Research Design for the TransCanada Keystone Pipeline Cultural Resource Inventory in North Dakota

Prepared for:
ENSR International
Fort Collins, Colorado

Prepared by:
Ed Stine
Metcalf Archaeological Consultants, Inc.
Bismarck, North Dakota

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Introduction

TransCanada intends to construct a 30-inch crude oil pipeline (Keystone Pipeline) that crosses portions of eastern North Dakota. As planned the pipeline will have a 125' wide construction corridor with extra work space needed at road and stream crossings. It will enter North Dakota from Canada at the Pembina/Cavalier County line and travel south approximately 215 miles through Cavalier, Pembina, Walsh, Nelson, Steele, Barnes, Ransom, and Sargent counties in North Dakota (Figure 1 and Appendix B). Leaving North Dakota, the proposed pipeline will enter South Dakota near the Brown/ Marshall County line. The Department of State is the lead Federal agency and the lead State agency is the Public Service Commission.

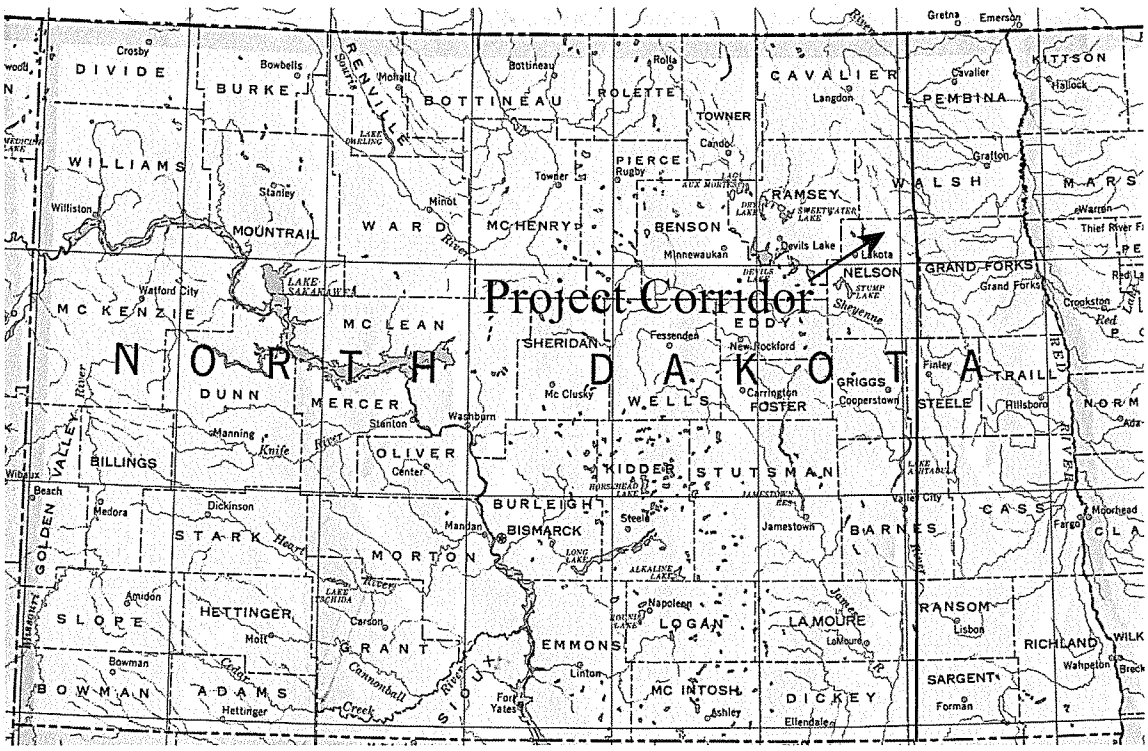

Figure 1: Pipeline route through North Dakota.

This document presents a research design for a cultural resource inventory, to be conducted in 2006, of the proposed pipeline corridor in North Dakota. The ideas and concepts underlying this document are the results of informal discussions with Paul Picha, Chief Archaeologist of the North Dakota State Historic Preservation Office (NDSHPO), as well as ENSR International. This research design is intended only for the inventory phase of the pipeline project. Issues such as open trench monitoring, site evaluative testing, and mitigation/data recovery will be addressed following the

inventory. The exact scopes for monitoring or evaluative testing will be determined following the inventory phase in consultation with ENSR staff, NDSHPO archaeologists, and North Dakota Public Service Commission (PSC) officials.

A sampling strategy comprising five levels of investigation is proposed for this project. Two of these levels apply to the entire project route through North Dakota, while the remaining three apply only to selected areas. The first, a literature and files search of an area one-mile wide centered on the proposed pipeline route, is already complete, and the results of this search are presented in this document. The second level of investigation is a reconnaissance of the proposed route by a geomorphologist. The geomorphological investigation will identify areas that may need closer investigation, and conversely areas that are not archaeologically sensitive. The third level is a Class III intensive pedestrian survey of selected segments of the proposed pipeline route in areas with high potential to contain archaeological resources. The fourth level is a reconnaissance inventory of approximately 41 miles of the proposed pipeline corridor, to be conducted by Metcalf Archaeological Consultants, Inc. (MAC) archaeologist(s). The fifth level of investigation will be no survey, which will apply only to areas determined (by the results of the previous four types of investigations) to have essentially no potential for the presence of cultural resources.

Approximately 49.5 miles of the proposed pipeline route have been selected for intensive (Class III) inventory. These areas have been identified based on the results of the literature search (Class I Files Search) of the State Historical Society of North Dakota's site and manuscript files and the various land forms crossed by or adjacent to the corridor. The intensive pedestrian inventory will consist of close inspection of a 300' wide corridor centered on the proposed pipeline centerline. This inventory will include areas recognized to be archaeologically sensitive, including river crossings, and areas with documented sites.

The reconnaissance survey will consist of intensive inventory of areas to be determined in the field based on the drive-by inspection and the geomorphological investigation. These areas will include small individual areas along glacial lake beach lines, fan alluvium, playa lakes, etc. This additional inventory will almost certainly total less than ten miles and may total five or fewer miles. Approximately 41 miles will be subject to a Class II reconnaissance level (drive-by) inventory. Most of this length will be covered during the geomorphological survey and some may not need re-walking. Metcalf Archaeological Consultants, Inc. will coordinate the Class II reconnaissance inventory with the geomorphological survey since each may provide useful information and observations to the other. The segments to be covered by the pedestrian inventory are depicted on the project maps in Appendix B.

Environmental Setting

The pipeline corridor crosses three major geographic areas. The northern approximately 50 miles of corridor is along the western edge of glacial Lake Agassiz. South of the Lake Agassiz basin, the proposed pipeline corridor crosses land that rises somewhat and enters drift prairie which is cut by the Sheyenne River. The southern approximately 20 miles is rolling uplands with numerous glacial moraines.

The Pembina Escarpment marks the west edge of Lake Agassiz and much of the pipeline length follows along the escarpment base. The land forms in this area include interbeaches, deltas, and beach lines along former levels of Lake Agassiz. The area is generally flat to gently rolling and slopes down to the east. The escarpment, immediately to the west, is a prominent feature and its proximity to the corridor would tend to make the area somewhat sensitive regarding the presence of archaeological sites. The escarpment provides an excellent overview of the area and provides diverse ecological micro-niches, both attributes demonstrated to have positively influenced area use by past populations. The route through the Pembina Escarpment and Lake Agassiz basin is cut by a number of stream and river valleys with their associated terraces and minor breaks. The larger streams crossed by the corridor in this area include, from north to south, the Pembina River, the Tongue River, three branches (North, Middle, and South) of the Park River, and the Forest River. Previous investigations along the rivers have demonstrated the presence of numerous sites along their reaches.

The drift prairie, over which the central length crosses, consists of gently rolling uplands dotted with pothole lakes and sloughs but generally lacking in much topographic relief. The Sheyenne River with its breaks and terraces provides the major relief in the area and it was extensively utilized by past populations. Approximately 80 miles of the corridor roughly parallels the Sheyenne and lies one to three miles from the valley rim, crossing the river near its bend to the east. The proposed pipeline route crosses the Sheyenne River in an area where a number of prehistoric sites, including burial mounds, have been documented.

The southern approximately 20 miles of the proposed route crosses rolling terrain with a number of prominent glacial moraines. The area overlooks the bed of former glacial Lake Dakota to the west and southwest. Prominent rises such as the moraines in Sargent County are known to be land forms favored by past Native populations and the area has moderate to high potential for the presence of prehistoric sites.

Results of Class I Files Search

Cultural Resources

The search of the State Historical Society of North Dakota's site files revealed 117 cultural resources documented within the one mile wide project corridor (Table 1). Included among these are 16 prehistoric sites, seven historic sites, five multi-component sites (prehistoric and historic), 25 architectural sites, 31 historic/architectural site leads, 24 prehistoric site leads, and nine isolated finds within the one mile wide project corridor (Appendix A and B). The majority of the site leads were not plotted on the project maps. Most of the site leads were either filed under the Regional Environmental Assessment Program (REAP) or were compiled from the 1884 Andreas' atlas of North Dakota and lack information that would allow precise mapping of their locations.

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Appendix A
Files Search Results

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Appendix B
Project Corridor Maps

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