

**Susitna-Watana Hydroelectric Project  
(FERC No. 14241)**

**Wetland Mapping Study in the Upper and Middle  
Susitna Basin  
Study Plan Section 11.7**

**Initial Study Report  
Part C: Executive Summary and Section 7**

Prepared for

Alaska Energy Authority



**SUSITNA-WATANA HYDRO**

*Clean, reliable energy for the next 100 years.*

Prepared by

ABR, Inc.—Environmental Research & Services

June 2014

## TABLE OF CONTENTS

<b>Executive Summary .....</b>	<b>ii</b>
<b>7. Completing the Study .....</b>	<b>1</b>
7.1. Proposed Methodologies and Modifications .....	1
7.1.1. Decision Points from Study Plan .....	1
7.1.2. Modifications to Study Plan.....	1
7.2. Schedule .....	2
7.3. Conclusion .....	2
7.4. Figures.....	3

## LIST OF FIGURES

Figure 7.1-1. Wetland Mapping Study Area Showing the Denali East Option Corridor Added in 2014.....	4
---	---

## EXECUTIVE SUMMARY

Wetland Mapping Study in the Upper and Middle Susitna Basin 11.7	
Purpose	The purpose of the wetland mapping study is to classify, delineate, and map the wetlands occurring in the inundation zone of the proposed Watana Reservoir, the area of the proposed Project dam site and associated infrastructure, and along the corridors of the three possible Susitna-Watana transmission lines/roads. A wetland functional assessment will also be conducted to determine the specific functions that the wetlands in the study area provide.
Status	This multi-year study was initiated in 2012. Portions of the study area were successfully surveyed in 2012 and 2013. Field data collection and the mapping of wetlands will be completed in 2014 and 2015. The final study results will be presented in the Updated Study Report (USR).
Study Components	(1) Classify, delineate, and map wetlands in the Upper and Middle Susitna River Basin based on field data and current aerial imagery for the study area; (2) conduct field ground-reference surveys to verify image interpretations and collect data on wetland functions; and (3) determine and evaluate the ecological functions of the mapped wetland types to facilitate an assessment of the relative value of each wetland type in the study area.
2013 Variances	There were no variances from the wetlands classification, mapping, or functional assessment methods as described in the Study Plan (RSP Section 11.7.4).
Steps to Complete the Study	The plans for completing this study include implementing the study components listed above in 2014 and 2015 (wetlands mapping will occur in 2014 and 2015, and the final field surveys and final wetland functional assessment will be conducted in 2015). No modifications to the Study Plan methods are proposed to complete the study and meet the Study Plan objectives; however, the study area has been changed from that described in the RSP (Section 11.7.3). As described in the ISR Overview, AEA has added the Denali East Option road and transmission line alternative corridor to the study area. The small amount of additional high-resolution aerial imagery needed to cover the expansion of the study area applicable to this study for the Denali East Option corridor will be acquired in 2014.
Highlighted Results and Achievements	The final acquisition of high-resolution imagery for the study area described in the Study Plan was obtained in 2013. The new imagery, which comprises approximately 55% of the study area, completes the imagery set needed for the mapping of wetlands for the Project. A total of 1,271 field plots were sampled in 2012–2013, and 40 National Wetland Inventory (NWI) wetland classes were identified; the field data indicate that there may be few additional NWI classes in the study area. Vegetation structure in the wetlands identified

## Wetland Mapping Study in the Upper and Middle Susitna Basin 11.7

in the study area ranged from mature forests to open, wet herbaceous meadows. The sampled wetlands in alpine and subalpine physiographic areas were often dominated by dwarf shrub scrub (moist dwarf shrub and wet sedge-dwarf willow shrub types). Sampled wetlands in areas of upland physiography were a mixture of black spruce forests and low to tall scrub types. Sampled wetlands in lowland physiographic areas were a mixture of black spruce forests, low birch and low willow shrub scrub, and wet graminoid meadow types. Sampled wetlands in areas of lacustrine physiography were lakes and lake margins composed of wet sedge marsh and/or wet sedge meadow communities, and wetlands in riverine physiographic areas were predominantly low to tall, seasonally flooded shrub scrub types, often dominated by willow and alder. As of the end of December 2013, approximately 130,000 acres had been mapped, which represents roughly 23% of the study area. Wetlands data from two transects sampled in 2013 were used for a preliminary wetland functional assessment following the Magee methods, which were selected for assessing wetland functions in the study area in consultation with the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service. The results show an expected range of wetland function among hydrogeomorphic classes and NWI wetland types, but they also indicate areas in which modifications to the Magee functional assessment model parameters (as discussed with the agencies noted above) will be needed to better represent the generally undisturbed functional capacity of wetlands in the study area.

## 7. COMPLETING THE STUDY

### 7.1. Proposed Methodologies and Modifications

To complete this study, the study team will implement the methods in the Study Plan, except as described in Section 7.1.2. These activities include:

- Additional field data collection in portions of the study area not yet sampled and the collection of additional field data for wetland types not adequately sampled during 2012 and 2013 (RSP Section 11.7.4.2);
- Review, revision, and completion of the wetlands mapping throughout the study area (RSP Section 11.7.4.1);
- Development of a final set of multivariate wetland types that apply Project-wide and that incorporate wetland-function information—to be conducted in coordination with the study team for the Riparian Vegetation Study Downstream of the Proposed Susitna-Watana Dam (Study 11.6) (RSP Sections 11.7.4.1 and 11.7.7);
- Revisions, as needed (discussed above in Section 6.2), of some parameters in the wetland functional assessment model to make the wetland functions assessed more representative of the conditions in the study area (RSP Section 11.7.4.3);
- Incorporation of Project-specific spatially explicit information for 3 of the 10 wetland functions assessed using GIS data layers from 4 other study programs: fish distribution and abundance and fish habitat studies (Studies 9.5, 9.6, and 9.9), wildlife studies (Studies 10.5 through 10.18), the Recreation Resources Study (Study 12.5), and the Subsistence Baseline Documentation Study (Study 14.5) (RSP Sections 11.7.4.3 and 11.7.7); and
- Development of a final set of wetland functional classes, which will represent groups of mapped wetland types that share similar wetland functions (RSP Section 11.7.4.3).

#### 7.1.1. Decision Points from Study Plan

There were no decision points in the FERC-approved Study Plan to be evaluated for this study following the completion of 2013 work.

#### 7.1.2. Modifications to Study Plan

No modifications to the Study Plan methods are proposed to complete the study and meet Study Plan objectives. However, AEA proposes to change the study area from that described in the RSP (Section 11.7.3). As described in the ISR Overview and depicted in Figure 1, AEA has added the Denali East Option road and transmission line corridor to the study area. For this study, the corridor addition to the study area includes a 2-mi buffer surrounding the center lines of the road and transmission line alignments of the new Denali East Option (Figure 7.1-1), which matches the 2-mi buffers used on the other potential road and transmission line corridors included in the study area.

## 7.2. Schedule

In general, the schedule for completing the FERC-approved Study Plan is dependent upon several factors, including Project funding levels authorized by the Alaska State Legislature, availability of required data inputs from one individual study to another, unexpected weather delays, the short duration of the summer field season in Alaska, and other events outside the reasonable control of AEA. For these reasons, the Study Plan implementation schedule is subject to change, although at this time AEA expects to complete the FERC-approved Study Plan through the filing of the Updated Study Report (USR) by February 1, 2016, in accordance with the ILP schedule issued by FERC on January 28, 2014.

With regard to this specific study, AEA is not proposing any field work in 2014. The study team plans to complete the final year of field data collection in the 2015 study season. The wetlands mapping, however, will be continued in 2014 and completed in 2015. Following completion of the wetlands mapping, the final wetland functional assessment will be prepared. The results of each component of this study will be reported in the USR.

A small section of the 2-mi buffer study area in the new Denali East Option corridor is not covered by current, high-resolution imagery needed for the wetland mapping work. This imagery gap will be filled in 2014 either with existing, archived satellite imagery or a new acquisition of digital aerial photography. The study team is actively working with staff at the Geographic Information Network of Alaska (GINA) to find the best solution to fill the imagery gap.

## 7.3. Conclusion

The wetlands mapping, field survey work, and wetland functional assessment work planned for 2014 and 2015 will meet the Study Plan objectives. Substantial progress was made in 2013 in characterizing and mapping wetlands in the study area, and in preparing a draft version of the wetland functional assessment. The mapping work will be expanded in 2014 and 2015 to encompass those portions of the study area that have not yet been mapped, and the wetland functional assessment will be finalized in 2015 when the mapping is completed. Additional high-resolution imagery was obtained in 2013 for those portions of the study area in which it was absent. Combined with the field data collected in 2013, additional imagery to cover the new Denali East Option alternative corridor, and the planned field sampling in 2015, this will allow for the classification and mapping of wetlands throughout the full study area.

Several modifications have been made to the Study Plans for studies related to this study, including the fish distribution and abundance and fish habitat studies (Studies 9.5, 9.6, and 9.9), the wildlife studies (Studies 10.5 through 10.18), the Recreation Resources Study (Study 12.5), and the Subsistence Baseline Documentation Study (Study 14.5). The modifications generally involved alterations to or expansions of the field survey methods and/or expansions of the areas to be surveyed. The simple information needed from those studies for the wetland functional assessment (locations of fish species and habitats, wildlife observation locations, and locations of recreational and subsistence activities) will be unaffected by the various modifications to be implemented. Lastly, modifications to the field methods for the Riparian Vegetation Study Downstream of the Proposed Susitna-Watana Dam (Study 11.6) will not affect the coordination between that study and this one when deriving wetland types for Study 11.6.

## 7.4. Figures

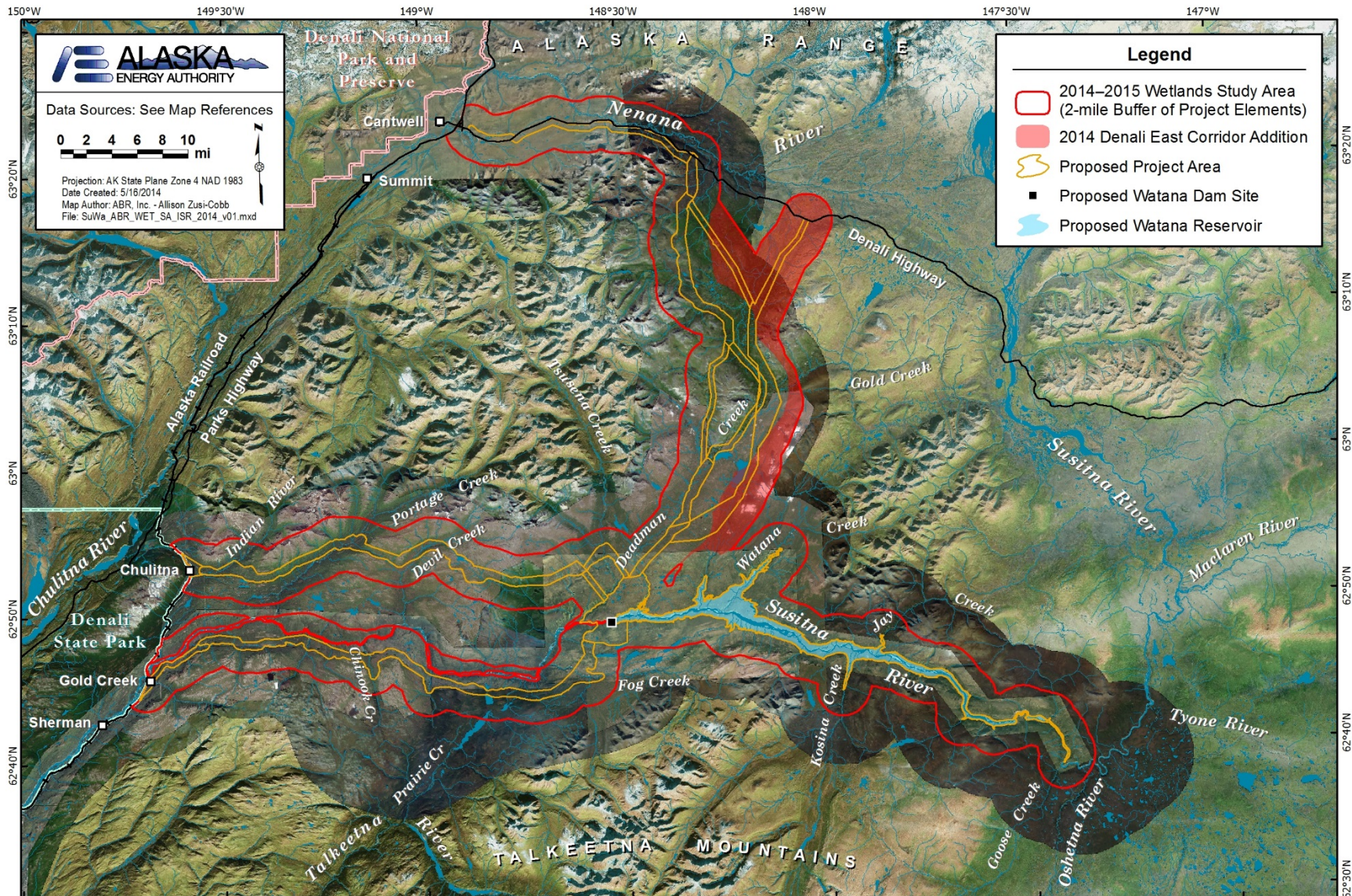


Figure 7.1-1. Wetland Mapping Study Area Showing the Denali East Option Corridor Added in 2014.