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ARCHAEOLOGICAL INVENTORY AND EVALUATION AT  
EXXON MINERALS COMPANY, CRANDON PROJECT SITE  
IN FOREST AND LANGLADE COUNTIES, WISCONSIN

ADDENDUM-JUNE, 1983

PROPOSED WATER DISCHARGE PIPELINE CO

STATE DOCUMENTS  
DEPOSITORY

SEP 17 1984

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June 1983

## ABSTRACT

During May and June 1983, Great Lakes Archaeological Research Center, Inc. conducted archaeological and historical investigations on approximately 17 ha (42 acres) in Forest County, Wisconsin. The investigations were designed to determine the presence or absence of cultural resources along the route of a proposed water discharge pipeline corridor from the Exxon Minerals Company mine/mill site to Swamp Creek. Shovel testing, surface collection, and informant interviews failed to provide any evidence of historic or prehistoric archaeological sites along the proposed route. A single 20th century logging camp midden was discovered outside the proposed project area. The conclusions drawn from these investigations are that the proposed pipeline construction will have no adverse effect on known cultural resources.

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## INTRODUCTION:

During May and June 1983, Great Lakes Archaeological Research Center, Inc. conducted archaeological and historical investigations on approximately 17 ha (42 acres) in Forest County, Wisconsin. The investigations were conducted following the definition of a water discharge pipeline corridor that has its easternmost point in section 30, Town 35 North (Lincoln), Range 13 East and its western terminus in section 32, Town 35 North (Nashville), Range 12 East. Approximately the eastern one-half of this proposed water discharge pipeline corridor had been previously subjected to archaeological and historical survey (see Salzer and Birmingham 1978, Overstreet and Brazeau 1982, Overstreet 1982, and MacDonald and Mack Partnership 1982), and thus field investigations were restricted to the western one-half of the proposed corridor. Figure 1 depicts the previously surveyed, eastern segment of the proposed pipeline route and Figure 2 denotes the western segment subjected to cultural resources inventory and evaluation under the scope of this current investigation.

As previously noted, the corridor situated in sections 34, 33, and 32, Town 35 North (Nashville), Range 12 East comprises some 17 ha (42 acres). The length of the route is approximately 5.5 km (3.4 miles)--the total length of the proposed pipeline is 9.8 km (6.1 miles)--and the width of the corridor is approximately 30 m (100 feet). The actual width of the proposed corridor is 15 m (50 feet), however, a 30 m (100 foot) wide corridor was subjected to archaeological inventory to ensure adequate survey coverage.

Field inventory was scheduled to begin in May 1983; however, because of very wet conditions the field phase was delayed and a field crew was not deployed until June 1, 1983. Field investigations were completed on June 7, 1983.

## METHODS AND TECHNIQUES OF INVESTIGATIONS:

Literature and archives searches have already been conducted in regard to the proposed pipeline corridor (see for example: Salzer and Birmingham 1978, Overstreet and Brazeau 1982, Overstreet 1982, and MacDonald and Mack Partnership 1982). However, as several years had elapsed since the Salzer and Birmingham investigations (1978), the Historic Preservation Division, State Historical Society of Wisconsin inventory file was reviewed to determine if any additional investigations resulting in the identification of new sites had occurred. As well, the Archaeological Site Codification File, housed in the Museum Division of the State Historical Society of Wisconsin was also reviewed for sites more recent than the investigations at the Crandon Project area. Neither the inventory files or the site file yielded

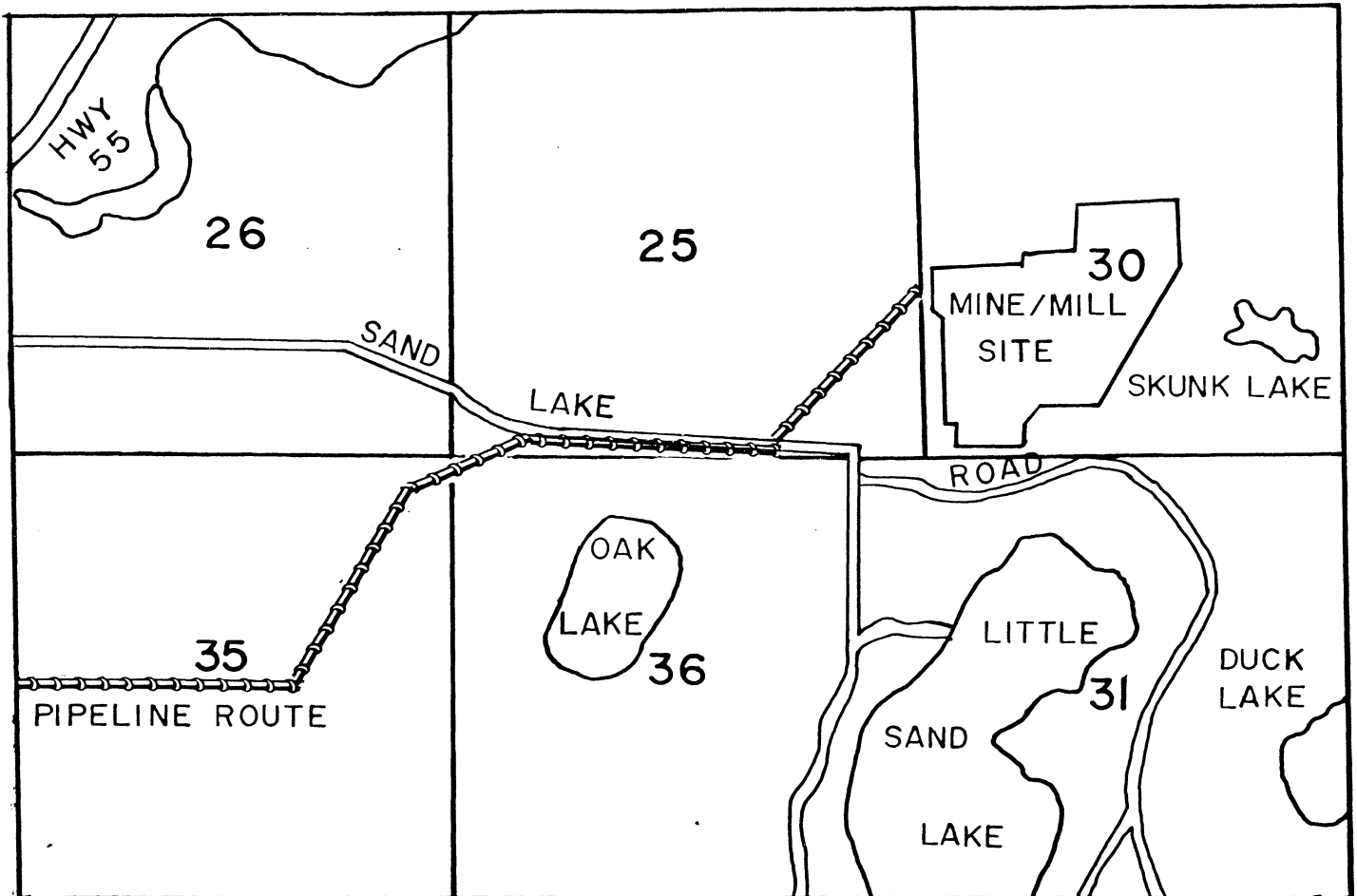


Figure 1: Eastern segment of proposed pipeline corridor previously subjected to cultural resources inventory and evaluation.

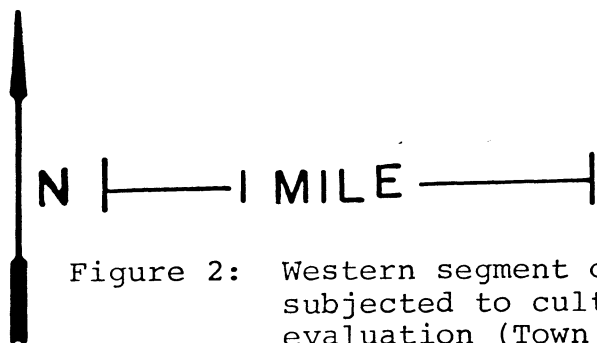
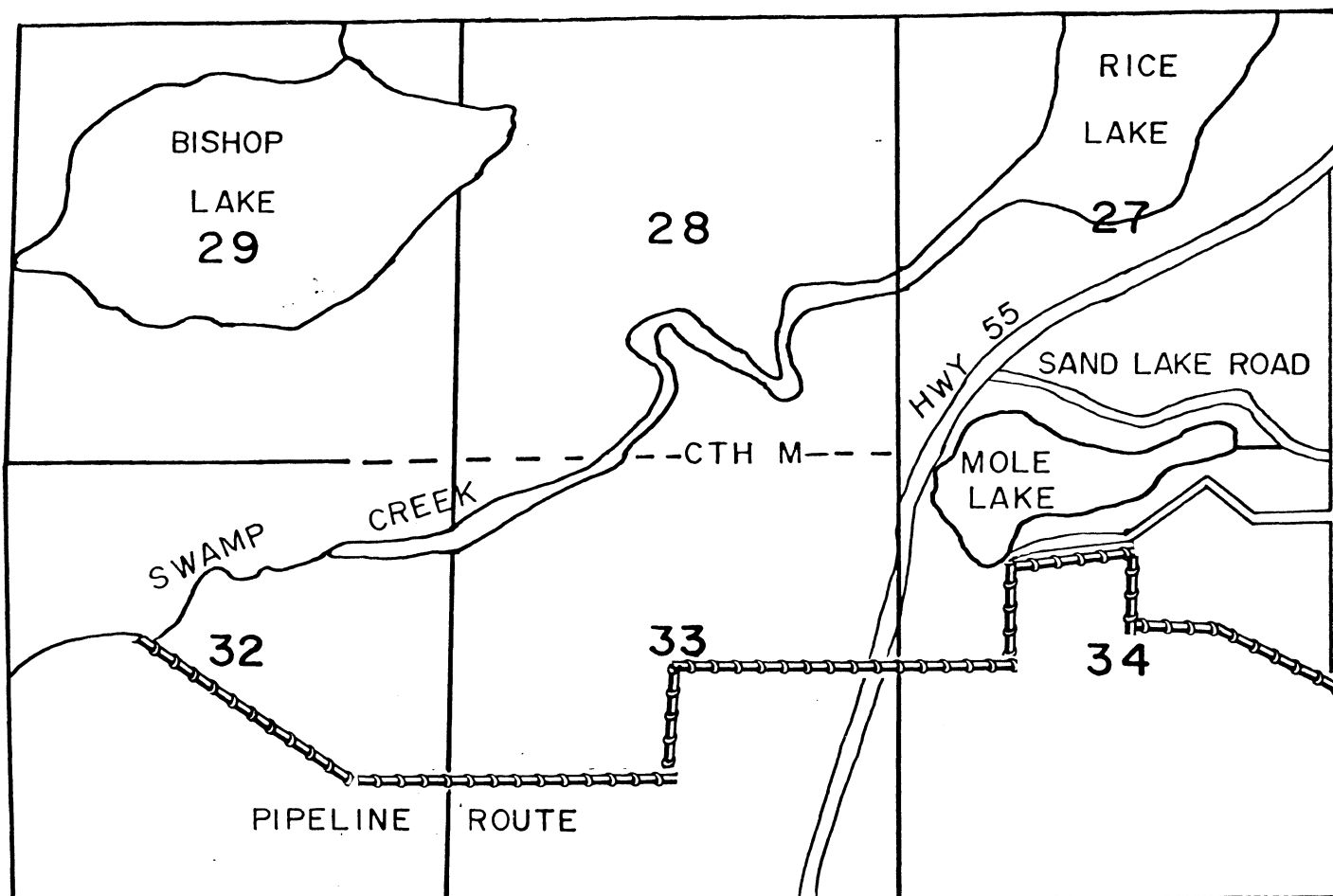


Figure 2: Western segment of proposed pipeline corridor subjected to cultural resources inventory and evaluation (Town 35 North, Nashville, Range 12 East).

information regarding cultural resources that had not been cited in earlier reports of investigations.

Field methods utilized to conduct the cultural resources inventory and evaluation along the 5.5 km (3.4 miles) western portion of the proposed pipeline corridor varied from location to location with local conditions of vegetation and topography. Combined methods of traditional pedestrian survey, shovel testing, and informant interviews were utilized as appropriate. For example, in cultivated regions and at the site of a recent timber clear-cut, surface collection was utilized as this was the most efficient and effective data gathering technique. The ground was visually inspected for evidence of prehistoric or early historic occupation or utilization. Walking along predetermined transects, spaced 10 m (32.8 feet) apart, the field crew inspected the ground surface for lithic debitage, ceramic sherds, fire-cracked rock, glass, iron, or other metal items indicative of historic or prehistoric habitation.

In heavily vegetated portions of the proposed pipeline route shovel probing or shovel testing was used as an adjunct to surface collection. Intervals within the two transects, spaced 10 m (32.8 feet) apart, were maintained at 10 m (32.8 feet). Each shovel probe was excavated to a depth below any recent soil development. Characteristically, in this region of pitted outwash in northeastern Wisconsin, prehistoric occupations occur at or near the surface. Deep site burial is unlikely except in areas of alluvial or colluvial deposition which were not encountered along the proposed pipeline route. Thus, shovel probes, on the average, were excavated to a depth of 45 cm (17.77 inches). Contents of all shovel probes were passed through standard hardware cloth with 6.35 mm (0.25 inches) mesh. Following inspection of the contents, all shovel test pits were immediately backfilled.

In areas of radical slope (very few locations along the proposed pipeline corridor) or inundated segments of the route (not uncommon) surface collection was the only technique employed. Shovel testing was not conducted in these swampy or boggy areas as the soils were too saturated to pass through the hardware cloth and vertical controls could not be maintained. As water quickly welled up in these shovel probes, stratigraphy could not be examined. Some of these loci were actually waded and the ground surface inspected for surficial manifestations such as mounds and foundations or berms that would provide evidence of past land use history.

Finally, sporadic surface collection was employed wherever feasible. Such locations as the exposed root systems of wind-throws, natural erosional surfaces along drainages, spoil piles from animal dens, and any other exposed soils were inspected along the proposed pipeline corridor.

Horizontal and vertical controls were maintained by two distinct methods. First, as the proposed water discharge pipeline route was not marked, a Brunton Hand Transit was used to define the right-of-way. Each leg of the route was arbitrarily designated with a survey unit letter to provide for more refined assessment of the methods and techniques employed along the survey corridor. Figure 3 indicates the survey units that were defined in the field. In addition, two strips of flagging tape were strung along the route to facilitate relocation of the route that was subjected to cultural resources inventory. Each azimuthal diversion was assigned a different survey unit letter. Observations were recorded in field notes indicating the topography and vegetation within the survey unit leg, and photographic records were made for each survey unit. These photographic records are provided for the individual survey units with a discussion and justification for the methods and techniques employed within survey increments.

Vertical controls were maintained by recording soil characteristics within survey units. Such observations as depth of top soil, leached zone, and depth of sterile subsoil were recorded for shovel probes to facilitate evaluation of the survey results. Had any subsurface cultural materials been recovered, their depth would have been indicated in field notes from each survey unit.

#### SURVEY RESULTS:

Eleven units were defined along the western portion of the proposed water discharge pipeline route. As noted in Figure 3, these units were designated A through I and A'. Unit A' represents a potential alternate route at the eastern terminus of the surveyed route. Definition of these units was arbitrary, but was correlated with azimuthal deviations along the route to facilitate recording of information in the field. Coverage for each unit is provided in the following narrative.

##### Survey Unit A:

Survey unit A is approximately 0.80 km (0.50 miles) in length. Its easternmost point is coincident with the centerpoint where sections 34 and 35, T 35N, R 12 E meet (Figure 3). The unit terminates at the centerline of section 34, north of the centerpoint of the section. Much of this survey unit was wet and the predominant arboreal species at such locations were Alders and Tamarack. In better drained localities Cherry, Poplar, Birch, Balsam, and White Spruce prevailed. Sandy soils were characteristic of the region, however, a thick organic humus, much of which was apparently developed under wet conditions, overlays an orange-brown to brown B zone. Humus depths varied from 4.0-10.0 cm (2-4 inches).

N ——— 1 MILE ———

Figure 3: Survey units defined for the cultural resources inventory and evaluation.



Figures 4 and 5 depict characteristic vegetation and topography in survey unit A.

A total of 114 shovel probes were excavated along two predetermined transects. Of these 114, 48 could not be completed because of saturated soils and standing water. Several ponds and a dredged creek are coincident with the western portion of survey unit A. A cultivated potato field is situated adjacent to the proposed pipeline corridor. This field was subjected to surface collection, and the land owner, Mr. Phalen, indicated that he had never found any cultural materials in the cultivated area. As well, he expressed no knowledge of archaeological or historic sites on his land.

No cultural materials were found in the shovel tested or surface collected areas. Further, there was no surficial evidence of prehistoric or historic occupation or utilization within the limits of survey unit A.

#### Survey Unit B:

Survey unit B is situated along the north-south center line of section 34, T 35 N, R 13 E, in the north one-half of the section. Unit B is approximately 0.40 km (0.25 miles) in length, and virtually inundated along its entire length. Vegetation cover in this low, flat, swampy area, depicted in Figures 6 and 7, consists primarily of Tamaracks and Spruce. No shovel tests were conducted along this leg of the proposed water discharge pipeline corridor. Surface examination along the length of unit B failed to yield any evidence of historic or prehistoric occupation. Further, conversations with Mr. Phalen indicated that this area was wet for most of the year, but that in some dry periods the ground was firm and dry. Finally, Mr. Phalen indicated that he had no knowledge of cultural resources coincident with the proposed section of the route designated as survey unit B.

#### Survey Unit C:

Survey unit C is an east-west trending segment of the proposed pipeline contained within the northeast quarter of the northwest quarter of section 34, T 35 N, R 13 E. This survey unit has an approximate length of 0.40 km (0.25 miles). Vegetation cover in this unit, which roughly parallels the road immediately south of Mole Lake, is characterized by Poplars, immature White Pine, and a few large Red Pines. The understory is dense at several locations consisting of Poplar seedlings, Pin and Fire Cherry, and Hazel brush. Figure 8 portrays topography and vegetation cover in survey unit C. No cultural materials of early historic or prehistoric origin were encountered within the limits of survey unit C.



Figure 4: Eastern portion of survey unit A.



Figure 5: Standing water in western portion of survey unit A.

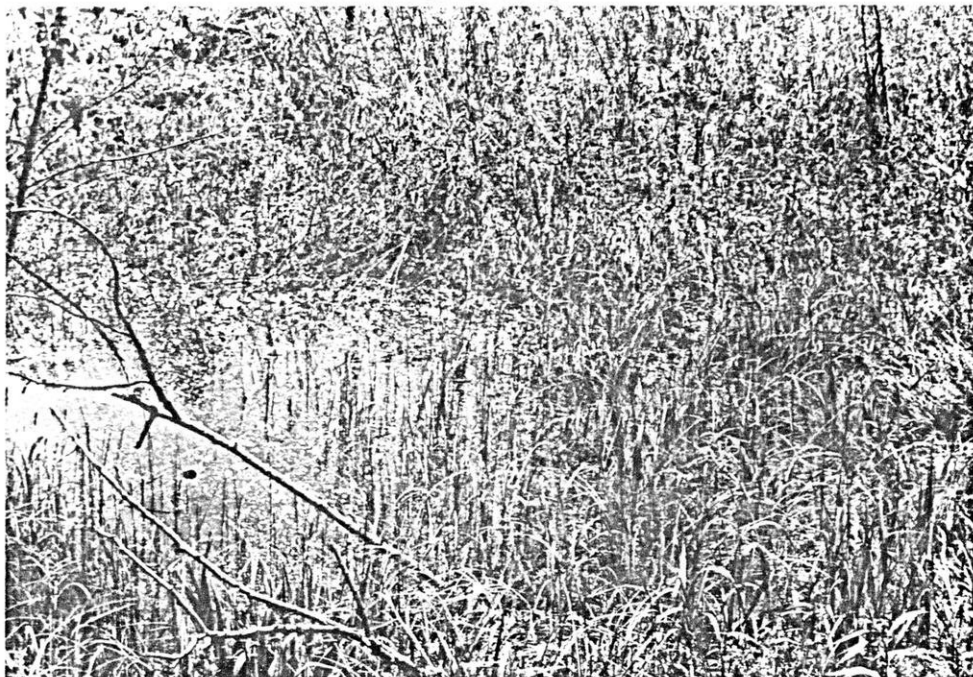


Figure 6: Standing water in survey unit B.



Figure 7: Low swampy area in survey unit B.



Figure 8: Vegetation and topography, survey unit C.

#### Survey Unit D:

This segment of the proposed pipeline corridor is a short irregular diversion just south of the road which passes to the south of Mole Lake. It has been subjected to previous disturbance by earth moving activities and bulldozer tracks are apparent on the surface. The route of the proposed pipeline trends south along the western margin of the northeast quarter of the northwest quarter of section 34, T 35 N, R 13 E. It veers sharply to the west before entering the northwest quarter of the northwest quarter of section 34 of the same township.

Less than 100 m (319 feet) in length, the vegetation cover in survey unit D consists of Poplar and Red Pine with an understory of Hazel brush. Figures 9 and 10 show topography and vegetation cover in this survey unit.

Eighteen shovel tests were excavated in this short leg of the proposed pipeline where soil characteristics were identical to those of the previous unit. Two shovel probes were excavated in disturbed areas where previous earth moving activities had inverted the rather shallow stratigraphy that dominates the region.

No cultural materials were recovered from shovel test excavations in survey unit D. Further, no surficial evidence of past prehistoric or early historic occupation or utilization was encountered.

#### Survey Unit E:

This survey unit trends directly north-south along the eastern margin of the southwest quarter of the northwest quarter of section 34, T 35 N, R 13 E. The route is approximately 0.40 km (0.25 miles) in length. For the most part, the proposed route bisects a wet sedge meadow. Standing water in this low-lying wet area precluded any sub-surface investigations. However, shovel testing was conducted at the north and south ends of the sedge meadow.

In the non-inundated areas outside the sedge meadow, Poplars were the dominant arboreal species accompanied by a rather dense understory of Hazel brush. Finally, the southernmost portion of survey unit E has been cultivated and is currently planted in a grain crop.

Soils within the survey unit were consistent with those found along the route in other survey units. Generally, a well defined humus is superimposed atop an orange to brown-orange B horizon. At the north end of survey unit E, gravels were more concentrated than at the south end.





Figure 9: Vegetation and topography, north end of survey unit D.



Figure 10: Vegetation and topography, south end of survey unit D.

Average depth of top soils ranged from 5 to 10 cm (2 to 4 inches).

At the north end of the unit to the sedge meadow, 16 shovel probes were excavated along the two predetermined transects. The sedge meadow was "waded" along the route. From this point south to the cultivated portion of the route, 20 shovel test holes were excavated. Finally, in the cultivated portion of survey unit E, coincident with its southernmost point, six transects were utilized to conduct surface collection, covering a corridor 30-40 m (95-125 feet) in width.

No cultural materials were recovered from shovel test excavations in survey unit E. In addition, no surficial evidence of historic or prehistoric occupation or utilization was noted along the surface collected portions of the route. Figure 11 provides a view along the route, looking south, past the sedge meadow. The illustration portrays the vegetation and topography from the point at which shovel testing terminated on the northern end of the route and where the inundated area begins.

#### Survey Unit F:

Survey unit F is oriented east-west along the center line of sections 33 and 34, T 35 N, R 13 E. The length of the route is approximately 1.20 km (0.75 miles). Considerable variation in vegetation and topography was encountered along the length of the proposed water discharge pipeline corridor designated as survey unit F. From its easternmost point, west to U.S. Highway 55, the survey unit is cultivated either in grain or in clover. As crops had only begun to emerge, visibility in this east portion of the unit was moderate to excellent; therefore, surface collection or traditional pedestrian survey was the data collection technique employed. Vegetation and topography along this eastern leg are depicted in Figure 12. A total of 6 transects were established in the cultivated area delimited by survey unit E on the east and U.S. Highway 55 on the west.

Immediately west of U.S. Highway 55, pasture vegetation obscures the ground surface (Figure 13). As a result, shovel testing was employed along this segment of survey Unit F. A total of 28 shovel test units were excavated in the pasture locality. The plow zone in the pasture varies from 25 to 35 cm (10 to 14 inches) in depth.

Continuing west along survey unit F, a cultivated field of winter wheat is situated just west of the pasture. Adequate visibility allowed for surface collection in this cultivated field. A total of 6 transects were established in an east-west direction along the proposed pipeline corridor.



Figure 11: View along survey unit E, south, past sedge meadow.





Figure 12: Grain field at east end of survey unit F.



Figure 13: Pasture west of U.S. Highway 55 subjected to shovel testing in survey unit F.

West of the cultivated portion a fallow area is situated. Here, 8 shovel tests were dug along two transects to the fence-line. The area had previously been plowed with an average plow zone depth of 20-25 cm (8-10 inches).

A Spruce-Tamarack swamp is situated immediately west of the wheat field and its narrow adjacent fallow strip. As indicated in Figures 14 and 15, the bog-like conditions and standing water prohibited any effective application of sub-surface investigation. This area was literally waded and the few higher elevations were inspected for cultural remains. Along the fence line, south of the proposed corridor, the land elevation is higher. In this higher region, outside the proposed corridor, on the Lillian Dumke property, a trash heap was noted. This midden is likely associated with early 20th century logging activities in the region. Tinware, tin-cans, crockery, and other containers are visible on the surface. All of these materials post-date A.D. 1900. No berms or foundations, or other structural evidence was noted. Figures 16 and 17 portray the types of materials in the midden, which, again, is outside of the immediate project area.

The last, westernmost segment of survey unit F, west of the Tamarack swamp, is cultivated. Surface collection in this locality, which is depicted in Figure 18, was conducted along 6 east-west trending transects.

Aside from the logging camp midden south of the proposed pipeline corridor, no evidence of past habitation or utilization was recovered from surface or sub-surface contexts in survey unit F.

#### Survey Unit G:

Trending north-south along the east margin of the northeast quarter of the southwest quarter of section 33, T 35 N, R 13 E, survey unit G is approximately 0.40 km (0.25 miles) in length. The northernmost 265 m (845 feet) has been denuded of vegetation and surface soils have been disturbed. In this area (Figures 19 and 20), loggers have recently clear-cut the timber and slash has been pushed into the low-lying areas south of the clear-cut.

As the surface was clearly visible, this first 265 m (845 feet) was surface collected along 6 survey transects. South of the clear cut (Figures 21 and 22) the area is inundated. The standing water prohibited any sub-surface investigations in the southern portion of survey unit G, however, the route was visually inspected for surficial evidence of cultural resources.



Figure 14: Tamarack swamp, survey unit F.

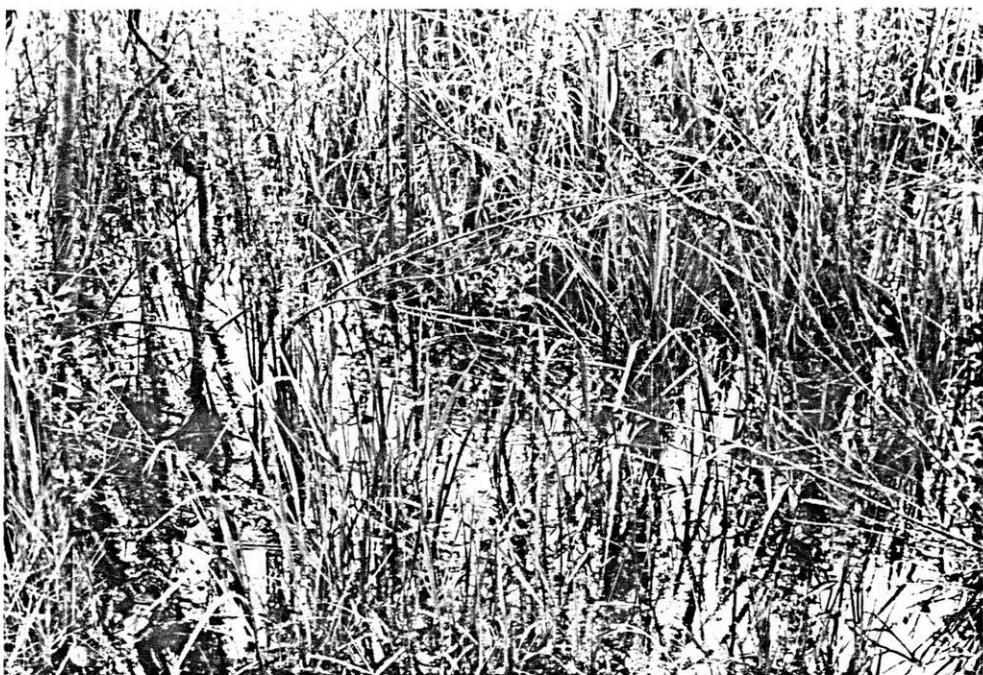


Figure 15: Standing water in survey unit F.



Figure 16: Logging camp midden, south of proposed corridor.  
(food containers and wash basin-view southwest)



Figure 17: Logging camp midden, south of proposed corridor.  
(fuel containers-view southeast)





Figure 18: Cultivated area in westernmost segment of survey unit F.

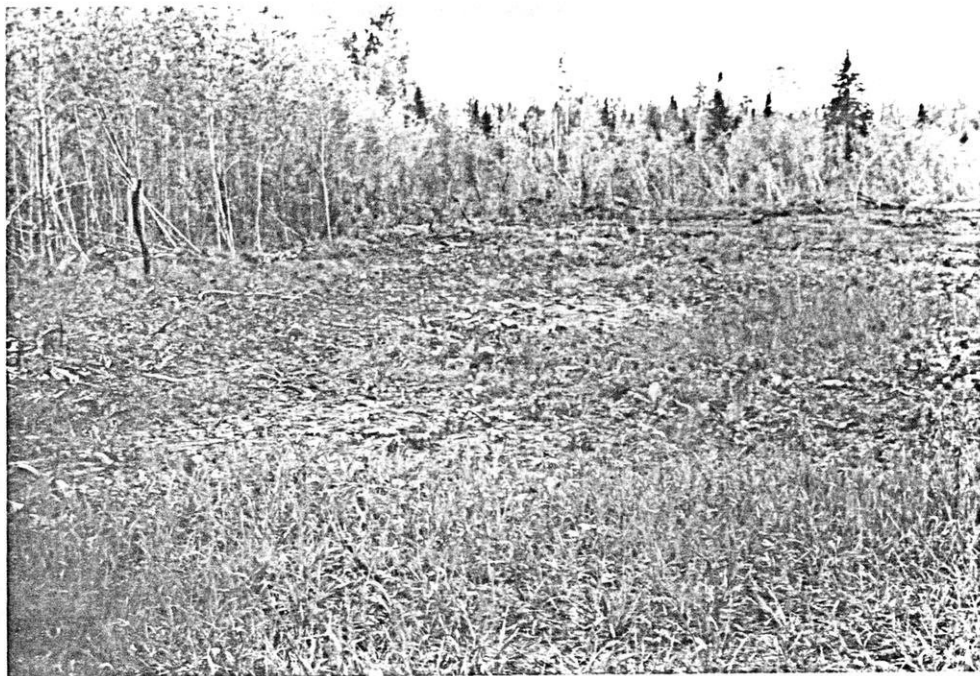


Figure 19: Clear-cut area in survey unit G.



Figure 20: Exposed surface in clear-cut, survey unit G.



Figure 21: Low, wet area, survey unit G (southern segment).

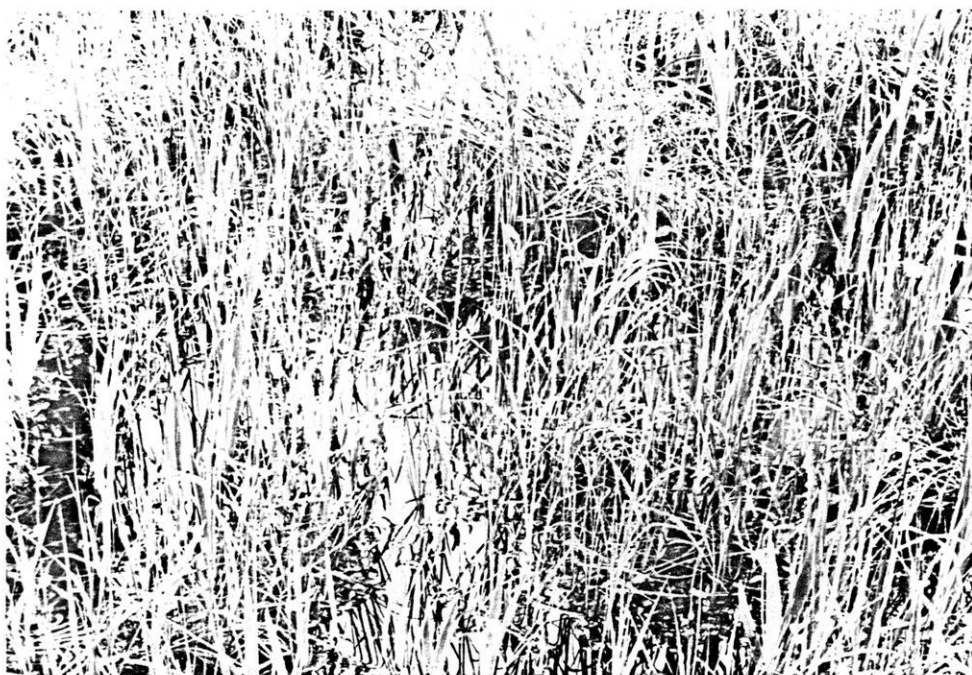


Figure 22: Standing water, survey unit G (southern segment).

Surface collection and general surface inspection failed to yield any evidence of either historic or prehistoric archaeological sites within survey unit G.

#### Survey Unit H:

Approximately 1.20 km (0.75 miles) in length, survey unit H is oriented east-west and is situated along the northern margin of the south one-half of the southwest quarter of section 33 and the southeast quarter of the southeast quarter of section 32, T 35 N, R 13 E. Because of variation in vegetation and topography along the proposed pipeline corridor in survey unit H, several survey techniques were used. First, several low, wet, swampy areas were traversed and the ground surface in areas not completely inundated were inspected. Much of the area just north of the proposed route is cultivated (potato fields). In this area, surface collection was utilized to secure additional information even though the plowed field was slightly north of the proposed corridor. Finally, timbered localities were subjected to shovel testing.

One hundred seventy shovel probes were excavated in areas of timber that were not inundated. Figures 23 and 24 portray elevated portions of survey unit H where shovel testing was employed. Poplar and birch were the primary arboreal species at these higher elevations. Soils were those typical of the project environs with grey to black sandy humus averaging a depth of 2-8 cm (1-4 inches). In several localities, surface soils had been removed.

Black Spruce swamps with spagnum moss and sedge understory were encountered on both the east and west margins of survey unit H. As indicated in Figure 25, standing water in these swamp localities precluded any sub-surface investigations and surface inspection was the only technique utilized.

The cultivated portion, depicted in Figure 26, had excellent visibility. It was surface collected through the establishment of four survey transects as an adjunct to shovel testing along the proposed route. Because shovel testing generally yields very small samples, the surface collection of the cultivated stretch was viewed as an appropriate complement to sub-surface testing at this locality.

No cultural materials or surficial remains were recovered nor noted in survey unit H. Neither surface collection techniques or sub-surface investigations yielded any evidence relative to historic or prehistoric occupation or utilization of the proposed water discharge pipeline at this locality.





Figure 23: Well elevated timbered area in survey unit H.  
(view west along route)



Figure 24: Well elevated timbered area in survey unit H.  
(view east along route)

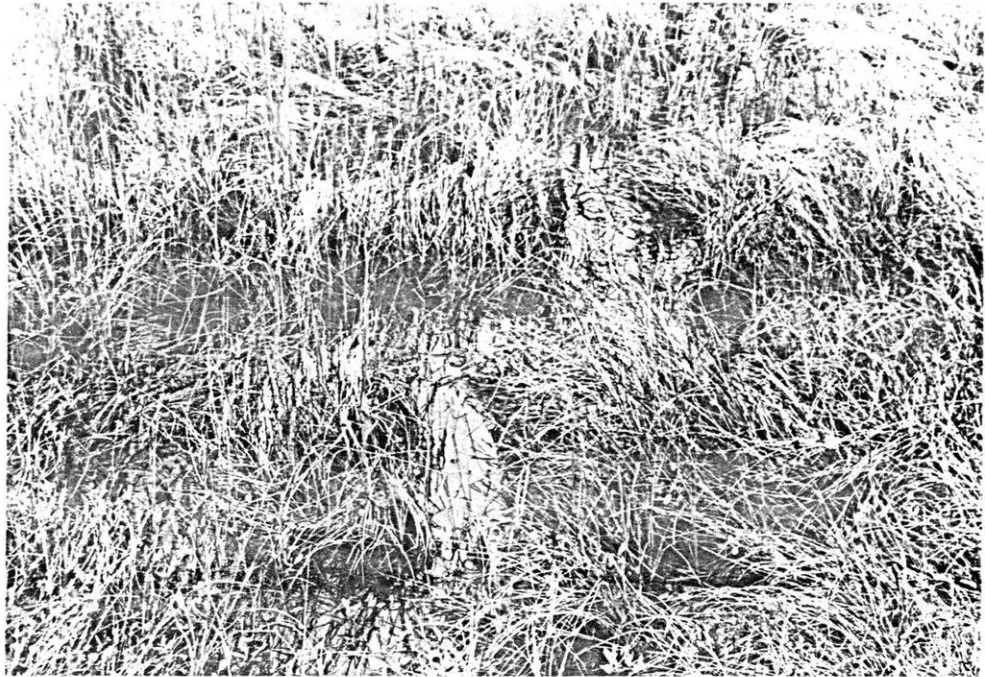


Figure 25: Inundated area, survey unit H.



Figure 26: Potato field, north of survey unit H.

### Survey Unit I:

Survey unit I trends southeast-northwest for an approximate distance of 0.80 km (0.50 miles). Its easternmost point is coincident with the center of the southeast quarter of section 32, T 35 N, R 13 E. The western terminus of survey unit I occurs at its junction with Swamp Creek in the southeast quarter of the northwest quarter of section 32, T 35 N, R 13 E.

The first 400 m (1275 feet) of survey unit I are coincident with a Spruce-Tamarack swamp. This wet area was traversed along the proposed corridor and inspected for surficial remains of historic and prehistoric sites. Standing water prohibited the use of sub-surface evaluation techniques. Figure 27 depicts the vegetation and topography along this portion of the route.

At approximately 400 m (1275 feet) along the route, a small knoll or rise separates the first swamp from another wetland. Twelve shovel probes were excavated along this small ridge between the swamps.

The second wetland continues to a point approximately 600 m (1915 feet) along the route of survey unit I. At this point, another small ridge or rise was encountered. Two shovel test transects, along which 10 holes were excavated, were established to evaluate this elevated area. Figure 28 depicts the Tag Alder and Tamarack swamp vegetation and topography in survey unit I and Figure 29 portrays the vegetation and topography along the elevated ridge between the swamps.

Between approximately 660 m and 700 m (2100-2230 feet) along the route of survey unit I, investigations were hindered by standing water backed up by an active beaver dam. Figures 30 and 31 respectively portray the dam and pond. Forty-eight shovel probes were excavated east and west of the beaver pond. The locality west of the pond is a well elevated sandy terrace overlooking the flood plain of Swamp Creek. As shown in Figure 32, the level terrain well above the surrounding lowland provides an optimal habitation location. Owing to these factors, an additional series of shovel probes were placed in block fashion outside the proposed pipeline corridor. An undisturbed soil profile on the terrace was apparent in all excavation units.

Surface and sub-surface investigations along the proposed corridor in survey unit I yielded no evidence of past habitation or utilization. Additional shovel probing on the terrace also failed to provide any evidence of prehistoric or historic period use of this high-potential landform.



Figure 27: Swamp, survey unit I.



Figure 28: Tag Alder and Tamarack swamp, survey unit I.





Figure 29: Ridge between swamps, survey unit I.



Figure 30: Beaver dam, survey unit I.



Figure 31: Beaver pond, survey unit I.



Figure 32: Topography and vegetation at terrace above Swamp Creek, survey unit I.

### Survey Unit A':

During the course of route reconnaissance with Mr. Douglas Kincaid, Exxon Minerals Company representative, it was noted that a modification to the proposed pipeline corridor in survey unit A was possible. This proposed alternative was designated survey unit A' and its location is noted on Figure 3. The alternate route was traversed by the survey crew. Tamarack-Spruce swamp with knee-deep water prohibited any sub-surface investigation in this survey unit. No surficial remains of prehistoric or historic origin were encountered in survey unit A'.

### SUMMARY AND CONCLUSIONS

Archaeological survey was conducted along 10 arbitrarily defined units (Figure 3) of the proposed water discharge pipeline corridor. These survey units were designated A through I and A'. The linear total of the corridor is approximately 5.5 km (3.4 miles) with a total estimated area of 17 ha (42 acres). Field methods utilized included shovel testing along two predetermined transects and shovel probes were spaced at 10 m (32 feet) increments along the transects. Intervals between transects were maintained at 10 m (32 feet). Areas outside of the proposed corridor, e.g., cultivated fields and the high-potential Swamp Creek terrace, were investigated to provide additional information regarding potentials for site location along the pipeline route. In addition to shovel testing, local informants were interviewed with regard to their knowledge of historic or prehistoric sites in the area, surface collection was conducted along predetermined transects, and the surface of the ground was visually inspected along the entire route.

As a result of our investigations, no evidence of early historic or prehistoric occupation of a significant nature was encountered within the proposed pipeline corridor. A single 20th century logging camp midden was located outside of the proposed corridor. Thus, it was concluded that the proposed construction of the water discharge pipeline from the mine-mill site to Swamp Creek will have no adverse effect on cultural resources that could be determined eligible for the National Register of Historic Places. Because of this conclusion, it seems apparent that Exxon Minerals Company has met its responsibilities to comply with legislative mandates regarding the preservation and protection of historic and prehistoric sites.

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