

APPENDIX F
SCOPE OF WORK

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July 27, 2010

Mr. David Clarke, Archaeologist
Mr. Kevin Cunningham, Archaeologist
Delaware Department of Transportation
P.O. Box 778, 800 Bay Road
Dover, Delaware 19903

RE: U.S. 301 Contract 2C
Armstrong Corners Interchange
New Castle County, Delaware
Phase IB Archaeological
Investigations

Dear Gentlemen:

Enclosed please find our technical and cost proposal to complete the Phase IB archaeological research for the above referenced project. This proposal reflects field methodology and resulting information contained in Hunter's Phase IB Management Summary for Section 2 (Liebeknecht and Burrow 2010), A&HC's Phase II Management Summary for Section 1 (Diamanti 2010), conversations with you, and the proposed construction design plans. We have also incorporated the review comments by DeIDOT and DE SHPO relayed to me via email on July 23, 2010.

As outlined in the technical proposal, and based on our discussions, the estimated costs include all of the labor and direct expenses associated with the Phase IB archaeological fieldwork, laboratory tasks, meetings/coordination, management summary, and draft and final reports. Should you have any questions or comments regarding this submission, please do not hesitate to call me.

Sincerely,

SKELLY and LOY, Inc.

Barbara J. Gundy, Ph.D., R.P.A.
Cultural Resource Manager

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P08-0040.007

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Prepared by:



Barbara J. Gundy, Ph.D., R.P.A.

**U.S. 301 CONTRACT 2C
ARMSTRONG CORNERS INTERCHANGE
NEW CASTLE COUNTY, DELAWARE
PHASE IB ARCHAEOLOGICAL INVESTIGATIONS**

**PARENT AGREEMENT NO. 1418, WORK ORDER NO. 7
TECHNICAL & COST PROPOSAL**

PHASE IB ARCHAEOLOGY SURVEY WORK PLAN

Introduction

The Delaware Department of Transportation (DelDOT) has requested Skelly and Loy, Inc., to provide this proposal for Phase IB archaeological investigations of US 301 Contract 2C (near the Armstrong Corner Interchange) located in New Castle County, Delaware. Contract 2C was added after the US 301 project was initiated in order to address traffic issues at the Armstrong Corners Interchange.

The archaeological Area of Potential Effects (APE) for Contract 2C follows the limits of construction (LOC) as shown on mapping provided by Century Engineering to Skelly and Loy for DelDOT (Figure 1). The APE includes areas on both sides of Armstrong Corners Road, east and west of its intersection with Summit Bridge Road, and on both sides of Summit Bridge Road, north and south of its intersection with Armstrong Corner Road. The width of the APE at any given point along either roadway varies, but the total APE includes approximately 16.6 ha (41.0 ac), of which 3.6 ha (9.0 ac) is existing paved roadway. Approximately 3.2 ha (8.0 ac) of the Contract 2C archaeological APE overlaps with the US 301 Section 2 APE which was surveyed and reported on previously (Liebknecht and Burrow 2010). These overlapping areas were excluded from any additional archaeological consideration/ investigations by Skelly and Loy as outlined in this proposal for Contract 2C Phase IB Archaeology.

The U.S. 301 Contract 2C Phase IB archaeology survey fieldwork is predicated on the combined results of previously completed background research (Phase IA) and survey (Phase IB) for the US 301 project especially Sections 1 and 2 (Liebknecht and Burrow 2010; Diamanti 2010), information supplied by DelDOT, and the Delaware State Historic Preservation Office (DESHPO), and includes testing for both pre-contact and historic period archaeological resources.

All archaeological services included in this survey work plan will be provided by Skelly and Loy personnel who meet or exceed the professional qualifications for the position they fill during the research. All archaeological studies undertaken during the implementation of the MOA, including research, fieldwork, mapping, and report preparation, follow Skelly and Loy's internal QA/QC procedures including peer review and technical editing, and meet or exceed industry, FHWA/DelDOT, and US 301 project specific standards, and the DESHPO's *Guidelines for Architectural and Archaeological Survey in Delaware* (DESHPO 1993). Skelly and Loy is aware of the procedures to be taken in the event that human remains are identified as per section "D. Discovery of and Treatment of Human Remains and Burials" of the U.S. 301 Memorandum of Agreement and by reference therein: *Unmarked Human Burials and Human Skeletal Remains* (7 Del. Laws c. 54).

Research Design

The primary objective of the Phase IB archaeological survey will be to systematically locate, map, and describe any archaeological remains identified in the U.S. 301 Contract 2C archaeological APE. While this may appear to be a simple goal, the information gleaned from the survey comprises the primary database for the identified archaeological resources and may help to address research topics such as: pre-contact and historic period settlement patterning and distribution, lithic raw materials, agricultural practices, and African-Americans in early Delaware. The identification and recordation will provide an inventory of archaeological resources which speaks to where people were located on the landscape, what they were doing, and how important they are to our knowledge of the past.

Because Phase IB archaeological survey is designed to identify archaeological remains, in many cases, this level of effort is not sufficiently rigorous to provide enough information about the resource to make a determination of eligibility. However, in some instances, sufficient information or the appropriate kinds of information can be gathered during the Phase IB archaeological survey and the eligibility of a resource can be recommended. In addition to the main objective of identifying archaeological remains within the US 301 Contract 2C archaeological APE, Skelly and Loy personnel will provide a reasonable argument for either: eligibility based on the survey information (e.g., presence of a cultural feature), or a recommendation for additional fieldwork in the form of Phase II testing for each newly identified archaeological resource. The recommendation for Phase II testing will be based on an assessment of the data potential (e.g., cultural features, artifact patterning, materials suitable for radiometric assay) of the defined archaeological site as well as the potential integrity of that data.

Background Research

Since in-depth background research has been previously conducted in the vicinity of the Contract 2C archaeological APE, this proposal includes only a minimal level of effort for additional background research. Additional background research may be necessary in order to place any identified historic period archaeological resources into a context in which the resource can be evaluated for significance as part of the preparation of the Management Summary and final report. Sources for this research may include: the US 301 Project Development documents (A.D. Marble 2005: FHWA and DelDOT2007; Frederick et al. 2007; Frederick et al. 2006a; 2006b; Kellogg 1992; Siders 1993); the U.S. 301 Archaeological Predictive model (Baublitz *et al.* 2006); the US 301 Planning studies; management plans for prehistoric and historic resources (Bedell 2002; Custer 1986; Custer and DeSantis 1986; De Cunzo and Catts 1990 ;De Cunzo and Garcia 1993); and individual, previously completed cultural resource reports as applicable. All previously completed background research was reviewed in order to prepare the level of effort included in this proposal, and will be consulted throughout the U.S. 301 Contract 2C Phase IB investigations as necessary.

Review of the previously completed background research on US 301 Section 1, no previously identified archaeological sites are located in the Contract 2C archaeological APE, and the portion of Section 1 located closest to the contract 2C archaeological APE is low probability for archaeological resources. Review of the US 301 Section 2 background research indicated that no previously identified archaeological sites are located in the Contract 2C archaeological APE. However, a review of historic mapping indicates that there are numerous potential historic period archaeological resources within or adjacent to the Contract 2C archaeological APE as demonstrated on historic maps of the area including Rhea and Price 1849, Hopkins 1881, and Baist 1893 maps, and at least two historic subdivisions including the J. Taylor Tract and the Armstrong Farm comprise much of the Contract 2C archaeological APE (Liebknecht and Burrow 2010). The results of the US 301 Section 2 Phase IB survey confirm the presence of historic archaeological resources near and within the Contract 2C archaeological APE (Liebknecht and Burrow 2010).

The Contract 2C Phase IB fieldwork will determine what if any pre-contact or historic period archaeological sites are located within the Contract 2C archaeological APE. The expected archaeological resources include small pre-contact period lithic scatters, historic period archaeological components of known historic properties, newly identified historic period sites not previously indicated through historic documentary research, and historic period resource related to agriculture, roadways/crossroads, and possibly railroads.

Phase IB Fieldwork

The Phase IB archaeological survey fieldwork will take place in all testable portions of the archaeological APE that contain relatively undisturbed *in situ* developed soil/sediment profiles and sufficient potential for pre-contact and/or historic period archaeological resources to exist based on previously completed background research. Because the archaeological APE was not accessible to a pedestrian reconnaissance prior to the formulation of this Phase IB archaeological proposal, the ground conditions were extrapolated from aerial photographs of the locations.

In order to determine which portions of the archaeological APE are testable, geomorphological investigations consisting of hand-excavated auger borings, will be used when appropriate. These auger borings are especially important in reducing unnecessary excavations when the location of the archaeological APE may be highly disturbed like that of the US 301 Contract 2C archaeological APE. The archaeological APE is located along existing roadways and on upland soils away from larger streams, the deposits present will probably not be very deep, and may be highly disturbed. All auger boring locations will be identified on project mapping and select auger profiles will be described according to the methods and nomenclature provided by the United States Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS) (Schoeneberger 2002).

Due to the location, size, configuration, and character of the archaeological APE, as well as the instruction of DelDOT personnel, the proposed Phase IB archaeological survey fieldwork will consist of hand-excavated shovel test pits (STPs) and possibly a few 1.0 x 1.0 m (3.3 x 3.3 ft) test units. STPs will minimally measure 50.0 cm (19.7 in) in diameter and be spaced at 15.0 m (49.2 ft) intervals. Should artifacts be found during the STP excavations, the boundaries of the artifact distribution will be delineated by lessening the STP intervals. Judgmentally emplaced STPs and/or 1.0 x 1.0 m (3.3 x 3.3 ft) test units (i.e., off of the 15.0 m [49.2 ft] grid) may also be used in areas where field observations warrant their emplacement (e.g., to further uncover a cultural feature, if areas of deeper sediments exist). The STPs and test units will be excavated 10.0 cm (3.9 in) into culturally sterile subsoil. All sediments removed from the STPs and/or test units will be screened through 0.64 cm (0.25 in) mesh hardware cloth. It is estimated that a maximum of 190 STPs and five test units may be needed to survey the Contract 2C archaeological APE.

Daily notes will be recorded and digital photographs will be taken of the Phase I survey research. Skelly and Loy will keep the DelDOT archaeologists apprised of the progress and

results of the Phase IB survey in a weekly progress report/email. If any indications of unmarked cemeteries or human remains are identified, work will be halted in the immediate vicinity, the remains covered to protect them, and the DeIDOT archaeologists contacted immediately in order to determine how to proceed. No human remains will be photographed, mapped, or removed from their location until such time as FHWA/DeIDOT instructs Skelly and Loy personnel to do so. Skelly and Loy personnel recognize that information regarding human remains is culturally sensitive and proprietary.

Upon the completion of fieldwork, the Principal Investigator and field director will meet with DeIDOT and DESHPO personnel to discuss the fieldwork results, identify any red flag issues, and determine if fieldwork has been sufficient and proportional to the project goals. However, if no archaeological materials are identified during the fieldwork, this meeting may be eliminated. In lieu of the meeting, documentation about the fieldwork will be forwarded to DeIDOT's archaeologist so he can gain agreement by the DESHPO that fieldwork is complete.

Laboratory and Analysis

Any recovered artifacts will be preliminarily processed and analyzed in order to allow questions of site integrity and occupation span to be addressed. The recovered artifacts will be transported to Skelly and Loy's Pittsburgh laboratory facility where they will be washed, labeled, and re-bagged. Preliminary analyses will consist of dividing the artifacts into major categories according to material type, with further subdivisions made by the appropriate analysts. Following identification and classification of an artifact, a date range will be assigned, if possible. The specificity of the assigned date range will be based on the number and type of diagnostic characteristics present for any given artifact. Labor tasks associated with the preparation of the artifacts and project materials for final curation at Delaware State Museums will be completed. Curation tasks will follow those outlined in section "E. Curation" of the U.S. 301 Memorandum of Agreement. For the purposes of this proposal, a maximum of 1000 artifacts is estimated.

Meetings, Coordination, Reports and Deliverables

Weekly summary progress updates, via email, have been requested by the DeIDOT Archaeologist and will be sent during the course of the project. Subsequent to the completion of the Phase IB fieldwork and any associated artifact analysis, the results of the archaeological studies will be presented in a Management Summary following the format established by DeIDOT and the DESHPO in the "Management Summary Guidelines for the 301 Project". The Management Summary will be submitted to DeIDOT and DESHPO who will edit and comment on the report contents, and refine and determine site boundaries. Once the Management Summary is reviewed, accepted, and site boundaries determined, site numbers can be obtained for use in the Phase IB survey report.

After review and approval by DeIDOT and DESHPO of the Management Summary, and site numbers (if necessary) are obtained, a full Phase IB Archaeology report will be prepared. The report will include, by reference, the information contained in the Phase IA report, as well as plan view maps, representative profiles, drawings and photographs, detailed archaeological results of the Phase IB fieldwork, preliminary analysis of the recovered artifacts, and any historic documentary information necessary to make recommendations regarding the need for additional research (e.g., Phase II testing, historic documentation, etc.) at the resource locations. The Phase IB report will only include background and cultural potential information by reference, and only if needed to directly assess any identified archaeological resources. A preliminary NRHP eligibility discussion, including any Phase II recommendations, will be presented for each identified archaeological site. The Phase IB report will follow all DeIDOT and DESHPO guidelines generally and US 301 project guidelines specifically.

Schedule

TASK	PROPOSED DATE
Notice to Proceed (NTP)	At DeIDOT's discretion
Begin Project Coordination	Immediately upon receipt of NTP
Weekly Progress Report Submittal (via email)	Weekly during duration of project
Begin Fieldwork	Within 14 calendar days of permission to enter properties
End Fieldwork	Within 10 working days of beginning fieldwork*
End of Fieldwork Meeting	After fieldwork ends at discretion of DeIDOT/DESHPO
Management Summary Submittal	Within 15 calendar days of end of fieldwork meeting
Review of Management Summary by DeIDOT/DE SHPO	At discretion of DeIDOT/DESHPO
Phase I Survey Report Submittal	Within 30 calendar days of receipt of DeIDOT and DESHPO's Management Summary review comments

*Severe weather conditions including, but not limited to, flooding and thunderstorms may necessitate scheduling modifications.

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