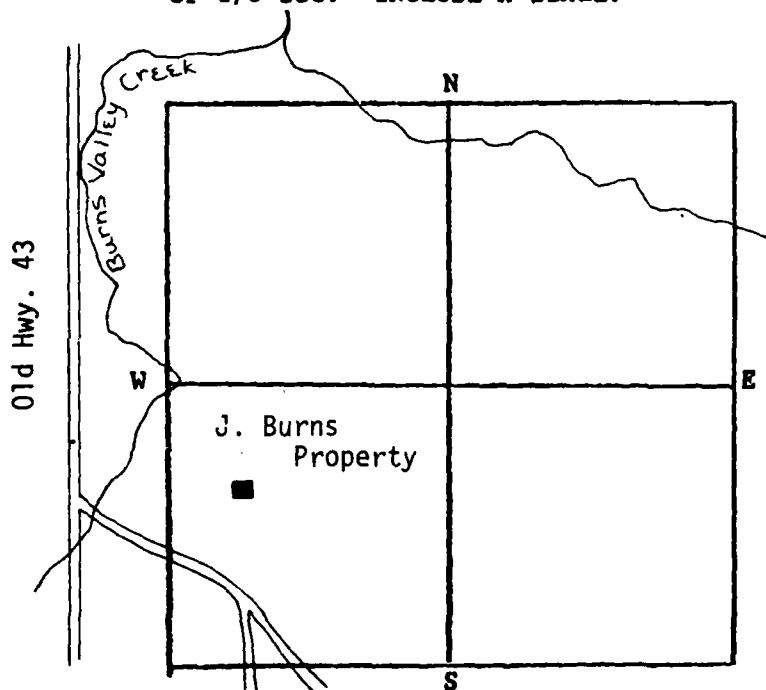
39

State Minnesota  
County Winona  
CE Project Winona Levee  
Contract # DACW37-75-C-0153  
Drainage \_\_\_\_\_

1. Type of site (prehistoric-mound, habitation; historic) historic home and burials.
2. Map reference (CE, USGS) Atlas of Winona Co., 1867
3. Location: Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  $\frac{1}{4}$  Sec NW $\frac{1}{4}$  SW $\frac{1}{4}$  Section 36  
Township 106 N Range 7 W Presently under Vo-Tech School
4. Land owner and address Vo-Tech School, Winona
5. Site description (vegetation, topo, area, etc) Original home of J. Burns  
after whom the valley was named. On his property were located 2 or 3 graves  
and a "stone implement-making establishment." However since that time the  
home and property have all been destroyed by the Winona Vo-Tech School.

Source: History of Winona County, 1913 Vo. I

6. Sketch map of site location (indicate chief topo features, houses, roads, section numbers, outline of site). Consider square as 1 section or  $\frac{1}{4}$  sec. or  $\frac{1}{8}$  sec. INCLUDE A SCALE!



Legend and Comments:  
0 \_\_\_\_\_ 5 mile  
Scale

Sec. 36 T106N R7W

MHS Microfilm Roll #10

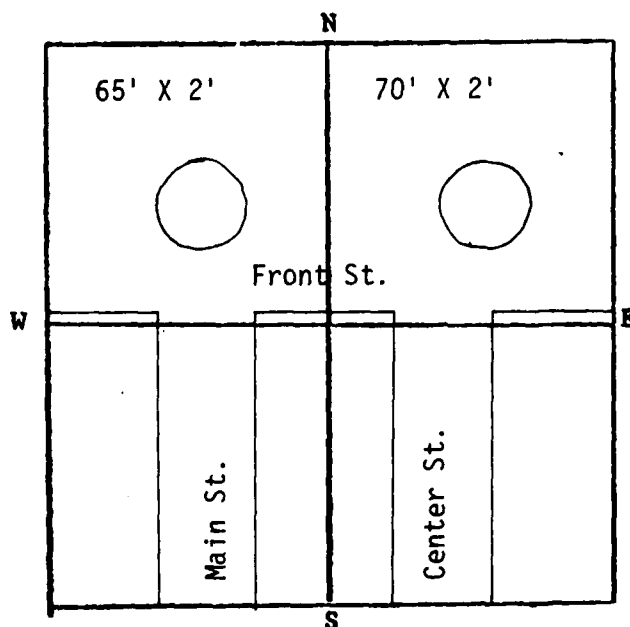
7. Project Director G. J. Hudak 9. Form Recorder T. Pfitzenreuter
8. Field Director G. J. Hudak 10. Date 10/28/75
11. A detailed map of the site should be attached.

US ARMY CORPS OF ENGINEERS  
ST PAUL DISTRICT  
SITE SURVEY FORM

40

State Minnesota  
County Winona  
CE Project Winona Levee  
Contract # DACW37-75-C-0153  
Drainage \_\_\_\_\_

1. Type of site (prehistoric-mound, habitation; historic) prehistoric-mounds
2. Map reference (CE, USGS) USGS/Winona Quad & Winchell, Page 88
3. Location: Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  $\frac{1}{4}$  Sec NW SW Section 23  
Township 107N Range 7W
4. Land owner and address City of Winona
5. Site description (vegetation, topo, area, etc) 2 mounds, originally surveyed in 1884 by Winchell. Since construction they have been filled over twice for Levee Park therefore are unable to be exactly located or tested.
6. Sketch map of site location (indicate chief topo features, houses, roads, section numbers, outline of site). Consider square as 1 section or  $\frac{1}{4}$  sec. or  $\frac{1}{8}$  sec. INCLUDE A SCALE!



Legend and Comments:

0 1/8 mile  
Scale

NW  $\frac{1}{4}$ , SW  $\frac{1}{4}$

Source: Winchell, page 88

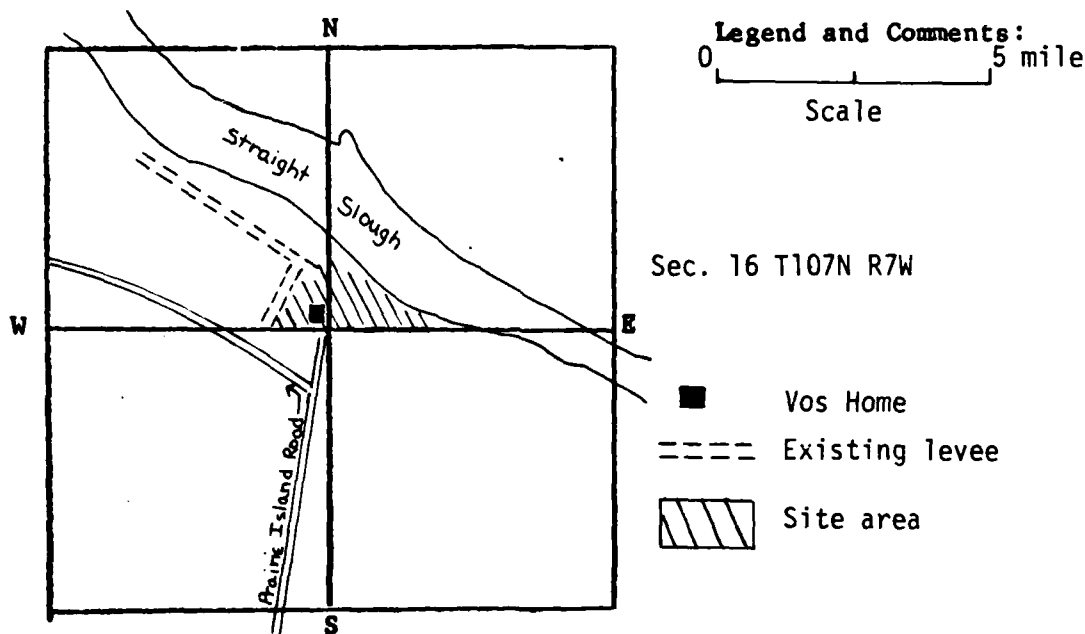
7. Project Director G. J. Hudak 9. Form Recorder T. Pfitzenreuter
8. Field Director G. J. Hudak 10. Date 10/28/75
11. A detailed map of the site should be attached.

US ARMY CORPS OF ENGINEERS  
ST PAUL DISTRICT  
SITE SURVEY FORM

41

State Minnesota  
County Winona  
CE Project Winona Levee  
Contract # DACW37-75-C-0153  
Drainage \_\_\_\_\_

1. Type of site (prehistoric-mound, habitation; historic) prehistoric-mounds and possible habitation
2. Map reference (CE, USGS) USGS/Winona Quad.
3. Location: Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  $\frac{1}{4}$  Sec. SE $\frac{1}{4}$ , NW $\frac{1}{4}$ , & SW $\frac{1}{4}$ , NE $\frac{1}{4}$  Section 16  
Township 107N Range 7W Take Prairie Island Rd. N and continue straight at 1st curve.
4. Land owner and address Frank Vos, 1291 W. 2nd, Winona
5. Site description (vegetation, topo, area, etc) Mounds are located under existing N/S levee. Possible habitation debris was recovered by SMM tests and owner had collected area while farming, but no longer has artifacts.  
See SMM file for more information and site forms.
6. Sketch map of site location (indicate chief topo features, houses, roads, section numbers, outline of site). Consider square as 1 section or  $\frac{1}{4}$  sec. or  $\frac{1}{8}$  sec. **INCLUDE A SCALE!**



7. Project Director G. J. Hudak 9. Form Recorder T. Pfutzenreuter
8. Field Director G. J. Hudak 10. Date 10/28/75
11. A detailed map of the site should be attached.



## REFERENCES

## REFERENCES

- Bunnell, Lafayette H. *Winona (We-no-nah) and Its Environs on the Mississippi in Ancient and Modern Days*. Winona: Jones & Kroeger, 1897. 694 p. With biographical sketches.
- Card, Mrs. Myrlin and Marvin Sader, eds. *We Remember - The Beaver Story: 100 Years in the Whitewater Valley, Beaver, Minnesota*. Winona: Winona County Historical Soc., 1962. 47 p.
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- History of Winona County, together with Biographical Matter, Statistics, etc. Gathered from Matter Furnished by Interviews with Old Settlers, County, Township and Other Records*. Chicago: H. H. Hill & Co., 1883. 966 p.
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- Miles, R. E. *A History of Early Rail Roding in Winona County*. Winona, 1958.
- Ronan, Thomas B. *Free Enterprise*. Winona: Winona County Historical Soc., 1969. 117 p. Enterprise, Minn.
- St. Charles Centennial Historical Committee. *A History of St. Charles*. St. Charles, 1954. 74 p.
- Voelker, Brother Theodore, F.S.C. *I Grew Up in West Burns Valley*, Winona: St. Mary's College Press, 1971.
- Winchell, N. H. *The Aborigines of Minnesota*. The Minnesota Historical Society, The Pioneer Company, 1911.
- Winona County Historical Society. *The Winona Steamboat Museum*. Winona, 1959. "Julius C. Wilkie and the Mississippi River," by Leighton Wilkie, pp. 2-15.

RESUMES

Gary Joseph Hudak  
3203 Fillmore Street N. E.  
Minneapolis, Minnesota 55418

OR

G. Joseph Hudak  
Staff Archaeologist  
The Science Museum of Minnesota  
30 East 10th Street  
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Business Phone: (612) 222-6303

Age: 26                      Birth Date: 12 April 1949

Birth Place:              Minneapolis, Minnesota

Height: 6'1"              Weight: 165              Sex: Male

Marital Status:      Married

Education:

High School:              Edison, Minneapolis

1971 - B.A. Anthropology, University of Minnesota

1974 - M.A. Anthropology-Archaeology, University of  
Nebraska, Lincoln, Nebraska

ARCHAEOLOGICAL FIELD EXPERIENCE

- 1969 Prairie Island Village Site: Participant in Field School - University of Minnesota; Dr. Elden Johnson, Field Director.
- 1969 Gull Lake Mound and Village Site: Survey Specialist and Field Assistant.
- 1970 Smith and McKinstry Mounds: Field Teaching Assistant - University of Minnesota; Dr. James Stoltman; University of Wisconsin - Madison.
- 1970 Northeastern Minnesota Wild Rice Archaeological Survey Transect: Survey Specialist - University of Minnesota; Dr. Elden Johnson.
- 1971 Southwestern Minnesota Archaeological Survey: Survey Specialist - University of Minnesota; Dr. Elden Johnson
- 1971 Thompson and Nelson Village Sites: Field Assistant - Universities of Minnesota and Nebraska; Dr. Dale Henning.
- 1971 Blue Mounds Archaeological Site: Survey Specialist - University of Minnesota.
- 1972 Mille Lacs Lake - Kathio and Anderson Village Sites: State Parks Archaeologist; Assistant to Dr. Guy Gibbon.
- 1972 Big Stone State Park Archaeological Survey: Survey Specialist
- 1973 Pedersen Site: Field Director, The Science Museum of Minnesota
- 1974 Pedersen Site: Field Director, The Science Museum of Minnesota. M. A. Thesis.
- 1974 Wild River Archaeological Survey: Survey Specialist - The Science Museum of Minnesota.
- 1974 South Zumbro Archaeological Survey: Survey Specialist - The Science Museum of Minnesota.
- 1974 Lake Hanska Archaeological Survey: Survey Specialist - The Science Museum of Minnesota.
- 1975 Southern Minnesota Transect and Archaeological Survey: Field Director - The Science Museum of Minnesota.

OCCUPATIONAL REFERENCES

Dr. Elden Johnson, Chairman  
Department of Anthropology  
University of Minnesota  
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Timothy Fiske  
Field Associate in Anthropology  
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Dr. Guy Gibbon  
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Minneapolis, Minnesota 55455

Dr. Warren W. Caldwell, Chairman  
Department of Anthropology  
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Lincoln, Nebraska 68508

ACADEMIC REFERENCES

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University of Nebraska-Lincoln  
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Dr. Martin Q. Peterson  
Department of Anthropology  
University of Nebraska-Lincoln  
Lincoln, Nebraska 68508

## PUBLICATIONS

### Preliminary Field Reports:

1. Blue Mounds Archaeological Survey: 1971.
2. Wild Rice Archaeological Survey Transect: 1970.
3. Southwestern Archaeological Survey: 1971.
4. Pedersen Village Site: 1973.

## PUBLISHED STUDIES

- 1972 "Boulder Outlines in Southwestern Minnesota,"  
Plains Anthropologist, Vol. 17-58; Pt. 1.
- 1974 "Wild River Archaeological Survey," The Science  
Museum of Minnesota.
- 1974 "The South Zumbro Watershed Archaeological Survey,"  
The Science Museum of Minnesota.
- 1974 "The Lake Hanska Archaeological Survey," The Science  
Museum of Minnesota.
- 1975 "The First Pottery Makers of Southwestern Minnesota,"  
The Explorer, Vol. 17; No. 2.
- 1975 "An Early Woodland Pottery Vessel From Minnesota,"  
by G. Joseph Hudak and Elden Johnson, The Science  
Museum of Minnesota Scientific Series, Vol. 2, No. 4.

Thesis: "The Pedersen Site," a Master of Arts Thesis, submitted  
to the Faculty of the Graduate School of the University  
of Nebraska, 1974.

## PROFESSIONAL ORGANIZATIONS

Society for American Archaeology  
Plains Anthropological Association  
American Anthropological Association  
Council for Minnesota Archaeology

TEACHING ASSISTANTSHIPS

- 1970, 1971      University of Minnesota, under Dr. Elden Johnson,  
as an undergraduate.
- 1972, 1973      University of Nebraska, under Dr. Warren W. Caldwell,  
as a graduate student.

TEACHING POSITIONS

- 1973              At the Pedersen Site, taught University of Minnesota  
Archaeological Field School.
- 1973              At the Pedersen Site, taught students from Macalester  
and Hamline Universities' summer field school.
- 1973-75          At The Science Museum of Minnesota, taught Macalester  
and Hamline Universities' internships.

PRESENTED PAPERS

"The Woodland Ceramic Assemblage of the Pedersen  
Site." Presented to the 31st Plains Archaeological  
Conference, 1973.

"Southwestern Minnesota Woodland Ceramics." Presented  
to the Council for Minnesota Archaeology, 1974.

"The Lake Hanska Archaeological Components." Presented  
to the Brown County Commissioners, New Ulm, Minnesota,  
1975.

CONTRIBUTIONS TO OTHER PUBLICATIONS: CARTOGRAPHIC WORK

"The Gull Lake Mound Site," Dr. Elden Johnson, Minnesota  
Archaeologist, 1969.

The Laurel Culture, Dr. James B. Stoltman, Minnesota  
Historical Publications, 1973.



Martha Eileen King  
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Residence Phone: (612) 484-2961

Age: 23                      Birth Date: 5 April 1952

Birth Place:                Wabasha, Minnesota

Height: 5'6"                Weight: 110                Sex: Female

Marital Status:    Married

Education:

High School:            Alexander Ramsey, Roseville, Minnesota

College:                B.A. Degree - University of Minnesota,  
Minneapolis, Minnesota

ARCHAEOLOGICAL FIELD EXPERIENCE

- 1973    The Pedersen Site, crew member of field course for  
University of Minnesota field school. Director  
G. Joseph Hudak, The Science Museum of Minnesota.
- 1974    NSP - Hendersen Survey - survey crew member, director  
Dr. Guy Gibbon, University of Minnesota.
- 1974    Lake Hanska Survey of County Park, survey crew member,  
G. Joseph Hudak, The Science Museum of Minnesota.
- 1975    Southern Minnesota Transect and Archaeological  
Survey, The Science Museum of Minnesota - field  
assistant and analyst.

DEGREES

B.A. Degree in Anthropology - University of Minnesota,  
June 1974.

CURRENT POSITION

Lab and field assistant in archaeology, The Science Museum  
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Birthplace:                St. Paul, Minnesota

Height: 5'10"      Weight: 125                      Sex: Female

Marital Status:      Single

Education:                Murray High School, St. Paul

Senior - Hamline University, graduation May 1976

#### ARCHAEOLOGICAL FIELD EXPERIENCE

- 1971      Fort Sweeny Site, participant in field school, Minnesota Historical Society, Leslie D. Peterson, Field Director.
- 1974      The Pedersen Site, participant in field school, The Science Museum of Minnesota, G. Joseph Hudak, Field Director.
- 1975      Southern Minnesota Transect and Archaeological Survey, The Science Museum of Minnesota, survey crew member.

#### PAST EMPLOYMENT

11/74 - 5/75 Lab Assistant, Highway Archaeology Program, Minnesota Historical Society, Leslie D. Peterson, Director

#### CURRENT POSITION

Lab assistant in archaeology, The Science Museum of Minnesota,  
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Dr. Cynthia Cone  
Dept. of Anthropology  
Hamline University  
St. Paul, Minnesota 55104

Gary Walter Larson  
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Minneapolis, Minnesota 55408

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Age: 22                      Birth Date: 25 August 1953

Birthplace:                St. Paul, Minnesota

Height: 5'11"              Weight: 250              Sex: Male

Marital Status:          Single

Education:                High School - West, Minneapolis  
Senior - Anthropology, University of Minnesota

#### ARCHAEOLOGICAL FIELD EXPERIENCE

- 1974      Lloyd A. Wilford Site; participant in field school -  
University of Minnesota, Dr. Elden Johnson, Field  
Director.
- 1974      Gull Lake Dam Site; field crew member.
- 1975      Southern Minnesota Transect and Archaeological  
Survey; survey crew member and field photographer.

#### OCCUPATIONAL REFERENCE

Dr. Elden Johnson  
Dept. of Anthropology  
University of Minnesota  
Minneapolis, Minnesota 55455

#### ACADEMIC REFERENCES

Dr. Elden Johnson  
Dept. of Anthropology  
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Minneapolis, Minnesota 55455

Dr. Janet Spector  
Dept. of Anthropology  
University of Minnesota  
Minneapolis, Minnesota 55455

PHOTOGRAPHIC PLATES























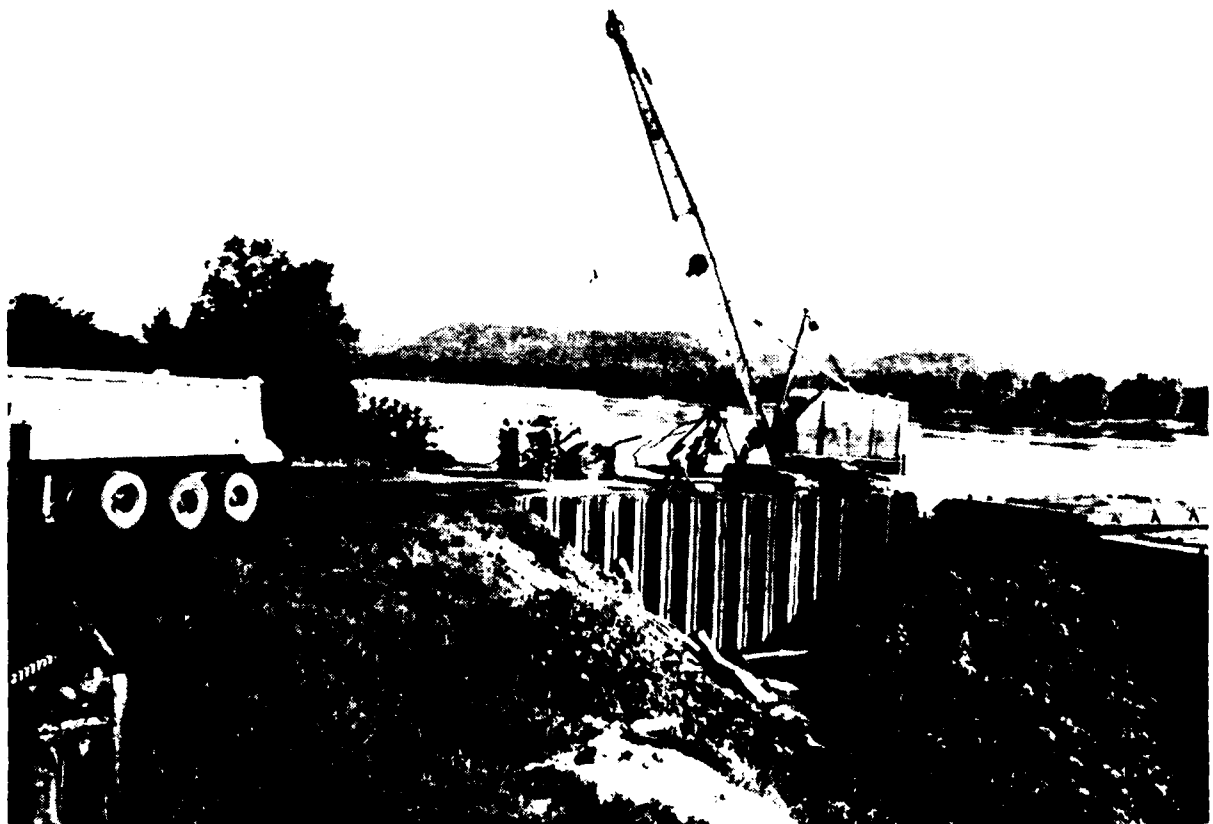
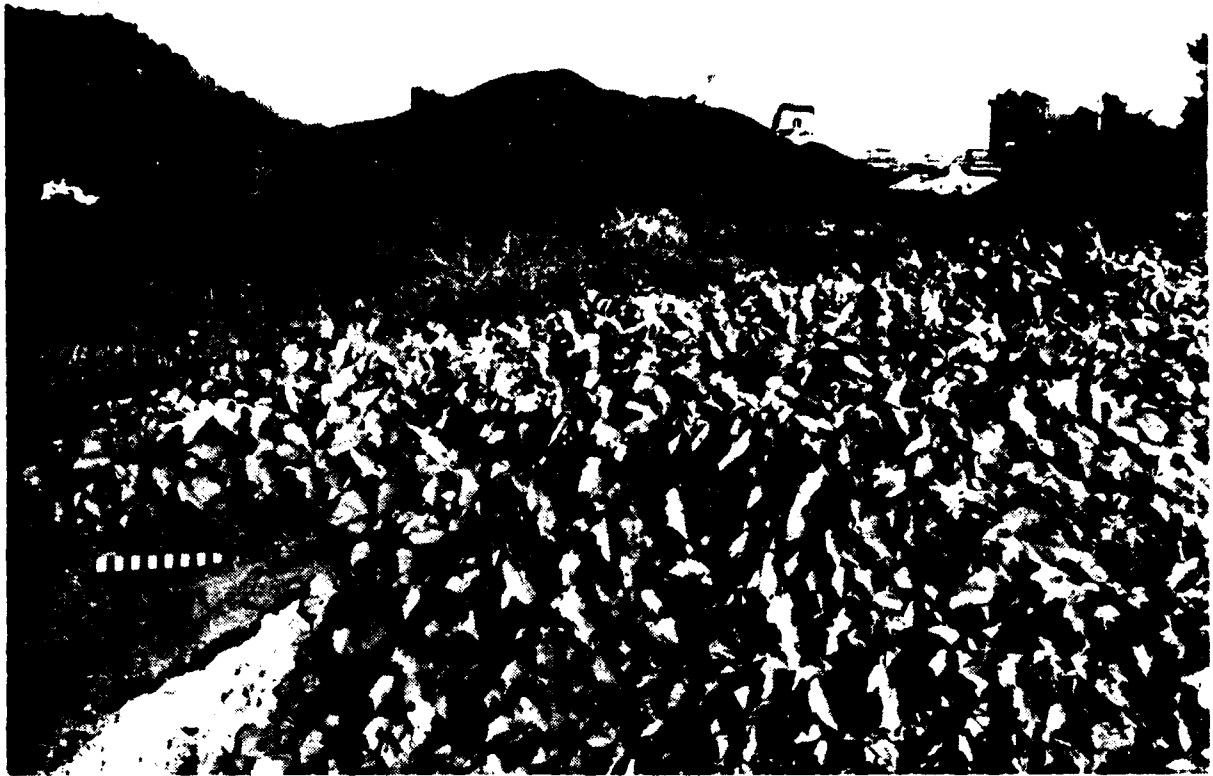




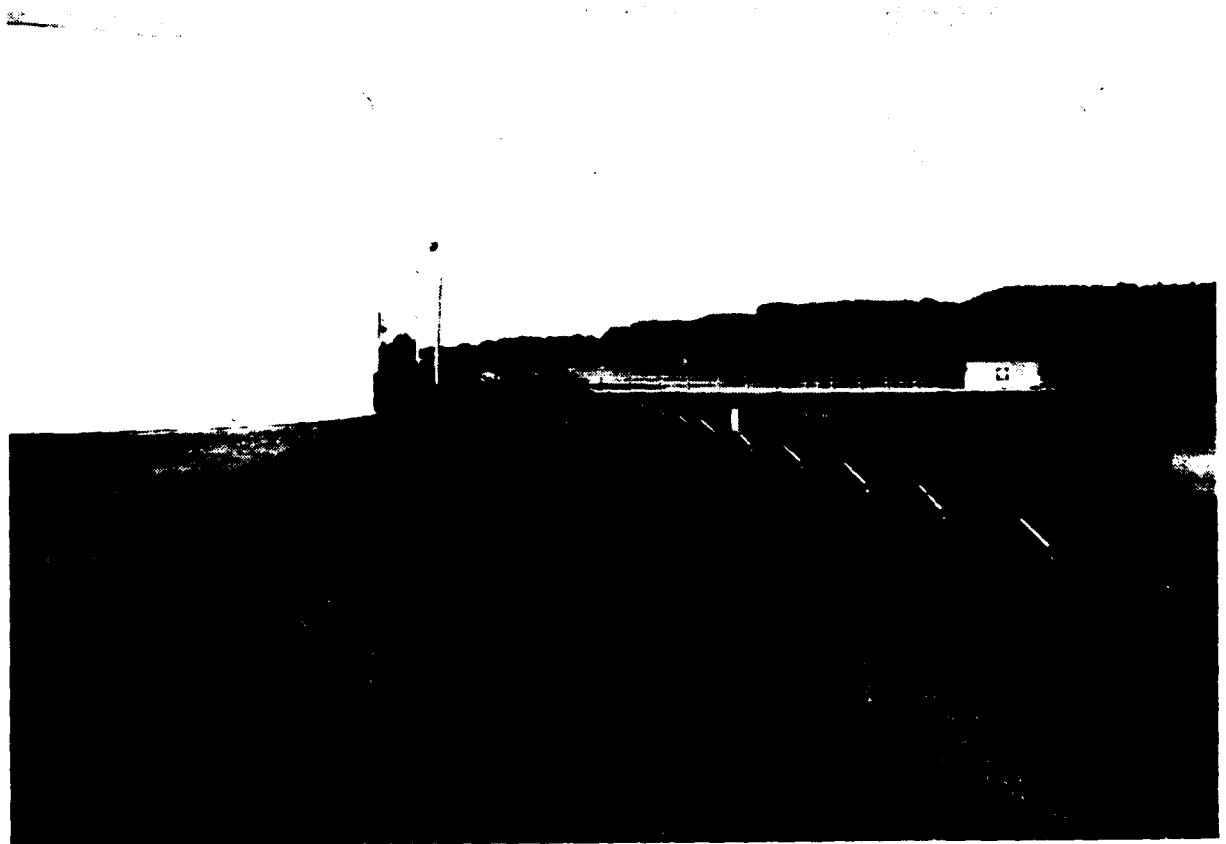
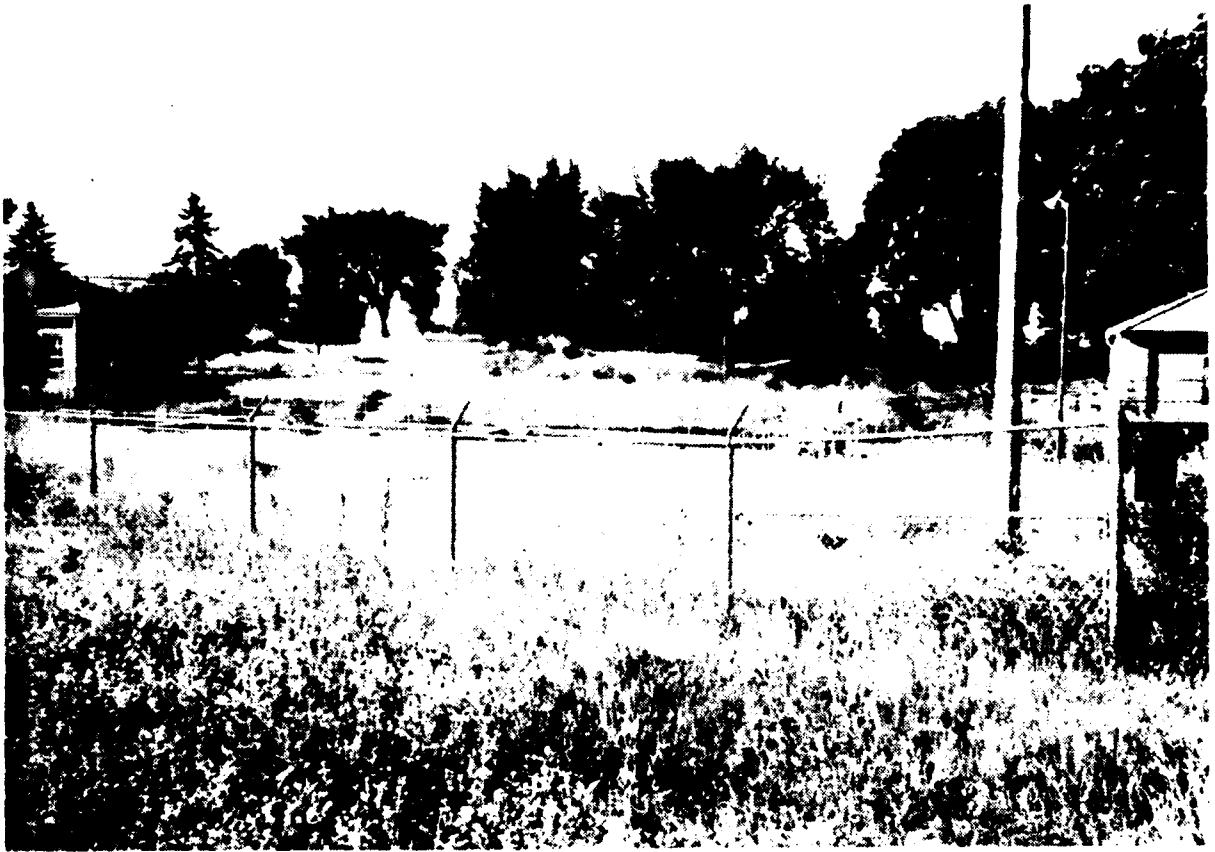










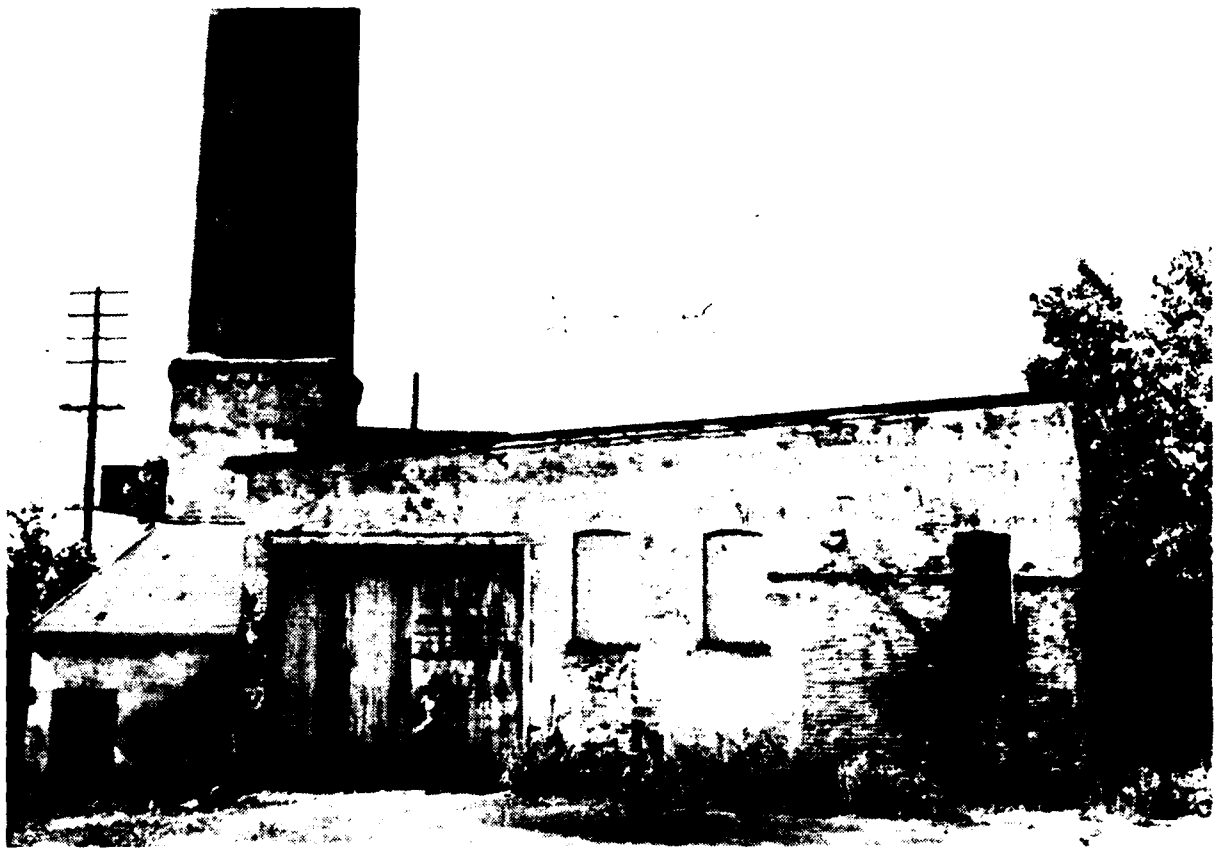


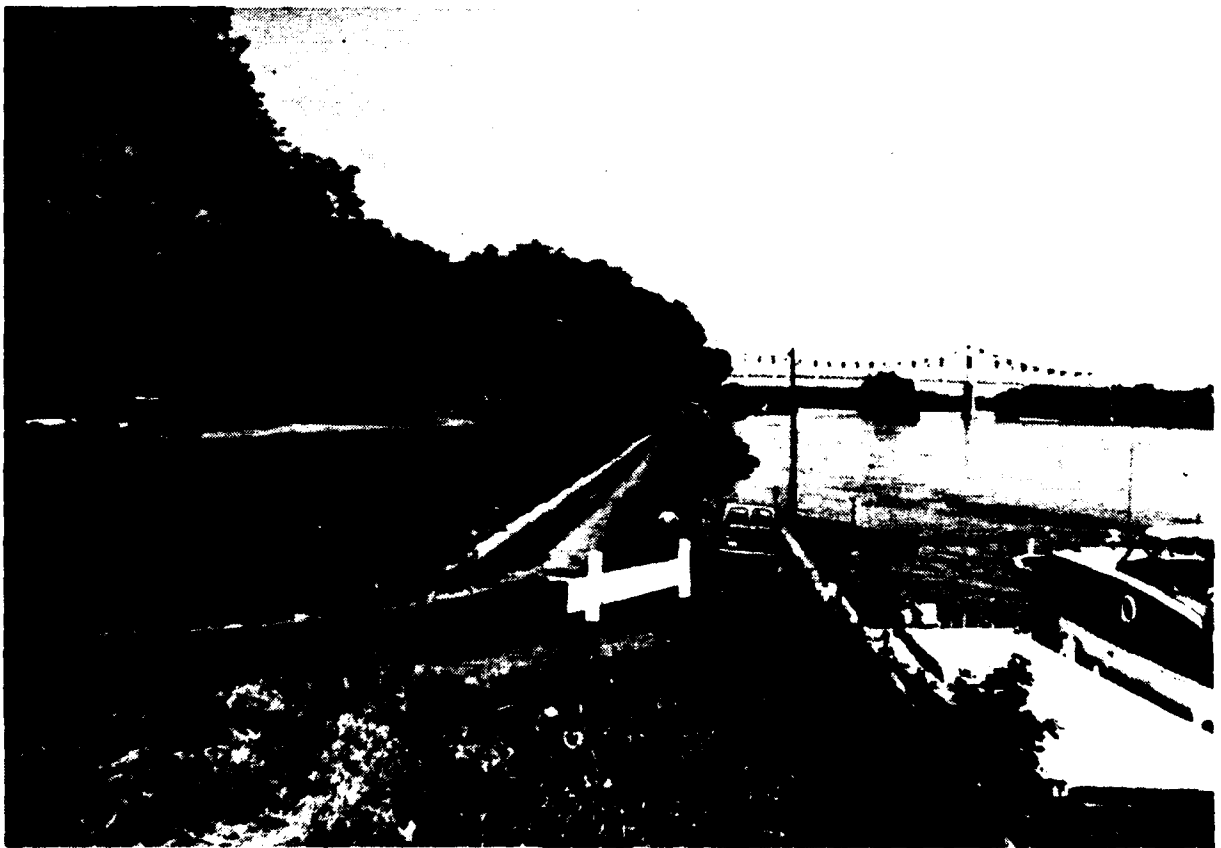








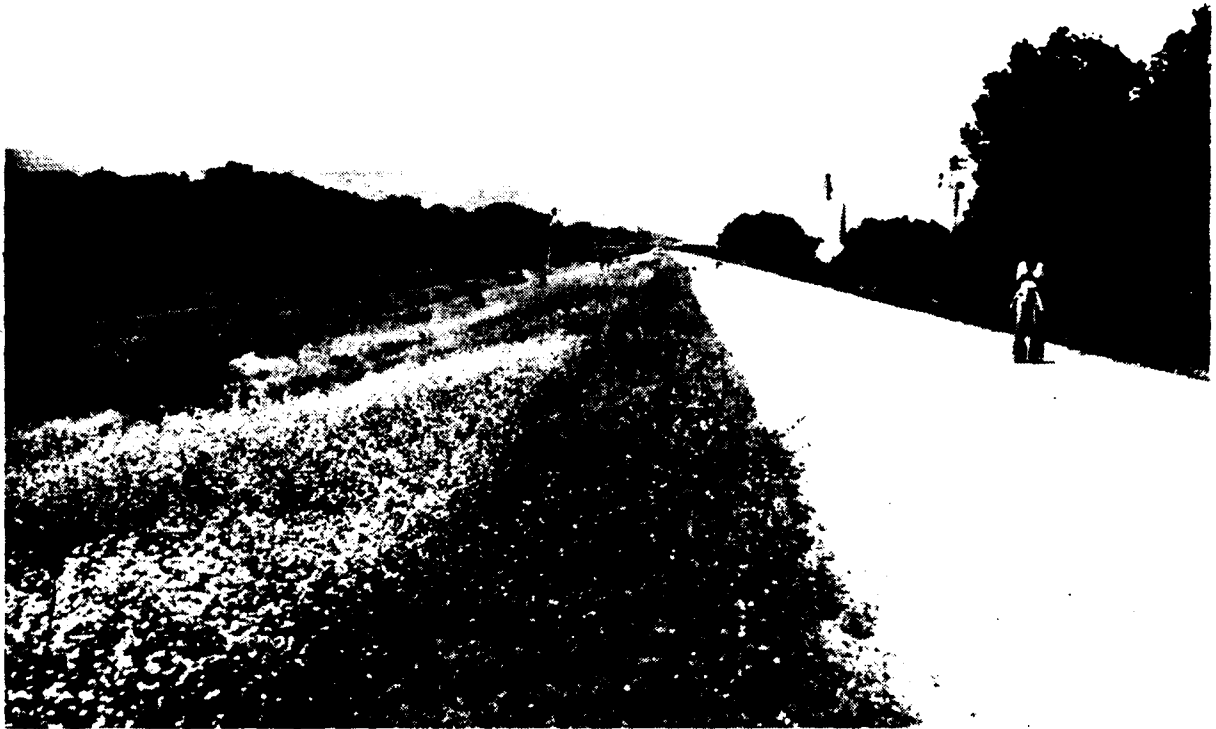




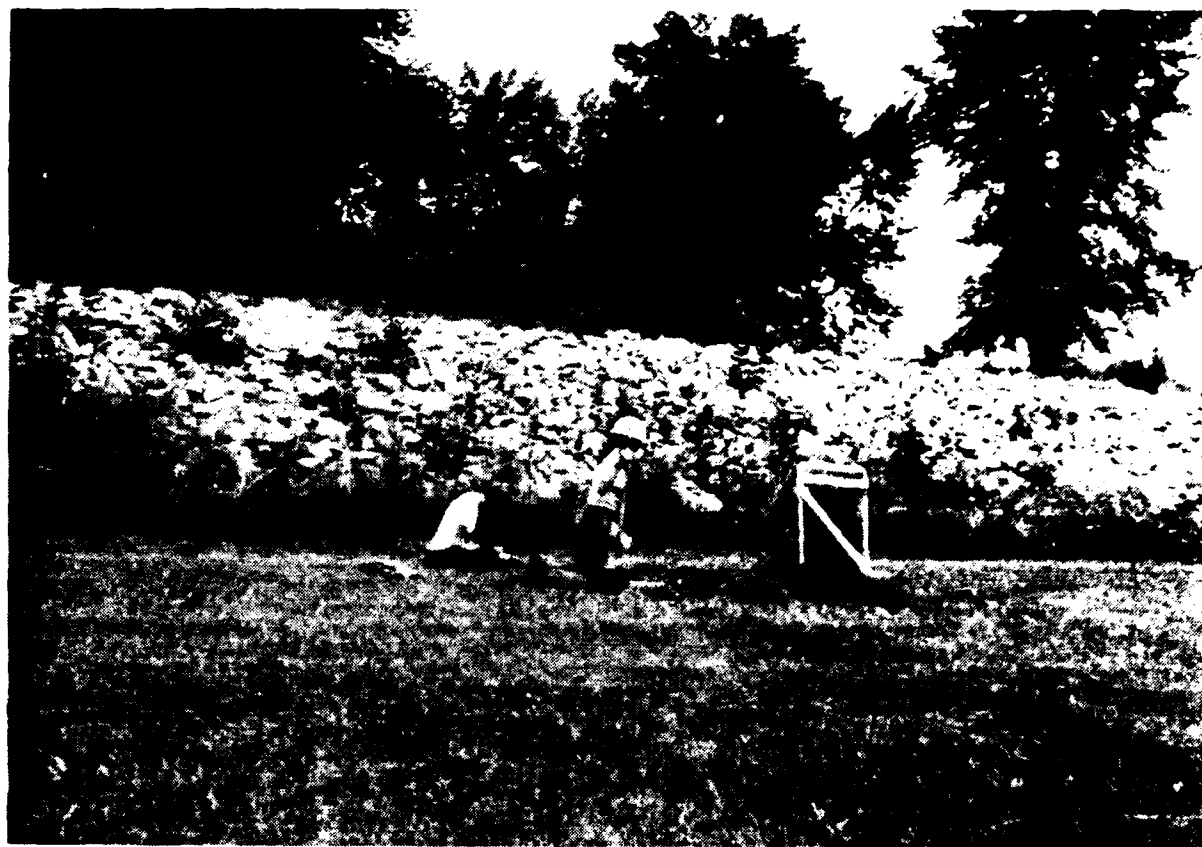


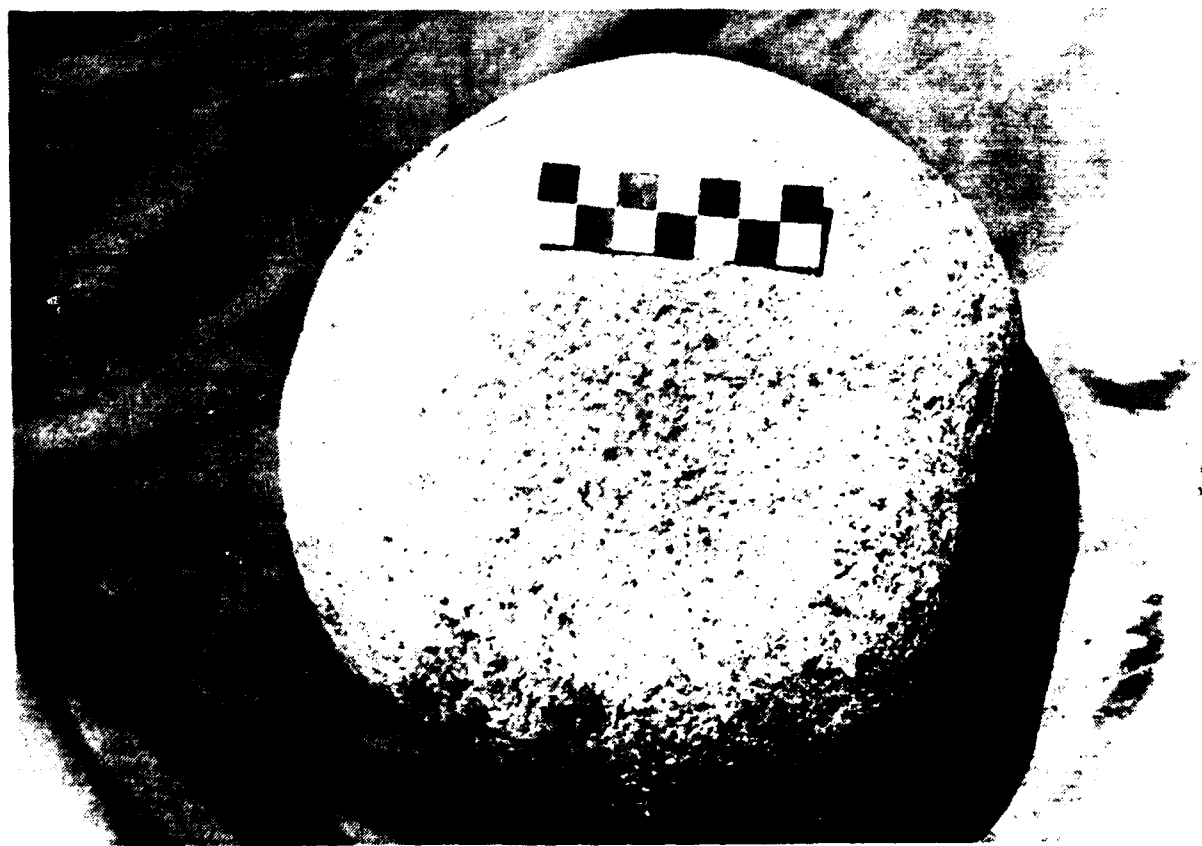






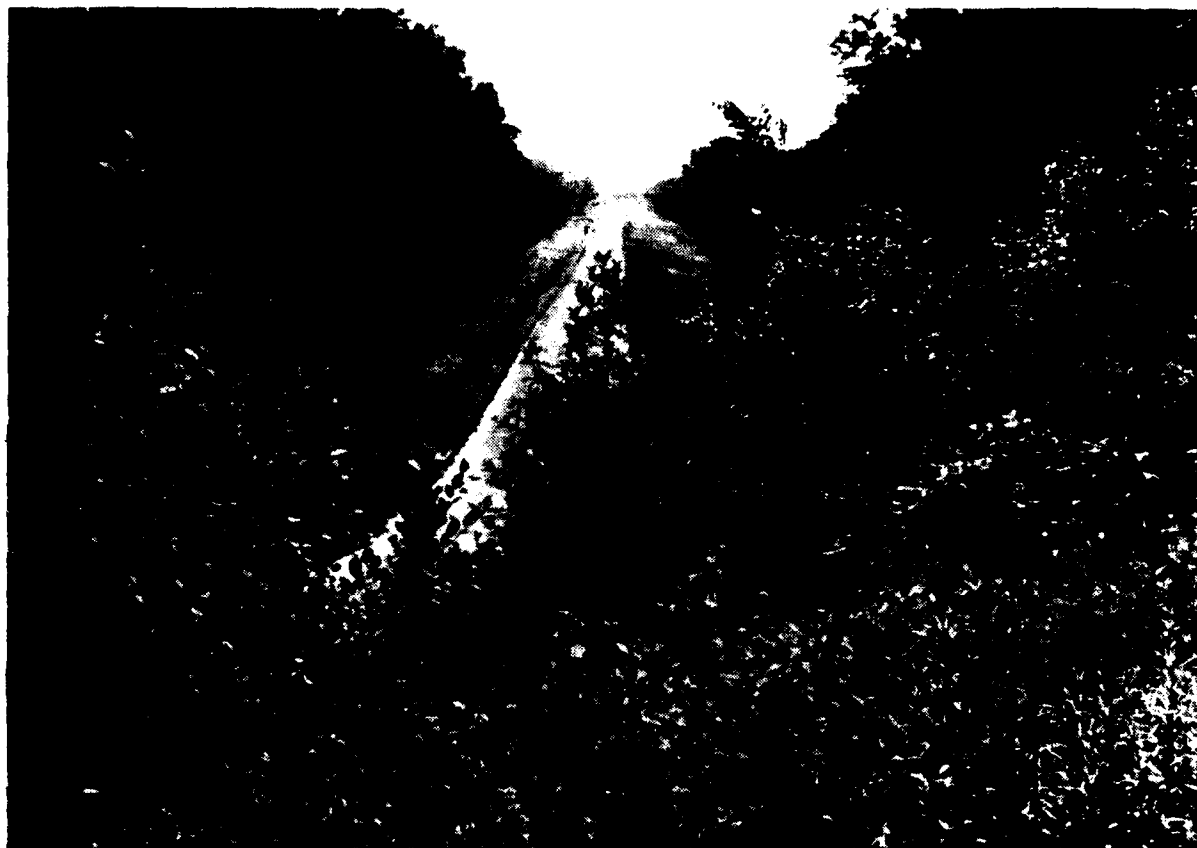


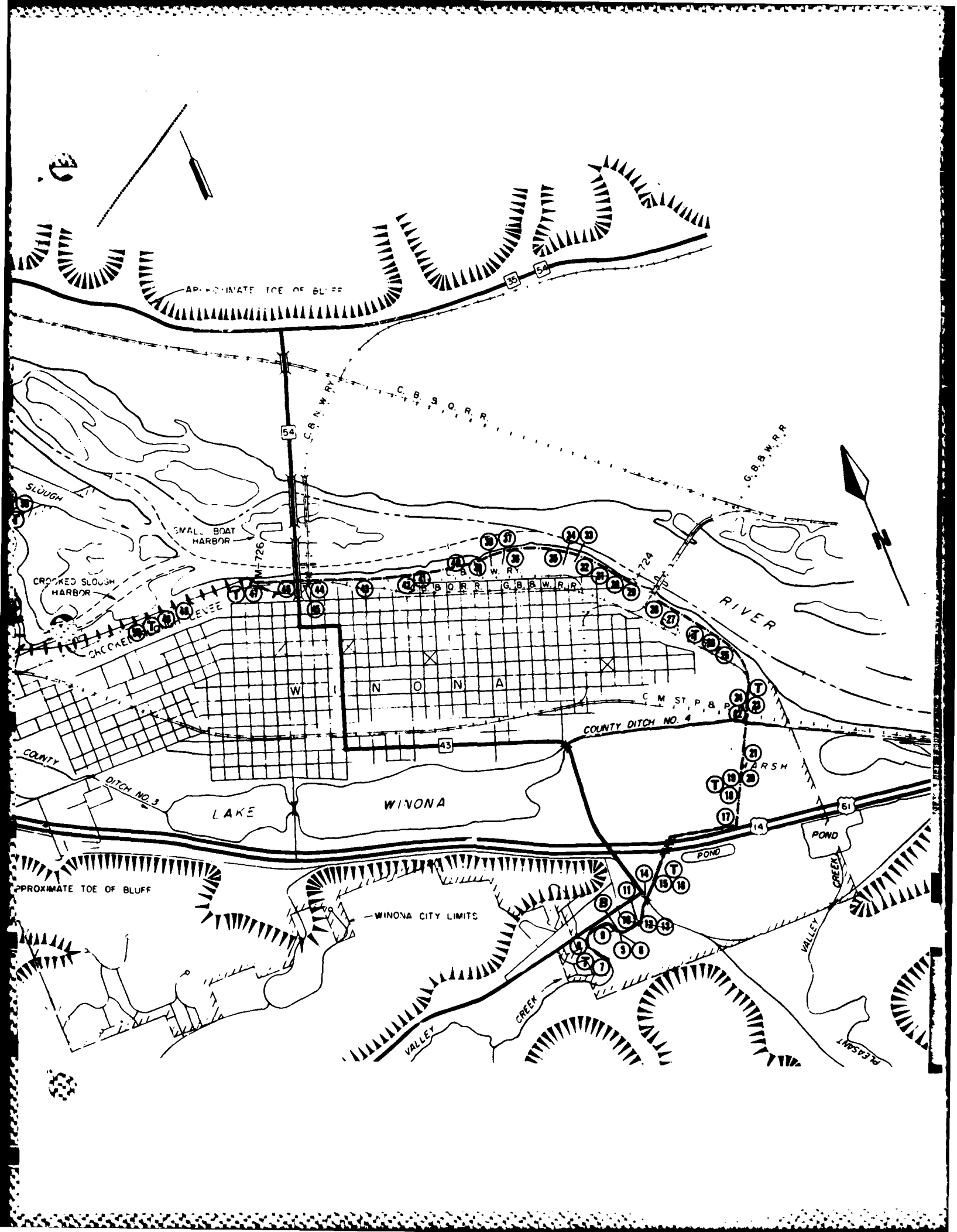






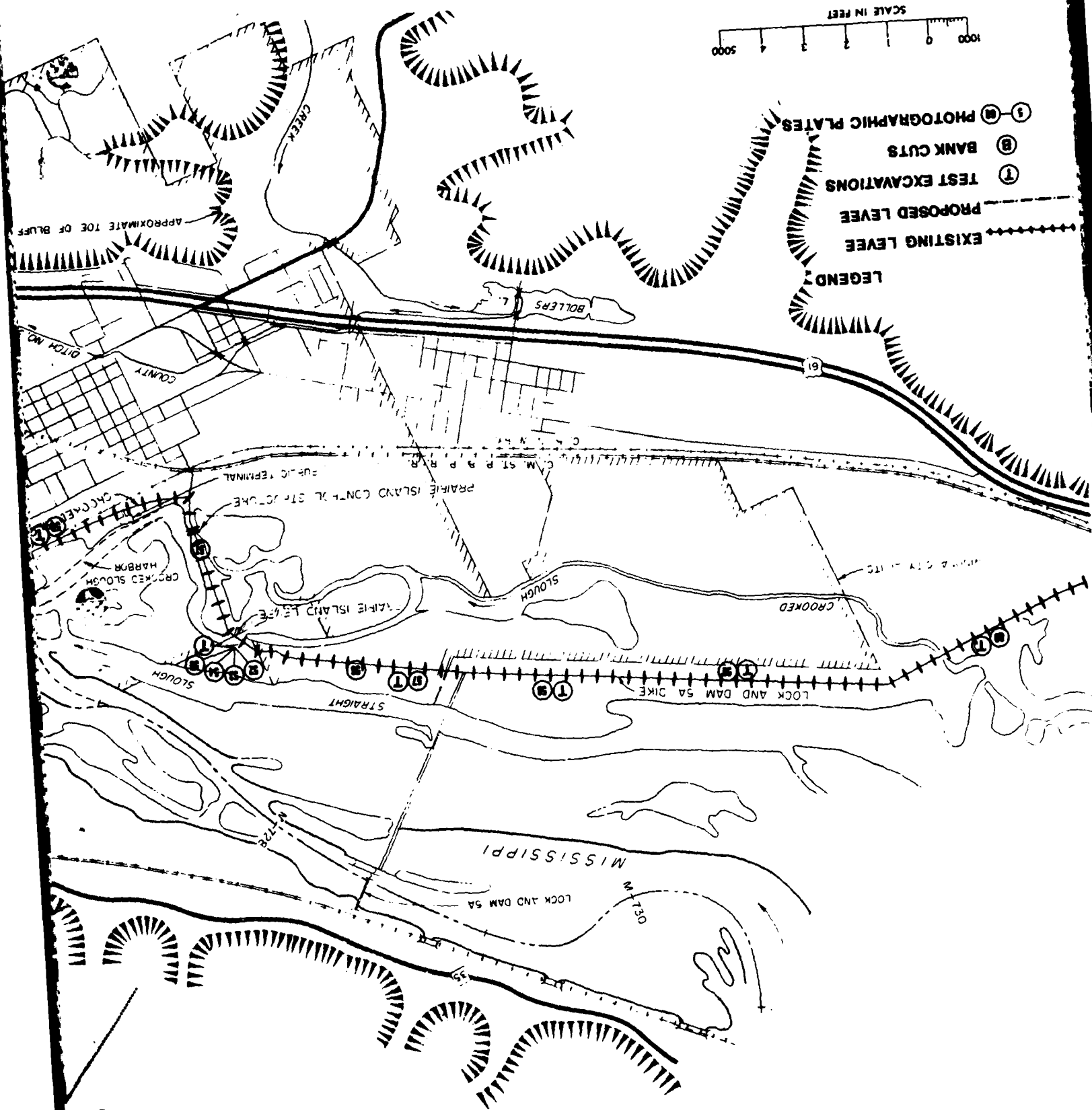








- LEGEND
- ① TEST EXCAVATIONS
  - ② BANK CUTS
  - ③ PHOTOGRAPHIC PLATES
  - PROPOSED LEVEL
  - - - - - EXISTING LEVEL



END

10-8%

DTIC