

PROCEDURAL CLARIFICATION REGARDING SUBSURFACE GEOMORPHOLOGY EXAMINATIONS FOR CULTURAL DEPOSITS ALONG THE NEW BUILD PORTION OF THE DM&E POWDER RIVER BASIN PROJECT

Issue

DM&E proposes to account for the project's potential impact to deeply buried archaeological sites that may be located within the construction right-of-way (ROW) in accordance with the following procedural clarification.

Introduction

DM&E recognizes that landforms along the PRB New Build route may contain buried cultural deposits not detected during the intensive surface inventories. DM&E also recognizes that discoveries of such cultural deposits during construction may delay construction activities while the discoveries are taken into account in accordance with Stipulation H of the Programmatic Agreement (PA). The following provides DM&E's strategy for investigating landforms which may contain buried cultural deposits not detected during the intensive inventories. The purpose of this strategy is to ensure that prior to construction, a good faith effort is invested in the identification and treatment of subsurface historic properties that were not detected during surface inventories and are subject to the effects of project construction. The strategy accommodates federal guidance, access limitations, and construction scheduling within the PA framework. It is intricately tied to the monitoring program specified at Stipulation B.2.e of the PA. Since this strategy is based on the subsurface investigation of specific depositional environments and landforms, and involves excavation to expose and analyze subsurface soil strata, DM&E anticipates that the subsurface testing effort will be conducted after ROW acquisition as a preliminary phase of the construction monitoring program. Acquisition of the ROW prior to conducting the subsurface testing is necessary to ensure that DM&E has legal access to targeted landforms and the right to conduct these ground disturbing activities.

Background

The strategy for investigating the presence of deeply buried subsurface cultural deposits along the New Build section of the project is based on the following:

1. Intensive archaeological inventories conducted for the project, and for other undertakings subject to Section 106 review are designed to determine the presence and significance of archaeological remains that occur at and near the surface (see Stipulation A of the PA).
2. Occasionally, for purposes of Section 106, deep subsurface explorations of depositional landforms are conducted to locate buried cultural deposits that are not evident through surface examinations. In recent guidance, the Advisory Council on Historic Preservation (ACHP) has clarified that agencies are not obligated to consider the presence of subsurface cultural deposits that occur deeper than the depth at which the project will affect such deposits. The ACHP considers any such cultural deposits to be outside the Area of Potential Effects (APE) and not vulnerable to adverse effects (see ACHP website for Section 106 Archaeology Guidance. Determining which archaeological sites are significant: Evaluation).
3. In accordance with Section 3.4.5 of the Identification Plan for the project, geomorphological surveys were conducted along the New Build portion of the project (Hajic 2008, McFaul 2008). These surveys identified specific landform types along the proposed New Build portion of the ROW which could contain deeply buried intact subsurface cultural deposits. In some cases, these cultural deposits may exhibit qualities that would make them eligible for listing in the National Register of Historic Places (National Register).
4. Preliminary engineering designs for the project indicate that some depositional landforms which may contain deeply buried cultural deposits are situated within areas subject to surface cutting construction activities. Other subsurface cultural deposits may be situated below levels of anticipated disturbance or alteration by construction activities; particularly in areas where fill material will overlay the current ground surface. Consequently, any such cultural deposits would be below construction impact zones and outside the APE according to ACHP guidance.

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DM&E proposes to further refine our understanding of the geoarchaeological potential of areas where depositional environments are conducive to preservation of subsurface archaeological sites subject to construction effects. DM&E's strategy is intended to better anticipate, locate, and take into account deeply buried cultural deposits.

Preliminary Data Gathering

DM&E will gather data from three sources to ascertain where additional subsurface investigations to identify and account for buried archaeological remains may be needed:

1. The archaeological research design will provide the research orientation for treating archaeological properties significant for the important scientific information they contain.
2. The engineering design will inform about where cut and fill activities will be needed to meet engineering design requirements along the New Build route.
3. Geomorphological data derived from the Hajic and McFaul reports and from geotechnical boring data obtained for engineering purposes will be consulted to identify particular land forms which may contain cultural deposits needed to address the data requirements of the archaeological research design.

Sampling and Investigative Approach

The archaeological research design, engineering design and geomorphological and geotechnical data will be correlated to designate areas of potential archaeological sensitivity subject to adverse effects. The research design will specify the kinds of archaeological questions and data requirements that will be pursued for treating properties whose values include their scientific information potential. The research design will specify the types and age of archaeological deposits needed to address data requirements of research questions.

Sedimentological information derived from the geomorphology reports; specifically the location of depositional environments and their potential for paleosols or buried surfaces of appropriate age and integrity, will be compared to archaeological research data requirements to ascertain where archaeological deposits may occur of greatest relevance for research purposes. The locations of sedimentary deposits along the route that may include intact paleosols pertinent to the research needs of the research design will be compared to the engineering design to determine whether and when they may be disturbed by construction activities. These areas may be targeted for further investigation in coordination with construction schedules.

The engineering design will identify locations where construction cutting will occur in specific terraces and landforms, and locations where landforms will be subjected primarily to filling with overburden to meet engineering requirements for sustaining an appropriate slope and grade. For example, terraces identified as Vt3 and Vt4 (or equivalents) are described in the geomorphology surveys as the oldest Holocene terraces (approximately 14,000 to 8,500 years b.p.) evident along the New Build route in South Dakota and Wyoming. Aeolian deposits on west and north facing slopes may contain paleosols associated with the Aggie Brown and Pick City Members of the Oahe Formation (approximately 13,000 – 8,500 and 8,500 – 5,000 years b.p. respectively). These formations may be of particular interest for archaeological research purposes. Often these sedimentary units occur as remnants situated at higher elevations along the route and are vulnerable to activities involving construction cutting. Other more recent depositional landforms occur at lower elevations relative to the rail grade where construction activities will generally involve construction filling. In brief, buried cultural deposits most vulnerable to construction impacts will tend to occur at higher elevations on the oldest Holocene landforms. Areas where fill will be used to bury the present surface and raise the rail grade will tend to be on the youngest landforms. The correlation of these factors will be presented on maps of the ROW and will serve to identify and target sensitivity areas for pre-construction testing and construction monitoring.

Consequently, geomorphological investigations may focus on the oldest Holocene depositional landforms and be guided by research questions and data needs specified in the research design of the archaeological Treatment Plan. These areas will be targeted for subsurface assessments and prioritized for investigation based on construction specifications, schedules and accessibility.

Field Examination

Pre-construction geomorphological testing will be conducted as part of a phased construction monitoring effort in accordance with a construction monitoring plan. The construction monitoring plan will include procedures for identification, review and treatment of cultural remains threatened by or exposed by construction activities during the pre-construction, construction, and post-construction phases. Investigative efforts may rely on a variety of tools ranging from hand-operated coring devices, mobile Giddings rigs, or backhoes, and would follow sampling strategies tailored to the specific conditions and circumstances of each targeted locale. If cultural remains are discovered during any of the monitoring phases, they will be assessed by the qualified monitor and treated in accordance with one of two possible approaches.

1. Anticipated Discoveries

Anticipated Discoveries are those archaeological features and remains predicted to occur in the depositional environments being monitored, and pertinent to the data requirements of explicit research questions posed in the archaeological research design. Anticipated discoveries include buried hearths, storage pits, stone circles, lithic artifact scatters, historic dumps, and various ranching-related materials. When an anticipated discovery occurs, the following procedures will be carried out as part of a pre-approved discovery plan pursuant to Section 800.13(a). The discovery plan will ensure that appropriate information is retrieved consistent with the data requirements of research questions posed in the archaeological research design:

- A. construction activity will halt within the vicinity of the find;
- B. appropriate recovery procedures are conducted and samples collected;
- C. photos and forms are completed;
- D. the Employee In Charge is informed by the qualified monitor of completion of recovery efforts and construction may proceed;
- E. discovery is reported in biweekly report;
- F. follow-up completed report of recovery activities is submitted to STB, SHPO and appropriate tribes and consulting agencies for information purposes.

When anticipated cultural remains are discovered the pre-approved discovery plan will trigger standardized data recovery procedures to be followed to retrieve the relevant information expeditiously in accordance with discovery treatment procedures contained therein. Periodic reporting of these efforts will be conducted consistent with the terms of the Programmatic Agreement.

2. Unanticipated Discoveries

Unanticipated discoveries are those archaeological features and remains that are not expected to be encountered based on previous archaeological work, and are not pertinent to the data requirements of explicit research questions posed in the archaeological research design, or are of such traditional cultural sensitivity as to require special consideration. These include historic and prehistoric graves and associated cultural items, uniquely important archaeological remains such as very ancient cultural deposits dating to the Pre-Clovis period, and other more recent complex cultural deposits that are not amenable to adequate data retrieval using the standardized approach intended for anticipated discovery situations. When an unanticipated discovery occurs, the following procedures will be carried out to ensure that appropriate information is retrieved or to accommodate the traditional religious and cultural beliefs of interested tribes:

- A. construction activity is halted in the vicinity of the find;
- B. STB is notified of the discovery concurrent with appropriate SHPO, tribes, other consulting agencies as appropriate, and other authorities as appropriate;
- C. STB carries out consultation procedures of the PA (outcomes may include data retrieval, avoidance, removal/relocation, depending on the nature of the discovery and available redesign options);
- D. after the PA's procedures are completed, STB authorizes DM&E to proceed with construction;
- E. discovery is reported in biweekly report; and

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- F. follow-up completed report of recovery activities is submitted to STB, SHPO and appropriate tribes and consulting agencies for information purposes.

When unanticipated cultural remains are discovered that do not comport with or are not pertinent to the data requirements of the archaeological research design, or are of traditional cultural importance, consulting parties will be notified and the discovery will be reviewed in accordance with discovery procedures of the PA and monitoring plan.

Reporting

All monitoring for discovery activities and results will be described in the final Summary Report required under the PA.

Curation

Artifacts and other items recovered during discovery operations will be curated in accordance with the terms of the PA. Curation agreements will be in place before artifacts are retrieved.

Review of the Archaeological Research Design

The archaeological research design will be reviewed in accordance with the procedures of the PA.