

PHASE I ARCHAEOLOGICAL SURVEY
GULL ACRES, GULL LAKE DEVELOPMENT

CASS COUNTY, MINNESOTA

Report Prepared for:
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1.0 EXECUTIVE SUMMARY

There is a plan to develop a 36 acre parcel of land near East Gull Lake, MN (Exhibit 1). The development includes subdividing the parcel into 27 residential lots, constructing an access road, a common pool/playground area and a 27 slip boat harbor (Exhibit 2). The Project is located within Section 17 of T134N, R29W, in Cass County, Minnesota.

Houston Engineering, Inc. contracted Trefoil Cultural & Environmental to conduct a Phase I archaeological survey of the parcel prior to construction activities. The purpose of the Phase I survey is to identify all historic resources within the developments Area of Potential Affects (APE) and to provide management recommendations for all historic resources encountered. The Phase I survey was conducted in May of 2016. One new archaeological sites was identified during the survey.

- Site 21-CA-0778 consists of a six prehistoric artifacts recovered from shovel tests 21 and 31 (Exhibit 5). The artifacts were found in a disturbed soil horizon in sharp contact with sterile subsoil. Additional shovel tests placed in cardinal directions from the positive tests were negative. Soil profiles of the additional tests identified a silt loam plow zone in sharp contact with silt-clay subsoil. The test results determined that the artifact bearing soil horizon lacks stratigraphic integrity. Due to the low site density and disturbed stratigraphic context, the site lacks research potential and is not considered eligible for nomination to the National Register of Historic Places (NRHP). No additional archaeological investigation is recommended for site 21-CA-0778.

No other cultural materials were recovered during the investigation. Based on the survey results, no additional archaeological survey or evaluation is recommended for the Project with the following qualifications:

- Intensive testing was performed only within the project boundaries as defined in this report. If the APE is altered beyond those boundaries, additional testing may be required.
- Standard survey techniques cannot always detect buried features (e.g. pits, graves). If archaeological materials are discovered during construction, the immediate discovery area should be avoided until the significance of the find can be assessed.
- If human remains or a suspected burial area is encountered during project operations, activity in the immediate area must cease. The Office of the State Archaeologist and the Cass County Sheriff's office must be contacted for further assistance. The Minnesota's Private Cemeteries Act (307.08) prohibits the intentional disturbance of human burials.

Richard Rothaus PhD.
Principal Investigator

05/27/2016
Date

2.0 INTRODUCTION

There is a plan to develop a 36 acre parcel of land near East Gull Lake, MN (Exhibit 1). The development (Project) proposes to subdivide the parcel into 27 residential lots and construct an access road, a common pool/playground area and a 27 slip boat harbor (Exhibit 2). The Project is located within Section 17 of Township 134-N, Range 29-W, in Cass County, Minnesota.

Houston Engineering, Inc. contracted Trefoil Cultural and Environmental to conduct a Phase I archaeological survey of the Project prior to construction activities. The purpose of the Phase I survey is to identify all historic resources within the Project's Area of Potential Affects (APE) and provide historic resource management recommendations for all identified resources.

The field survey was conducted in May of 2016 by James Cummings and Joseph McFarlane. Richard Rothaus, PhD served as Principal Investigator.

3.0 RESEARCH DESIGN

3.1 *Research Objectives*

Research objectives were designed to meet survey requirements of the Secretary of the Interior's Standards for Identification and Evaluation, and the Minnesota State Historic Preservation Office's (SHPO) *Manual for Archaeological Projects in Minnesota* (Anfinson 2011). The general objectives included:

- Identify all historic properties in or adjacent to the APE.
- Describe identifying characteristics of all properties with an attempt to define cultural and chronological associations.
- Preliminary determination of site boundaries, if any.
- Assessment of site integrity.
- Preliminary assessment of National Register eligibility for all historic properties located within the APE.

3.2 *Area of Potential Effect (APE)*

The APE is defined as all areas where ground-disturbing activities are likely to occur. Ground disturbing activities are likely to occur at access improvements, building sites, septic systems, utility lines etc. and other activities associated with recreational lot development (Exhibit 2). The total APE is approximately 36 acres.

3.3 *Background Research*

Background research was conducted to identify all known cultural resources within one mile of the project area. Historic and environmental contexts were also reviewed to identify areas likely to contain cultural materials. Results were then used to develop field research strategies to identify previously unknown cultural resources. Archival records checked included:

- Environmental literature of the project area.
- Archaeological site files and archives of the State Historic Preservation Office (SHPO), the Office of the State Archaeologist (OSA) and The National Register of Historic Places.
- Original Public Land Survey records (1865).
- Historical Atlases, aerial photos and plat books.
- Site specific reports, maps, photos and original field notes.
- Environmental literature of the project area.

3.4 *Field Methodology*

The general field methodology used during this survey included:

- Background review of historic records to identify all known historic properties within 1 mile of the project APE.
- Surface inspect the project APE along parallel transects not more than 10 meters apart. Significant buffers for landscape features that may indicate earthworks, burial mounds, cemeteries, artifacts, features, architectural remains and other evidence of human occupation or utilization was included.
- Subsurface testing was used to locate buried cultural materials and assess soil integrity. Testing methods included shovel tests supplemented with $\frac{3}{4}$ inch soil probes. Shovel tests were typically 35 to 40 centimeters (cm) in diameter, and were excavated to sterile subsoil. All excavated soil was screened through $\frac{1}{4}$ inch hardware cloth and examined for artifacts and ecofacts. Soil descriptions, generalized colors and basic stratigraphy were recorded for each test. All test holes were back-filled. Shovel tests were not placed in areas with steep slopes ($>10\%$), or in areas covered with standing water.
- Test locations were recorded with a handheld Delorme GPS unit with +/- 6 foot accuracy.

4.0 BACKGROUND RESEARCH RESULTS

4.1 *Environmental Setting*

Geologically, the Project area consists of glacial outwash deposits associated with the Rainy Lobe but they are undivided to any specific moraine association. Soils are typical of those that form in lake plains, flats and depressions. The Project area includes Friendship loamy sand, Spooner very fine sandy loam, Alstad fine sandy loam and the Cathro-Steelyville complex (Soil-Web 2016).

A post glacial vegetation sequence of the Gull Lake area can be construed from the analysis of pollen cores recovered from northern Mille Lacs County (McAndrews 2000). The results suggest a post glacial floral sequence dominated by boreal forest around 12,000 B.P., oak forest around 9,000 B.P., and pine forest by 7,000 B.P. For the past 2 thousand years, the vegetation of the Gull Lake area was a mixed pine and deciduous forest. The present forest reflects the results of extensive timber harvesting that occurred throughout the 19th and early 20th centuries. The Gull Lake logging era resulted in the harvest of most, if not all, of the mature forest stands, especially pine.

The 1865 Original Public Land Survey records describe the Project area as open marsh and aspen (Trygg 1966, Marshner 1974). Historic aerial photographs depict the parcel as agricultural/cultivated land in 1939. The parcel has been used as pasture since the 1950s (Exhibit 3).

4.2 *Historic and Thematic Contexts*

Frameworks for cultural resource study are provided by each state's State Historic Preservation Office (SHPO). These frameworks attempt to establish connections between the state's history and resources encountered. The cultural framework of Minnesota is defined in three main periods: the Pre-contact Period (9,500 B.C to A.D. 1650), the Contact Period (A.D. 1650 to 1837) and the Post Contact Period (A.D. 1837 to 1945). These three main cultural periods of Minnesota have been further sub-divided into a number of cultural contexts.

The Pre-Contact Period contexts most relevant to the project are: the Paleo-Indian (9500BC - 6000BC), Archaic (6000BC - 500BC), and Woodland (500BC - AD1650) Traditions. For the Contact Period (1650 - 1837), the most relevant contexts include the Native American Eastern Dakota and Ojibwe, and the Euro-American French, British, and Initial United States Presence. Post Contact Period contexts include: Northern MN Lumbering (1870 - 1930s) and Tourism & Recreation (1870-1945).

4.3 Historic Overview

The article “Sachs Family History” by Pam Sachs, appears in the City of East Gull Lake’s city website. The article presents a brief history of the Project parcel since the late 1950s. The following is an abbreviated summary of the article.

In 1958 the project parcel was bought from Rudy Rudbeck by Monty and Pearl Sacks. Soon after purchasing the property, plans were made to subdivide the parcel into recreational/residential lots and provide water access to Gull Lake via the construction of an “L” shaped channel that bordered the south and east property lines. The channel was excavated in 1961 and Pearl Road was established. For temporary income, the parcel was used as a horse riding stable.

Sachs notes: *The Channel did not become a successful development, according to Chuck Steinbauer who was the attorney of record, because of poor timing. Before it could be successfully promoted and sold, the zoning and building regulations changed and it was no longer possible to sell 50 foot lots. As of today, it will continue being difficult to “develop” because it is old river bottom with the water table very close to the surface.*

4.4 Archaeological Overview

Archaeologically, the Project lies within the Central Lakes Deciduous West Archaeological Region. The Project is located on a parcel of land adjacent to a Gull Lake, southeast of Squaw Point (Exhibit 1). The parcel is separated from the present lakeshore of Gull Lake by 600 to 800 feet of wetland/marsh.

The Archaeological site files of the Minnesota State Historic Preservation Office identified four archaeological sites within 1 mile of the Project area (Exhibit 4). No known archaeological sites were identified within the projects APE.

- Site 21-CA-0037 is a prehistoric burial mound group located 2000' south of the project APE.
- Site 21-CA-0058 is a prehistoric habitation site containing Kathio, Sandy Lake and Brainerd ware ceramics. It is located 2000' south-southwest of the project APE.
- Site 21-CA-0110 is a prehistoric habitation site located 1200' south-southwest of the project APE.
- Site 21-CA-0111 is a prehistoric habitation site containing Sandy Lake ware ceramics. It is located 3400' west-northwest of the project APE.

5.0 FIELD SURVEY RESULTS

5.1 Pedestrian Survey Results

The field survey was conducted in May of 2016. The entire parcel was inspected along parallel transect less than ten meters apart. Ground cover is primarily grazed meadow grass and wetland vegetation. Isolated stands of young aspen are found along the channel and a red pine plantation borders the northwest corner of the parcel (Exhibit 5). Surface visibility was poor (less than 30% ground exposure). A spoil pile of soil flanks the north side of the L shaped channel. Other than the spoil pile, no historic structures, foundations or structural debris was identified.

5.2 Subsurface Survey Results

Due to poor surface visibility, a total of 42 shovel tests and 21 soil probes were conducted to determine the presence or absence of buried archaeological materials and assess stratigraphic integrity. Subsurface test locations and logs are recorded in Exhibits 5 and 6. One archaeological site was identified through subsurface testing. The new site was assigned Minnesota State Archaeological Site Number 21-CA-0778.

Site 21-CA-0778 consists of a six prehistoric artifacts recovered from shovel tests 21 and 31 (Exhibit 5). A quartz primary flake was recovered from shovel test 21. A quartz shatter fragment, one quartz tertiary reduction flake, one siltstone tertiary reduction flake and two tertiary flakes of Tongue River Silica were recovered from shovel test 31. Soil profiles determined that the artifacts were recovered from a disturbed soil horizon in direct contact with sterile subsoil. Shovel tests placed in cardinal directions from each positive tests were negative. Soil profiles of the additional tests identified a silt loam plow zone (Ap) in sharp contact with silty clay subsoil (E). The test results determined that the artifact bearing soil horizon is a plow zone that lacks stratigraphic integrity. Due to the low site density and disturbed stratigraphic context, the site lacks research potential and is not considered eligible for nomination to the National Register of Historic Places (NRHP). No additional archaeological investigation is recommended.

Subsurface testing throughout the open pasture area of the project was negative. Examination of the soil profiles determined that most, if not all, of the open pasture area was previously cultivated. The plow zone is in sharp contact with culturally sterile subsoil. Based on the test results, the open pasture area has a very low potential, if any, to contain intact cultural deposits. Two areas outside of the pasture were also tested.

An elevated area flanking the north side of the channel was soil probed to determine its composition. The soil probes determined that the elevated area consists of mixed clay ranging from 50cm to 75cm thick. The mixed clay is consistent with subsoil materials that would have been dredged during the construction of the channel. Directly beneath the mixed clay is a 10cm to 20cm layer of disturbed and mottled black silty clay in sharp contact with olive brown oxidized clay subsoil. The buried soil horizon contain soils that are typical of those established in a wetland environment. Because the buried soil horizons are disturbed, they have an extremely low potential to contain intact archaeological deposits. No additional archaeological survey or evaluation is recommended.

Subsurface testing within the pine plantation identified a soil profile consisting of a shallow and weak "A" horizon in sharp contact with fine to coarse grained mineral stained sand. The test results determined that the stratigraphic integrity of the pine plantation has been destroyed through a combination of cultivation and tree planting. No additional archaeological survey or evaluation is recommended.

6.0 CONCLUSION

The project area has been thoroughly tested with close interval pedestrian survey and subsurface testing. Historic aerial photographs show the project area under cultivation during the early 20th century. Subsurface testing determined that most, if not all, of the project area lacks the stratigraphic integrity necessary to contain intact archaeological deposits.

One new archaeological site was discovered during the field survey and has been assigned site number 21-CA-0778. Intensive survey determined that site 21-CA-0778 lacks stratigraphic integrity and is not eligible for nomination to the NRHP. No additional archaeological survey or evaluation is recommended.

7.0 REFERENCES

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8.0 EXHIBITS

8.1 Exhibit 1: Project Vicinity



8.2 Exhibit 2: Project Layout



8.3 Exhibit 3: Historic Aerial Photographs



Google earth

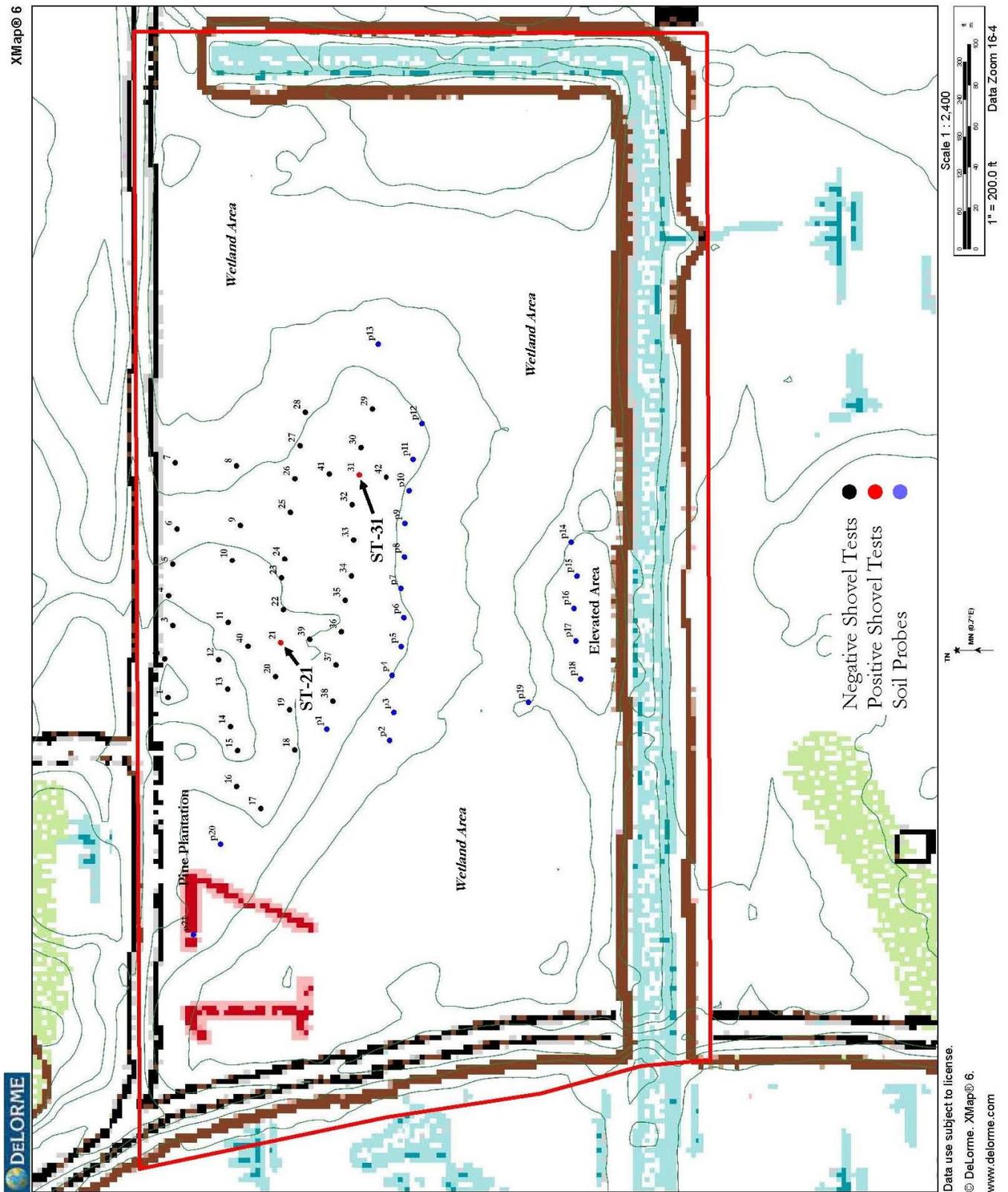
feet 1000
meters 300



8.4 Exhibit 4: Known Archaeological Sites



8.5 Exhibit 5: Test Locations and Study Areas



8.6 Exhibit 6: Subsurface Test Results

SHOVEL TEST RESULTS			
Test	Soil Profile	Results	Comments
ST-1	0-22cm: dark brown silty sand 22-46cm: brown sand 46-58cm: light brown silty fine sand w/mineral staining	No Cultural Materials (NCM)	Sharp contact between top two soil horizons
ST-2	0-23cm: sandy loam, very dark brown 10YR2/2 23-32cm: brown clay	NCM	Sharp contact between soil horizons
ST-3	0-15cm: dark grey-brown loam 15-32cm: olive-brown clay with mineral staining	NCM	Sharp contact between soil horizons
ST-4	0-16cm: dark grey-brown loam 16-32cm: olive-brown clay with mineral staining	NCM	Sharp contact between soil horizons
ST-5	0-17cm: dark grey-brown loam 17-23cm: dark grey silt 23-32: olive-brown clay with mineral staining	NCM	Sharp contact between top two soil horizons
ST-6	0-22cm: dark grey-brown loam 22-28cm: dark grey silt 28-32: olive-brown clay with mineral staining	NCM	Sharp contact between top two soil horizons
ST-7	0-18cm: dark brown loam 18-32cm: olive-brown clay with mineral staining	NCM	Sharp contact between top two soil horizons
ST-8	0-16cm: black clay loam, wet 16-26cm: mottled grey clay with mineral staining	NCM	Sharp contact between top two soil horizons
ST-9	0-18cm: very dark grey-brown silt loam 18-25cm: grey-brown silt with mineral staining	NCM	Sharp contact between top two soil horizons
ST-10	0-20cm: very dark grey-brown silt loam 20-25cm: mottled grey clay with mineral staining	NCM	Sharp contact between top two soil horizons
ST-11	0-22cm: very dark grey-brown silt loam 22-25cm: grey-brown silt with mineral staining	NCM	Sharp contact between top two soil horizons
ST-12	0-15cm: very dark brown silt loam 15-28cm: brown silt 28-38cm: light grey-brown oxidized clay	NCM	Sharp contact between top two soil horizons
ST-13	0-20cm: very dark brown silt loam 20-30cm: brown silt 30-35cm: light grey-brown oxidized clay	NCM	Sharp contact between top two soil horizons
ST-14	0-18cm: very dark brown silt loam 18-30cm: brown silt 30-35cm: light grey-brown oxidized clay	NCM	Sharp contact between top two soil horizons
ST-15	0-20cm: very dark brown sandy silt loam 20-42cm: brown sandy silt 42-50cm: light grey-brown oxidized clay	NCM	Sharp contact between top two soil horizons
ST-16	0-13: mixed clay 13-25cm: reddish clay	NCM	Sharp contact between top two soil horizons, disturbed
ST-17	0-13: mixed clay 13-25cm: grey clay, oxidized	NCM	Sharp contact between soil horizons
ST-18	0-8cm: dark grey-brown silt loam 8-20cm: disturbed 20-30cm: grey-brown clay, oxidized	NCM	Sharp contact between soil horizons
ST-19	0-19cm: dark grey-brown silt loam 19-29cm: brown silt 20-30cm: grey clay silt, oxidized	NCM	Sharp contact between soil horizons
ST-20	0-15cm: dark grey-brown silt loam 15-27cm: grey-brown oxidized silt	NCM	Sharp contact between soil horizons
ST-21	0-20cm: dark grey-brown loam, mottled with brown sand 20-35cm: lenses of grey-brown loam and brown silt sand 35-40cm: grey-brown silt, oxidized	POSITIVE 1 quartz flake @ 20cm	Disturbed, looks like plow zone
ST-22	0-14cm: grey-brown silt loam 14-20cm: brown sandy silt 20-26cm: grey clay	NCM	Sharp contact between soil horizons
ST-23	0-13cm: grey-brown silt loam 13-25cm: grey clay	NCM	Sharp contact between soil horizons
ST-24	0-14cm: grey-brown silt loam 14-25cm: grey clay	NCM	Sharp contact between soil horizons
ST-25	0-15cm: grey-brown silt loam, disturbed 15-20cm: grey-brown silt transition to grey clay 20-25cm: grey clay	NCM	Sharp contact between top two soil horizons, disturbed
ST-26	0-17cm: black silt loam 17-24cm: grey silt 24-30cm: grey clay with strong brown oxidation	NCM	Sharp contact between soil horizons

ST-27	0-17cm: dark grey-brown silt loam 17-20cm: grey silt 20-30cm: grey clay	NCM	Sharp contact between soil horizons
ST-28	0-18cm: very dark gray brown clay loam 18-25cm: strong brown oxidized clay	NCM	Sharp contact between soil horizons
ST-29	0-18cm: very dark gray brown clay loam 18-25cm: strong brown oxidized clay	NCM	Sharp contact between soil horizons
ST-30	0-20cm: very dark gray brown clay loam 20-27cm: strong brown oxidized clay	POSITIVE 1 white ware plate fragment	Sharp contact between soil horizons
ST-31	0-18cm: very dark grey-brown silt loam 18-26cm: very dark grey-brown silt loam with grey clay 26-30cm: grey clay	POSITIVE 4 flakes, 1 shatter fragment	Sharp contact between soil horizons
ST-32	0-17cm: very dark grey brown silt loam 17-25cm: brown oxidized clay	NCM	Sharp contact between soil horizons
ST-33	0-17cm: mottled mix of very dark brown silt loam 17-25cm: grey-brown clay	NCM	Disturbed, sharp contact between soil horizons
ST-34	0-12cm: very dark grey-brown silt loam, mottled 12-25cm: brown to strong brown in grey clay	NCM	Sharp contact between soil horizons
ST-35	0-15cm: very dark grey-brown loam 15-20cm: grey-brown silt 20-25cm: grey-brown clay	NCM	Sharp contact between soil horizons
ST-36	0-20cm: very dark grey-brown silt loam 20-25cm: olive brown clay	NCM	Sharp contact between soil horizons
ST-37	0-18cm: very dark grey-brown silt loam 18-25cm: olive brown clay	NCM	Sharp contact between soil horizons
ST-38	0-17cm: very dark grey-brown silt loam 17-25cm: olive-brown clay	NCM	Sharp contact between soil horizons
ST-39	0-22cm: very dark grey-brown loam 22-26cm: grey silt 26-30cm: grey clay	NCM	Sharp contact between soil horizons
ST-40	0-18cm: very dark grey-brown loam 18-25cm: light olive-brown clay	NCM	Sharp contact between soil horizons
ST-41	0-20cm: very dark grey-brown silt loam 20-25cm: grey silt 25-30cm: grey clay	NCM	Sharp contact between soil horizons
ST-42	0-21cm: silt loam 21-25cm: olive-brown oxidized clay	NCM	Sharp contact between soil horizons
SOIL PROBE RESULTS			
SP-1	0-20cm: very dark grey-brown silt loam 20-32cm: olive-brown oxidized clay	Pasture	Sharp contact between soil horizons
SP-2	0-23cm: very dark grey-brown silt loam 23-32cm: brown oxidized clay	Pasture	Sharp contact between soil horizons
SP-3	0-15cm: very dark grey-brown silt loam 15-32cm: olive-brown oxidized clay	Pasture	Sharp contact between soil horizons
SP-4	0-16cm: very dark grey-brown silt loam 16-32cm: olive-brown clay with strong brown oxidation	Pasture	Sharp contact between soil horizons
SP-5	0-17cm: very dark grey-brown silt loam 17-23cm: dark grey silt 23-32cm: olive-brown clay with strong brown oxidation	Pasture	Sharp contact between soil horizons
SP-6	0-22cm: very dark grey-brown silt loam 22-28cm: dark grey silt 28-32cm: olive-brown clay with strong brown oxidation	Pasture	Sharp contact between soil horizons
SP-7	0-18cm: very dark grey-brown silt loam 18-32cm: olive-brown clay with strong brown oxidation	Pasture	Sharp contact between soil horizons
SP-8	0-21cm: very dark grey-brown silt loam 21-32cm: olive-brown clay with strong brown oxidation	Pasture	Sharp contact between soil horizons
SP-9	0-20cm: very dark grey-brown silt loam 20-32cm: olive-brown clay with strong brown oxidation	Pasture	Sharp contact between soil horizons
SP-10	0-17cm: very dark grey-brown silt loam 17-32cm: olive-brown clay with strong brown oxidation	Pasture	Sharp contact between soil horizons
SP-11	0-13cm: very dark grey-brown silt loam 13-32cm: olive-brown clay with strong brown oxidation	Pasture	Sharp contact between soil horizons
SP-12	0-14cm: very dark grey-brown silt loam 14-23cm: dark grey silt 23-32cm: olive-brown clay with strong brown oxidation	Pasture	Sharp contact between soil horizons
SP-13	0-15cm: very dark grey-brown silt loam 15-32cm: olive-brown clay with strong brown oxidation	Pasture	Sharp contact between soil horizons
SP-14	0-53cm: mixed and mottled clay, disturbed (dredge spoil) 53-75cm: black silt 75-88cm: black silty clay	Elevated Area	Sharp contact between soil horizons

	88-95cm: olive-brown clay with strong brown oxidation		
SP-15	0-75cm: mixed and mottled clay, disturbed (dredge spoil) 75-85cm: black silt 85-95cm: black silt clay, wet	Elevated Area	Sharp contact between soil horizons
SP-16	0-75cm: mixed and mottled clay, disturbed (dredge spoil) 75-93cm: black silt clay 93-100cm: grey clay, wet	Elevated Area	Sharp contact between soil horizons
SP-17	0-76cm: mixed and mottled clay, disturbed (dredge spoil) 76-87cm: black silt clay 87-100cm: olive-brown clay with strong brown oxidation	Elevated Area	Sharp contact between soil horizons
SP-18	0-61cm: mixed and mottled clay, disturbed (dredge spoil) 61-70cm: black silt clay 70-80cm: olive-brown clay with strong brown oxidation	Elevated Area	Sharp contact between soil horizons
SP-19	0-10cm: grey-brown silt loam 10-17cm: very dark grey clay 17-32cm: grey clay with strong brown oxidation	Test in wetland to compare with elevated area tests	Sharp contact between soil horizons
SP-20	0-45cm: brown sugar sand 45-60cm: brown oxidized silt	Pine plantation	Sharp contact between soil horizons
SP-21	0-3cm: grey-brown sand, weak A horizon 3-40cm: brown sugar sand 40-64cm: brown oxidized brown silt	Pine plantation	Sharp contact between soil horizons