A Class III Intensive Cultural Resources Survey for the Development of WFPO Watershed Plan - Environmental Assessment for Box Butte Creek Watershed Improvement Project; Box Butte and Sheridan Counties, Nebraska

By
David T. Williams and Trent Carney

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Principal Investigator – David T. Williams, MA, RPA

A report prepared for HDR Inc.,
and the Upper Niobrara White Natural Resources District
By the State Archeology Office, Lincoln, Nebraska
A program of History Nebraska

Note: Archaeological site and historic building location information has been removed from the report per Section 304 of the National Historic Preservation Act and Nebraska Revised Statute 84-712.05 ([14] and [15]).

ABSTRACT

HDR, Inc., and the Upper Niobrara White Natural Resources District requested the State Archeology Office (SAO), a division of History Nebraska, conduct a Class III intensive cultural resources investigation, including pedestrian survey, subsurface testing, and archeological site documentation, in advance of the Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. Proposed project activities may include, but are not limited to, the installation of dams, multi-use facilities for recharge basins or retiming flows, watershed BMPs, retention basins, and levees. The USDA Natural Resources Conservation Service (NRCS) is the lead federal agency for this project. The entire Box Butte watershed and proposed planning area encompasses 65,607 hectares (ha) (162,119 acres [ac]). Eleven proposed project areas of potential effects (APE) requiring Class III intensive cultural resources survey were located in: Section 31, T28N R46W; Section 26, T28N R48W; Sections 16, 22, 23, and 25, T27N R47; Section 6, T27N R46W; Section 3, T26N R47W; and Section 3, T26 R48W on the USGS 7.5' Box Butte, Box Butte SW, and Skunk Lake SW quadrangles. The total APE covered 32.23 ha (79.86 ac). The Class III intensive cultural resources investigation of these areas, including pedestrian survey, and shovel and auger testing, was completed by SAO personnel between July 5 and August 18, 2022.

As a result of this survey, one new archeological site was documented and evaluated under the four criteria (A–D) for eligibility consideration in the National Register of Historic Places (NRHP). The site, 25SH20, is an isolated find containing a single flake made of Spanish Diggings quartzite. Site 25SH20 is not associated with events or persons of local, regional, or national significance (Criteria A and B), nor does it possess any unique architectural elements (Criterion C). Subsurface testing conducted in the surrounding area yielded no additional cultural material. Therefore, it was determined that the archaeological site in question is unable provide additional research value related to its site type in Nebraska (Criterion D). As such, the newly recorded archeological site is recommended Not Eligible for listing in the NRHP. Additional subsurface cultural materials encountered at other locations within the project area were found in disturbed contexts along the slope of a hill prone to erosion events suggesting that the original context of these finds lies outside the boundaries of the APE. No new standing structures were identified within the project area over the course of the investigations. No further work is recommended for the newly recorded archeological site, or for any of the other APE locations surveyed.

Provided NRCS and the State Historic Preservation Office (SHPO) concur with the site recommendations, the investigators recommended a Section 106 Finding of No Historic Properties Affected relative to the proposed Box Butte Creek Watershed Improvement Project Work Plan. It is further recommended that should any evidence of buried cultural resources be encountered during project construction activities, such activities be immediately halted and the SHPO or the SAO in Lincoln be notified immediately in order to determine an appropriate course of action. As a reminder, the information included in this letter is protected by state law (Statute 84-712.05[14] and [15]) and is not for public distribution.

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INTRODUCTION

HDR, Inc., and the Upper Niobrara White Natural Resources District requested the State Archeology Office (SAO), a division of History Nebraska, conduct a Class III intensive cultural resources investigation, including pedestrian survey, subsurface testing, and archeological site documentation, in advance of the Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. Proposed project activities may include, but are not limited to, the installation of dams, multi-use facilities for recharge basins or retiming flows, watershed BMPs, retention basins, and levees. The USDA Natural Resources Conservation Service (NRCS) is the lead federal agency for this project. The entire Box Butte watershed and proposed planning area encompasses 65,607 hectares (ha) (162,119 acres [ac]). Eleven proposed project areas of potential effects (APE) requiring Class III intensive cultural resources survey were located in: Section 31, T28N R46W; Section 26, T28N R48W; Sections 16, 22, 23, and 25, T27N R47; Section 6, T27N R46W; Section 3, T26N R47W; and Section 3, T26 R48W on the USGS 7.5' Box Butte, Box Butte SW, and Skunk Lake SW quadrangles. The total APE covered 32.23 ha (79.86 ac) (Figures 1–12). The Class III intensive cultural resources investigation of these areas, including pedestrian survey, and shovel and auger testing, was completed by SAO personnel between July 5 and August 18, 2022.

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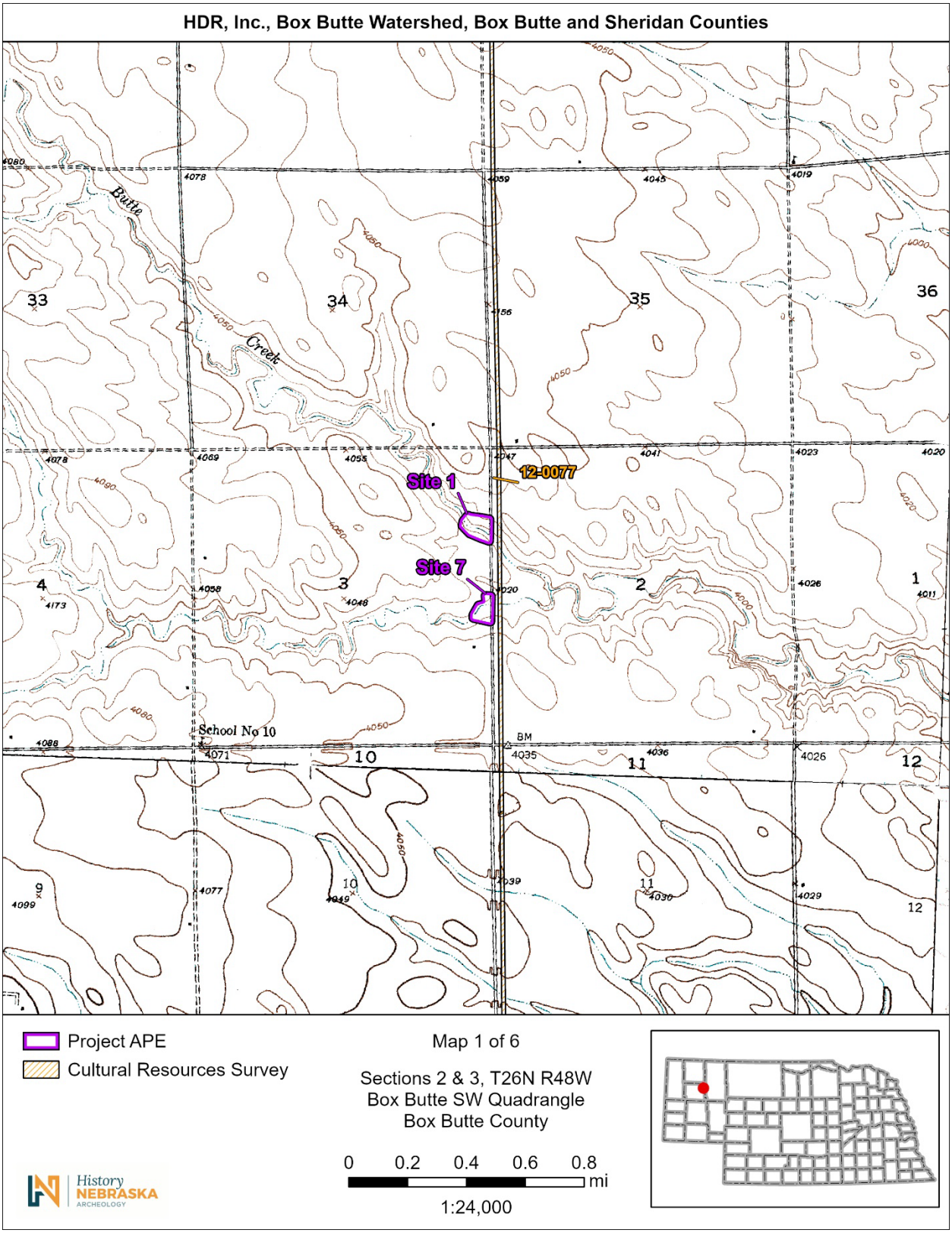

Figure 1. Box Butte Creek Watershed Sites 1 and 7 APEs and previous cultural resources survey illustrated on USGS 7.5' quadrangle.

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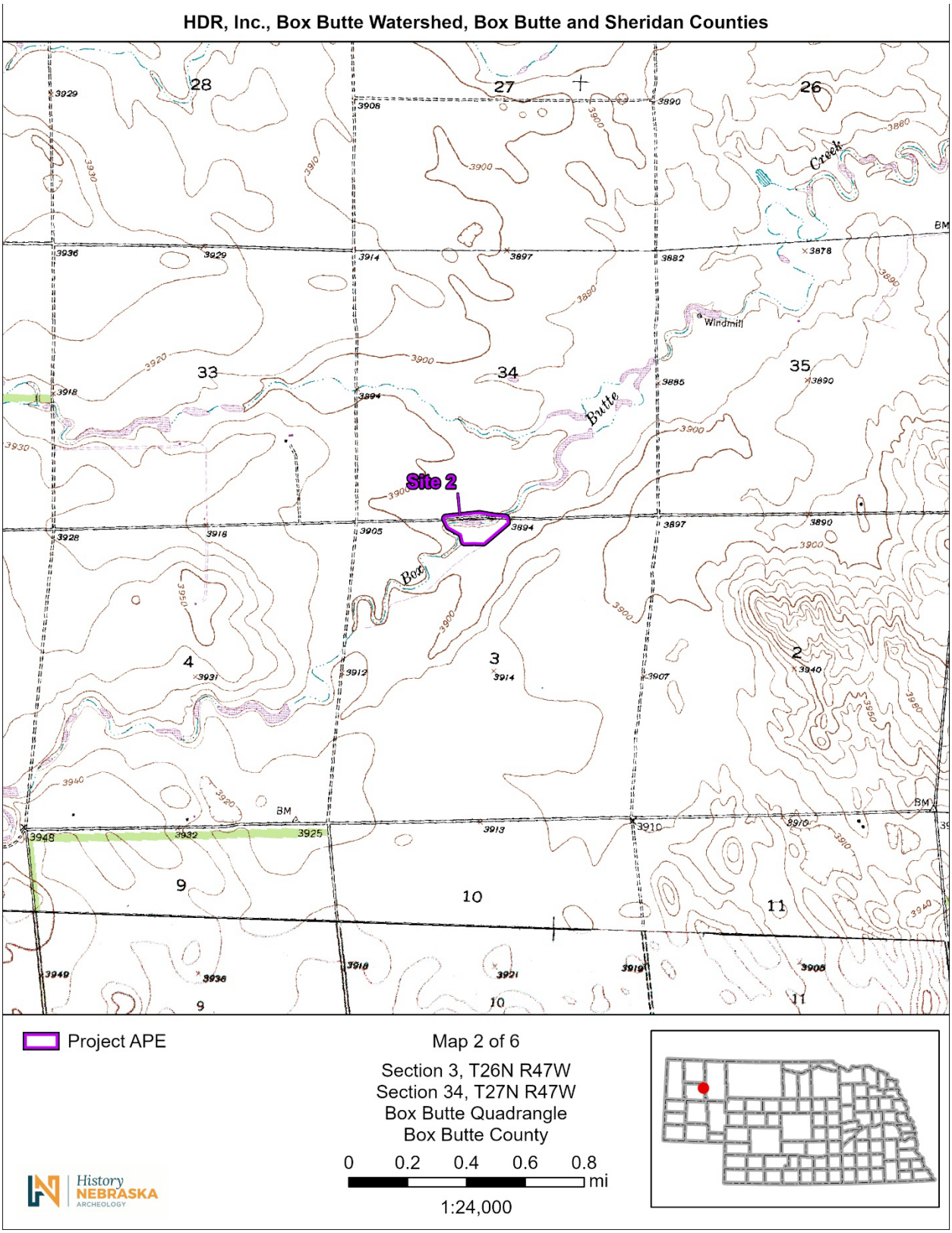

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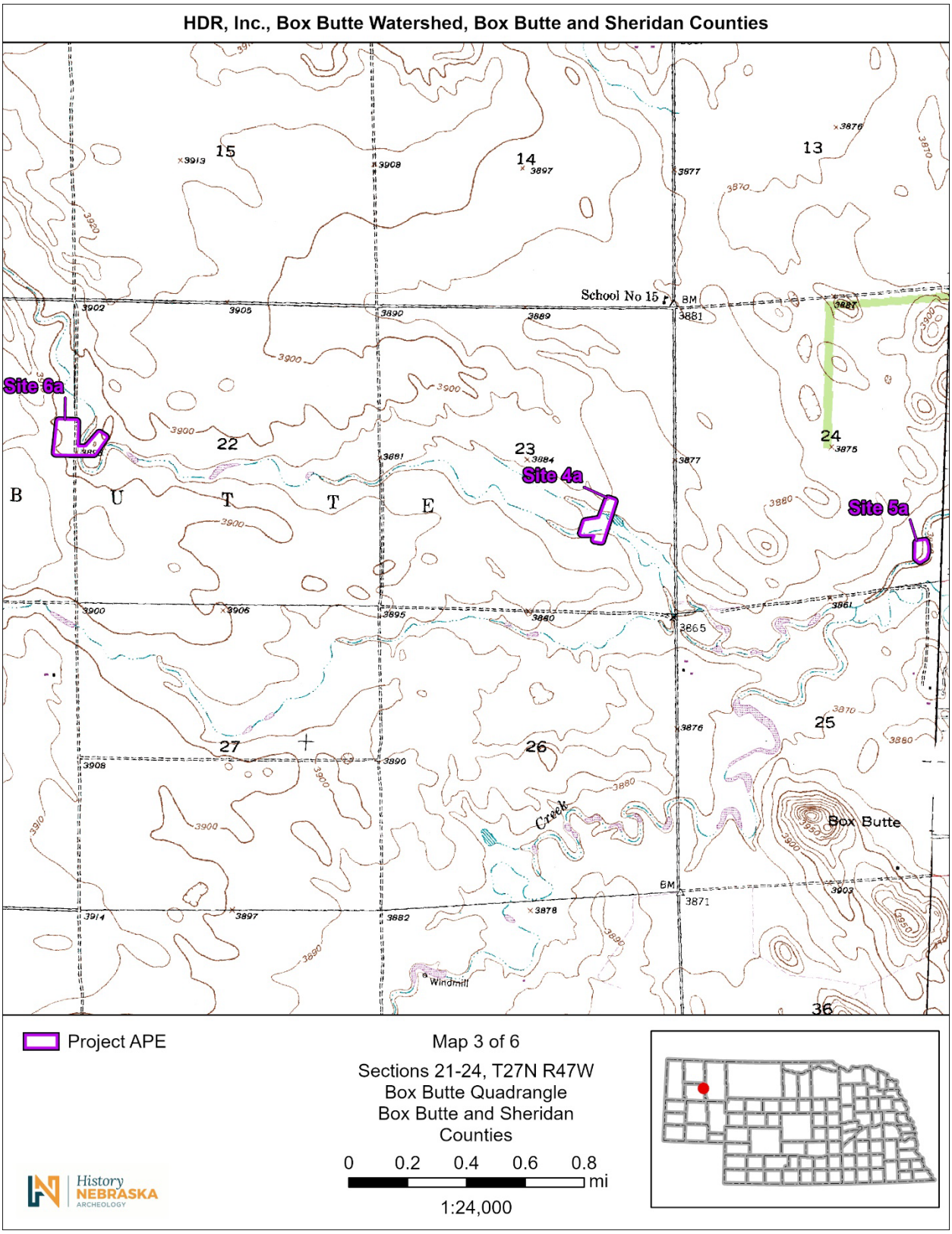


Figure 5. Box Butte Creek Watershed Site 4a, 5a, and 6a APEs illustrated on USGS 7.5' quadrangle.

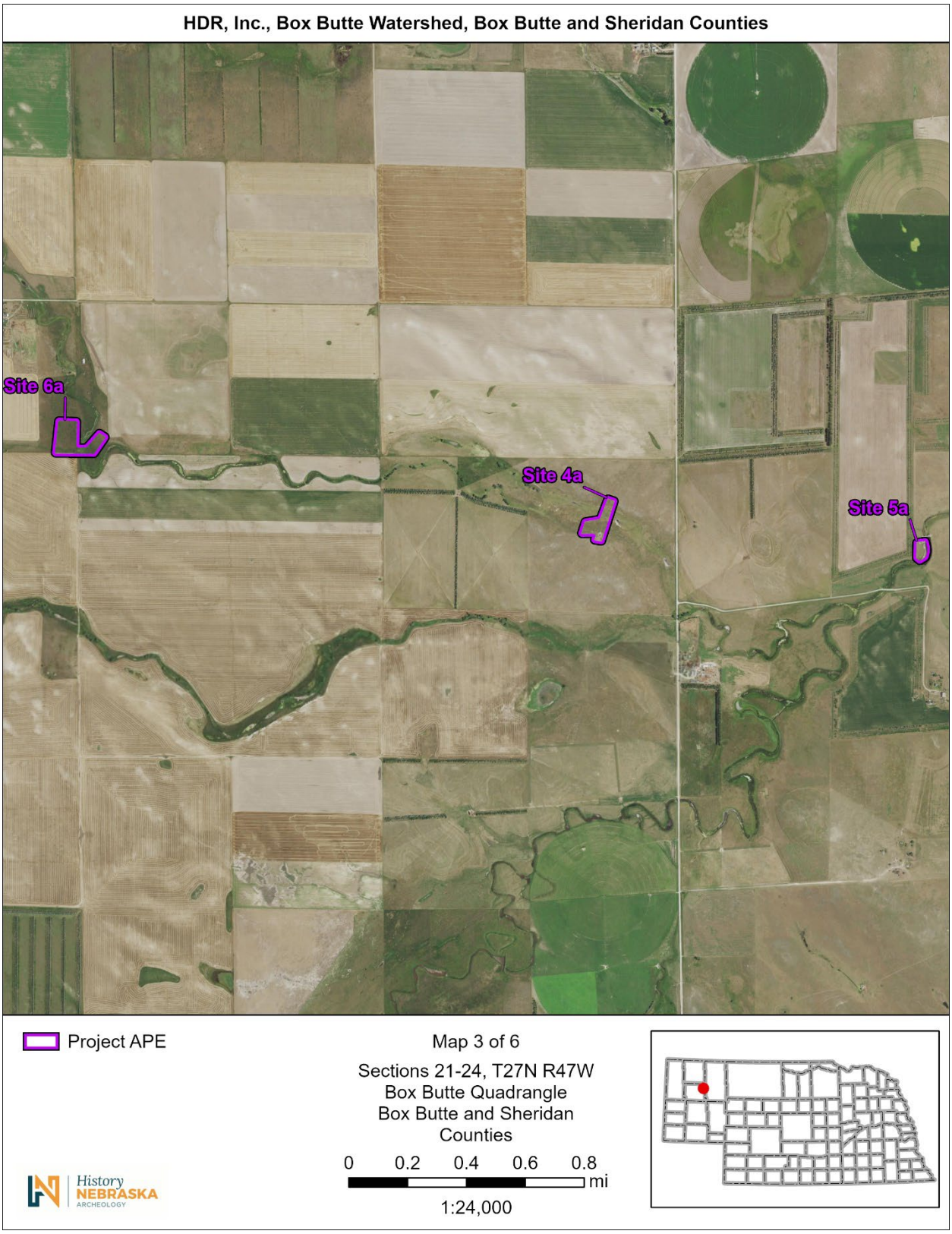
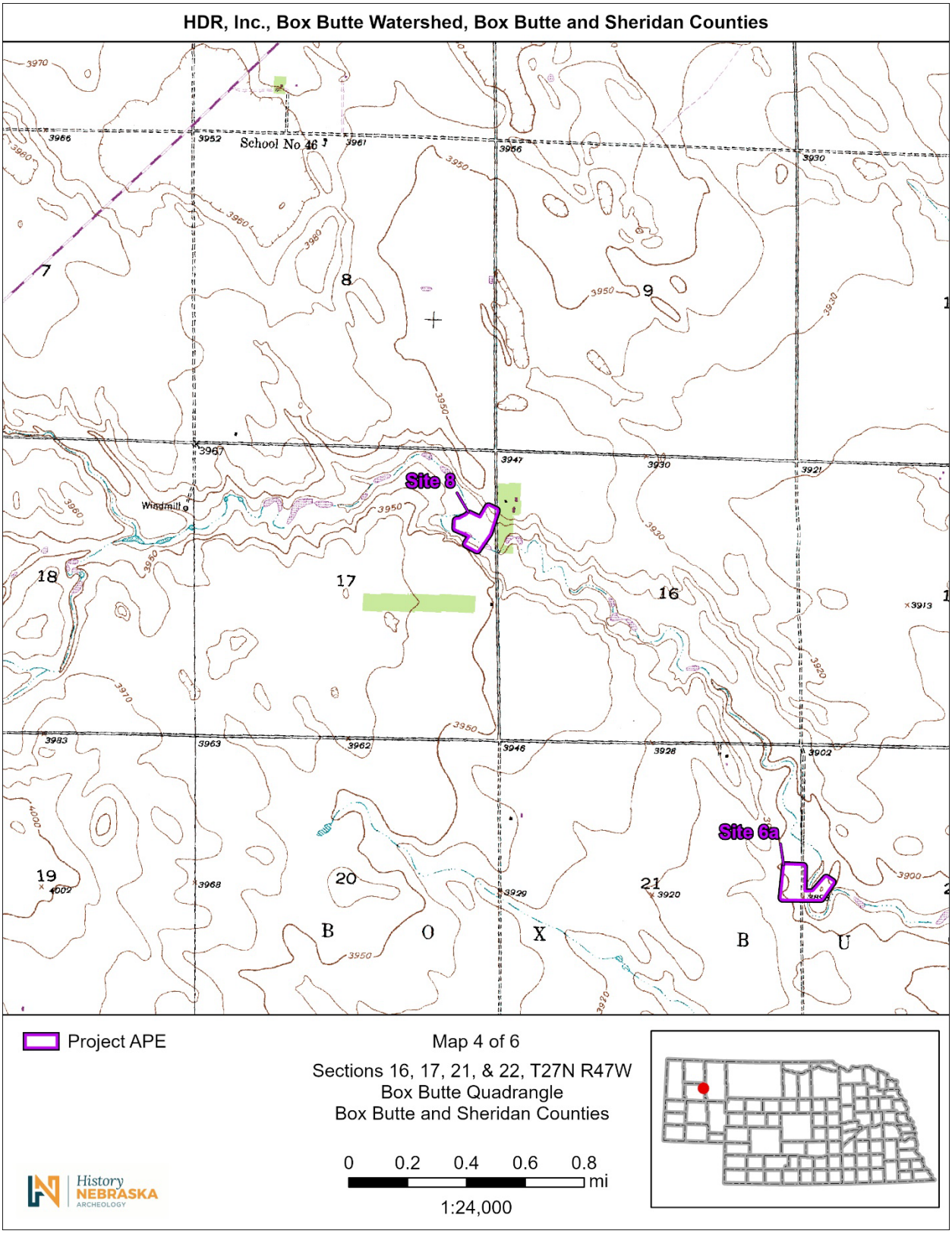


Figure 6. Box Butte Creek Watershed Site 4a, 5a, and 6a APEs illustrated on FSA orthophoto.



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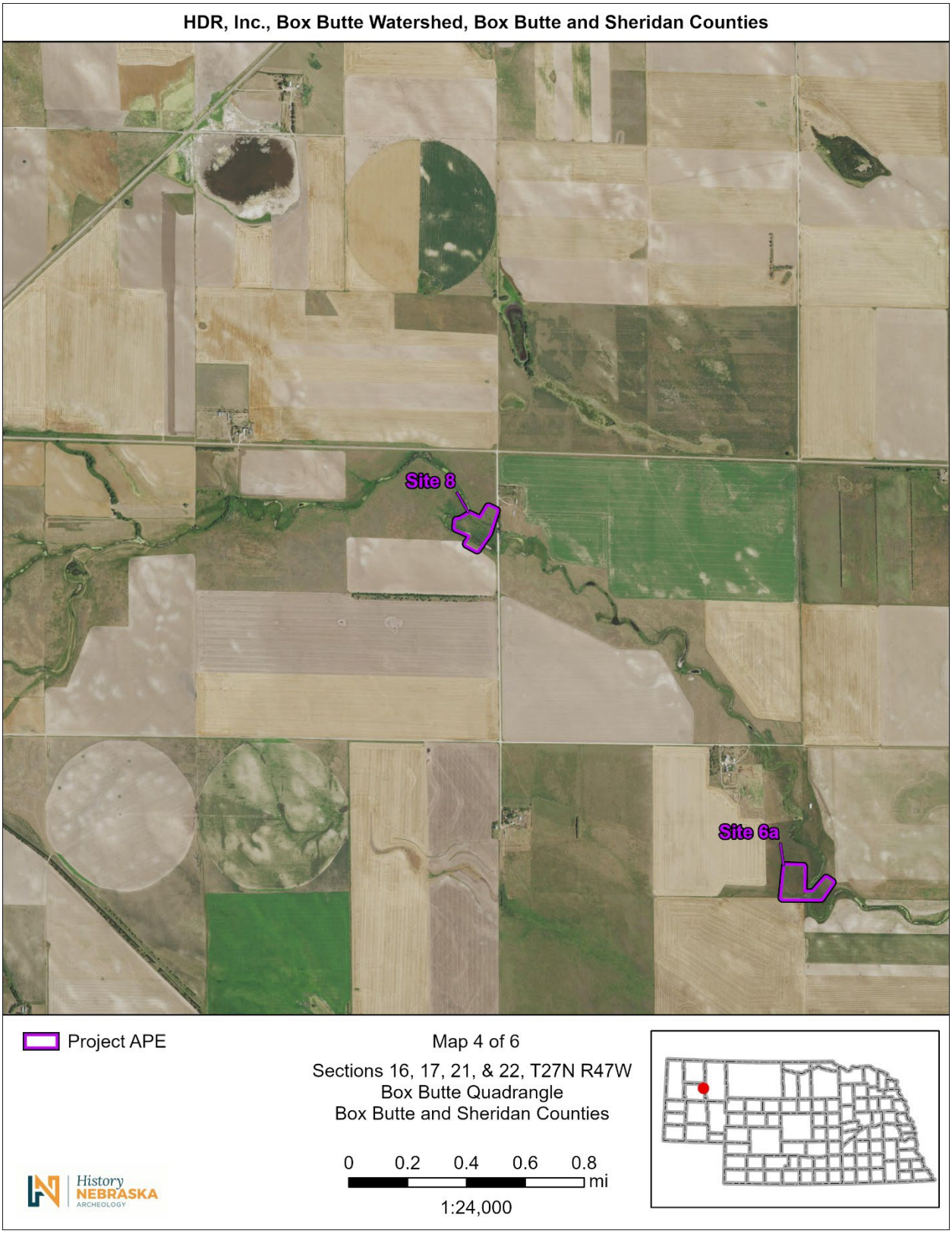

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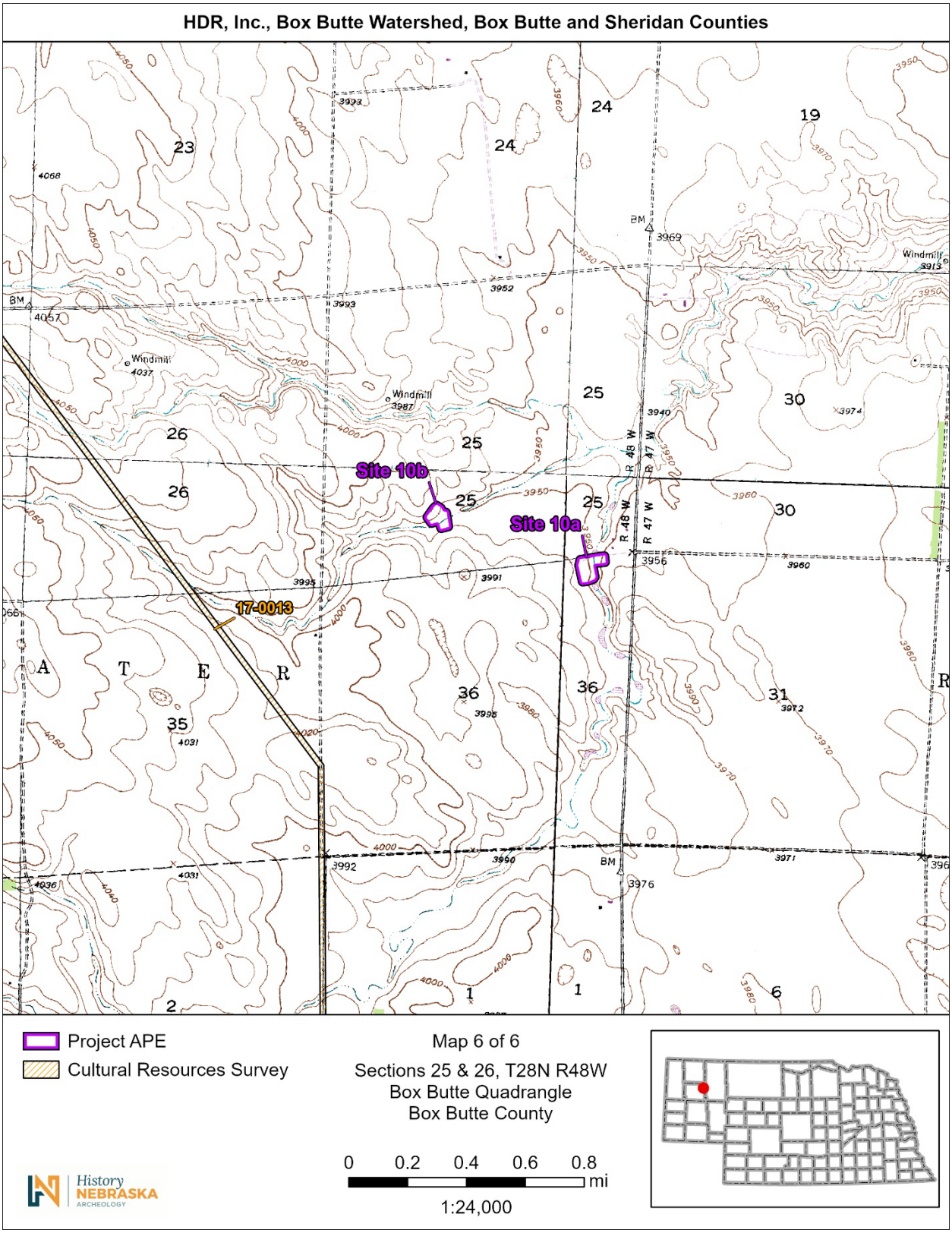

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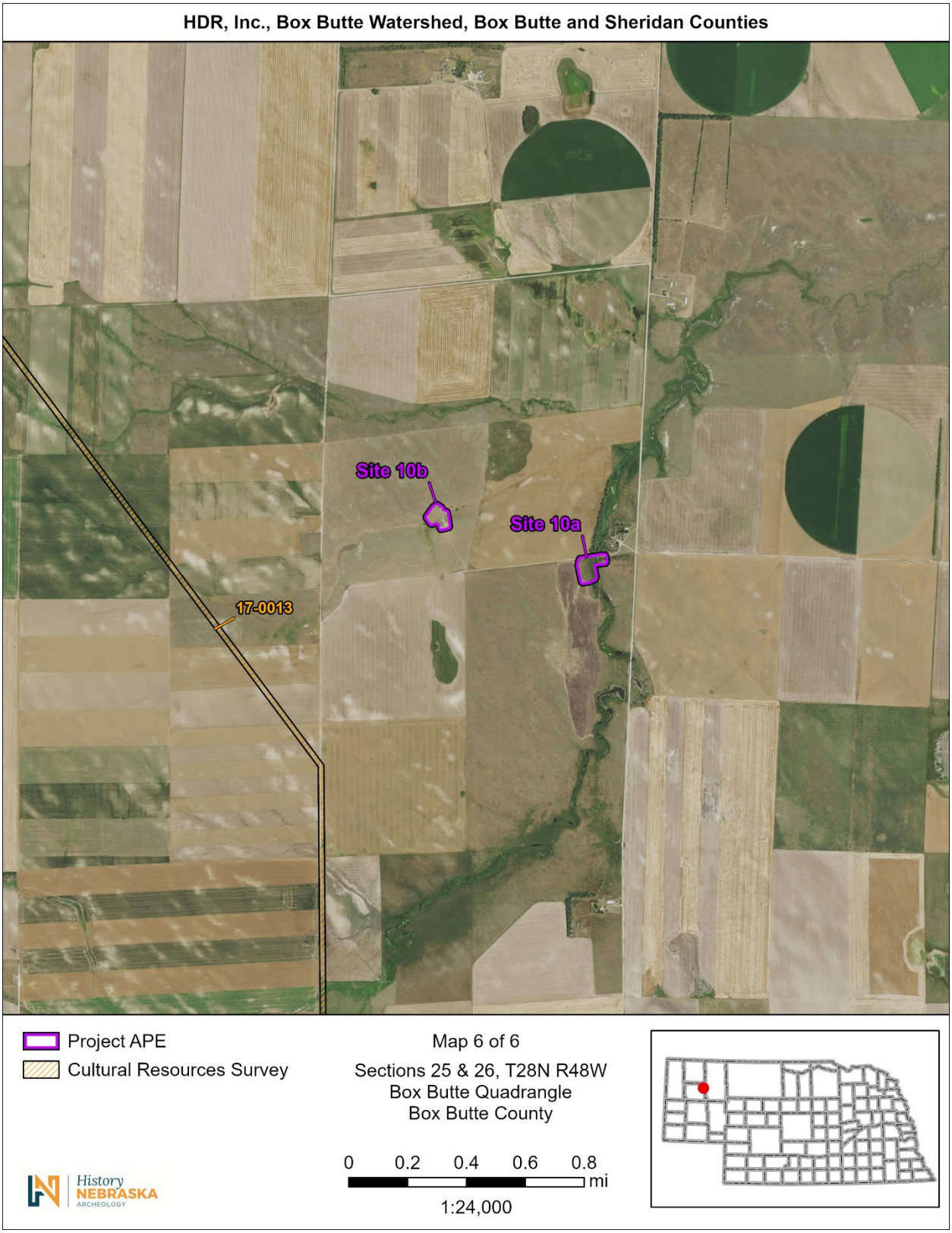


Figure 12. Box Butte Creek Watershed Site 10a and 10b APEs and previous cultural resources survey illustrated on FSA orthophoto.

PREVIOUS INVESTIGATIONS

A Class I background study was completed for the Box Butte Creek Watershed project area by SAO staff in 2021. Within the total study area are 15 architectural or structural properties, 13 of which were located in Box Butte County and 2 in Sheridan County (Table 1). Only one of these structures, BX00-40, was deemed individually eligible for the NRHP (Bozell & O'Conner 2021).

An updated record search was completed by the first author using the Nebraska Cultural Resources Geographic Information System (NCRGIS) database maintained by the SAO and SHPO for the Box Butte Creek Watershed APEs. In and within one mile of the combined APE, two cultural resources surveys have been conducted, though no archeological sites have been documented (Table 2; see Figures 1–12).

Table 1. Standing structure results within one mile of Box Butte Creek Watershed project area, Box Butte and Sheridan Counties.

NE SHPO Survey Number	NR Eligibility	Historic Property Name	Historic Context	Property Type
BX00-016	Not Eligible		Czech Church	Religious
B00-039	More Information Needed		Farming and Ranching	Farmsteads And Ranches
BX00-40	Individually		Farmstead	Sod Farmhouse
BX00-41	More Information Needed		Farming And Ranching	Farmsteads And Ranches
BX00-42	More Information Needed		Farming And Ranching	Farmsteads And Ranches
BX00-46	More Information Needed		Farming And Ranching	Farmsteads And Ranches
BX00-47	More Information Needed		Farming And Ranching	Farmsteads And Ranches
BX00-48	More Information Needed	Fairview Cemetery	Cemetery	Religious
BX00-54	More Information Needed		Farming And Ranching	Farmsteads And Ranches
BX00-55	More Information Needed		Farming And Ranching	Farmsteads And Ranches
BX00-56	More Information Needed		Farming And Ranching	Farmsteads And Ranches

Table 1 continued.

NE SHPO Survey Number	NR Eligibility	Historic Property Name	Historic Context	Property Type
BX00-67	More Information Needed		Cemetery	Religious
BX00-81	More Information Needed	Running Water Cemetery	Cemetery	Religious
SH00-066	More Information Needed		Farming And Ranching	Farmsteads And Ranches
SH00-067	More Information Needed		School House	Education

Table 2. Previous investigations in and within one mile of Box Butte Watershed project area, Box Butte County.

Within Project Area			
SHPO Survey No.	**Year**	**Author(s)**	**Title**
12-0077	2012	Parks, Stanley M.	Archeological Survey and Assessment: NebraskaLink Fiber-Optic Cable Installation Keith, Garden, Cheyenne, Morrill, Box Butte, and Dawes Counties, Nebraska
Within 1 Mile of Project Area			
SHPO Survey No.	**Year**	**Author(s)**	**Title**
17-0013	2016	Prouty, Michael	A Class III Cultural Resource Inventory of Western Area Power Administration's Box Butte-Chadron 115-kV Transmission Line and Access Roads, Box Butte and Dawes Counties, Nebraska.

CULTURAL SETTING

The cultural chronology of Nebraska is generally characterized by seven overlapping periods. The presence, duration, and significance of these periods depend largely on geographic location in the state and the extent of previous research in the specific area. The general cultural/chronological periods presented in years before present (B.P.; ca. 1950) include Paleoindian (ca. 12,000–7,500 B.P.); Plains Archaic (ca. 7,500–2,000 B.P.); Late Prehistoric (ca. 2,000–500 B.P.); Plains Woodland (ca. 2,000–1,000 B.P.); Plains Village (ca. 1,000–250 B.P.); Protohistoric (ca. A.D. 1700–1861); and Historic (ca. A.D. 1861 to present). Each of these periods has been, or can be, subdivided into early, middle, and late, as well as into various archaeological phases and cultures.

SOILS AND BURIED SITE POTENTIAL

Prior to survey, SAO staff reviewed the SAO's Deeply Buried Sites Geographic Information System (GIS) (see Layzell et al. 2018) and USDA's Web Soil Survey databases for information on soil types and potential within the APE for containing buried soils and cultural horizons. A total of twenty-two soil components are mapped in the APE with varying potential for containing deeply buried archeological sites (Table 3; Appendix A). Ground-truthing to determine the presence of buried soils was conducted during the field investigations via shovel and auger tests. No buried soils or intact archeological contexts were identified during the excavations.

Table 3. Mapped soil units within Box Butte Watershed project area.

Soil Unit Symbol	Soil Name	Slope (%)	Description	Buried Sites Potential
1189	Las Animas-Lisco, sandy loam	N/A	Forms on flood plains. Parent material consists of Alluvium.	Low-Moderate
1320	Beckton, silt loam	0-2	Forms on alluvial fans on uplands. Parent material consists of alluvium.	N/A
1362	Bridget, sandy loam	1-3	Forms on alluvial fans on river valleys. Parent material consists of alluvium.	High
1683	Manter-Satanta, sandy loam	0-3	Forms on knolls on uplands. Parent material consists of Eolian deposits.	N/A
1684	Manter-Satanta, sandy loam	3-6	Forms on ridges on uplands. Parent material consists of Eolian deposits.	N/A
1736	Rosebud-Canyon, complex	3-9	Forms on ridges on uplands. Parent material consists of Loess.	N/A
1809	Satanta, sandy loam	1-3	Forms on sand sheets and tablelands. Parent material consists of Eolian deposits.	N/A
1813	Satanta, sandy loam	6-9	Forms on sand sheets and tablelands. Parent material consists of Eolian deposits.	N/A
3228	Lute, loam	0-2	Forms on hill slopes on uplands. Parent material consists of colluvium.	High
3522	Lamo, variant loam	0-1	Forms on flood plains and on drainage ways on uplands. Parent material consists of alluvium.	Low-Moderate
4716	Orpha-Niobrara, complex	6-11	Forms on hill slopes and uplands. Parent material consists of Eolian Sands.	N/A
5101	Alliance loam	1-2	Forms on broad interstream divides, plains, and drainageways. Parent material consists of loess derived from sedimentary rock over residuum weathered from calcareous sandstone.	Low-Moderate
5108	Alliance-Rosebud, loam	1-3	Forms on drainage ways and plains on tablelands. Parent material consists of Loess.	N/A
5109	Alliance-Rosebud, loam	3-6	Forms on interfluves on uplands. Parent material consists of Loess.	N/A

Table 3 continued.

Soil Unit Symbol	Soil Name	Slope (%)	Description	Buried Sites Potential
5120	Busher, sandy loam	3-6	Forms on hill slopes and uplands. Parent material consists of Residuum.	N/A
5143	Busher-Tassel loamy sand,	6-30	Forms on hill slopes and uplands. Parent material consists of Residuum	N/A
5179	Hemingford loam	0-1	Forms on plains on tablelands. Parent material consists of Loess	N/A
5180	Hemingford loam	1-3	Forms on interfluves on tablelands. Parent material consists of Loess	N/A
5206	Oglala-Canyon, complex	3-9	Forms on hill slopes and tablelands. Parent material consists of Residuum.	N/A
5215	Oglala-Canyon, sandy loam	9-30	Forms on hill slopes and uplands. Parent material consists of Residuum.	N/A
5616	Craft, sandy loam	N/A	Forms on flood plains on uplands. Parent material consists of Alluvium	Low-Moderate
5643	Janise, loam	0-2	Forms on flood plains on uplands. Parent material consists of alluvium.	Moderate-High
5644	Janise, loam	0-3	Forms on flood plains on uplands. Parent material consists of alluvium.	Moderate-High

CURRENT INVESTIGATION

Field Work and Methodology

Between July and August 2022, SAO staff conducted pedestrian survey, subsurface testing–including hand excavation of shovel tests (STs) and auger tests (ATs)–and documentation and evaluation of newly discovered cultural resources. Staff assisting with survey and testing included: the second author, Talon O'Connor, and MaKenzie Coufal. Based on the results of the project background review, topography of the APE, and data contained within the SAO's deeply buried sites GIS database, it was determined that there was a reasonable probability of encountering archaeological sites within the APE. Therefore, it was determined that, 100 percent of the proposed APE required survey. Each of the 11 project areas were pedestrian surveyed, with the exception of Area 5a which did not receive landowner permission for investigation. Subsurface testing was conducted in seven of the project areas (Table 4; Figures 13–23).

Pedestrian survey within the project APE was conducted using meandering pedestrian survey transects spaced no more than 20 meters (m) (65.6 feet [ft]) apart. Vegetation throughout the APE consisted of mainly areas of mixed prairie grass pasture along ephemeral waterways with some agricultural fields (Figures 24 and 25). All areas with likelihood of containing surface or near-surface cultural materials, including stream cuts, animal burrow back dirt piles, and cleared agricultural fields, were closely examined.

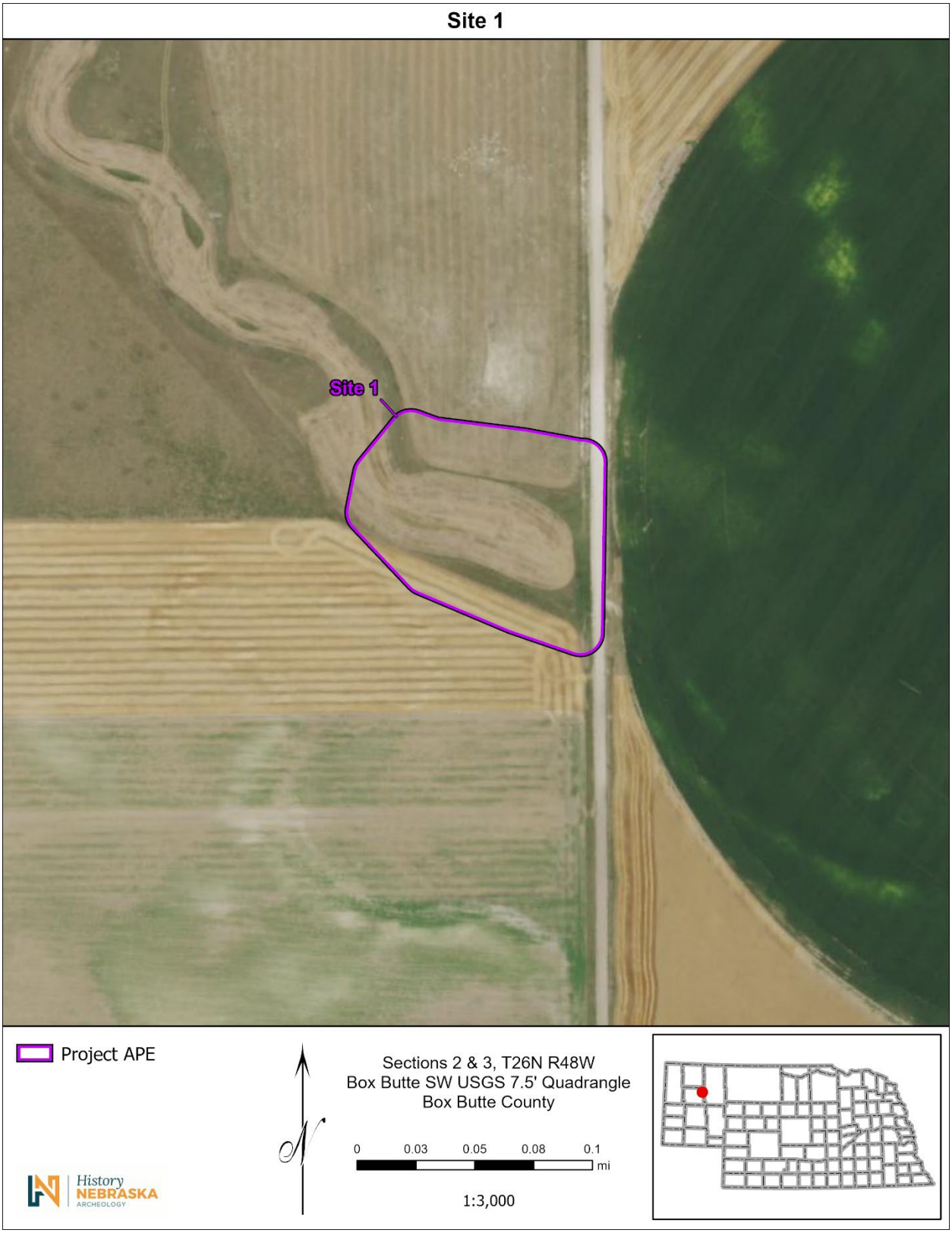


Figure 13. Box Butte Watershed Site 1 APE illustrated on FSA orthophoto.

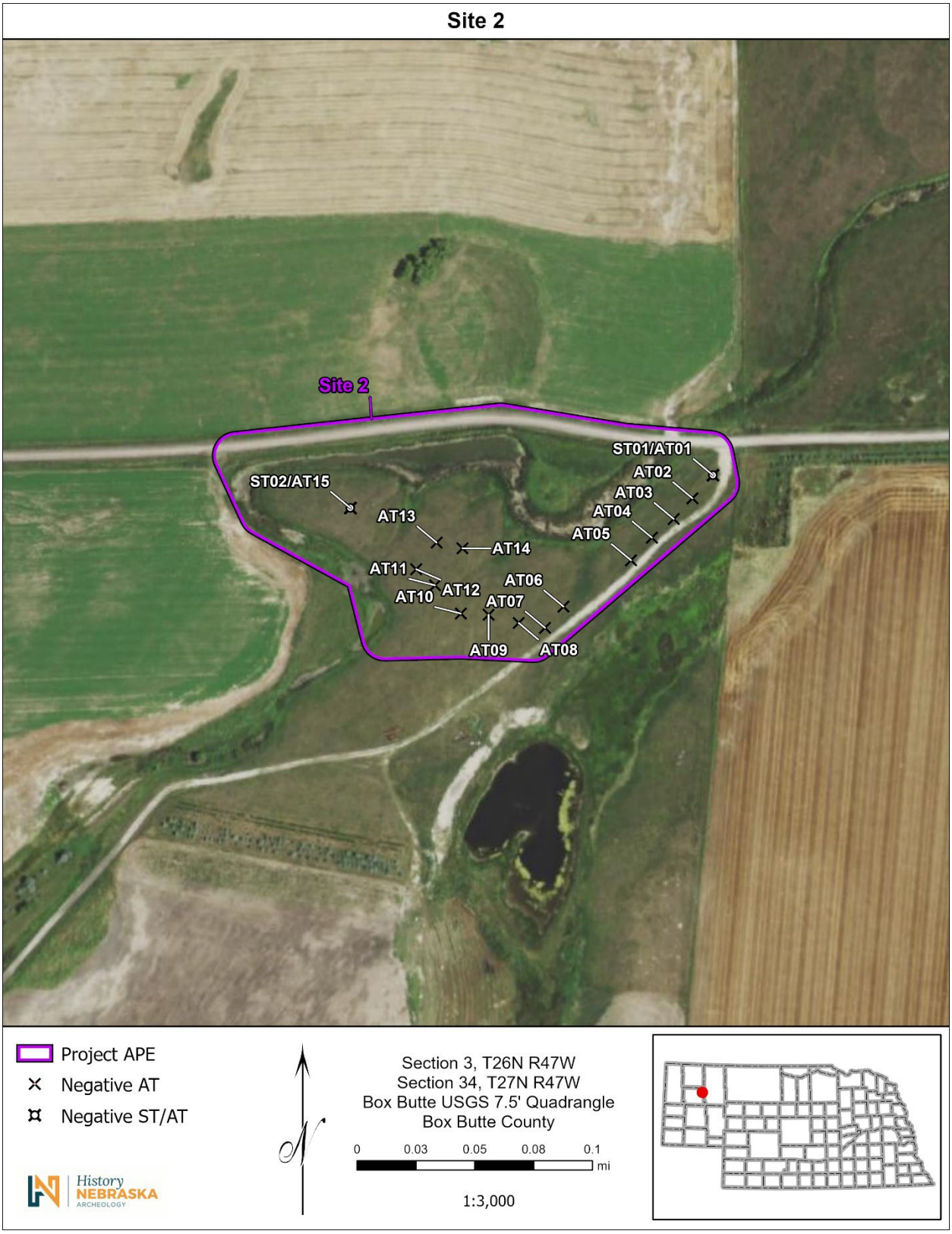


Figure 14. Box Butte Watershed Site 2 APE and subsurface testing locations illustrated on FSA orthophoto.

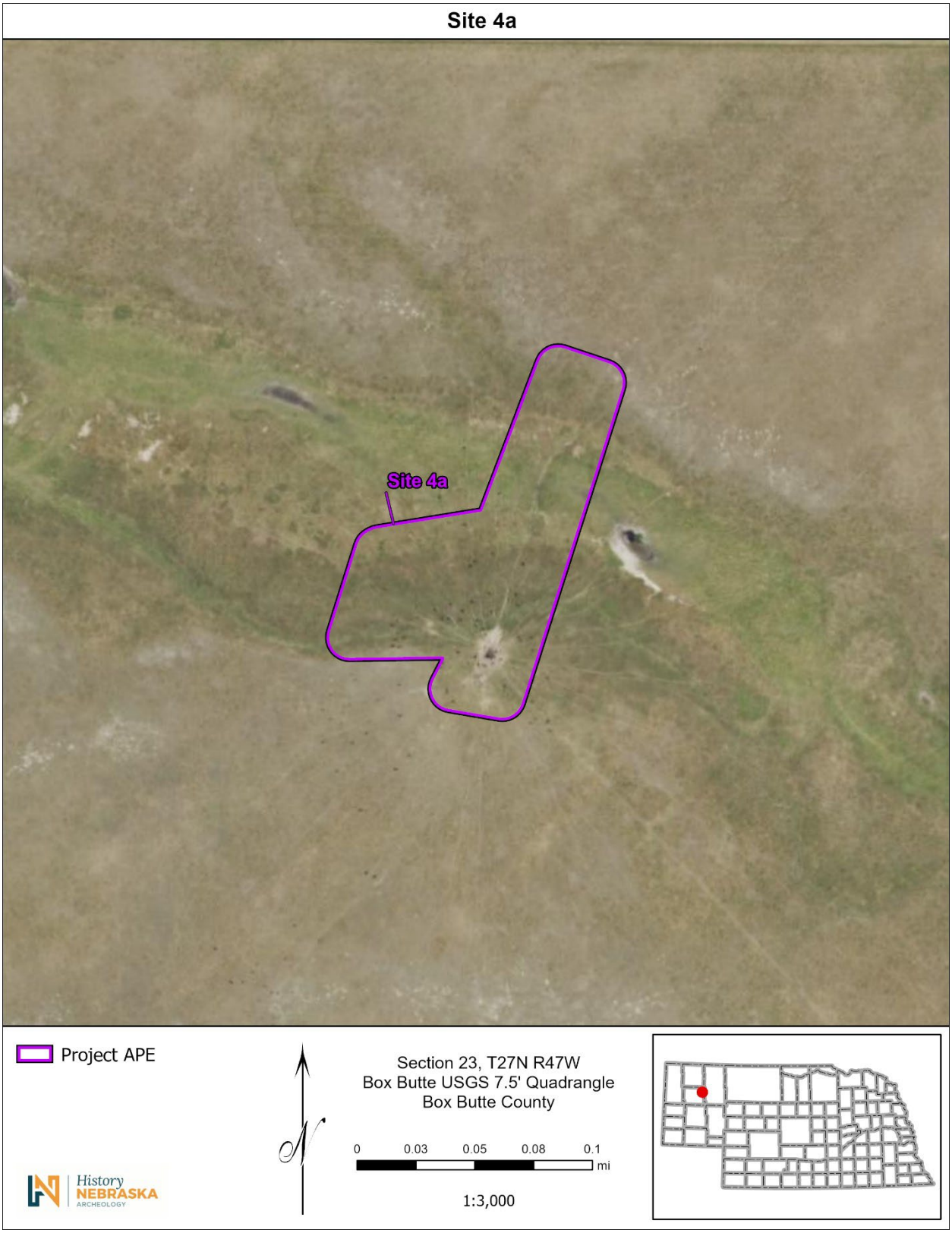


Figure 15. Box Butte Watershed Site 4a APE illustrated on FSA orthophoto.

Figure 16. Box Butte Watershed Site 5a APE illustrated on FSA orthophoto.

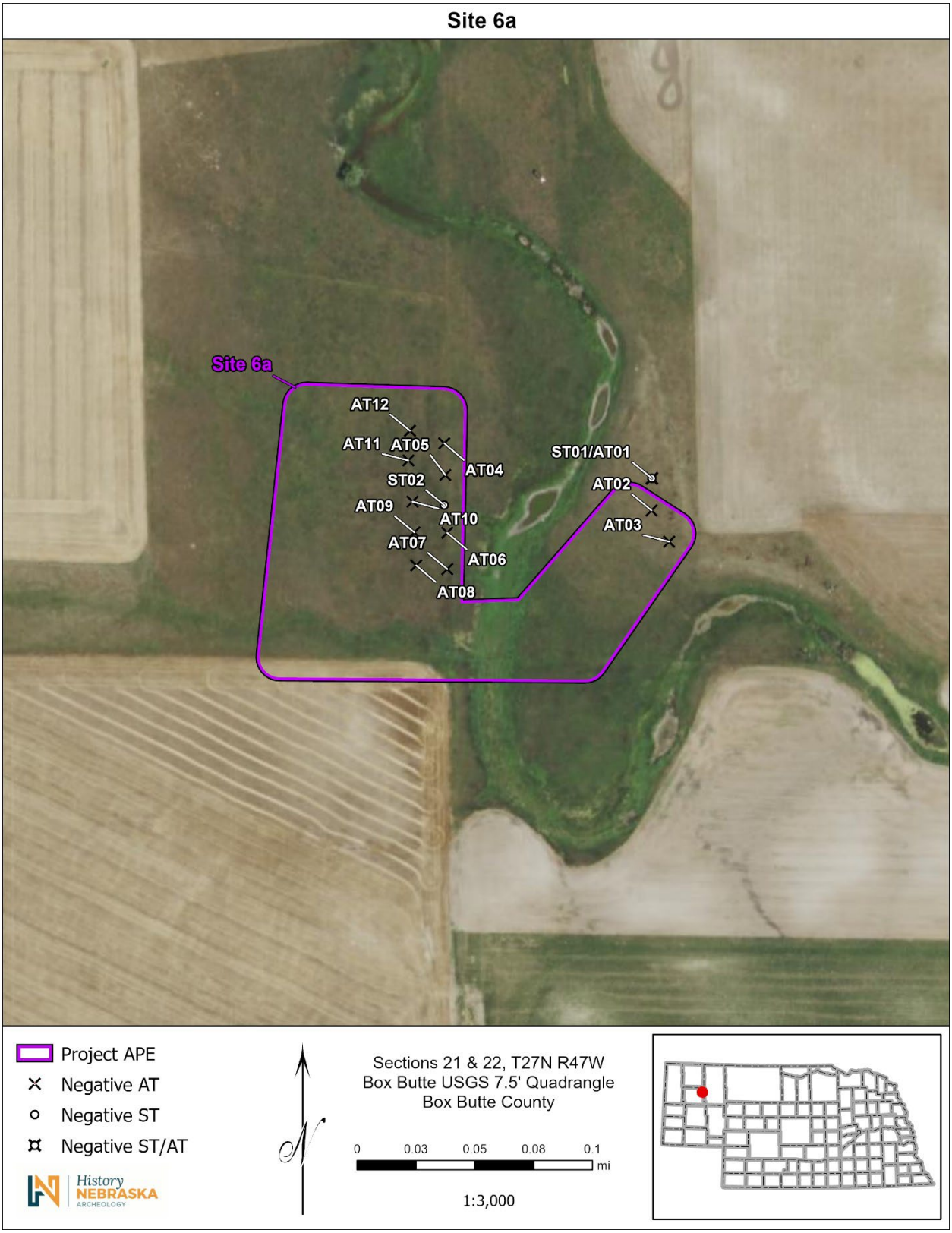


Figure 17. Box Butte Watershed Site 6a APE and subsurface testing locations illustrated on FSA orthophoto.

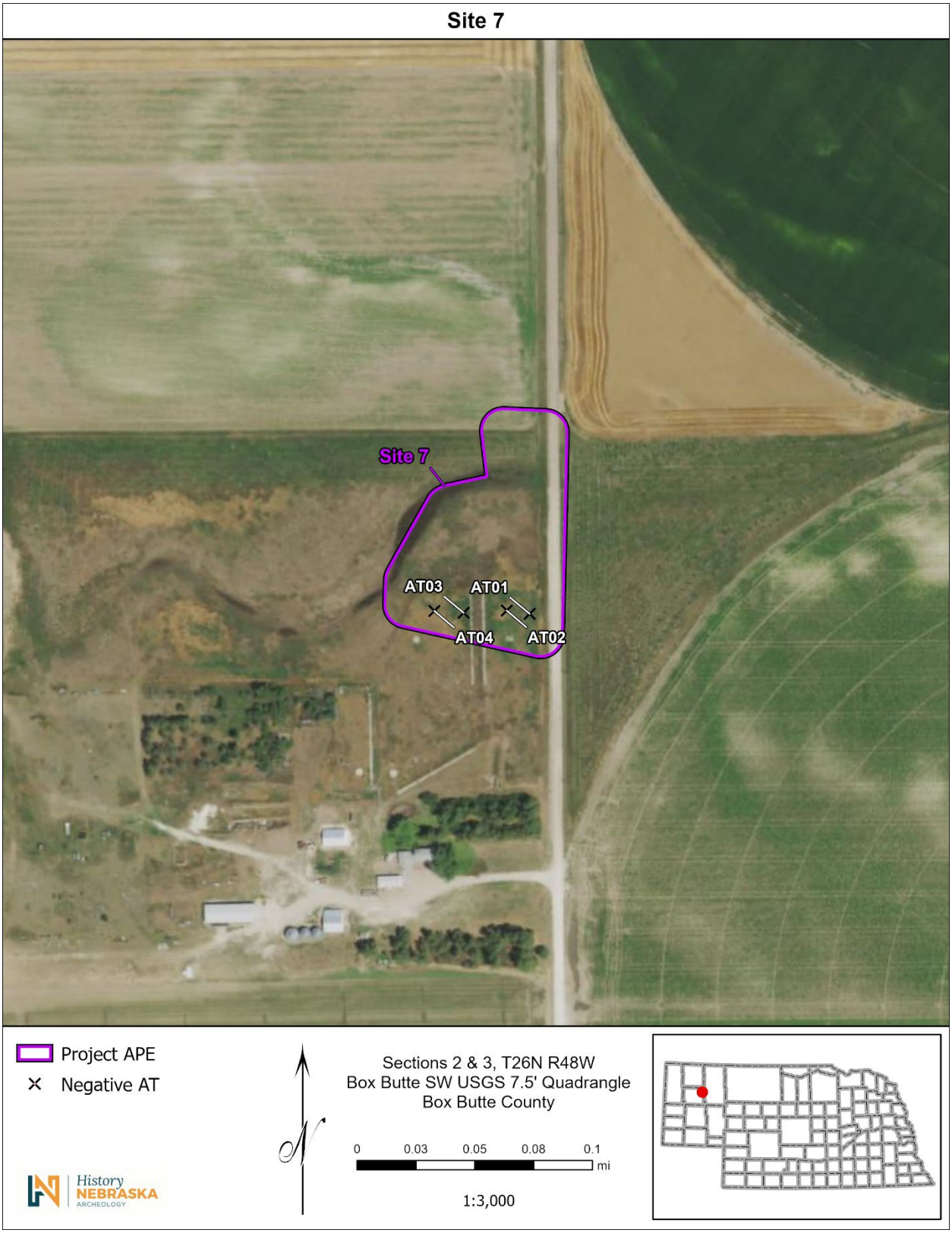


Figure 18. Box Butte Watershed Site 7 APE and subsurface testing locations illustrated on FSA orthophoto.

Figure 19. Box Butte Watershed Site 8 APE and subsurface testing locations illustrated on FSA orthophoto.

Figure 20. Box Butte Watershed Site 9a APE, subsurface testing locations, and new archeological site 25SH20 illustrated on FSA orthophoto. REDACTED

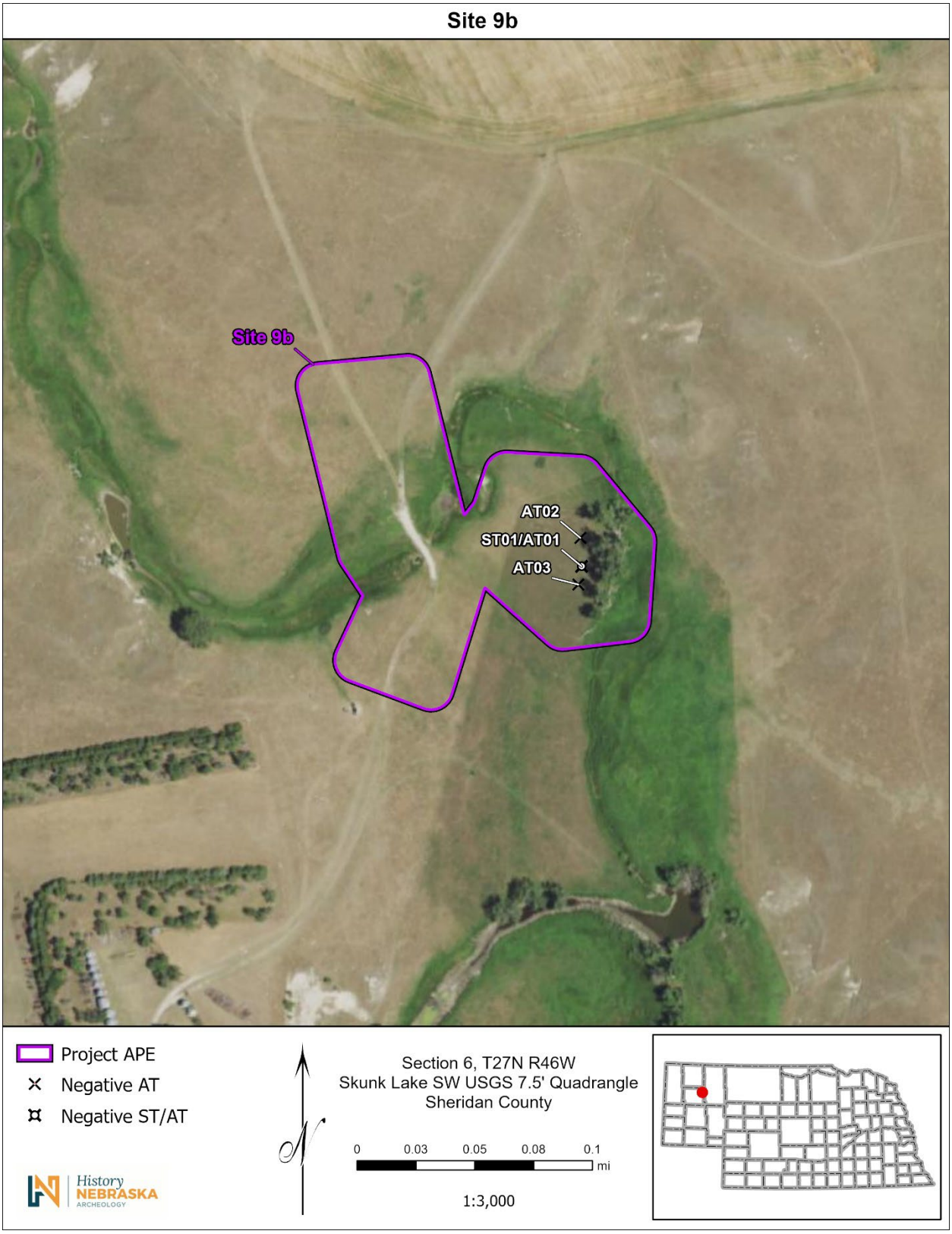


Figure 21. Box Butte Watershed Site 9b APE and subsurface testing locations illustrated on FSA orthophoto.

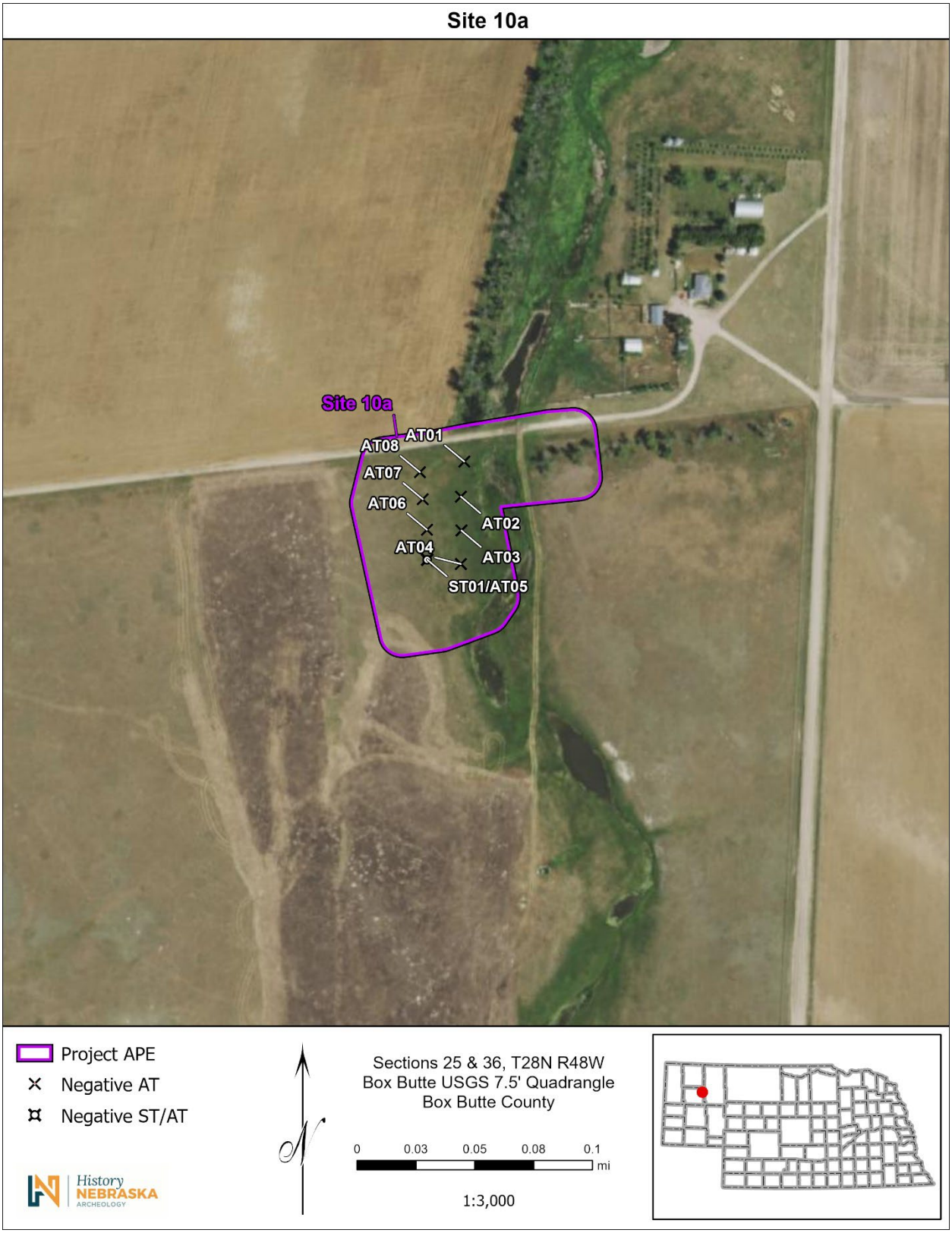


Figure 22. Box Butte Watershed Site 10a APE and subsurface testing locations illustrated on FSA orthophoto.

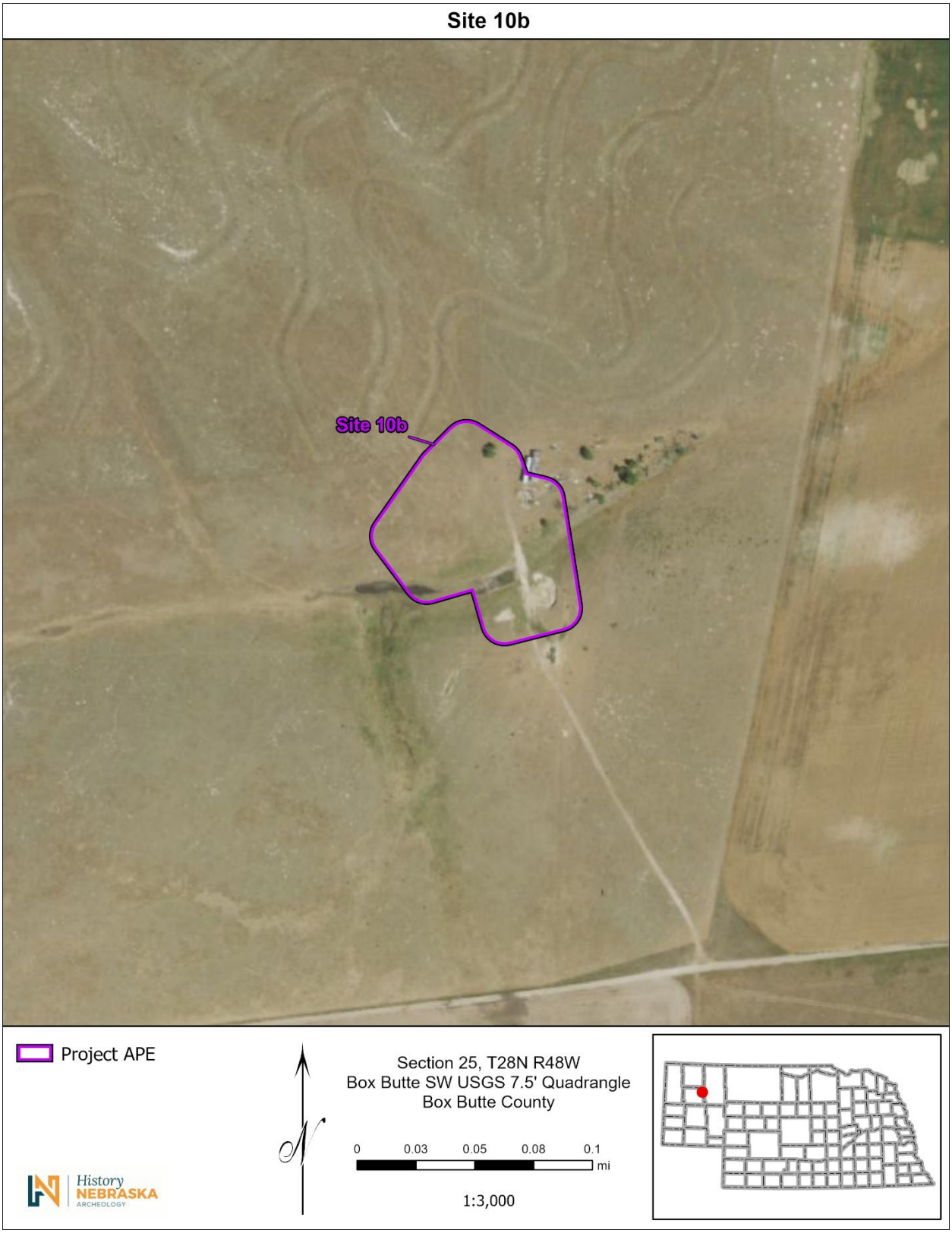


Figure 23. Box Butte Watershed Site 10b APE illustrated on FSA orthophoto.

Table 4. Box Butte Watershed project area descriptions.

Project Area	Legal Location	GSV (%)	Acres (Hectares)	Testing?	No. of Tests
1	Sections 2 and 3, T26N R48W	25–100	5.43 (2.20)	N	--
2	Section 3, T26N R47W; Section 34, T27N R47W	0	12.20 (4.94)	Y	n=2 ST; n=15 AT
4a	Section 23, T27N R47W	0–10	6.61 (2.67)	N	--
5a*	Section 24, T27N R47W	--	3.01 (1.22)	NA	--
6a	Sections 21 and 22, T27N R47W	0	9.86 (3.99)	Y	n=2 ST; n=12 AT
7	Sections 2 and 3, T26N R48W	15–50	3.84 (1.69)	Y	n=4 AT
8	Sections 16 and 17, T27N R47W	20–100	7.74 (3.14)	Y	n=1 ST; n=2 AT
9a	Section 31, T28N R46W	0	7.72 (3.13)	Y	n=2 ST; n=6 AT
9b	Section 6, T27N R46W	0–20	9.27 (3.74)	Y	n=1 ST; n=3 AT
10a	Sections 25 and 26, T28N R48W	20–30	5.39 (2.18)	Y	n=1 ST; n=8 AT
10b	Section 25, T28N R48W	25–50	4.21 (1.70)	N	--
Total Acreage (Hectares)			***75.28 (30.6)***		

*Landowner permission was not granted to complete survey of Area 5a.

Figure 24. Overview of Area 10a pasture with low ground surface visibility (GSV). View is to the northeast Photo date: 0818/2022.

Ground surface visibility (GSV) was highly variable throughout the survey visits. Agricultural fields, when present, were recently tilled and contained 80–100 percent GSV. Grassy pastures had generally lower GSV ranging from 0–50 percent. During initial visits to some pastures, GSV was very low, limiting the crew's ability to identify cultural materials on the surface. On subsequent visits, visibility improved and allowed for adequate pedestrian survey coverage. Even so, several areas within the APE required subsurface testing to determine the presence of archeological sites in lieu of adequate GSV (see Table 4). Topography within the APE ranged from level to near-level with some gently sloping hills on either side of the floodplains of Box Butte Creek and its tributaries. Noted disturbances throughout the APE included impacts from general agricultural practices including planting, harvesting, and ranching activities, as well as erosion from streams and wind.

Figure 25. Overview of Box Butte Creek and surrounding topography at Area 6a. View is to the southwest. Photo date: 08/17/2022.

Fieldwork documentation included GPS mapping, digital photography, and completion of standardized SAO field forms. Mapping data was collected using a Trimble Juno Series 3B handheld GPS unit. Field photographs were taken using a 21.51-megapixel Nikon Z50 digital camera. Site information was documented on a HN Archeological Site Form (Appendix B). All field datasets generated during this project are on file at the SAO.

The survey resulted in the documentation of one new archeological site 25SH20. This site is an isolated subsurface find containing a single piece of lithic debitage of unknown temporal or cultural affiliation. The location of the new archeological site was photographed, documented in field paperwork, and mapped using the Juno 3B GPS. No surface artifacts were recorded during the current investigation. No new standing structures were identified in or within one-quarter mile of the combined Box Butte Creek Watershed APE.

Subsurface Testing

Subsurface excavation, including shovel (ST) and auger tests (AT) excavated by hand, was conducted for multiple purposes throughout the APE (Figure 26). Excavations were completed to identify the presence or absence of cultural materials in areas of low GSV or high probability for buried cultural sites. Additionally, testing assisted with identification of disturbed contexts with low integrity in the vicinity of identified subsurface cultural material.

Figure 26. Typical shovel test excavation from Box Butte Creek Watershed testing. ST at Area 9b. View is to the northwest. Photo date: 08/16/2022.

Shovel and Auger Testing

Each ST excavated measured between 35 and 50 centimeters (cm) in diameter and was excavated to at least 50 cm below surface (cmbs), while ATs, excavated with a 4-in bucket auger, ranged in depth from 50–115 cmbs. All hand excavations were completed in arbitrary 10 cm levels for vertical control, and all sediment was screened through ¼-inch hardware mesh. Soil stratigraphy, texture, depth, and color were documented for each excavated test, and each excavation was documented with the Juno 3B handheld GPS unit. Cultural material observed within excavations was photographed and described on field paperwork; no cultural material was collected. Only two total subsurface tests contained cultural material: ST01 in Area 8 and AT06 in Area 9a (see below).

In Area 8 one Spanish Diggings quartzite flake of indeterminate culturally and temporally affiliation, and one Euro-American artifact, a metal button, were documented in the upper 20 cmbs of ST01. Both artifacts were recovered from disturbed context along a moderately sloped hill north of Box Butte Creek and near County Road 57 (Figure 27). Both artifacts are likely

associated with an undocumented archaeological site located on higher, level terrain north of the ST location and outside the APE boundary and have eroded downslope to the location where they were identified. Therefore, impacts associated with proposed Box Butte Watershed construction activities are not likely to impact any cultural resources in Area 8. Because of the poor context of the find, the flake and button were not documented as an archeological site.

Figure 27. Overview of slope where ST01 was excavated within Area 8. View is to the north. Photo date: 08/17/2022.

Beyond the items identified in Areas 8 and 9a, additional hand excavation did not yield any additional cultural material. Other ATs and STs were excavated within the newly recorded archeological site to explore the consistency of the site's stratigraphy. No additional archaeological material was identified.

Newly Recorded Archaeological Site

25SH20

New site 25SH20 is an isolated find comprised of a single flake of Spanish Diggings quartzite recovered from an auger test (AT06) within Area 9a of the Box Butte Watershed APE (Figure 28). The site covers 0.004 ha (0.01 ac) in the NW ¼ of the NE ¼ of Section 31, T28N R46W on the USGS 7.5' Skunk Lake SW Quadrangle and sits near the edge of a low floodplain terrace on the north bank of a bend in Box Butte Creek (Figure 29).

Each of the STs and ATs excavated in the vicinity of AT06 contained a similar, homogenous grayish-brown (10YR4/2) sandy silt through the entire depth of excavation and all were negative for cultural material. The site location is on the low side of this bend in Box Butte Creek,

Figure 28. Site plan map of 25SH20 illustrated on FSA orthophoto. REDACTED

meaning it is subject to regular flooding during high water. Because of the site's position next to the creek, it would have been unsuitable for long-term occupation. The sandy silt identified in the excavation reflects the likelihood of frequent flooding. The flake recovered in AT06 may have eroded in from higher ground or washed in during a previous flooding event (Figure 30).

Site 25SH20 represents an isolated flake produced from the manufacture or upkeep of a stone tool during an unknown time by a culturally unknown group of people. There is no additional evidence that this locale was utilized as a campsite or other activity area, and the landform upon which the artifact was recovered is not ideal for extended occupation. The artifact is not associated with any distinctive subsurface cultural horizon. Based on the lack of diagnostic tools or additional cultural material, and because of limited integrity in the floodplain of Box Butte Creek, 25SH20 is recommended as Not Eligible for listing in the NRHP. Nor further work is recommended at the site.

Figure 29. Overview of 25SH20 site area. View is to the southeast. Photo date: 08/11/2022.

Figure 30. Subsurface lithic flake comprised of Spanish Diggings Quartzite found in AT 6 at 25SH20. Wedding ring for scale. Photo date: 08/11/2022.

CONCLUSIONS AND MANAGEMENT RECOMMENDATIONS

The current investigation resulted in the survey of the proposed Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. Proposed project activities may include, but are not limited to, the installation of dams, multi-use facilities for recharge basins or retiming flows, watershed BMPs, retention basins, and levees. The USDA NRCS is the lead federal agency for this project. Fieldwork was completed by SAO personnel between July 5 and August 18, 2022.

As a result of this cultural resource survey, one new archeological site was documented and evaluated under the four criteria for eligibility consideration in the NRHP. The site, 25SH20, is an isolated find containing a single non-diagnostic flake. The newly recorded archeological site is recommended Not Eligible for listing in the NRHP. No further work is recommended for the newly recorded archeological site.

Provided NRCS and the SHPO concur with the site recommendations, the investigators recommended a Section 106 Finding of No Historic Properties Affected relative to the proposed Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment. It is further recommended that should any evidence of buried cultural resources be encountered during project construction activities, such activities be immediately halted and the SHPO or the SAO in Lincoln be notified immediately in order to determine an appropriate course of action. As a reminder, the information included in this report is protected by state law (Statute 84-712.05[14] and [15]) and is not for public distribution.

REFERENCES CITED

Layzell, Anthony L., Rolfe D. Mandel, Courtney L. Ziska, and John R. Bozell

2018 *Nebraska Department of Transportation Project SRP-P1(16 M048: Systematic Approach to Identifying Deeply Buried Archeological Deposits*, Part I, Final Report. Report on file at the SAO, Lincoln, NE.

Bozell, Rob, and Talon O'Connor

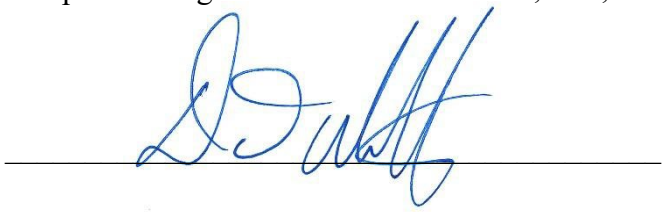
2021 *Box Butte Creek Watershed Plan, Upper Niobrara-White Natural Resources District, Critical Issues Analysis for Cultural Resources*. Report on file at the SAO, Lincoln, NE.

A Class III Intensive Cultural Resources Survey for the Development of WFPO Watershed Plan– Environmental Assessment for Box Butte Creek Watershed Improvement Project; Box Butte and Sheridan Counties, Nebraska: A Supplemental Report Regarding Expanded APEs

By
David T. Williams and Trent Carney

January 31, 2024

Principal Investigator – David T. Williams, MA, RPA



A report prepared for HDR Inc.,
and the Upper Niobrara White Natural Resources District
By the State Archeology Office, Lincoln, Nebraska
A program of History Nebraska

Note: Archaeological site and historic building location information has been removed from the report per Section 304 of the National Historic Preservation Act and Nebraska Revised Statute 84-712.05 ([14] and [15]).

ABSTRACT

HDR, Inc., and the Upper Niobrara White Natural Resources District requested the State Archeology Office (SAO), a division of History Nebraska, conduct a Class III intensive cultural resources investigation, including pedestrian survey, subsurface testing, and archeological site documentation, in advance of the Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. Proposed project activities may include, but are not limited to, the installation of dams, multi-use facilities for recharge basins or retiming flows, watershed BMPs, retention basins, and levees. The USDA Natural Resources Conservation Service (NRCS) is the lead federal agency for this project. The entire Box Butte watershed and proposed planning area encompasses 65,607 hectares (ha) (162,119 acres [ac]). Eleven proposed project areas of potential effects (APE) requiring Class III intensive cultural resources survey were located in: Section 31, T28N R46W; Section 26, T28N R48W; Sections 16, 22, 23, and 25, T27N R47; Section 6, T27N R46W; Section 3, T26N R47W; and Section 3, T26 R48W on the USGS 7.5' Box Butte, Box Butte SW, and Skunk Lake SW quadrangles. The total APE covered 32.23 ha (79.86 ac). The initial Class III intensive cultural resources investigation of these areas, including pedestrian survey, and shovel and auger testing, was completed by SAO personnel between July 5 and August 18, 2022.

In November 2022, HDR, Inc., and the Upper Niobrara White Natural Resources District requested the SAO conduct a Class III intensive cultural resources investigation, including pedestrian survey, subsurface testing, and archeological site documentation, on expanded APEs of previously investigated locations, as well as new APEs within the Box Butte Watershed Area in advance of the proposed project. The new APEs included the locations of retention basins and culverts associated with the project. The Class III intensive cultural resources investigation of these expanded areas was completed by SAO personnel between December 5, 2022, and May 9, 2023. No new archaeological sites or standing structures were identified within the project area over the course of the subsequent investigation. No further work is recommended for any of the APE locations.

Provided NRCS and the State Historic Preservation Office (SHPO) concur with the site recommendations, the investigators recommended a Section 106 Finding of No Historic Properties Affected relative to the proposed Box Butte Creek Watershed Improvement Project Work Plan. It is further recommended that should any evidence of buried cultural resources be encountered during project construction activities, such activities be immediately halted and the SHPO or the SAO in Lincoln be notified immediately in order to determine an appropriate course of action. As a reminder, the information included in this letter is protected by state law (Statute 84-712.05[14] and [15]) and is not for public distribution.

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INTRODUCTION

HDR, Inc., and the Upper Niobrara White Natural Resources District requested the State Archeology Office (SAO), a division of History Nebraska, conduct a Class III intensive cultural resources investigation, including pedestrian survey, subsurface testing, and archeological site documentation, in advance of the Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. Proposed project activities may include, but are not limited to, the installation of dams, multi-use facilities for recharge basins or retiming flows, watershed BMPs, retention basins, and levees. The USDA Natural Resources Conservation Service (NRCS) is the lead federal agency for this project. The entire Box Butte watershed and proposed planning area encompasses 65,607 hectares (ha) (162,119 acres [ac]). Eleven proposed project areas of potential effects (APE) requiring Class III intensive cultural resources survey were located in: Section 31, T28N R46W; Section 26, T28N R48W; Sections 16, 22, 23, and 25, T27N R47; Section 6, T27N R46W; Section 3, T26N R47W; and Section 3, T26 R48W on the USGS 7.5' Box Butte, Box Butte SW, and Skunk Lake SW quadrangles. The total APE covered 32.23 ha (79.86 ac). The Class III intensive cultural resources investigation of these areas, including pedestrian survey, and shovel and auger testing, was completed by SAO personnel between July 5 and August 18, 2022.

In November 2022, HDR, Inc., and the Upper Niobrara White Natural Resources District requested the SAO conduct an additional Class III intensive cultural resources investigation, including pedestrian survey, subsurface testing, and archeological site documentation, on expanded APEs of previously investigated locations, as well as new APEs within the Box Butte Watershed Area in advance of the proposed project (Figures 1–16). The new APEs included the locations of retention basins and culverts associated with the project. The Class III intensive cultural resources investigation of these expanded areas was completed by SAO personnel between December 5, 2022, and May 9, 2023. No new archaeological sites or standing structures were identified within the project area over the course of the subsequent investigation. No further work is recommended for the original APEs or any of the expanded APE locations.

Provided NRCS and the State Historic Preservation Office (SHPO) concur with the site recommendations, the investigators recommended a Section 106 Finding of No Historic Properties Affected relative to the proposed Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment. It is further recommended that should any evidence of buried cultural resources be encountered during project construction activities, such activities be immediately halted and the SHPO or the SAO in Lincoln be notified immediately in order to determine an appropriate course of action. As a reminder, the information included in this report is protected by state law (Statute 84-712.05[14] and [15]) and is not for public distribution.

PREVIOUS INVESTIGATIONS

There are 70 previously recorded archeological sites in Sheridan and Box Butte counties reflecting 75 discrete components (see Table 1). Approximately 33 percent of these are related to Euro-American settlement, transportation, or military operations, and approximately 53 percent are Native American but cannot be associated with a particular time period or cultural complex. The

remaining components are associated with the following cultural traditions: Paleoindian (n=1), Archaic (n=3), Woodland (n=2), Central Plains Tradition/Ancestral Caddoan (n=2), and Equestrian Nomads/Lakota (n=2).

Table 1. Archeological cultural components previously identified in Box Butte and Sheridan Counties, Nebraska

Cultural Affiliation	Box Butte Co. Cultural Components	Sheridan Co. Cultural Components	Combined Total
Paleoindian	-	1	1
Archaic	-	3	3
Woodland	-	2	2
Central Plains	-	2	2
Equestrian Nomads	-	2	2
Unassigned Pre-Contact	12	28	40
Euro-American	10	15	25
Total:	22	38	75

Table 2. Standing structure results within one mile of Box Butte Creek Watershed project area, Box Butte and Sheridan Counties.

NE SHPO Survey Number	NR Eligibility	Historic Property Name	Historic Context	Property Type
BX00-016	Not Eligible		Czech Church	Religious
B00-039	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-40	Individually		Farmstead	Sod Farmhouse
BX00-41	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-42	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-46	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-47	More Information Needed		Farming and Ranching	Farmsteads and Ranches

Table 2 continued.

NE SHPO Survey Number	NR Eligibility	Historic Property Name	Historic Context	Property Type
BX00-48	More Information Needed	Fairview Cemetery	Cemetery	Religious
BX00-54	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-55	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-56	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-67	More Information Needed		Cemetery	Religious
BX00-81	More Information Needed	Running Water Cemetery	Cemetery	Religious
SH00-066	More Information Needed		Farming and Ranching	Farmsteads and Ranches
SH00-067	More Information Needed		School House	Education

An updated record search was completed by the first author using the Nebraska Cultural Resources Geographic Information System (NCRGIS) database maintained by the SAO and SHPO for the Box Butte Creek Watershed APEs. In and within one mile of the combined APE, four cultural resources surveys have been conducted; as a result of earlier efforts on this project one archeological site, 25SH20, has been recorded within the Area 9a APE (Table 3; Figures 1–16).

Table 3. Previous cultural resource investigations in and within one mile of the expanded Box Butte Watershed project area, Box Butte County.

Within Project Area			
SHPO Survey No.	**Year**	**Author(s)**	**Title**
12-0077	2012	Parks, Stanley M.	Archeological Survey and Assessment: NebraskaLink Fiber-Optic Cable Installation Keith, Garden, Cheyenne, Morrill, Box Butte, and Dawes Counties, Nebraska
17-0013	2016	Prouty, Michael	A Class III Cultural Resource Inventory of Western Area Power Administration's Box Butte-Chadron 115-kV Transmission Line and Access Roads, Box Butte and Dawes Counties, Nebraska.
Within 1 Mile of Project Area			
SHPO Survey No.	**Year**	**Author(s)**	**Title**
15-0045	2014	Lindland, Trevor R.	A Class III cultural resource inventory of the Western Area Power Administrations Box Butte Alliance 115-kV transmission line and Structure 362 on the Alliance Snake Creek Tap 115-kV Line, Box Butte County, Nebraska.
08-0150	2008	Giliberti, Joseph	A Cultural Resources Inventory of Pole Replacements Box Butte-Chadron 115-KV Transmission Line Box Butte and Dawes Counties, Nebraska.

Between July and August 2022, SAO staff conducted pedestrian survey, subsurface testing–including hand excavation of shovel tests (STs) and auger tests (ATs)–and documentation and evaluation of newly discovered cultural resources. SAO staff assisting with survey and testing included: the second author, Talon O'Connor, and MaKenzie Coufal. Based on the results of the project background review, topography of the APE, and data contained within the SAO's deeply buried sites GIS database, it was determined that there was a reasonable probability of encountering archaeological sites within the APE. Therefore, it was determined that 100 percent of the proposed APE required a survey. Each of the 11 project areas were pedestrian surveyed; subsurface testing was conducted in seven of those the areas.

Pedestrian survey within the project APE was conducted using meandering pedestrian survey transects spaced no more than 20 meters (m) (65.6 feet [ft]) apart. Vegetation throughout the APE consisted mainly of areas of mixed prairie grass pasture along ephemeral waterways with some agricultural fields. All areas with likelihood of containing surface or near-surface cultural materials, including stream cuts, animal burrow back dirt piles, and cleared agricultural fields, were closely examined.

Subsurface testing occurred at Areas 2, 6a, 7, 8, 9a, 9b, and 10a. Areas 2, 6a, 7, 9b, and 10a all yielded negative results for cultural resources. Isolated finds (Ifs) were observed during subsurface testing in Areas 8 and area 9a where visibility was low. They consisted of a historic brass button and a single flake of Spanish Diggings quartzite from area 8a out of context, and a single flake of Spanish Diggings quartzite found in situ in area 9a, which was given the site 25SH20 (see Figures 9-10). Per the Nebraska SHPO archaeological guidelines, IFs were defined as an artifact or artifacts found in secondary contexts, such as along a slope or otherwise in a context that lacks association with other artifacts. It is often difficult to make meaningful interpretations or to infer specific activities on the basis of such context assemblages because of the limited nature of the data they provide. As a result, all of the identified cultural resources, including 25SH20, were recommended as not eligible for inclusion to the NRHP.

No historic properties were identified within any of the project area APEs. A recommendation of no historic properties affected was proposed at that time. Upon review by the NRCS, it was determined that the previously identified areas of potential effect needed to be expanded to fully account for potential impacts. As a result, the current supplemental evaluation was proposed, in order to investigate the newly expanded area of potential effect associated with 10 of the previously defined project areas as well as the examination of four additional project areas: Area 11, 12, 16, and 20.

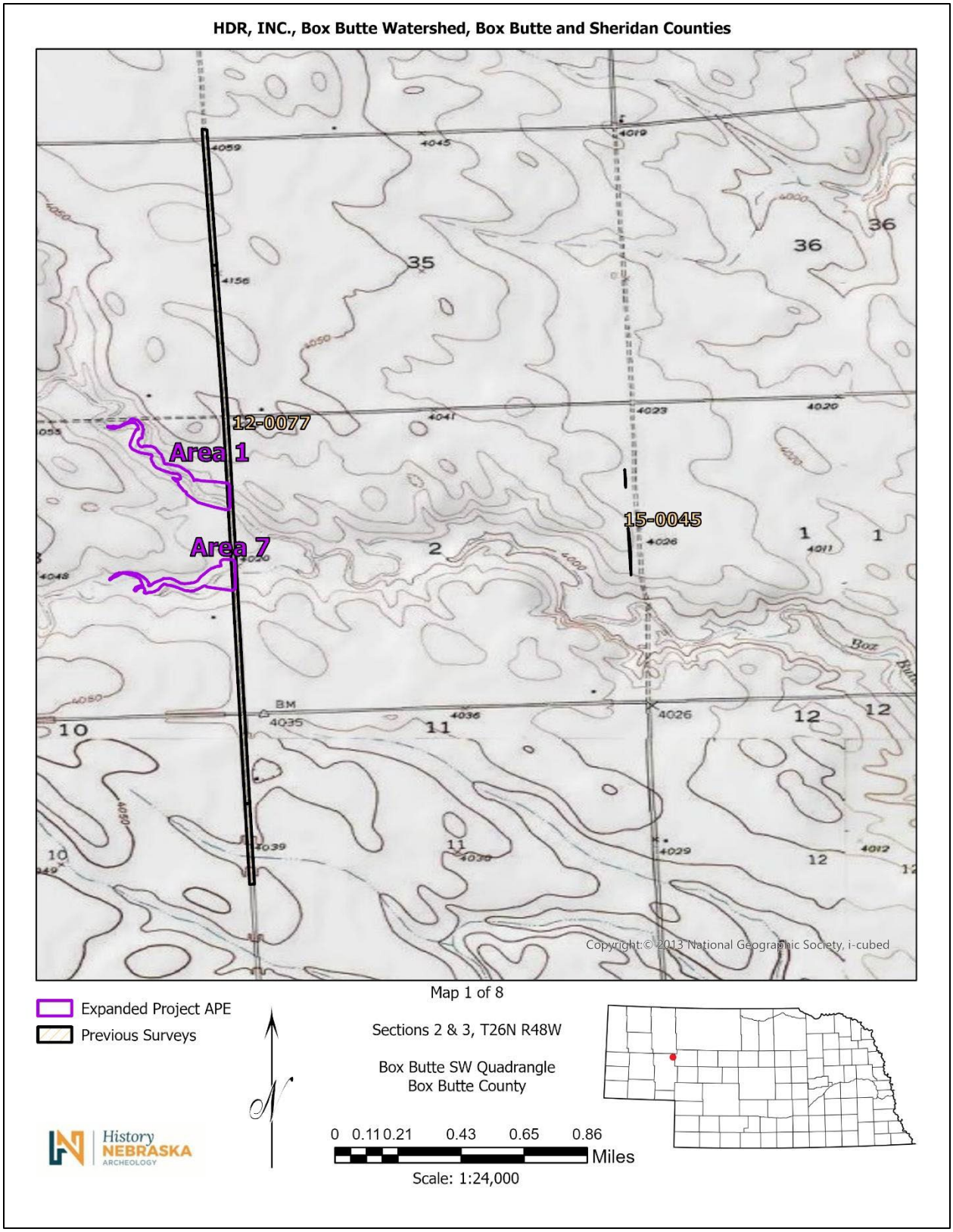


Figure 1. Box Butte Creek Watershed Area 1 and 7 expanded APEs and previous cultural resources survey illustrated on USGS 7.5' quadrangle.

Figure 2. Box Butte Creek Watershed Area 1 and 7 expanded APEs and previous cultural resources survey illustrated on Farm Service Agency (FSA) orthophoto.

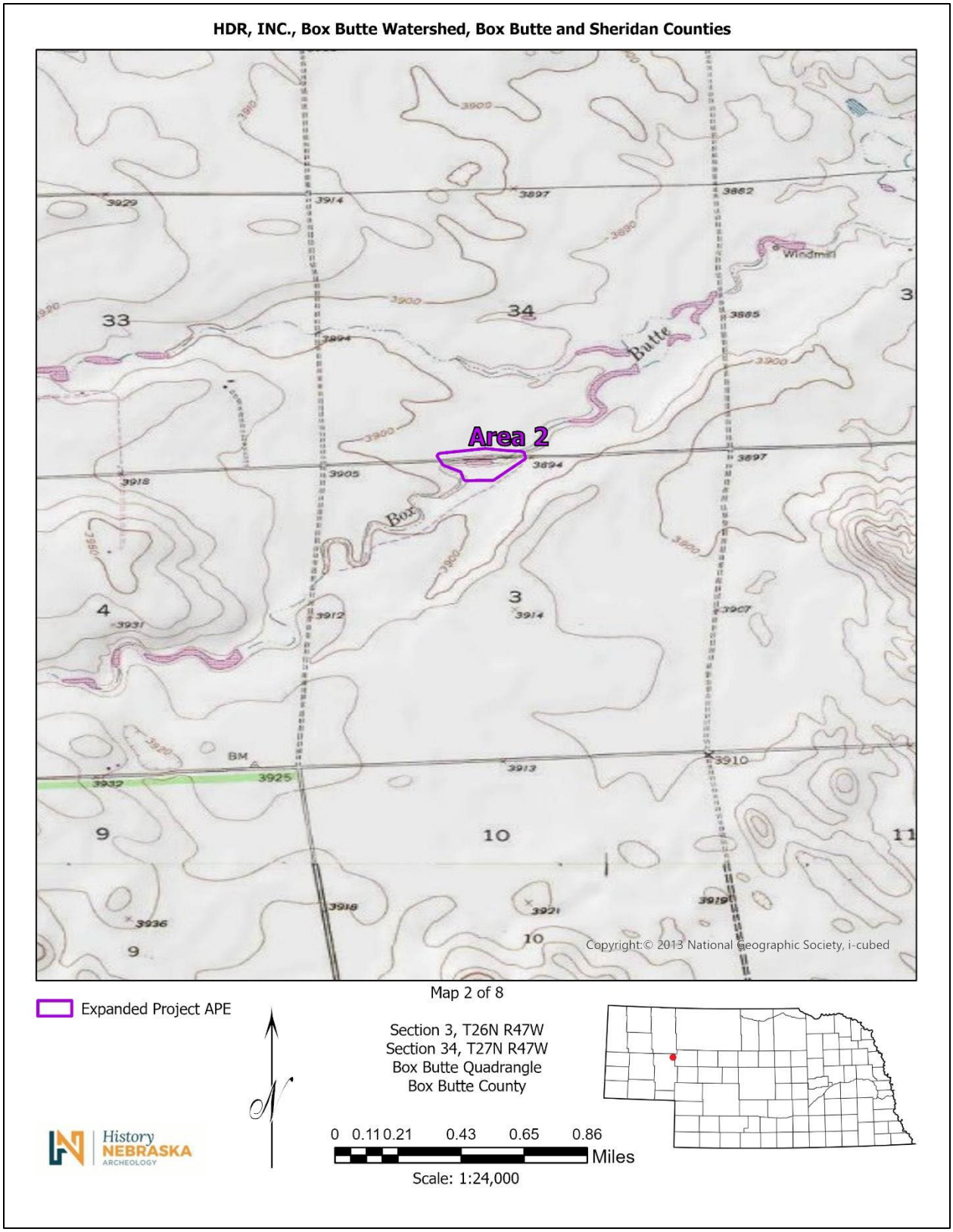


Figure 3. Box Butte Creek Watershed Area 2 APE illustrated on USGS 7.5' quadrangle.

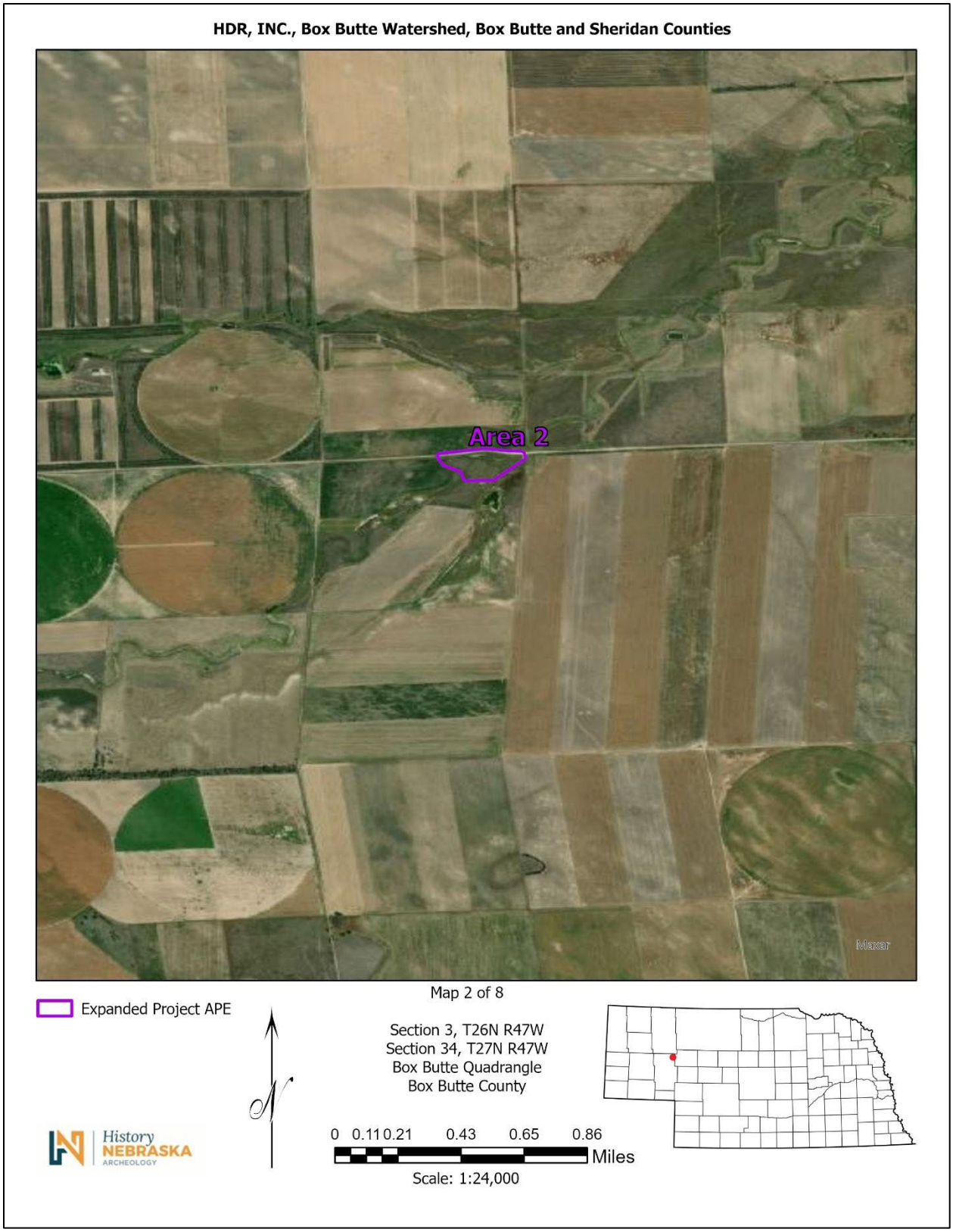


Figure 4. Box Butte Creek Watershed Area 2 APE illustrated on FSA orthophoto.

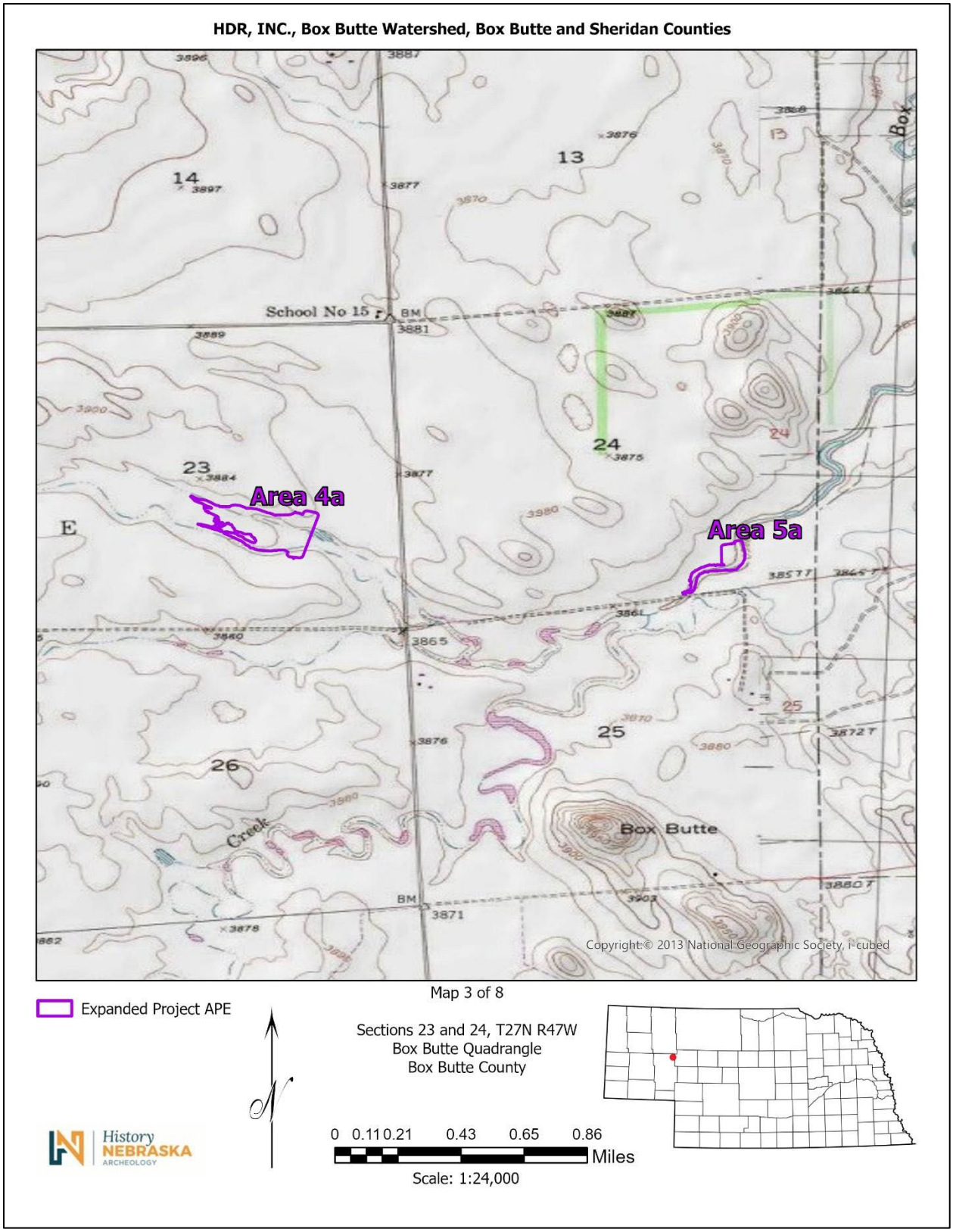


Figure 5. Box Butte Creek Watershed Area 4a and 5a expanded APEs illustrated on USGS 7.5' quadrangle.

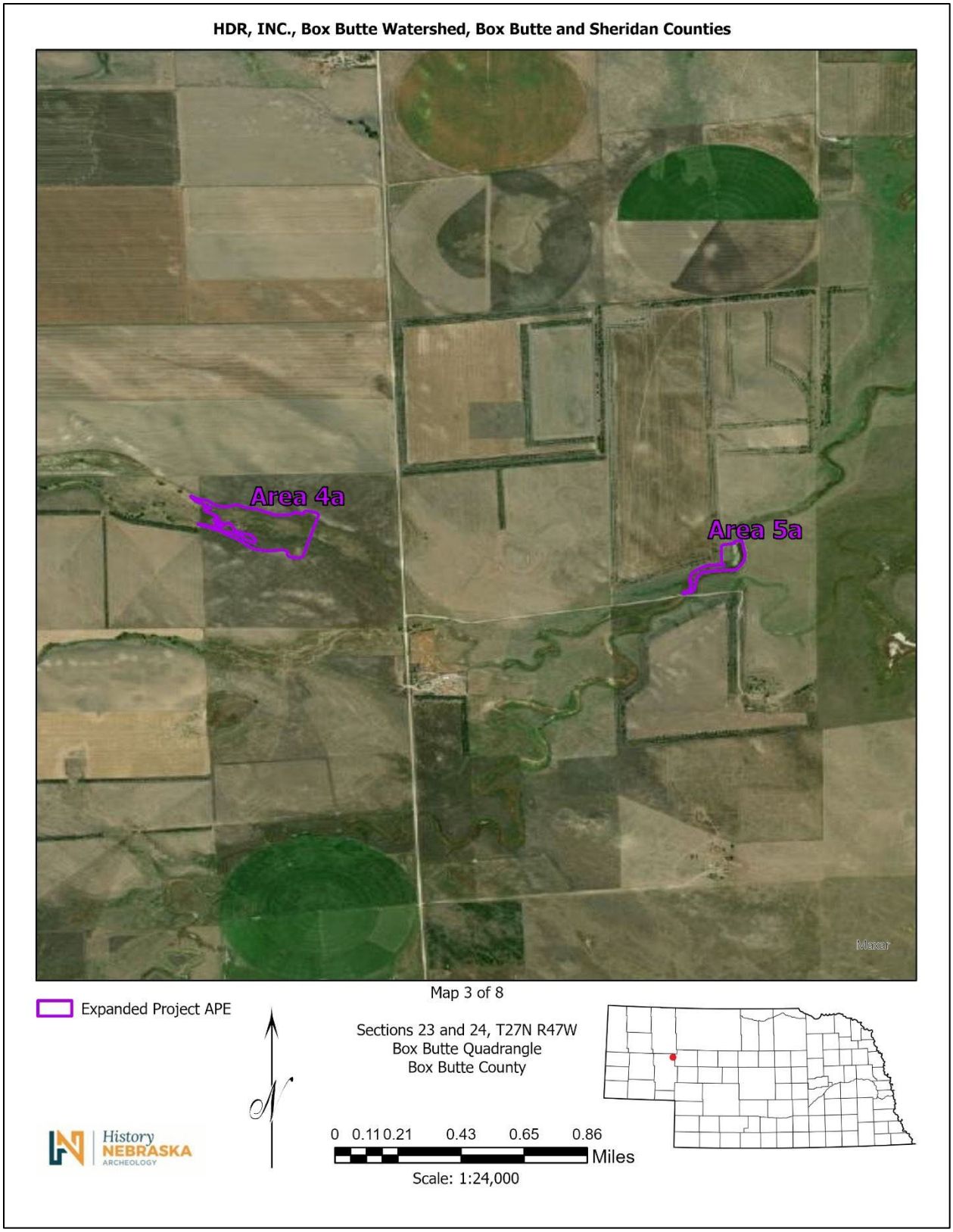


Figure 6. Box Butte Creek Watershed Area 4a and 5a expanded APEs illustrated on FSA orthophoto.

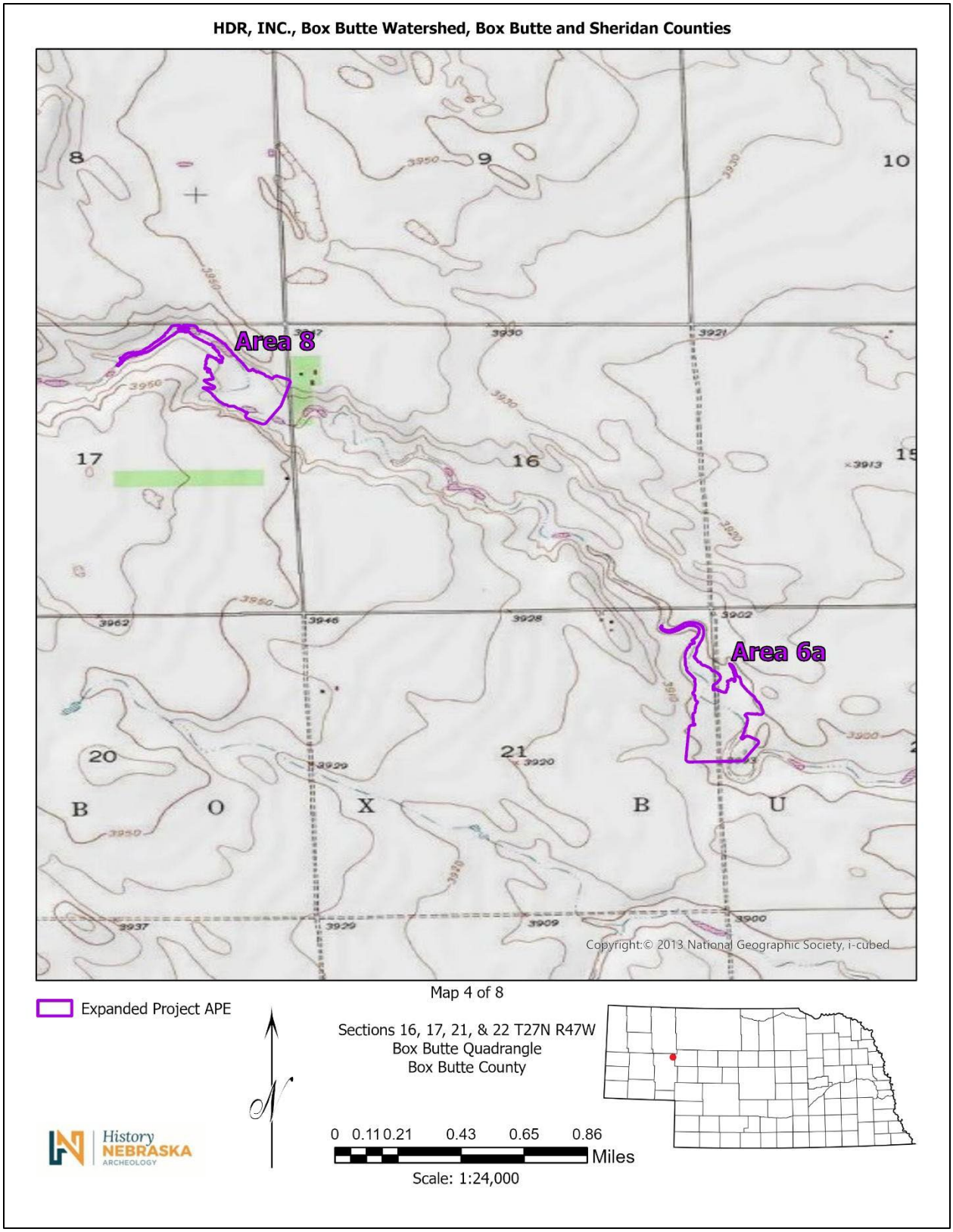


Figure 7. Box Butte Creek Watershed Area 6a and 8 APEs illustrated on USGS 7.5' quadrangle.

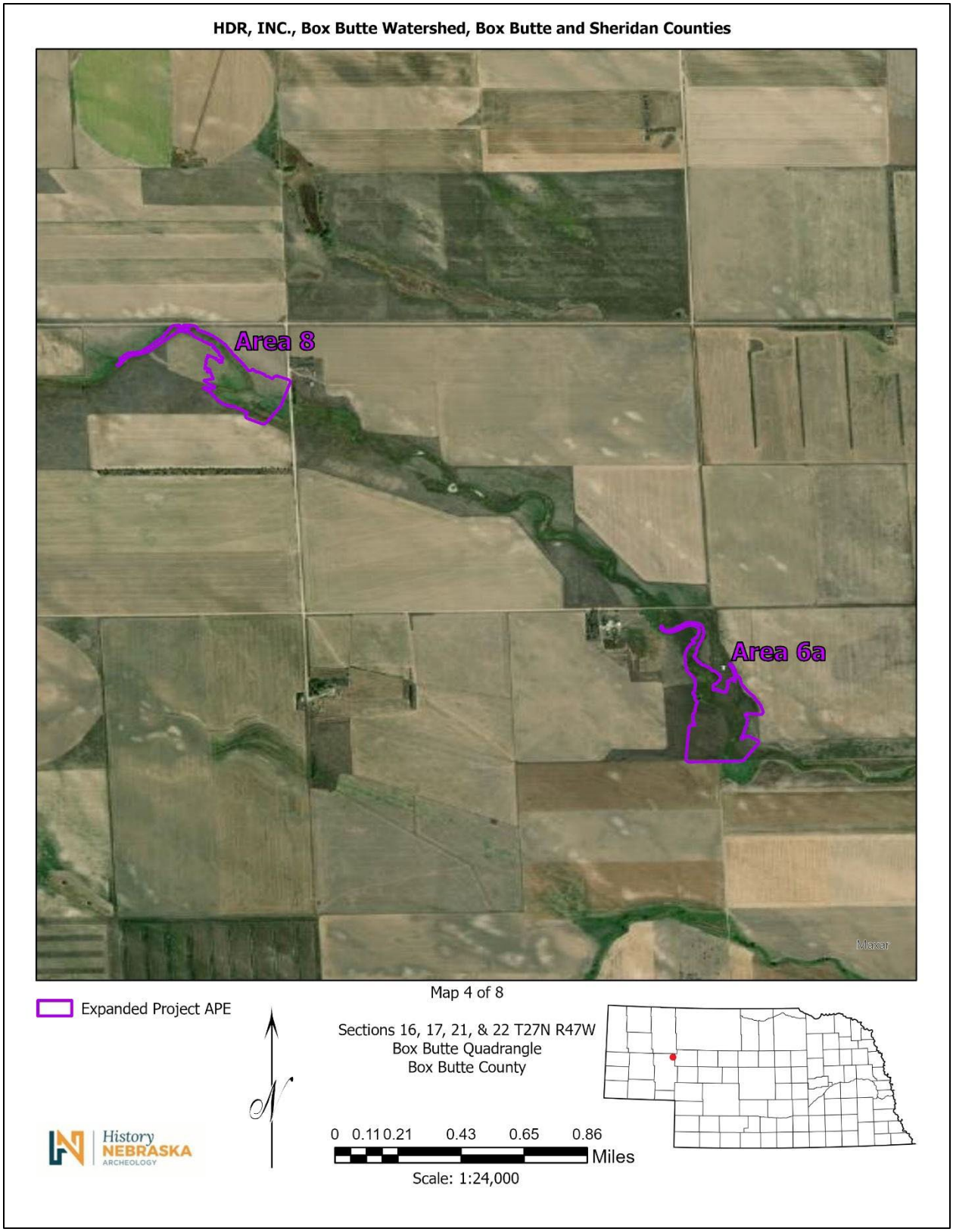


Figure 8. Box Butte Creek Watershed Area 6a and 8 APEs illustrated on FSA orthophoto.

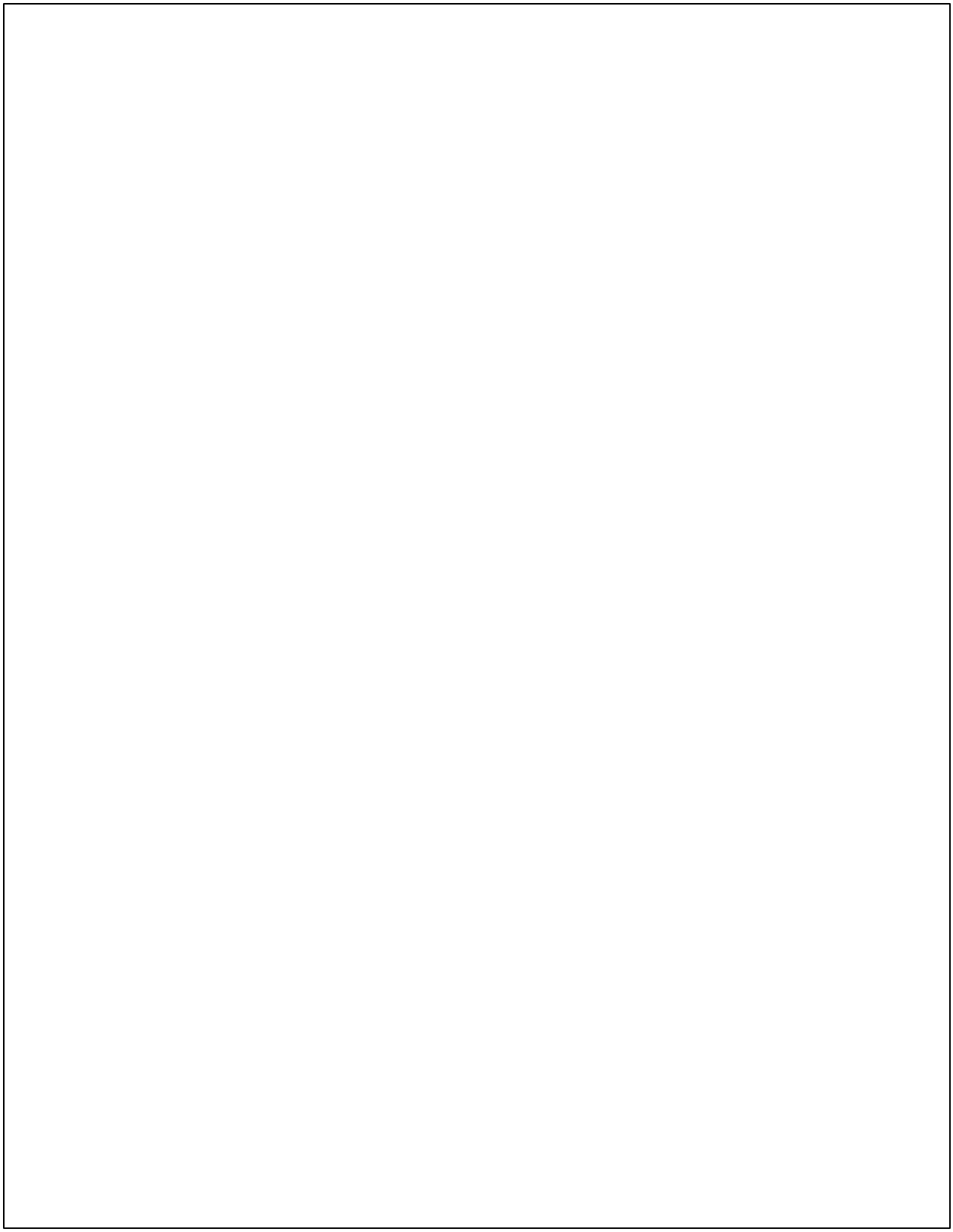


Figure 9. Box Butte Creek Watershed Area 9a and 9b APEs and archeological site 25SH20, identified during initial survey, illustrated on USGS 7.5' quadrangle. REDACTED

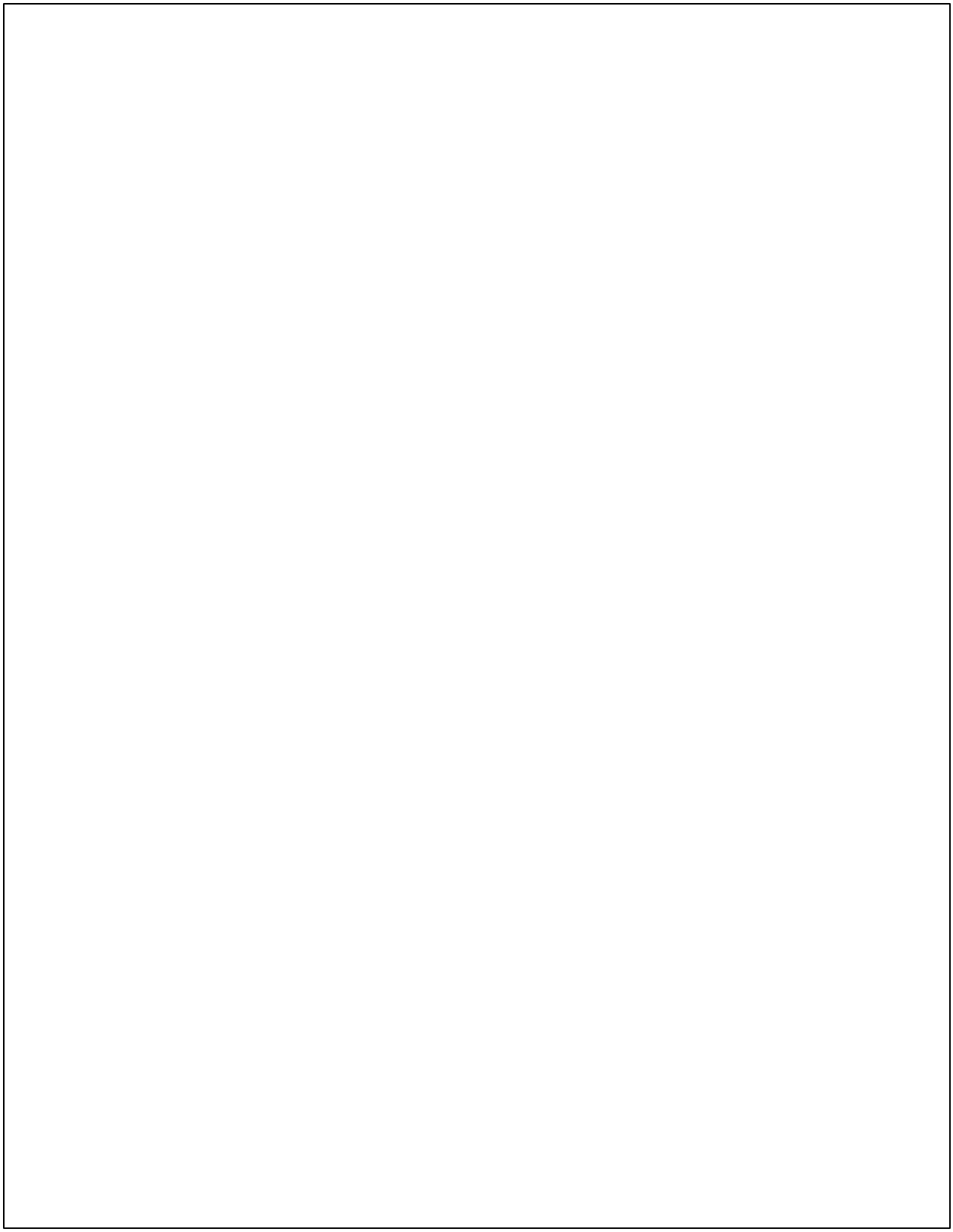


Figure 10. Box Butte Creek Watershed Area 9a and 9b APEs and archeological site 25SH20, identified during initial survey, illustrated on FSA orthophoto. REDACTED

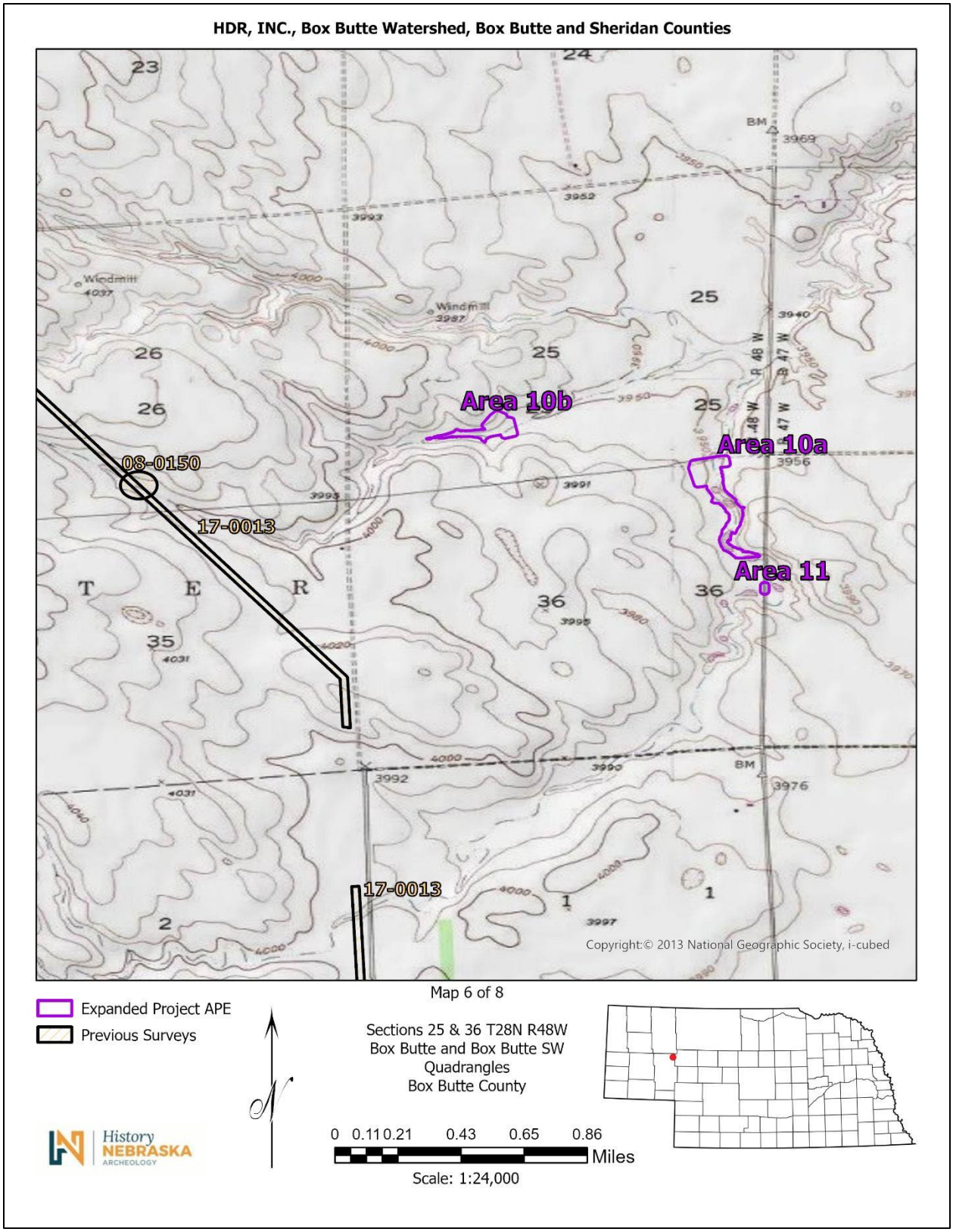


Figure 11. Box Butte Creek Watershed Area 10a, 10b and 11 APEs and previous cultural resources survey illustrated on USGS 7.5' quadrangle.

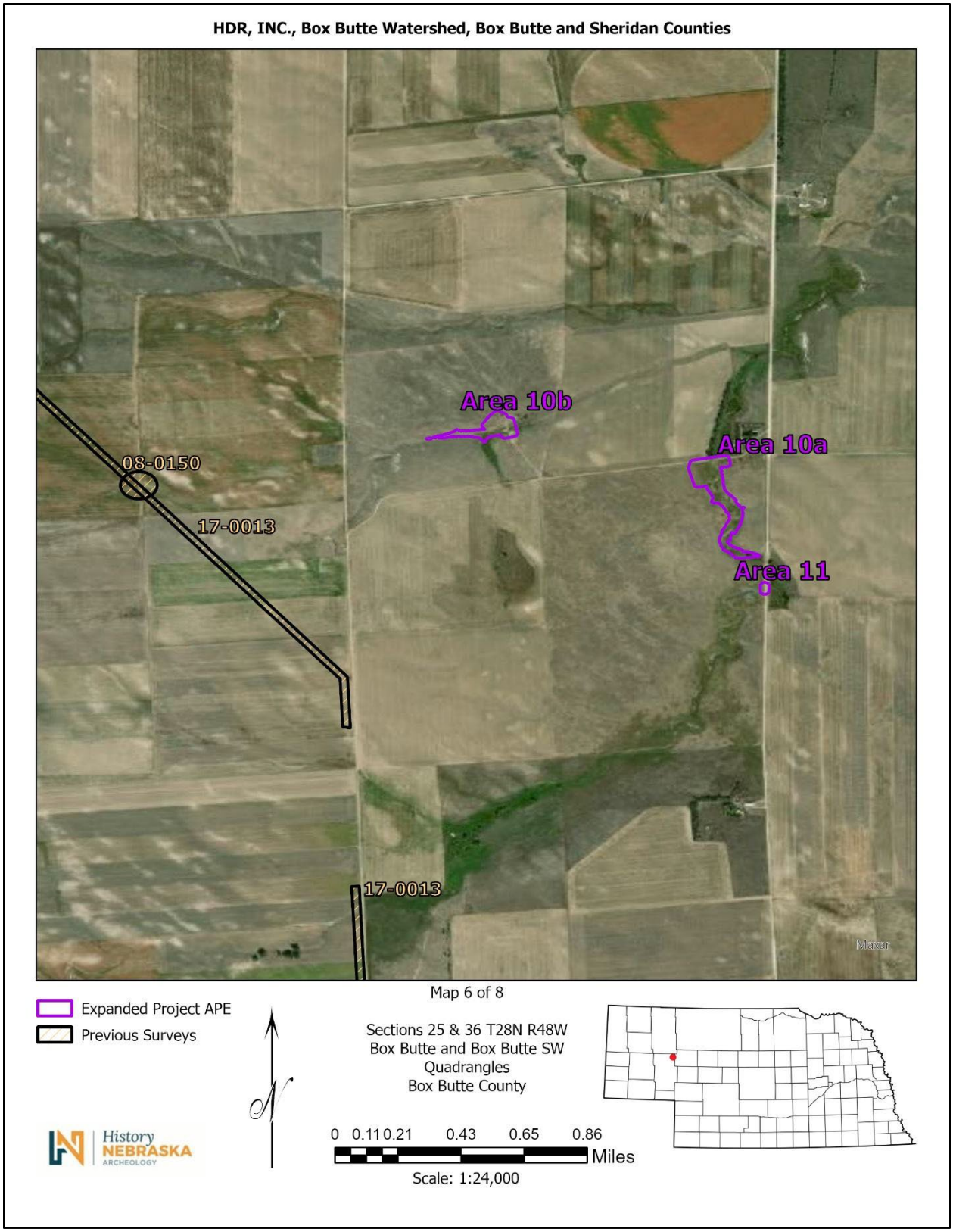


Figure 12. Box Butte Creek Watershed Area 10a, 10b, and 11 APEs and previous cultural resources survey illustrated on FSA orthophoto.

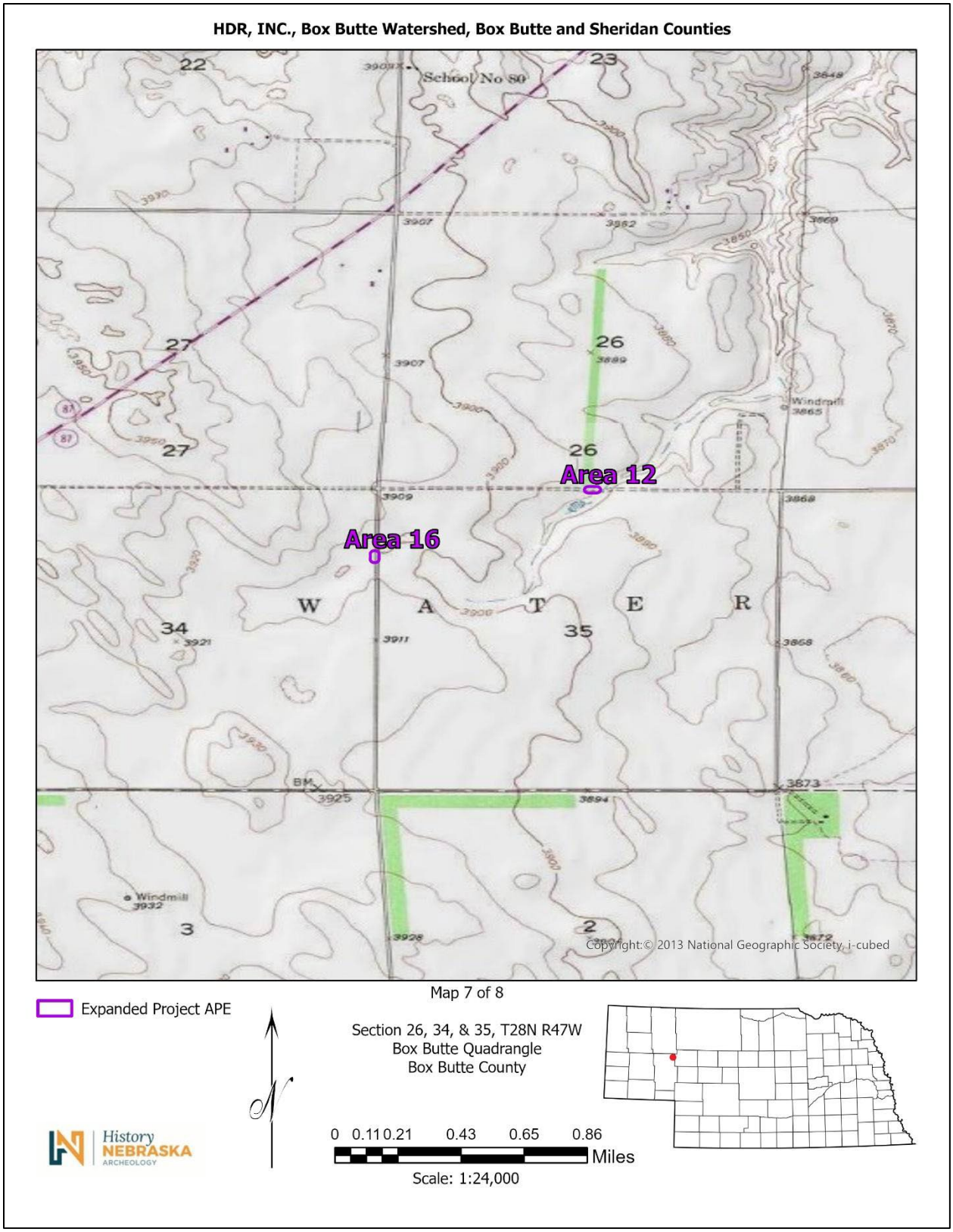


Figure 13. Box Butte Creek Watershed Area 12 and 16 APEs illustrated on USGS 7.5' quadrangle.

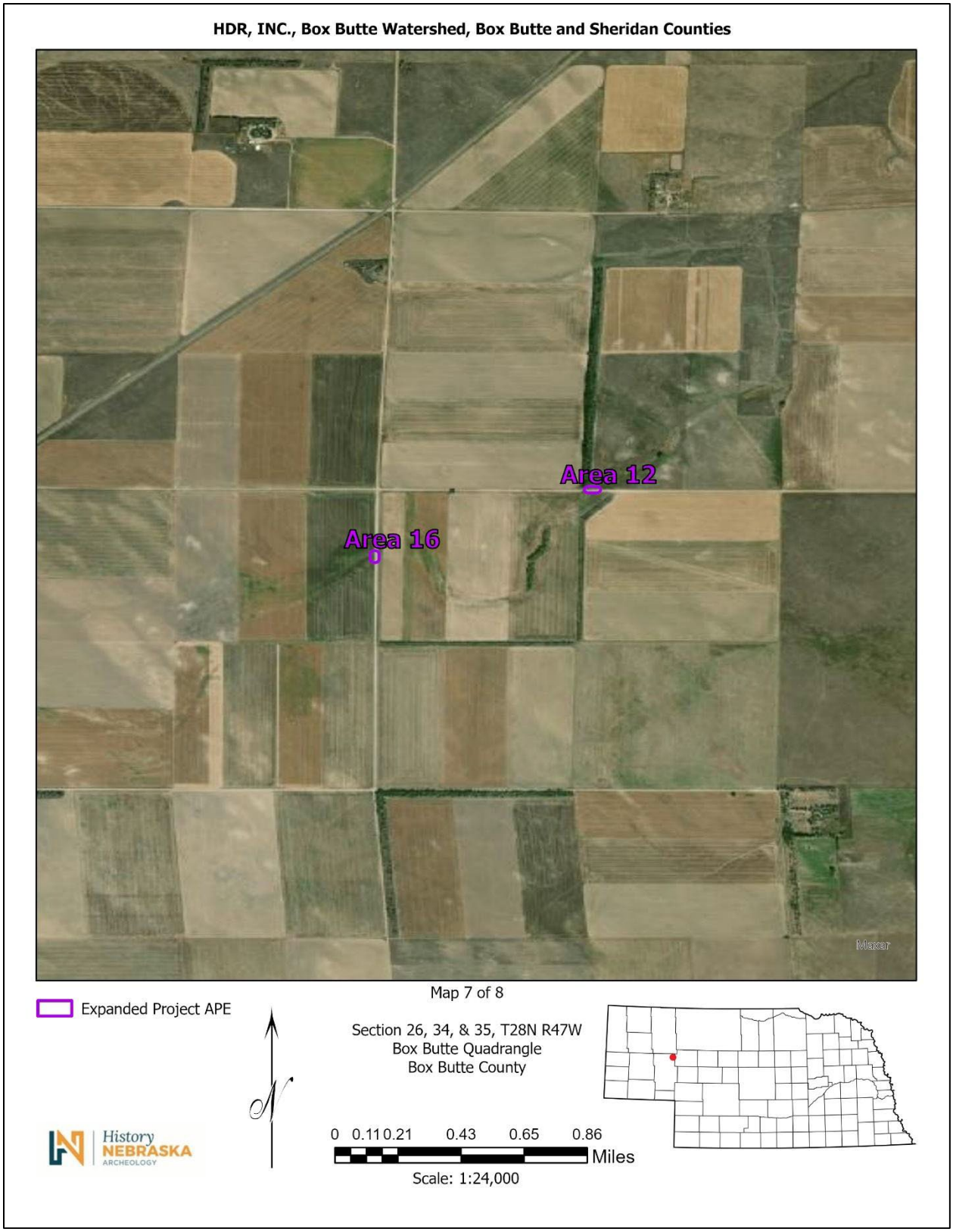


Figure 14. Box Butte Creek Watershed Area 12 and 16 APEs illustrated on FSA orthophoto.

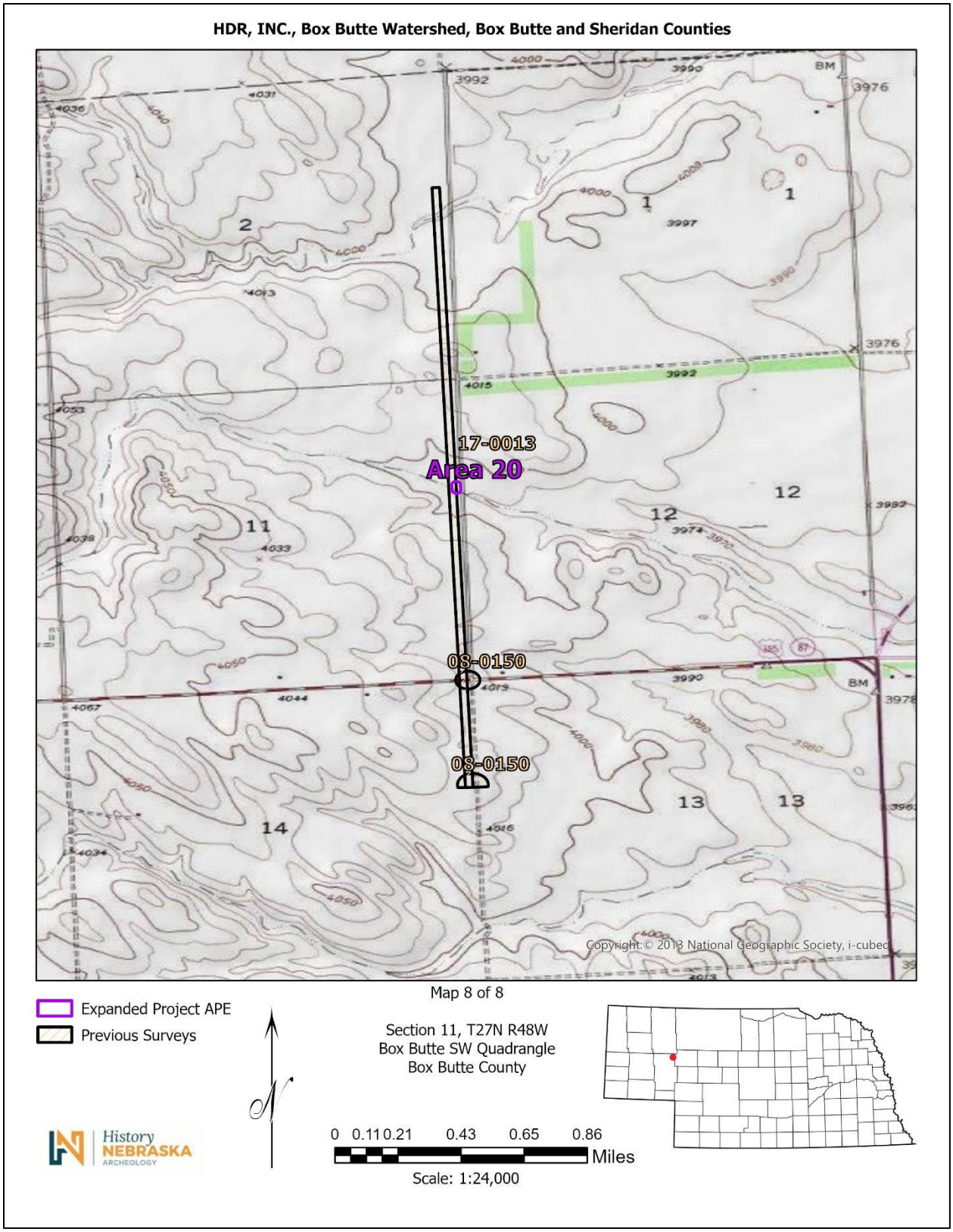


Figure 15. Box Butte Creek Watershed Area 20 APE and previous cultural resources survey illustrated on USGS 7.5' quadrangle.

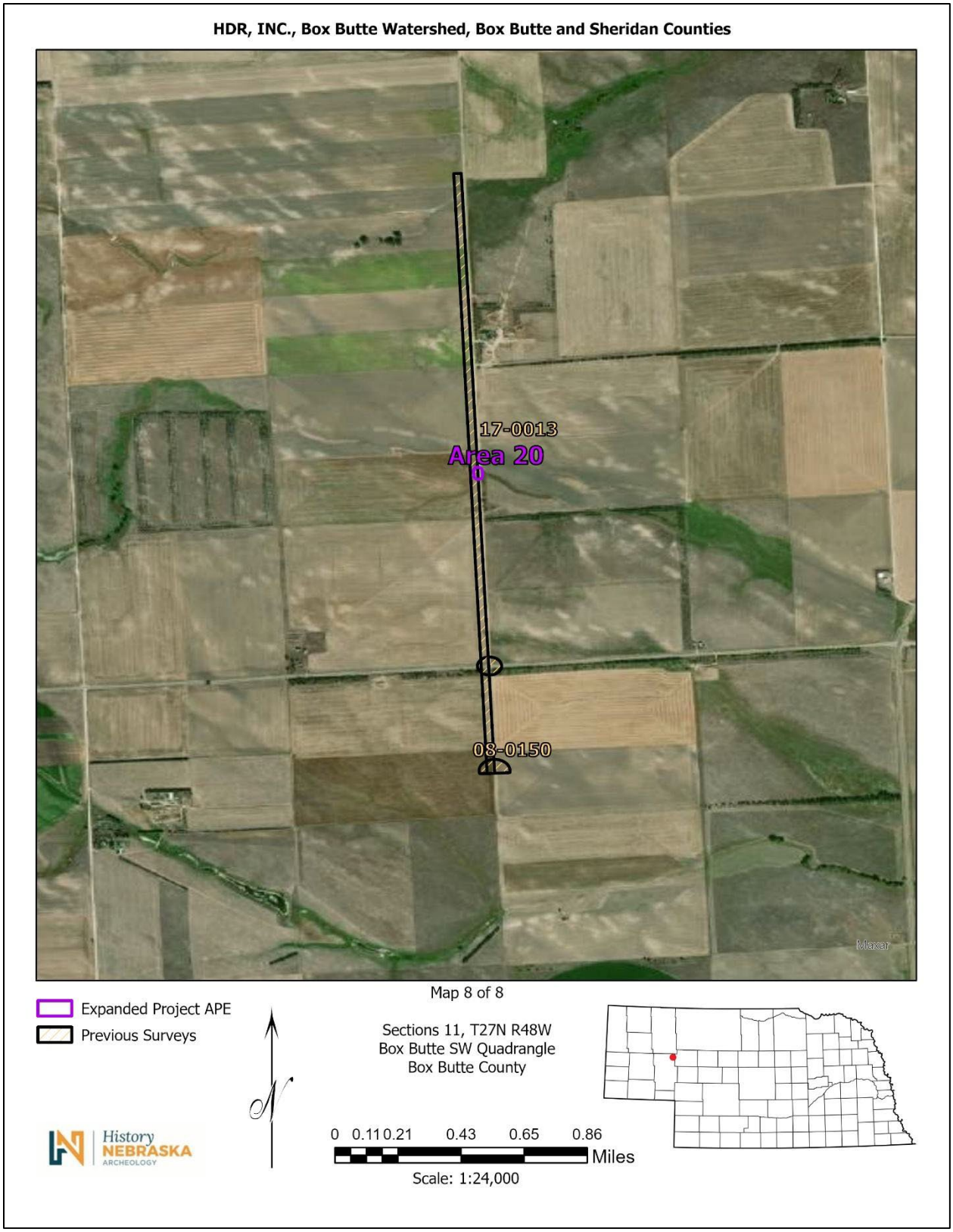


Figure 16. Box Butte Creek Watershed Area 20 APE and previous cultural resources survey illustrated on FSA orthophoto.

ENVIRONMENTAL AND CULTURAL SETTING

Comprehensive environmental and cultural setting descriptions were provided in the original Class III survey report and will not be repeated in this supplemental report.

CURRENT INVESTIGATION

Buried Soils and Buried Sites Potential

Prior to completing the supplemental survey, SAO staff reviewed the SAO's Deeply Buried Sites Geographic Information System (GIS) (see Layzell et al. 2018) and USDA's Web Soil Survey databases for information on soil types and potential within the expanded APEs for containing buried soils and cultural horizons. A total of thirty-five soil components are mapped across the original and expanded APEs. Eight of the identified components were identified in the expanded APE. The thirty-five soil components presented varying potential for containing deeply buried archeological sites (Table 4; Appendix A). Ground-truthing to determine the presence of buried soils was conducted during the field investigations via shovel and auger tests at Area 6a. No buried soils or intact archeological contexts were identified during the excavations.

Table 4. Mapped soil units within the expanded Box Butte Creek Watershed project area and their potential for buried soils that may contain cultural components.

Soil Unit	Soil Name	Slope (%)	Description	Potential
1189	Las Animas-Lisco, sandy loam	N/A	Forms on flood plains. Parent material consists of alluvium.	Low-Moderate
1320	Beckton, silt loam	0-2	Forms on alluvial fans on uplands. Parent material consists of alluvium.	N/A
1362	Bridget, sandy loam	1-3	Forms on alluvial fans on river valleys. Parent material consists of alluvium.	High
1683	Manter-Satanta, sandy loam	0-3	Forms on knolls on uplands. Parent material consists of Eolian deposits.	N/A
1684	Manter-Satanta, sandy loam	3-6	Forms on ridges on uplands. Parent material consists of Eolian deposits.	N/A
1726	Rosebud, loam	1-3	Forms on broad interstream divides on tablelands. Parent material consists of residuum.	N/A
1736	Rosebud-Canyon, complex	3-9	Forms on ridges on uplands. Parent material consists of loess.	N/A

Table 4 continued.

Soil Unit	Soil Name	Slope (%)	Description	Potential
1737	Rosebud-Canyon, complex	3-30	Forms on ridges on uplands. Parent material consists of loess.	N/A
1809	Satanta, sandy loam	1-3	Forms on sand sheets and tablelands. Parent material consists of Eolian deposits.	N/A
1813	Satanta, sandy loam	6-9	Forms on sand sheets and tablelands. Parent material consists of Eolian deposits.	N/A
1823	Satanta-Canyon, complex	6-12	Forms on paleo-terraces on tablelands. Parent material consists of Eolian deposits.	N/A
3228	Lute, loam	0-2	Forms on hill slopes on uplands. Parent material consists of colluvium.	High
3522	Lamo, variant loam	0-1	Forms on flood plains and on drainage ways on uplands. Parent material consists of alluvium.	Low-Moderate
4716	Orpha-Niobrara, complex	6-11	Forms on hill slopes and uplands. Parent material consists of Eolian sands.	N/A
5101	Alliance loam	1-2	Forms on broad interstream divides, plains, and drainageways. Parent material consists of loess over residuum.	Low-Moderate
5108	Alliance-Rosebud, loam	1-3	Forms on drainage ways and plains on tablelands. Parent material consists of loess.	N/A
5109	Alliance-Rosebud, loam	3-6	Forms on interfluves on uplands. Parent material consists of loess.	N/A
5120	Busher, sandy loam	3-6	Forms on hill slopes and uplands. Parent material consists of residuum.	N/A
5139	Busher-Tassel, complex	6-30	Forms on flood plains on uplands. Parent material consists of residuum	N/A
5134	Busher-Jayem, loamy very fine sands	3-6	Forms on ridges on uplands. Parent material consists of residuum.	N/A

Table 4 continued.

Soil Unit	Soil Name	Slope (%)	Description	Potential
5143	Busher-Tassel, loamy sand	6-30	Forms on hill slopes and uplands. Parent material consists of residuum	N/A
5179	Hemingford, loam	0-1	Forms on plains on tablelands. Parent material consists of loess	N/A
5180	Hemingford, loam	1-3	Forms on interfluves on tablelands. Parent material consists of loess.	N/A
5181	Hemingford, loam	3-6	Forms on ridges on uplands. Parent material consists of loess.	N/A
5206	Oglala-Canyon, complex	3-9	Forms on hill slopes and tablelands. Parent material consists of residuum.	N/A
5215	Oglala-Canyon, sandy loam	9-30	Forms on hill slopes and uplands. Parent material consists of residuum.	N/A
5281	Vetal, fine sandy loam	0-3	Forms on fans and valleys on tablelands. Parent material consists of alluvium.	N/A
5616	Craft, sandy loam	N/A	Forms on flood plains on uplands. Parent material consists of alluvium	Low-Moderate
5625	Duroc, loam	N/A	Forms on swales on uplands. Parent material consists of alluvium.	N/A
5643	Janise, loam	0-2	Forms on flood plains on uplands. Parent material consists of alluvium.	Moderate-High
5644	Janise, loam	0-3	Forms on flood plains on uplands. Parent material consists of alluvium.	Moderate-High
5646	Jainse, loamy fine sand	0-3	Forms on flood plains on uplands. Parent material consists of alluvium	Moderate-High
5934	Creighton, very fine sand	1-3	Forms on flats on uplands. Parent material consists of Eolian deposits.	N/A
5943	Duroc, loam	1-3	Forms on swales and tablelands. Parent material consists of alluvium	N/A
5965	Jayem, fine sandy loam	0-3	Forms on plains on tablelands. Parent material consists of Eolian deposits.	N/A

Field Work and Methodology

Between December 2022 and May 2023, SAO staff conducted pedestrian survey, subsurface testing–including hand excavation of STs and ATs–and documentation and evaluation of newly discovered cultural resources. Staff assisting with survey and testing included: the second author and Archeological Technician Hannah Swan. Based on the results of the project background review, topography of the APE, and data contained within the SAO's deeply buried sites GIS database, it was determined that there was a reasonable probability of encountering archaeological sites within the APE. Therefore, it was determined that 100 percent of the expanded APE required survey. Each of the 15 project areas were pedestrian surveyed with the exception of Area 2 which did not have any changes made to its APE. Subsurface testing was conducted in Area 6a (Table 5; Figures 28–29).

Pedestrian Survey

Pedestrian survey within the project APE was conducted using a combination of linear and meandering pedestrian survey transects spaced no more than 20 meters (m) (65.6 feet [ft]) apart. Vegetation throughout the APE consisted mainly of areas of mixed prairie grass pasture with wetland grasses along ephemeral waterways and some agricultural fields (Figures 17–19). All areas with likelihood of containing surface or near-surface cultural materials, including stream cuts, animal burrow back dirt piles, and cleared agricultural fields, were closely examined. Ground surface visibility (GSV) was highly variable throughout the total project area. Agricultural fields, when present, were recently tilled and contained 80–100 percent GSV. Grassy pastures had generally lower GSV ranging from 0–50 percent.

The majority of the project areas (14 out of 15) had sufficient ground surface visibility to permit adequate pedestrian survey coverage. Within Area 6a, GSV was poor, particularly in the southwest corner of the APE (see Figures 19, 28, and 29). Subsurface testing was conducted to determine the presence of cultural resources in lieu of adequate GSV (see Table 5). Topography within the APE ranged from level to near-level with some gently sloping hills and a few hills with steeper inclines on either side of the floodplains of Box Butte Creek and its tributaries. Noted disturbances throughout the APE included impacts from general agricultural practices including planting, harvesting, and ranching activities, as well as erosion from streams and wind.

Fieldwork documentation included GPS mapping, digital photography, and completion of standardized SAO field forms. Mapping data was collected using a Trimble Juno Series 3B handheld GPS unit. Field photographs were taken using a 21.51-megapixel Nikon Z50 digital camera. All field datasets generated during this project are on file at the SAO.

No surface artifacts were recorded during the current survey. No new standing structures were identified in or within one-quarter mile of the combined Box Butte Creek Watershed APE.

Figure 17 View of average GSV at Box Butte Creek Area 11. View is to the southeast. Photo date: 12/6/2022.

Figure 18. View of areas of excellent GSV at Box Butte Creek Area 10a. View is to the southeast. Photo date: 12/6/2022.

Subsurface Testing

Subsurface excavation, including hand-excavated STs and ATs, was conducted at the APE of Area 6a (Figures 28–29). Excavations were completed to identify the presence or absence of cultural materials in areas of low ground surface visibility. Each ST excavated measured between 32 and 57 centimeters (cm) in diameter and was excavated to a minimum of 50 cm below surface (cmbs), while ATs, excavated with a 4-in bucket auger, ranged in depth from 97–115 cmbs. All hand excavations were completed in arbitrary 10 cm levels for vertical control, and all sediment was screened through ¼-inch hardware mesh. Soil stratigraphy, texture, depth, and color were documented for each excavated test, and each excavation was documented with the Juno 3B handheld GPS unit. As a result of subsurface testing, no cultural material was identified.

Figure 19 Overview of Box Butte Creek Area 6a grassy pasture with low ground surface visibility where testing was conducted (GSV). View is to the southwest. Photo date: 12/7/2022.

Table 5. Box Butte Watershed project area descriptions secondary investigation.

Project Area	Legal Location	GSV (%)	Acres (Hectares)	Testing?	No. of Tests
1	Sections 2 and 3, T26N R48W	10-60%	10.28 (4.16)	N	--
2*	Section 3, T26N R47W; Section 34, T27N R47W	--	10.60 (4.29)	N	--
4a	Section 23, T27N R47W	30-60%	19.10 (7.73)	N	--
5a	Section 24, T27N R47W	40-70%	4.59 (1.86)	N	--
6a	Sections 21 and 22, T27N R47W	0-50%	30.43 (12.31)	Y	n=7 ST; n=11 AT
7	Sections 2 and 3, T26N R48W	10-35%	7.30 (2.95)	N	--
8	Sections 16 and 17, T27N R47W	10-85%	22.82 (9.24)	N	--
9a	Section 31, T28N R46W	15-100%	24.91 (9.79)	N	--
9b	Section 6, T27N R46W	0-100%	22.94 (9.28)	N	--
10a	Sections 25 and 26, T28N R48W	10-100%	11.54 (4.67)	N	--
10b	Section 25, T28N R48W	10-90%	5.42 (2.19)	N	--
11	Section 26, T28N R48W	25-100%	0.51 (0.21)	N	--
12	Sections 26 & 35, T28N R47W	25-40%	0.51 (0.21)	N	--
16	Sections 34 & 35 T28N R47W	20-60%	0.51 (0.21)	N	--
20	Section 11, T28N R48W	10-80%	0.51 (0.21)	N	--
Total Acreage (Hectares)			***75.28 (30.6)***		

*No subsequent survey work was required at Project Area 2, because no changes were made to its APE.

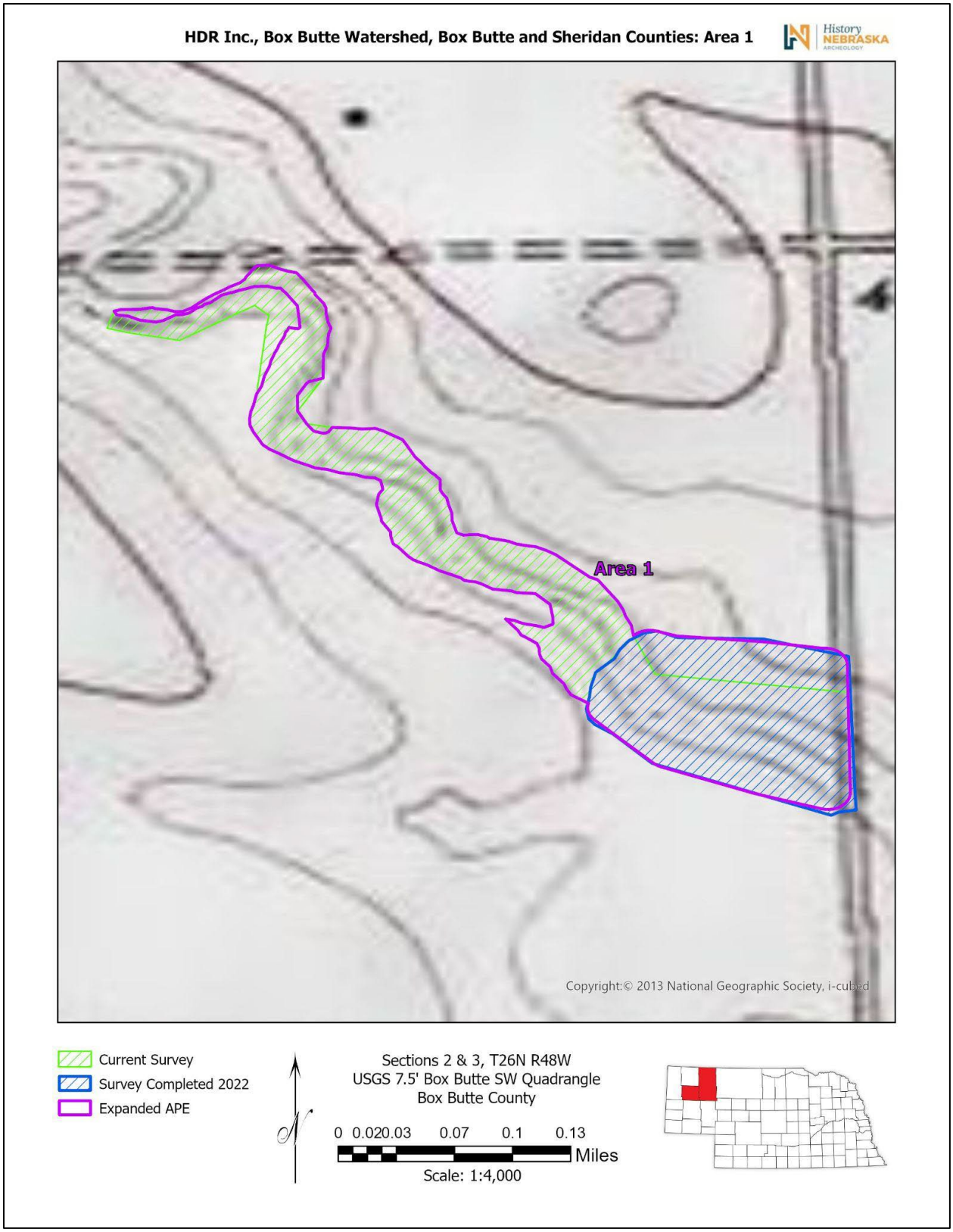


Figure 20. Box Butte Watershed Area 1 APE previous work and current survey coverage illustrated on USGS 7.5' quadrangle.

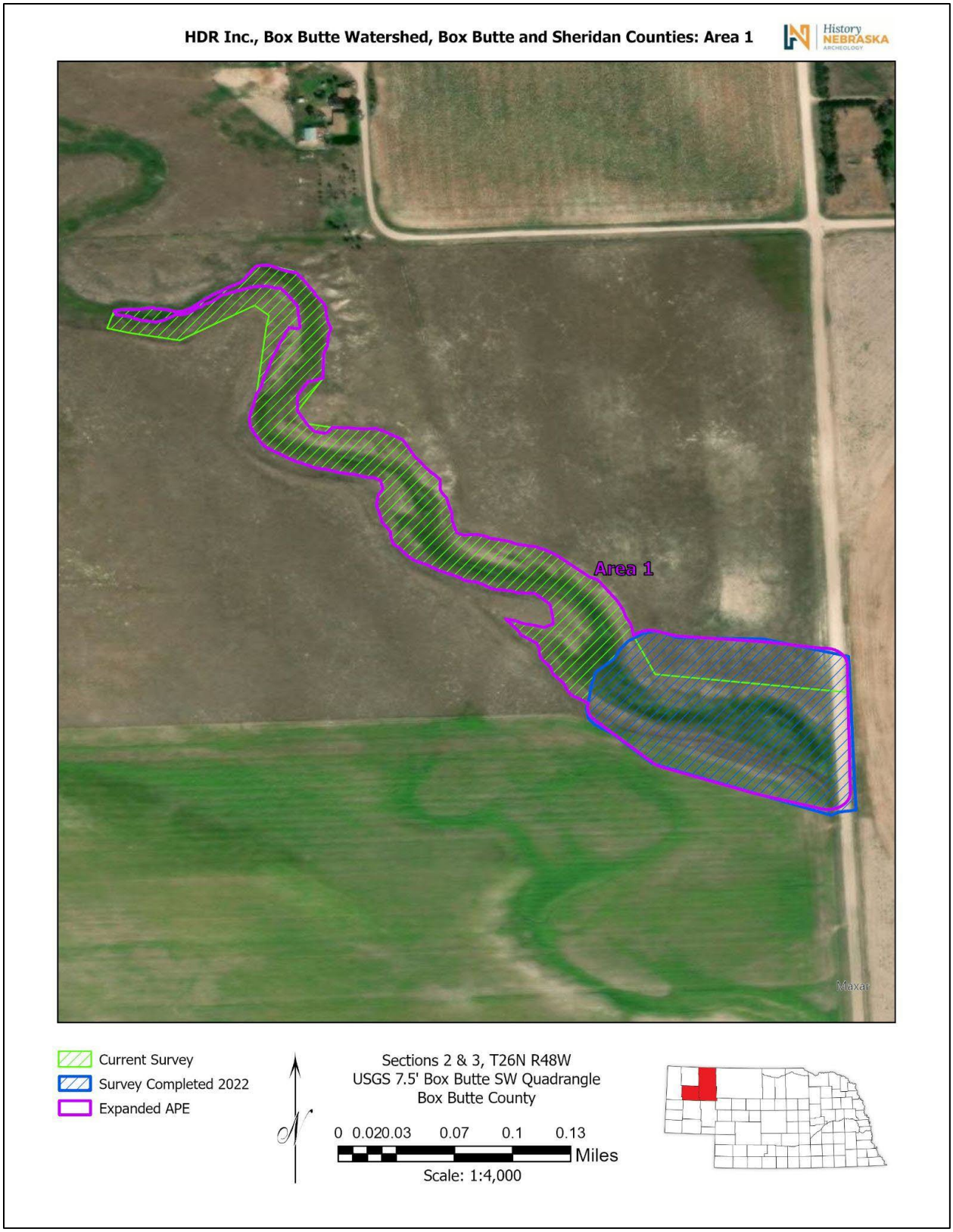


Figure 21. Box Butte Watershed Area 1 APE previous work and current survey coverage illustrated on FSA orthophoto.

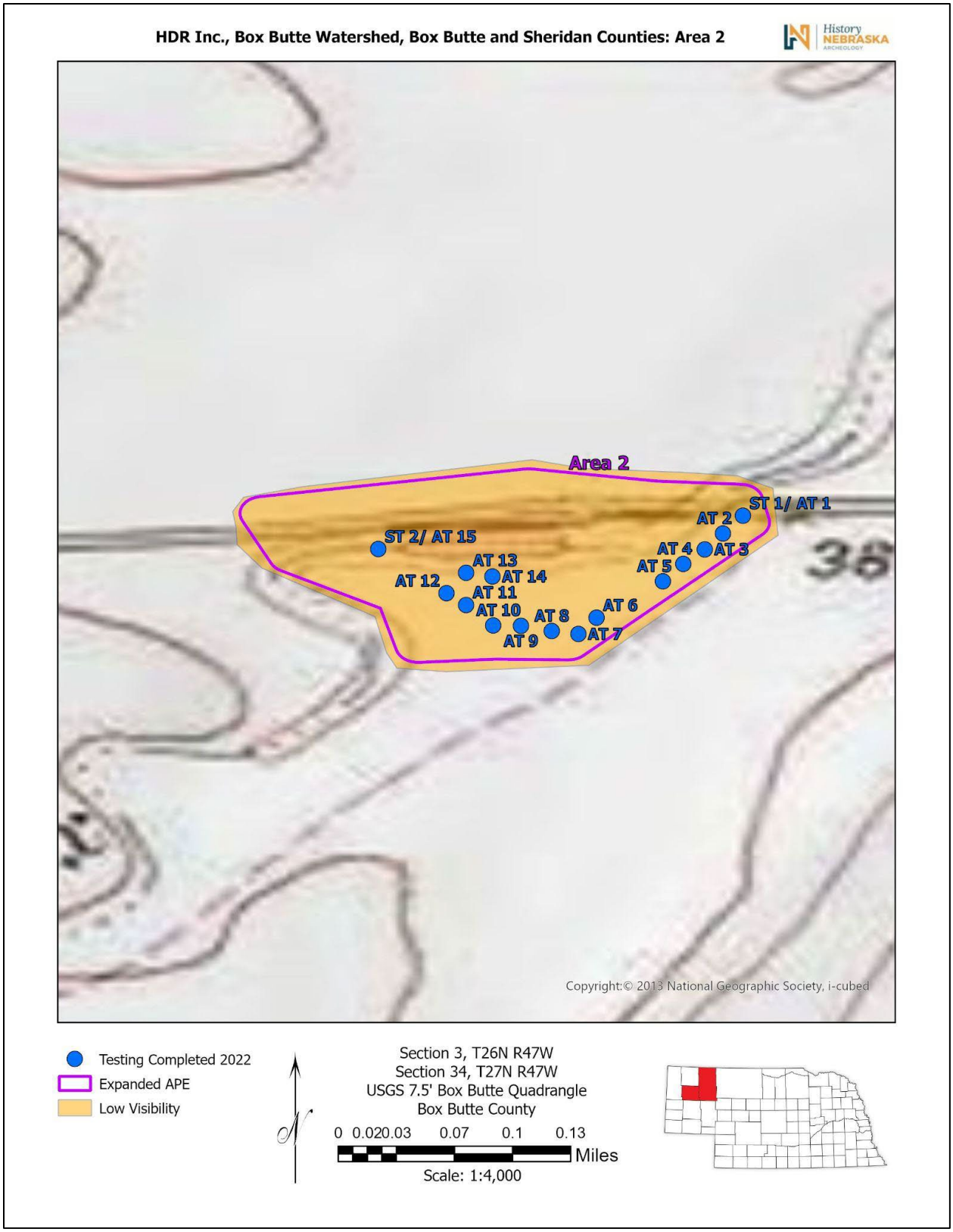


Figure 22. Box Butte Watershed Area 2 APE previous work illustrated on USGS 7.5' quadrangle.

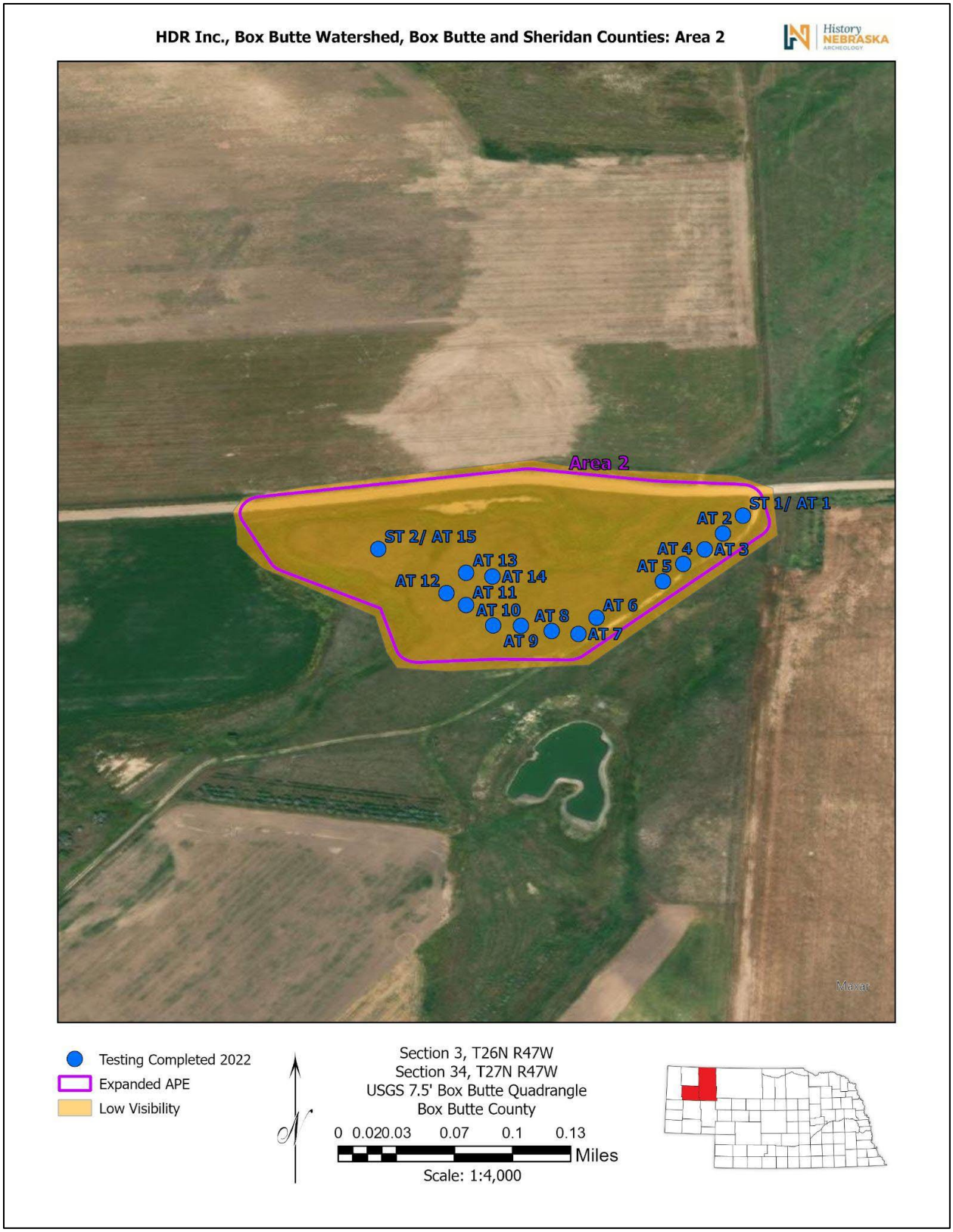


Figure 23. Box Butte Watershed Area 2 APE previous work illustrated on FSA orthophoto.

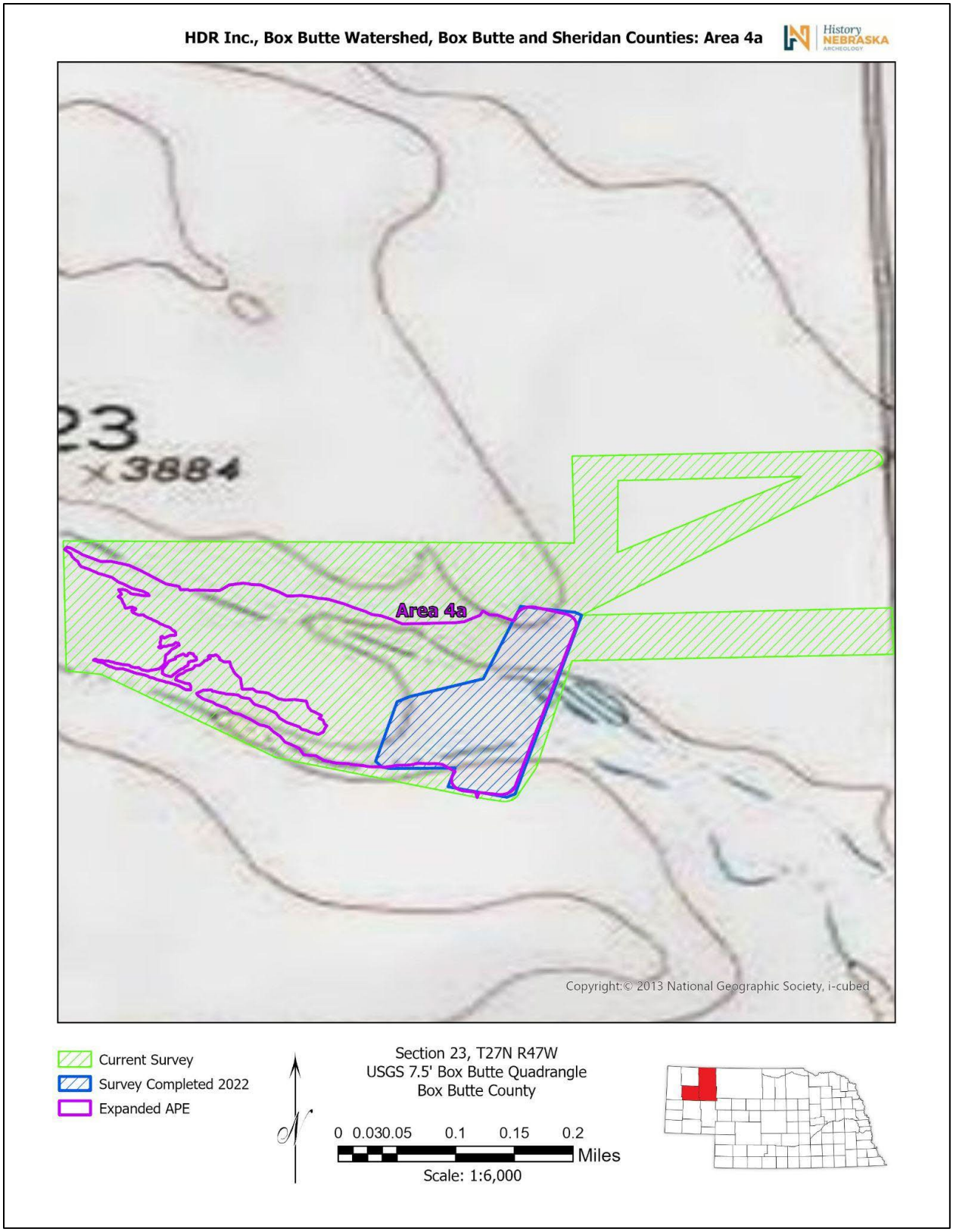


Figure 24. Box Butte Watershed Area 4a APE previous work and current survey coverage illustrated on USGS 7.5' quadrangle.

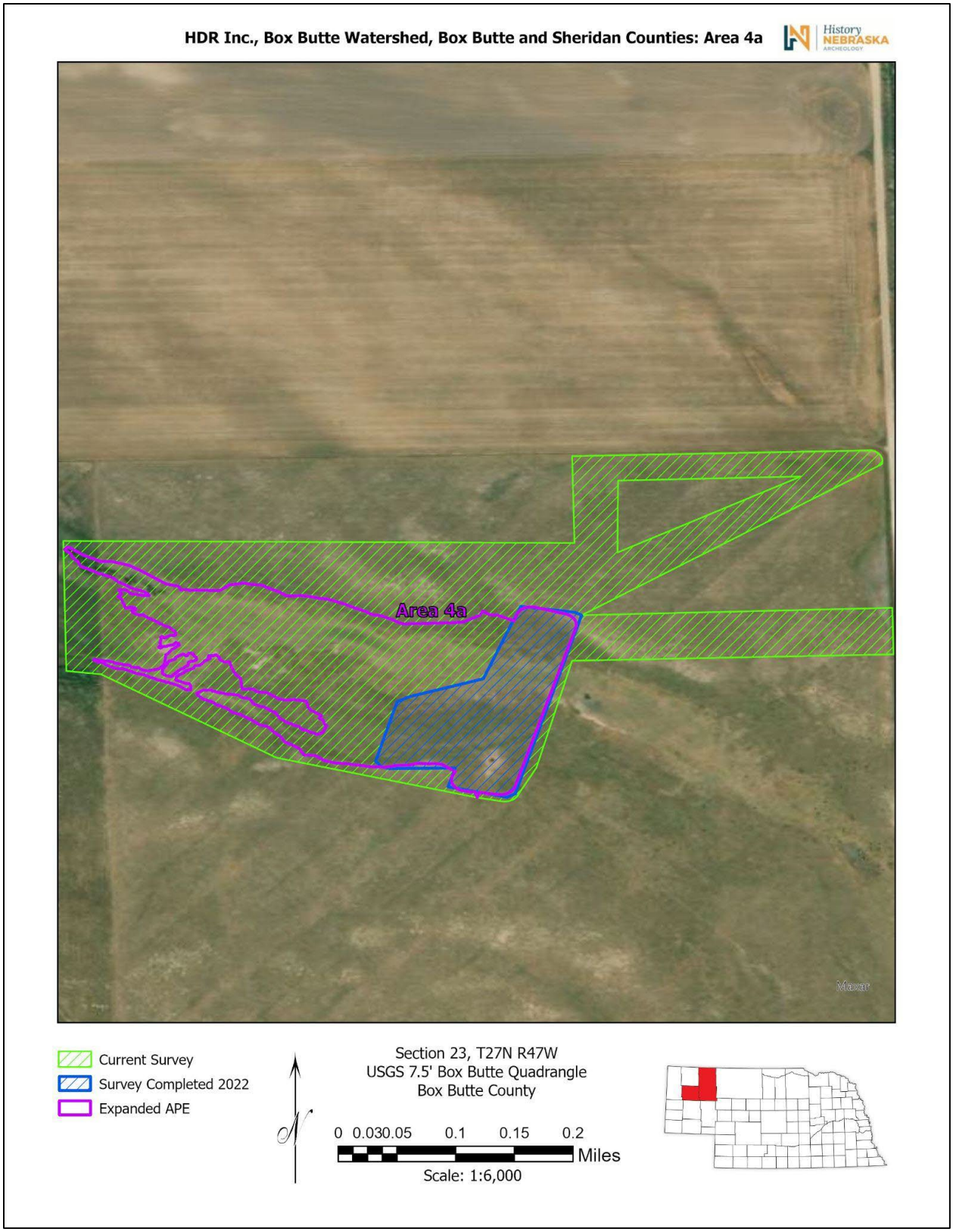


Figure 25. Box Butte Watershed Area 4a APE previous work and current survey coverage illustrated on FSA orthophoto.

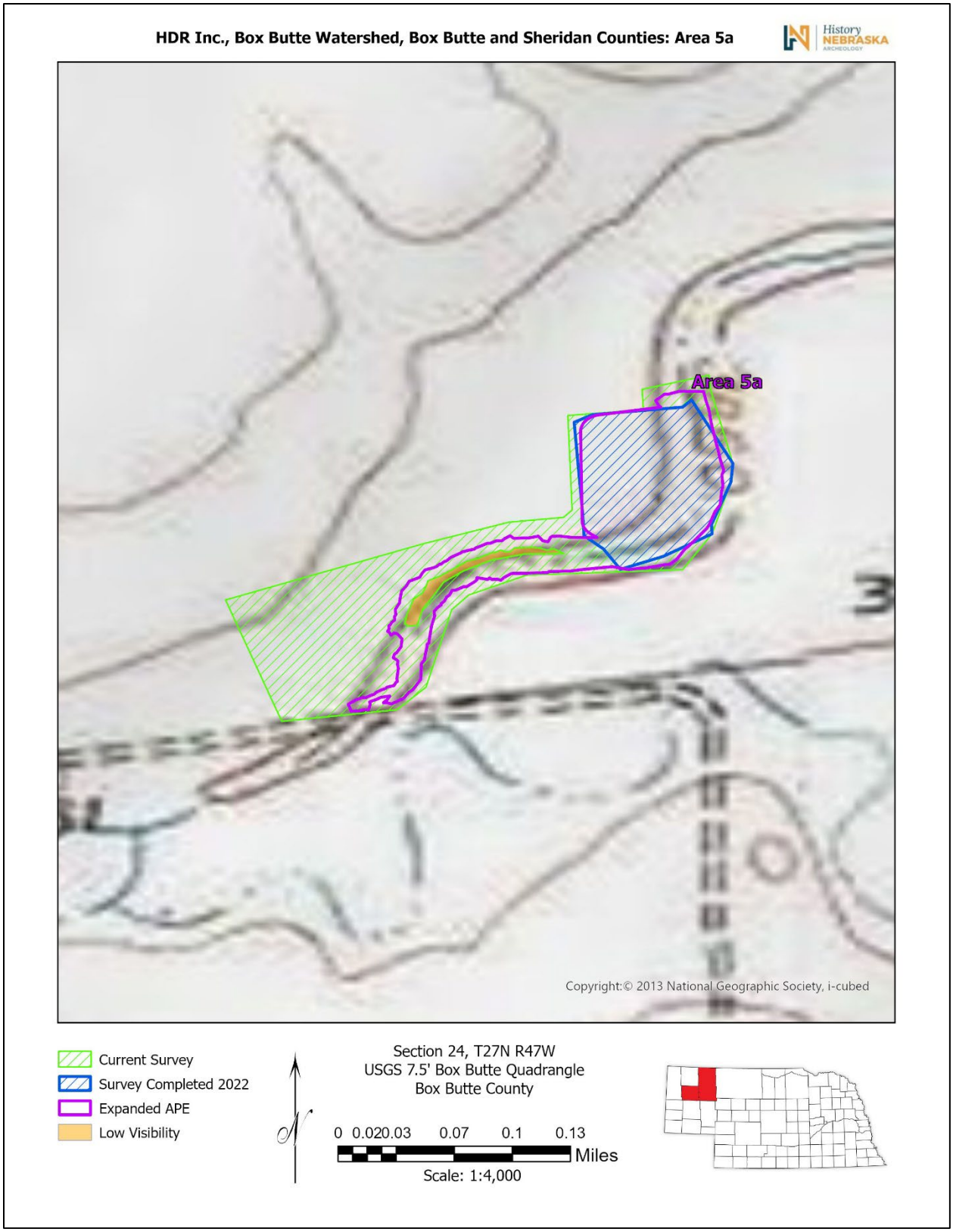


Figure 26. Box Butte Watershed Area 5a APE previous work and current survey coverage illustrated on USGS 7.5' quadrangle.

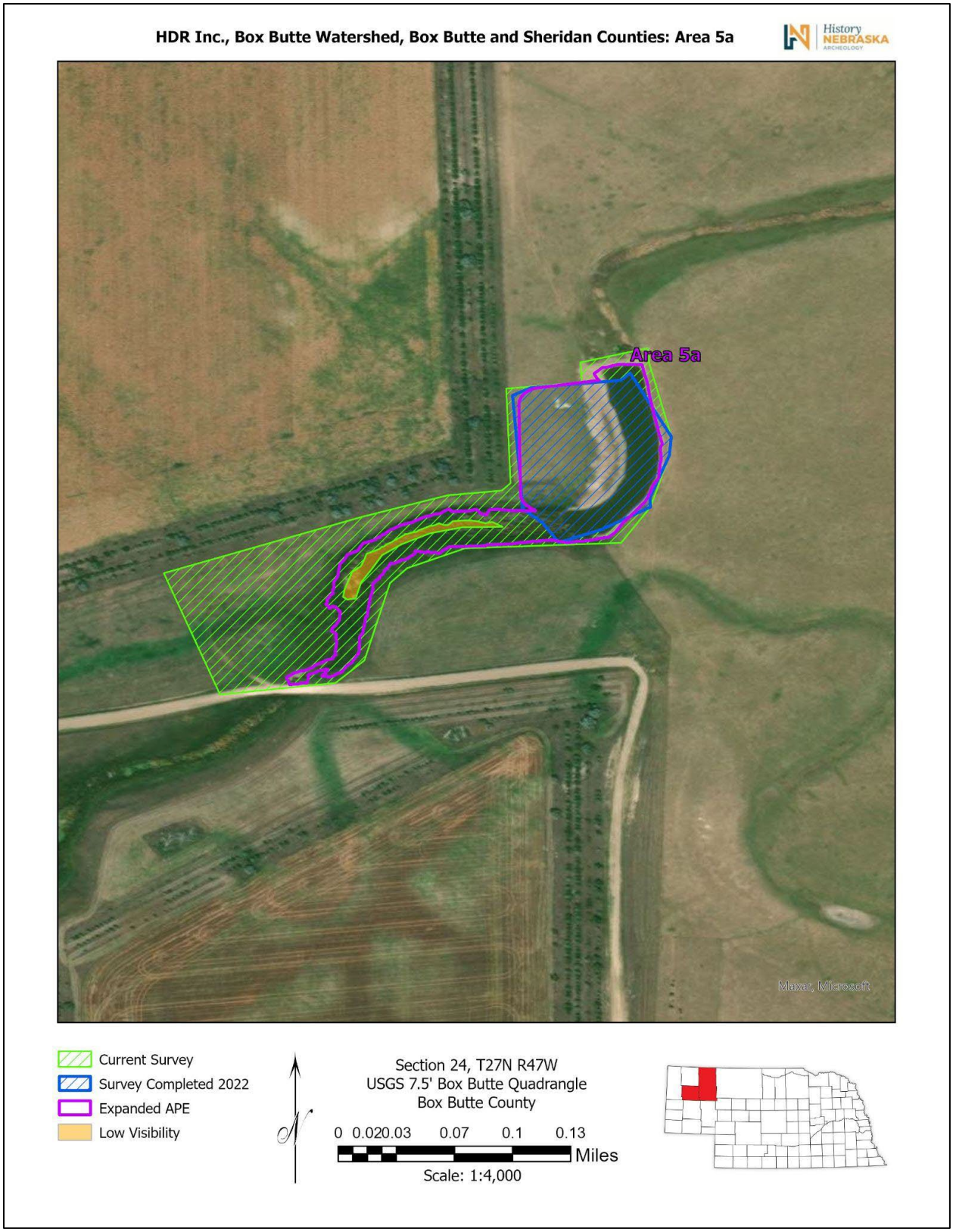


Figure 27. Box Butte Watershed Area 5a APE previous work and current survey coverage illustrated on FSA orthophoto.

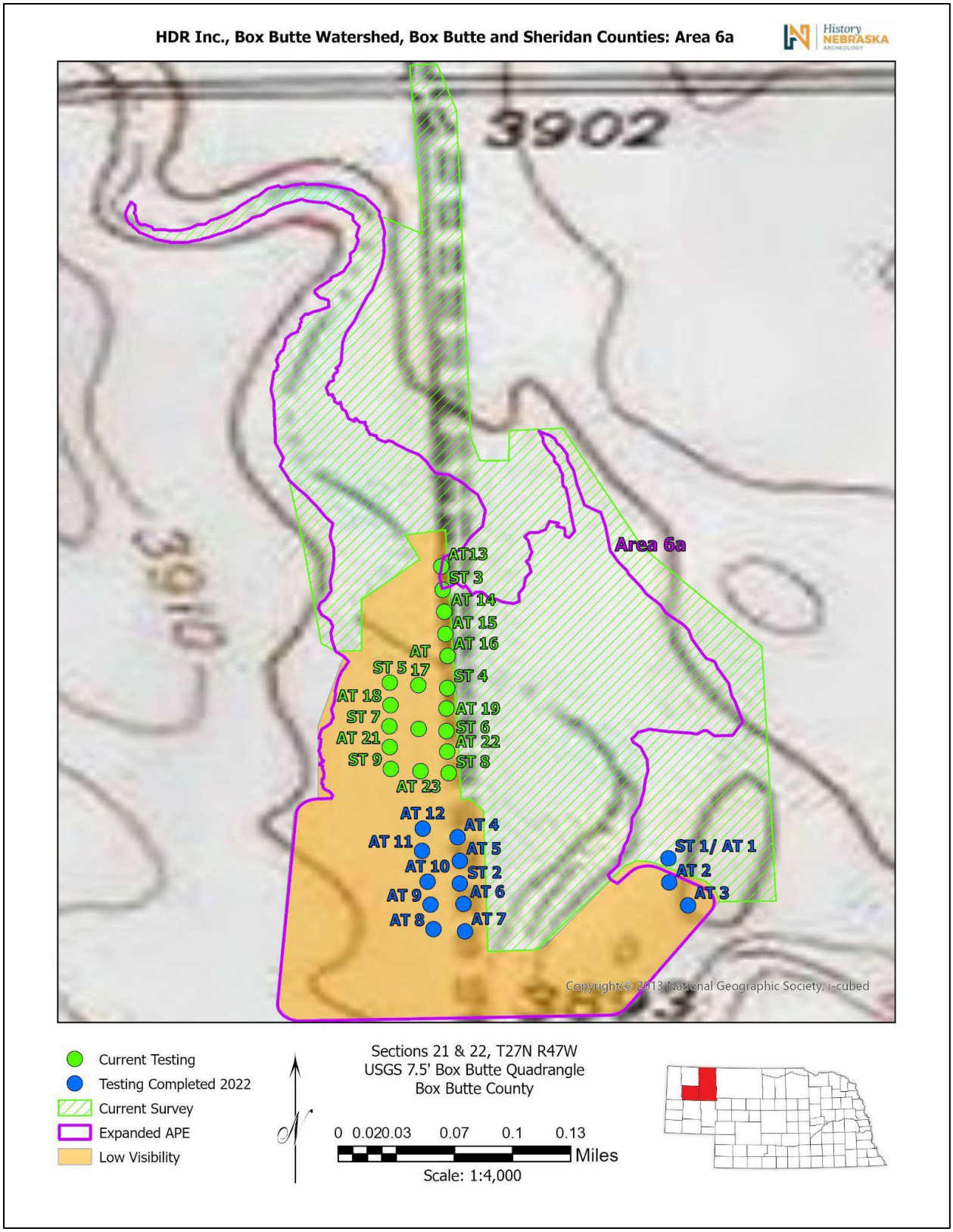


Figure 28. Box Butte Watershed Area 6a APE, previous work, and current survey coverage and subsurface testing locations illustrated on USGS 7.5' quadrangle.

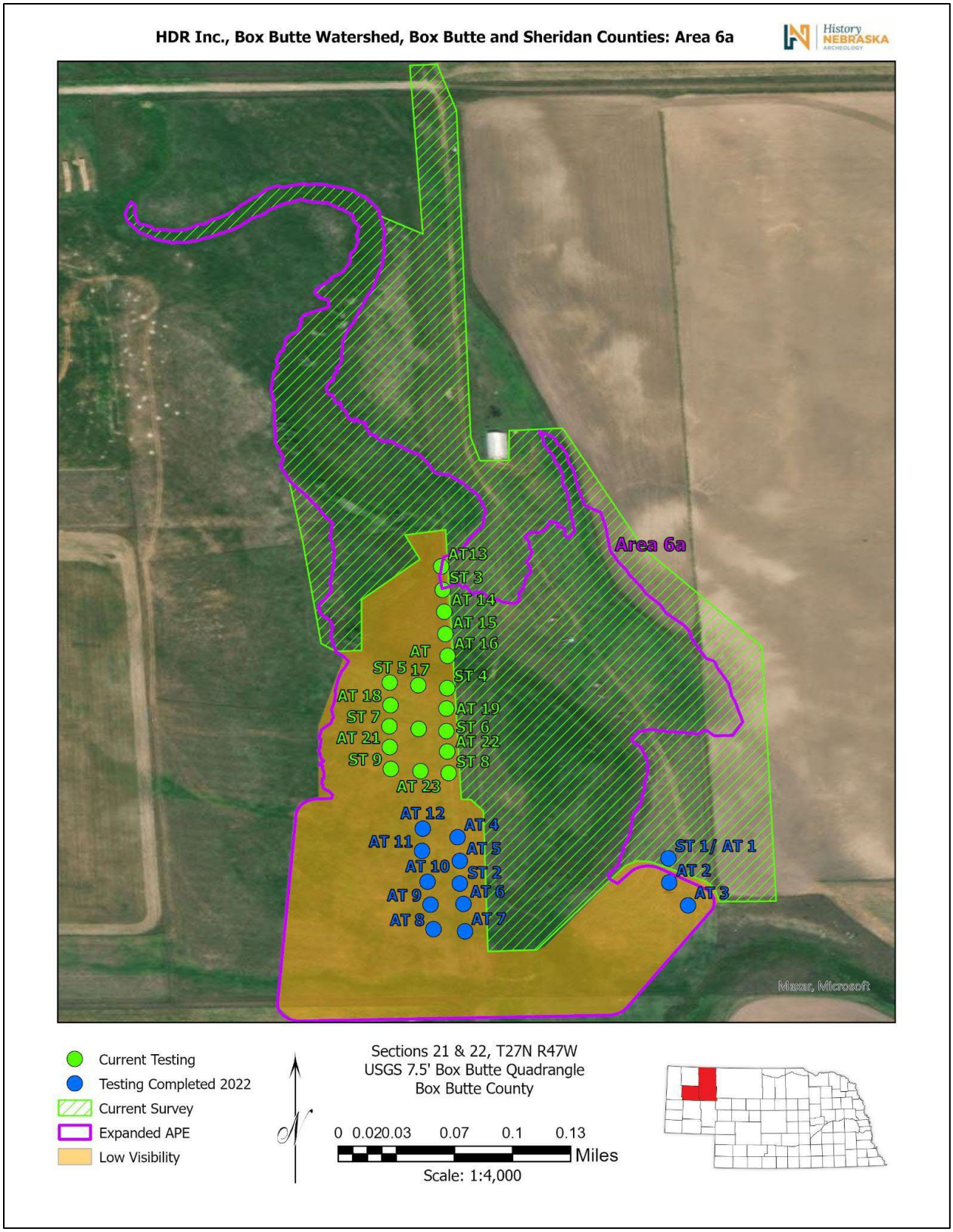


Figure 29. Box Butte Watershed Area 6a APE, previous work, and current survey coverage and subsurface testing locations illustrated on FSA orthophoto.

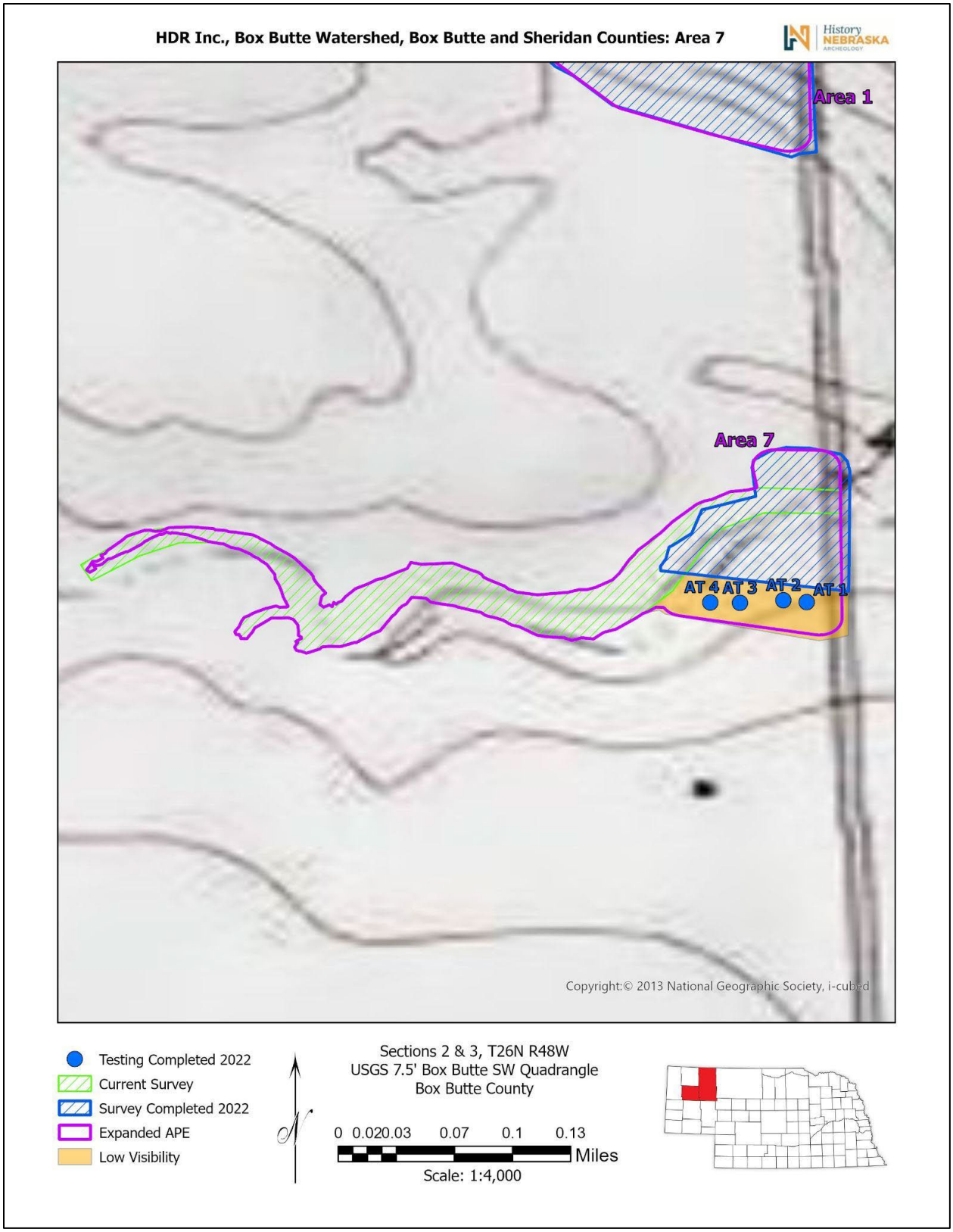


Figure 30. Box Butte Watershed Area 7 APE, previous work and current survey coverage illustrated on USGS 7.5' quadrangle.

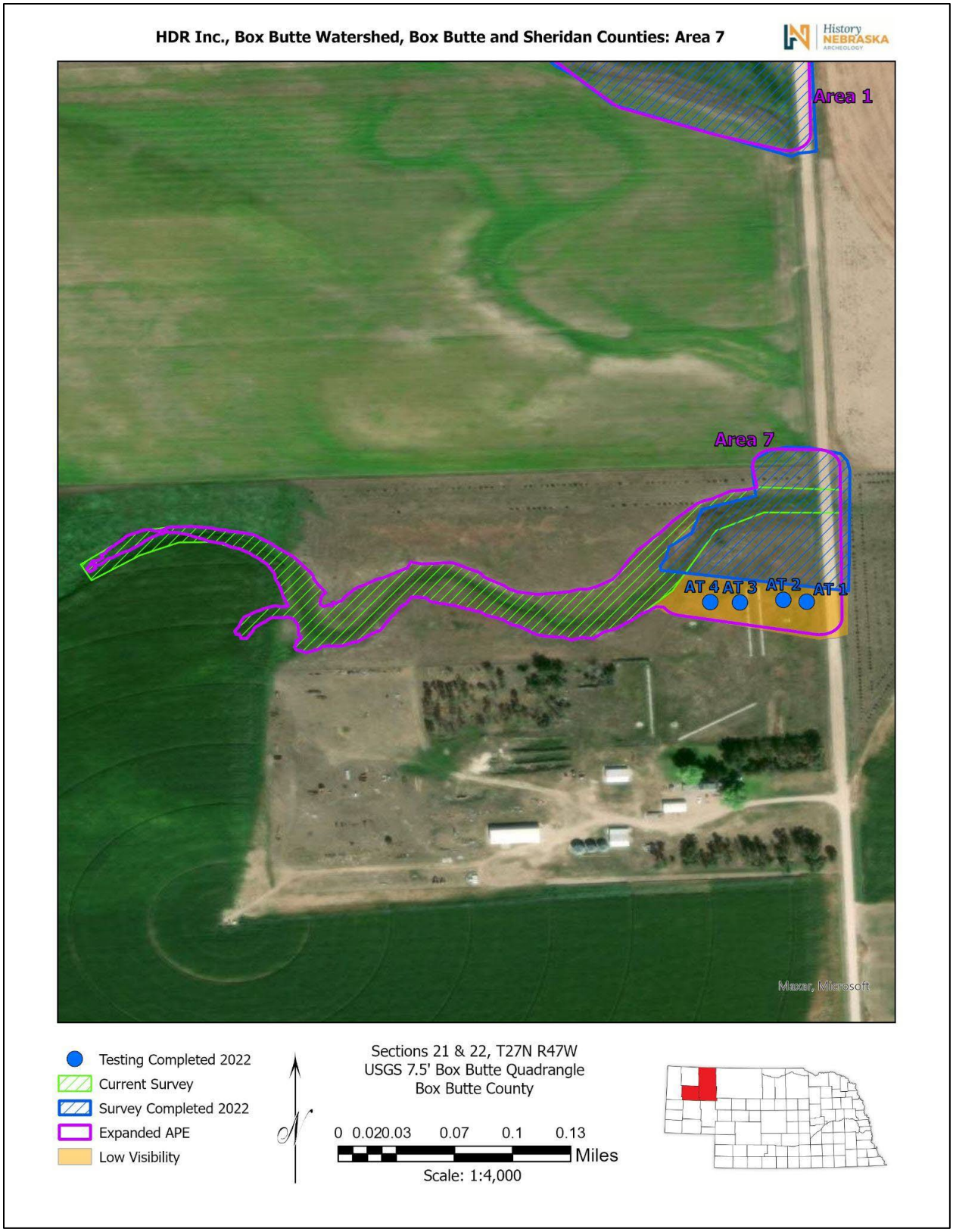


Figure 31. Box Butte Watershed Area 7 APE, previous work and current survey coverage illustrated on FSA orthophoto.

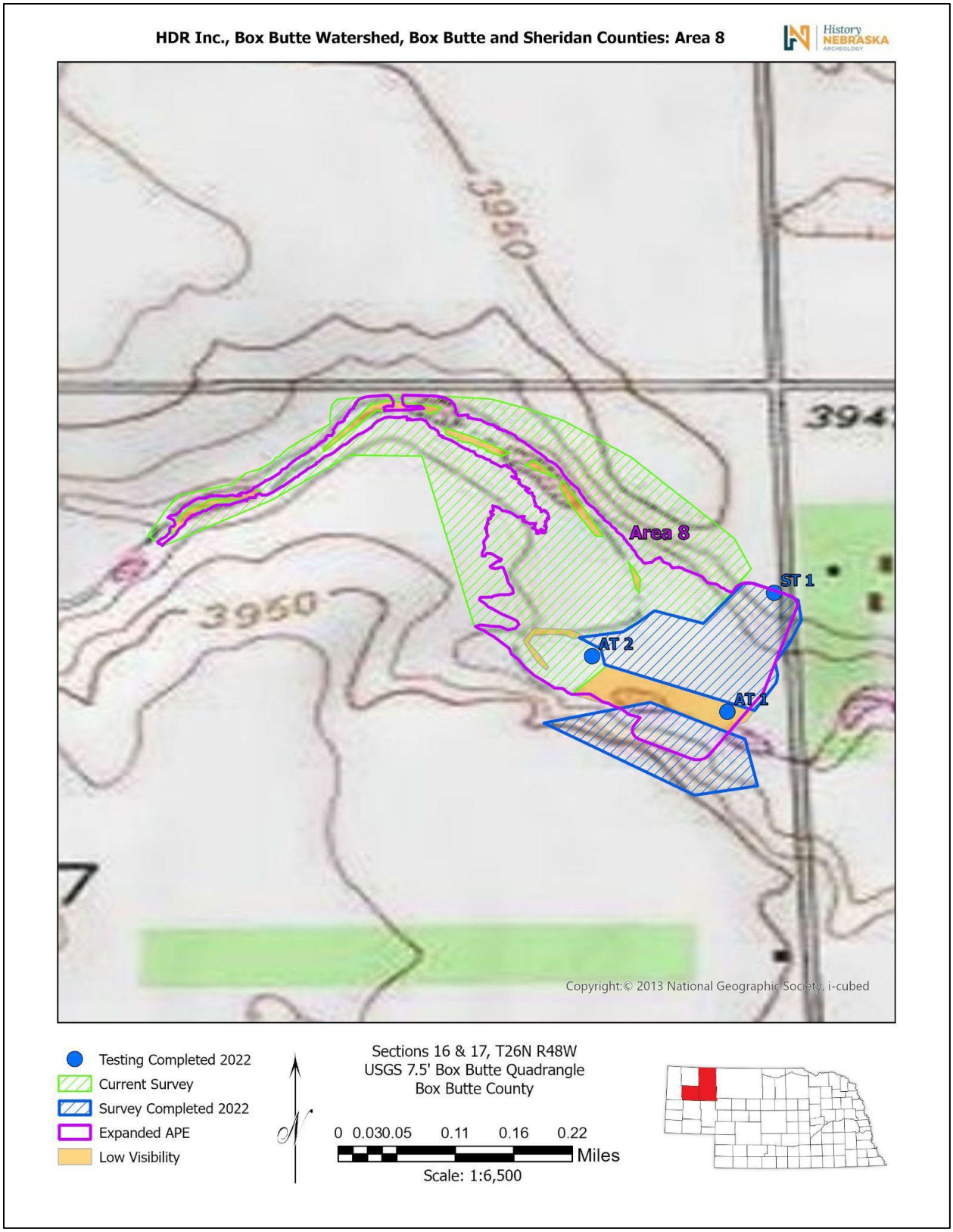


Figure 32. Box Butte Watershed Area 8 APE, previous work and current survey coverage illustrated on USGS 7.5' quadrangle.

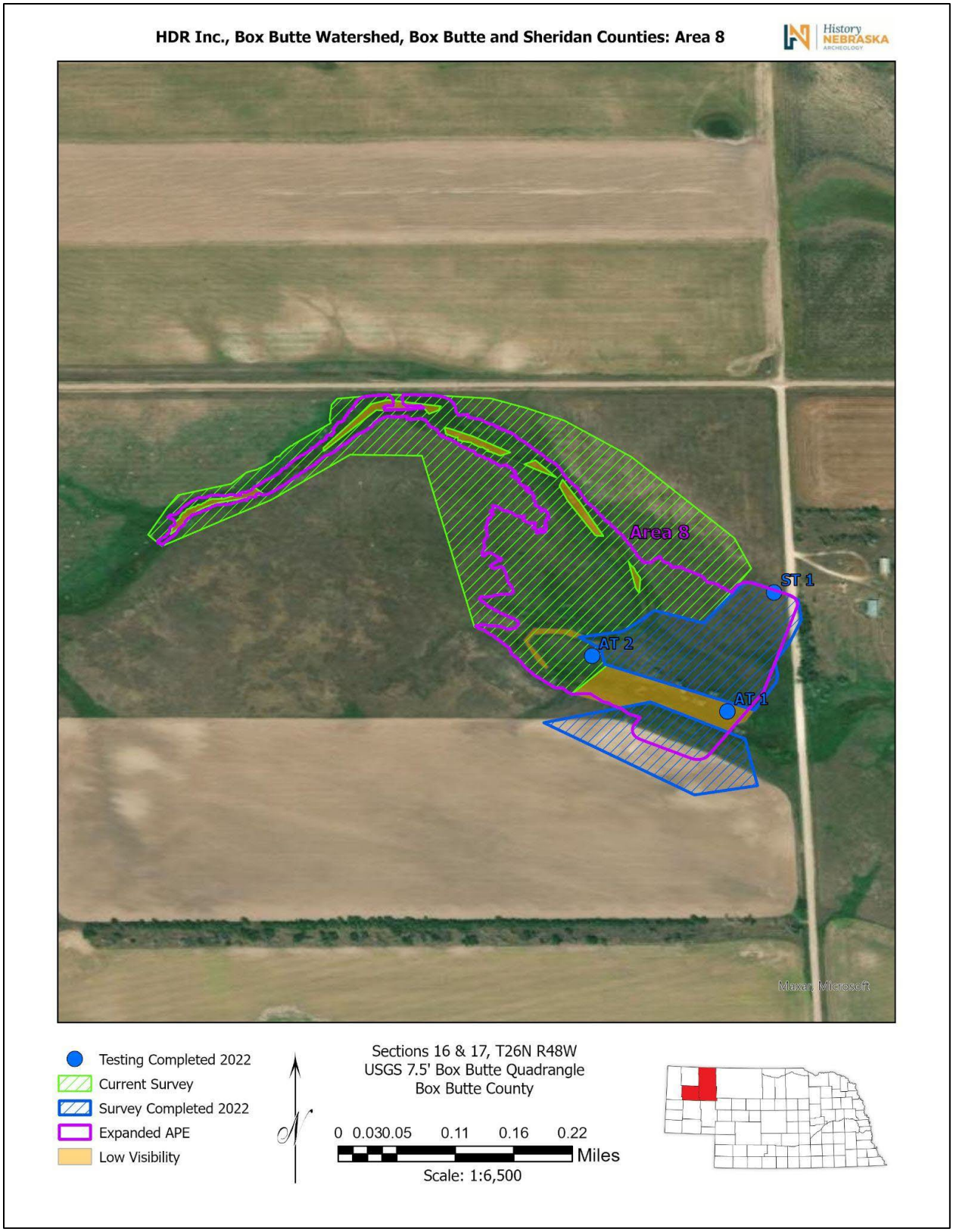


Figure 33. Box Butte Watershed Area 8 APE, previous work and current survey coverage illustrated on FSA orthophoto.

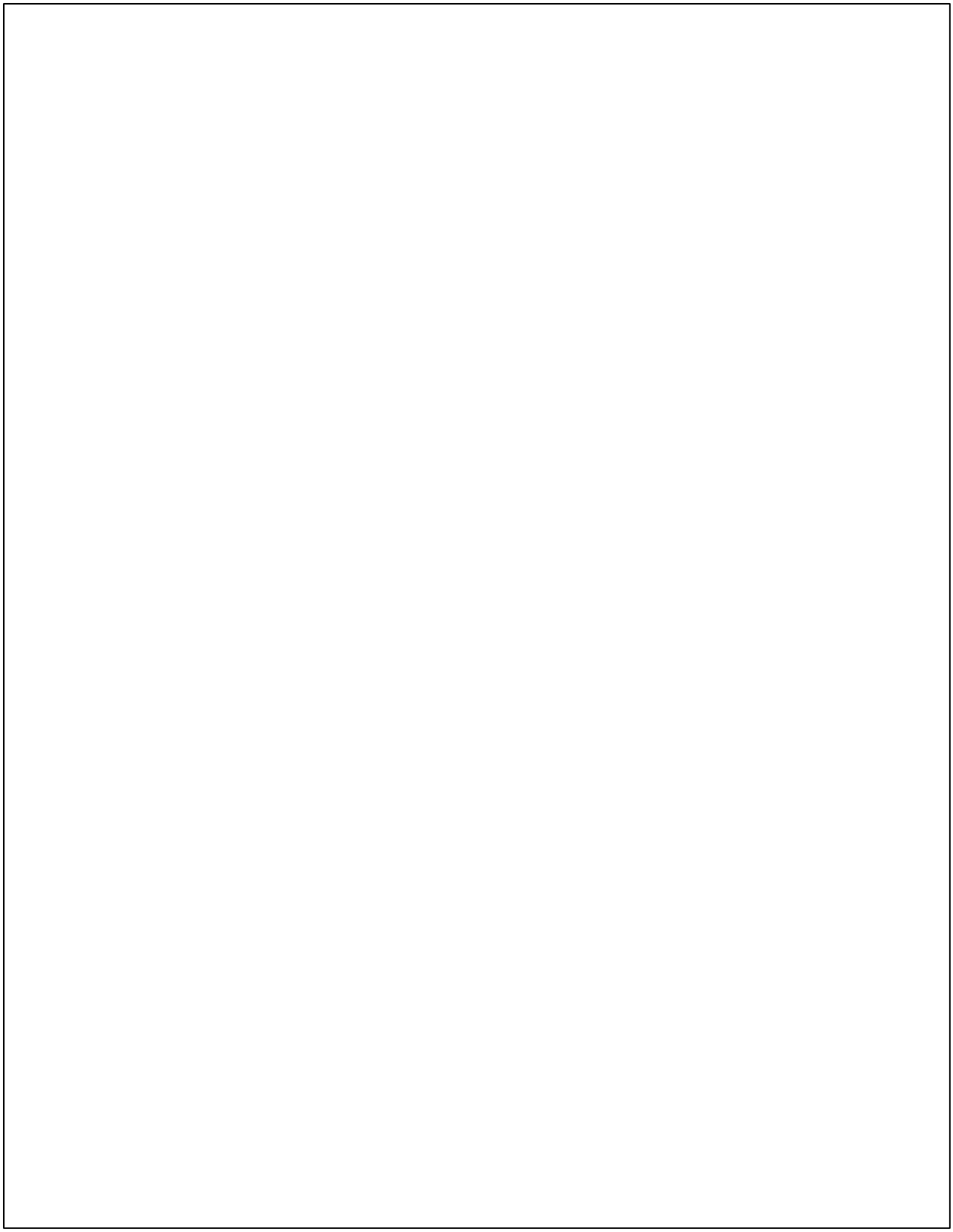


Figure 34. Box Butte Watershed Area 9a APE, previous work, archeological site 25SH20 identified in summer 2022, and current survey coverage illustrated on USGS 7.5' quadrangle. REDACTED

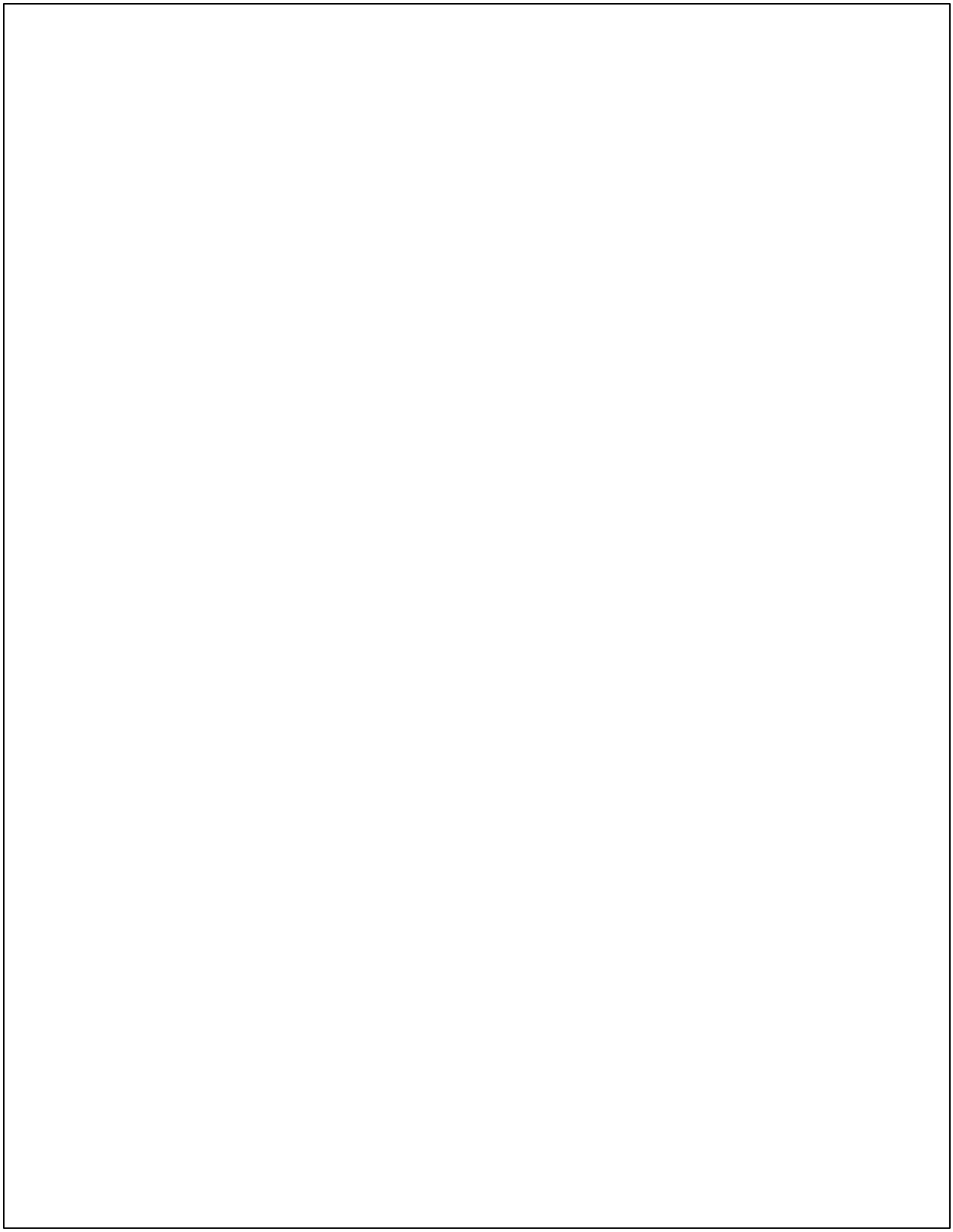


Figure 35. Box Butte Watershed Area 9a APE, previous work, archeological site 25SH20 identified in summer 2022, and current survey coverage illustrated on FSA orthophoto. REDACTED

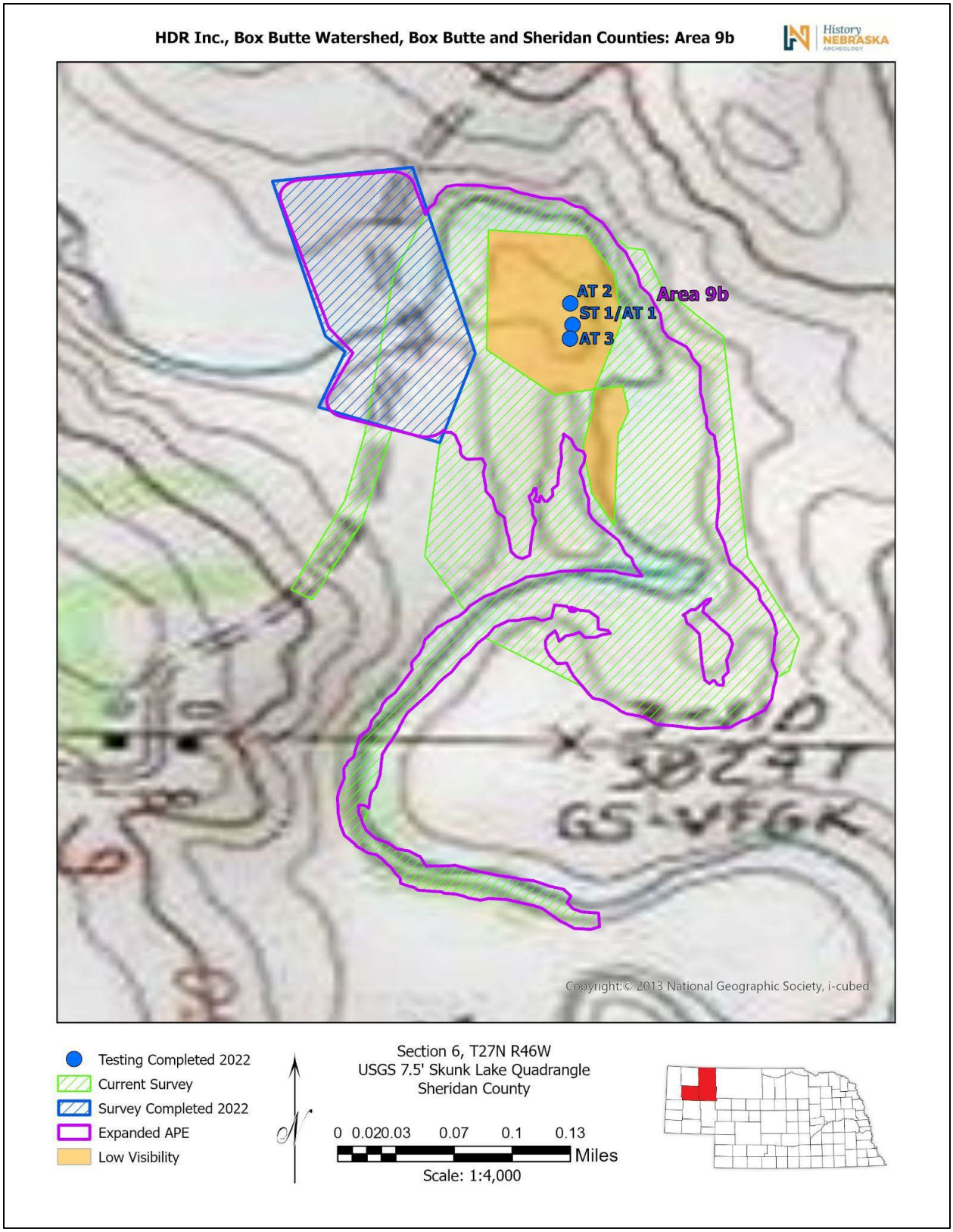


Figure 36. Box Butte Watershed Area 9b APE, previous work and current survey coverage illustrated on USGS 7.5' quadrangle.

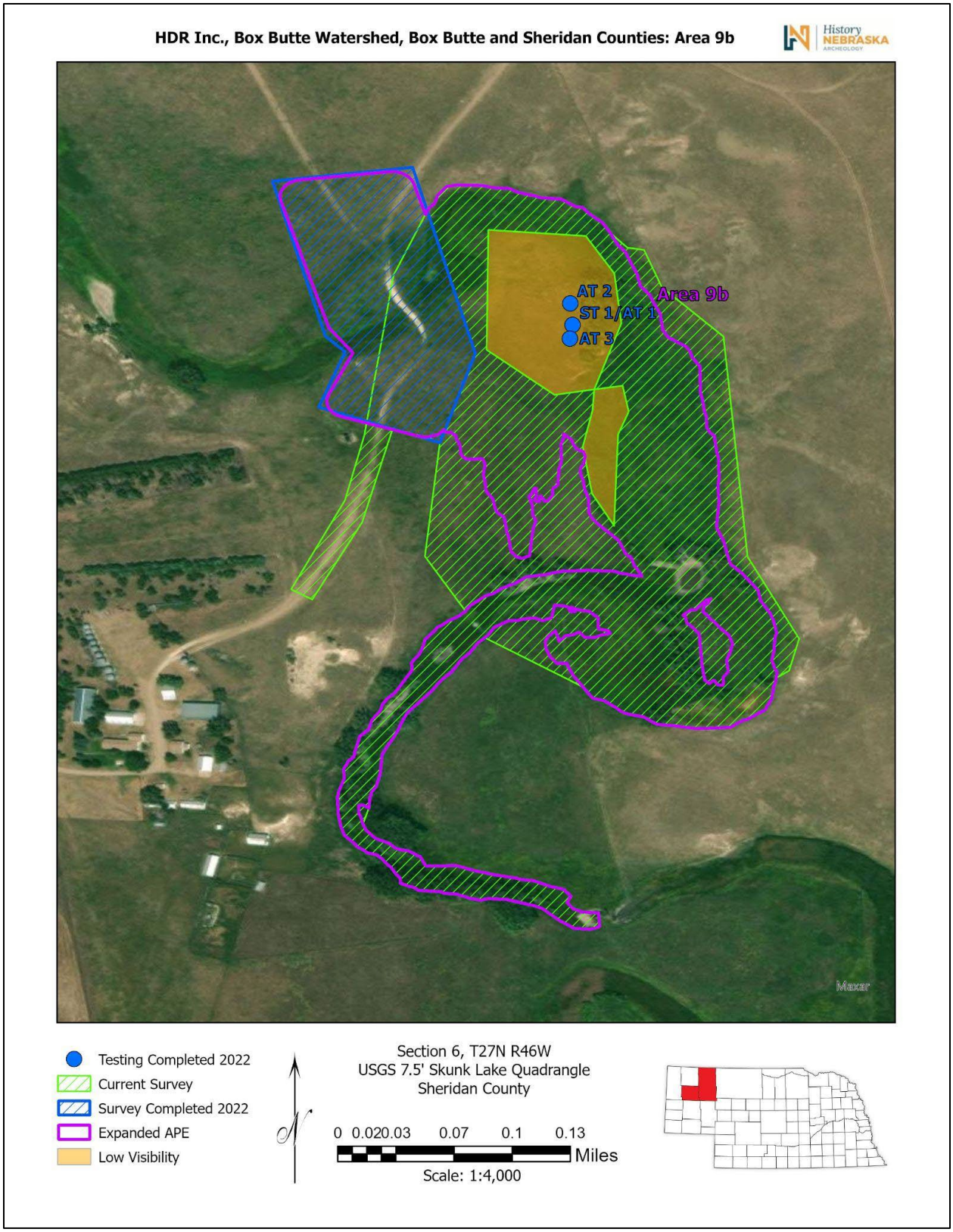


Figure 37. Box Butte Watershed Area 9b APE, previous work and current survey coverage illustrated on FSA orthophoto.

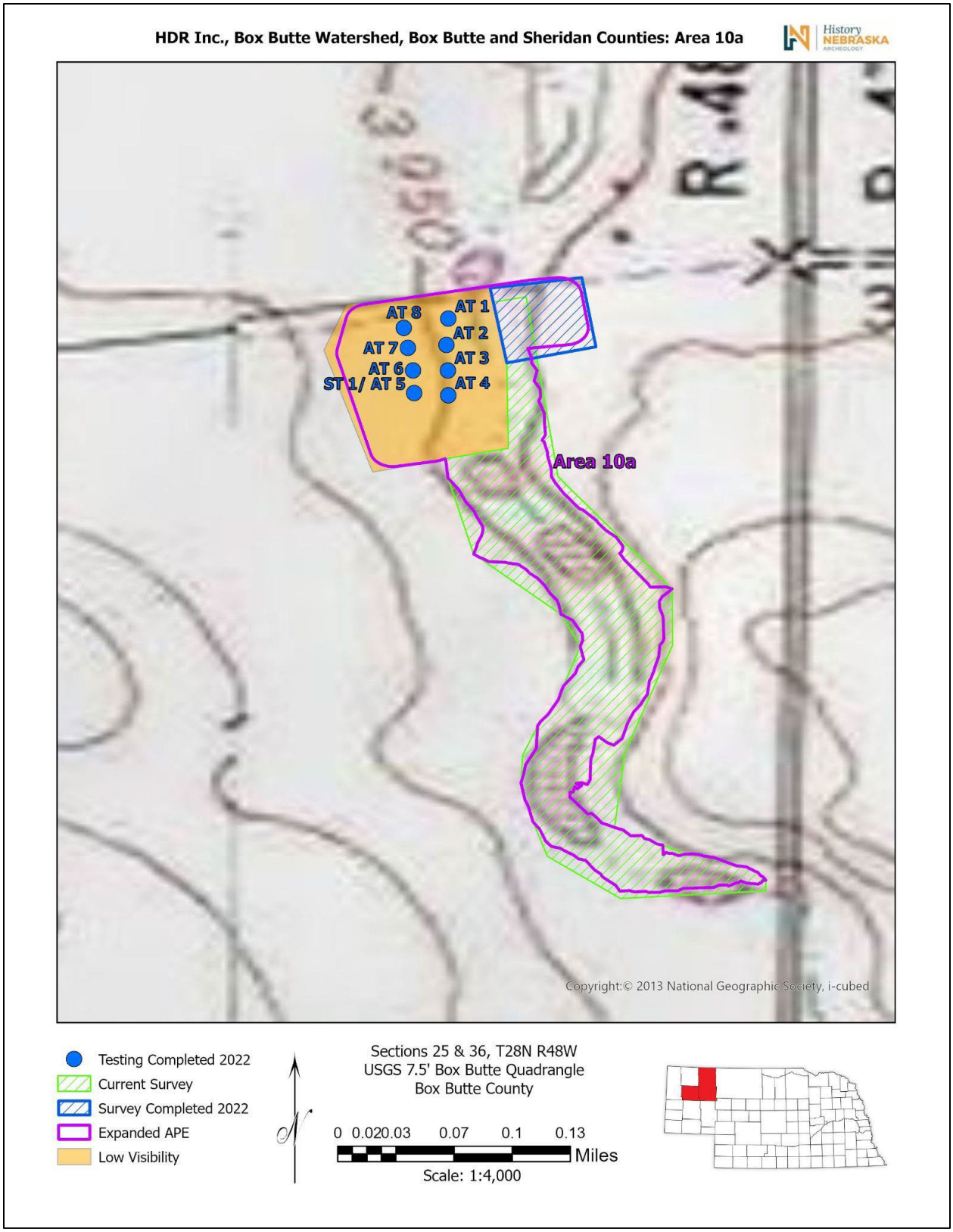


Figure 38. Box Butte Watershed Area 10a APE, previous work and current survey coverage illustrated on USGS 7.5' quadrangle.

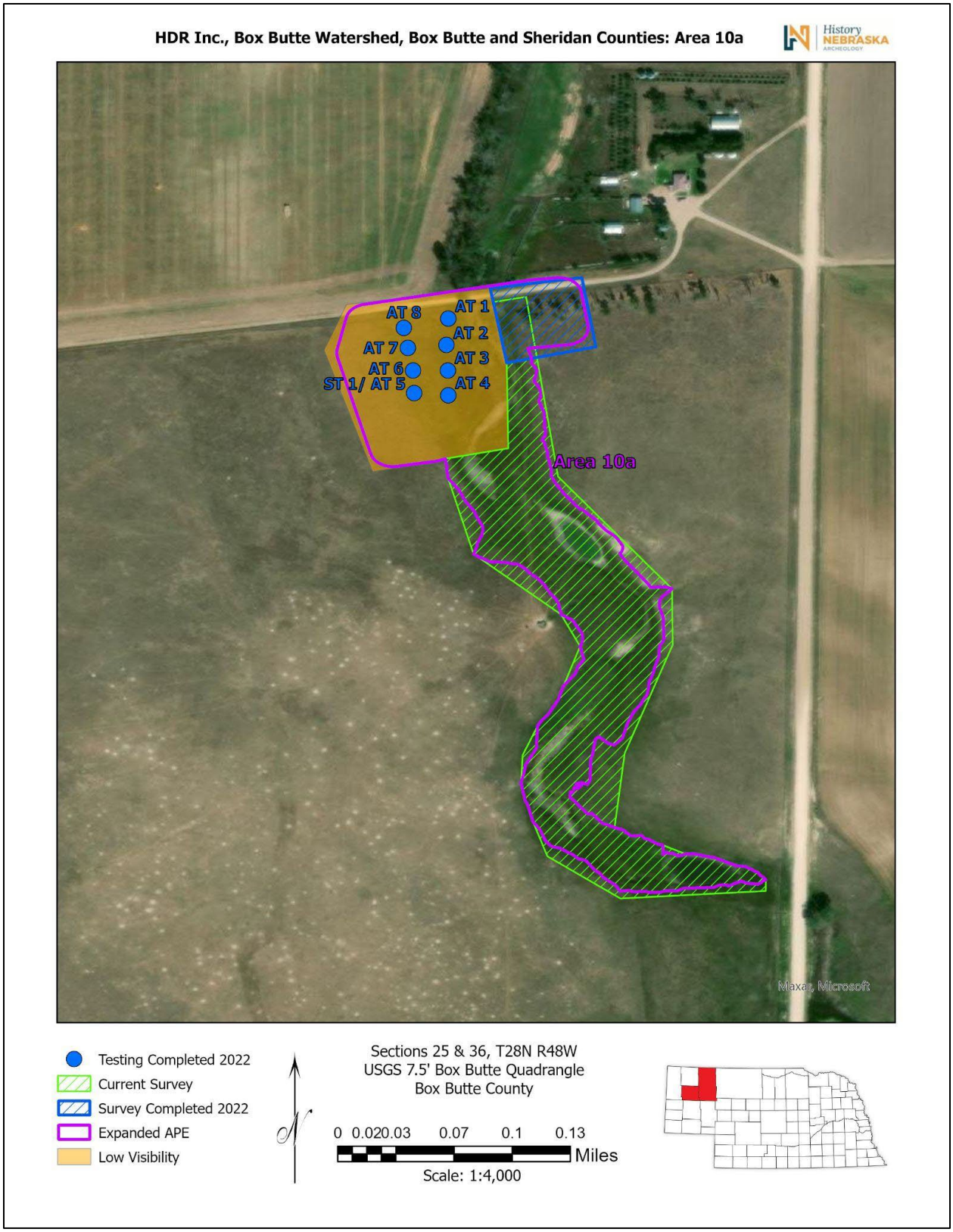


Figure 39. Box Butte Watershed Area 10a APE, previous work and current survey coverage illustrated on FSA orthophoto.

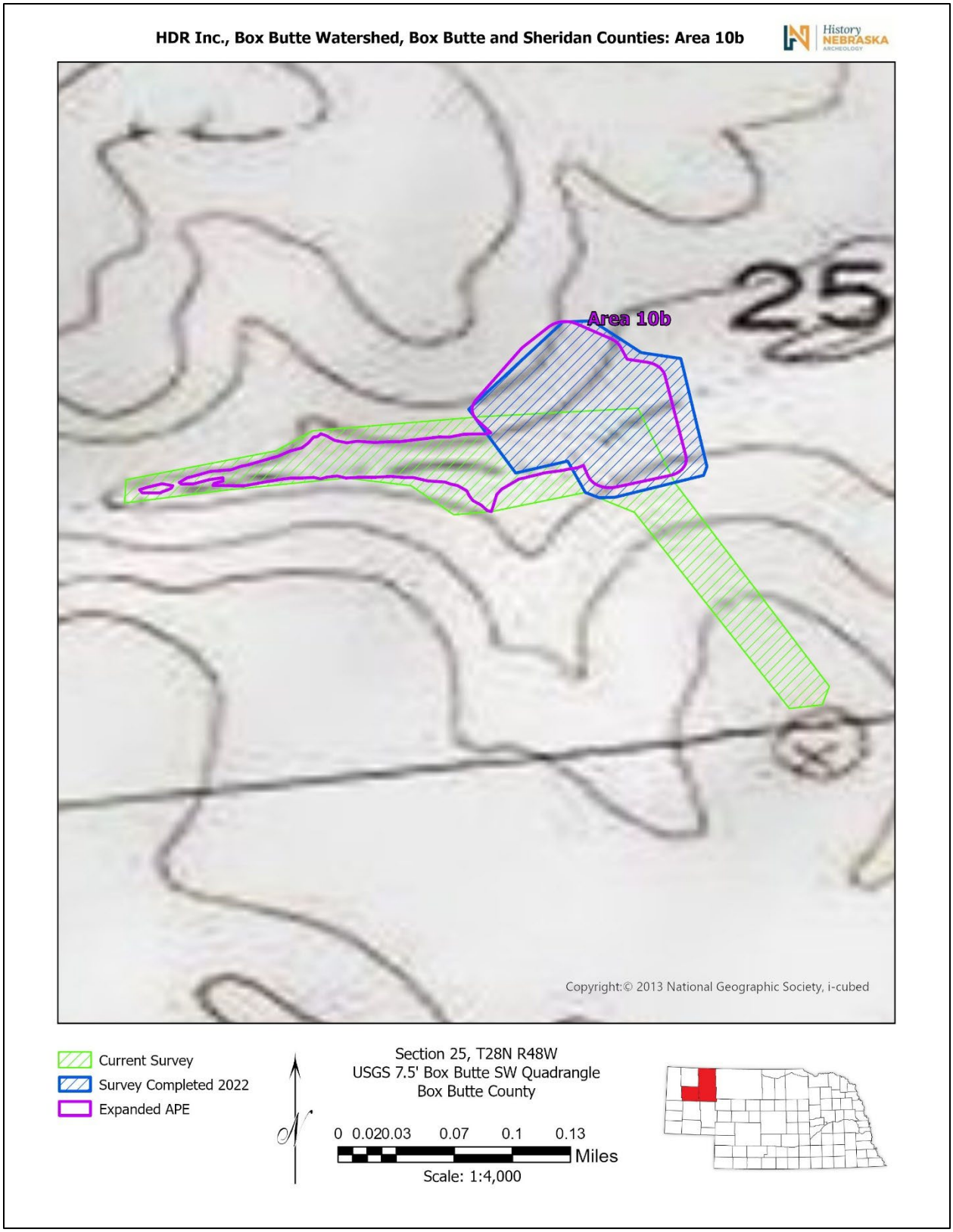


Figure 40. Box Butte Watershed Area 10b APE, previous work and current survey coverage illustrated on USGS 7.5' quadrangle.

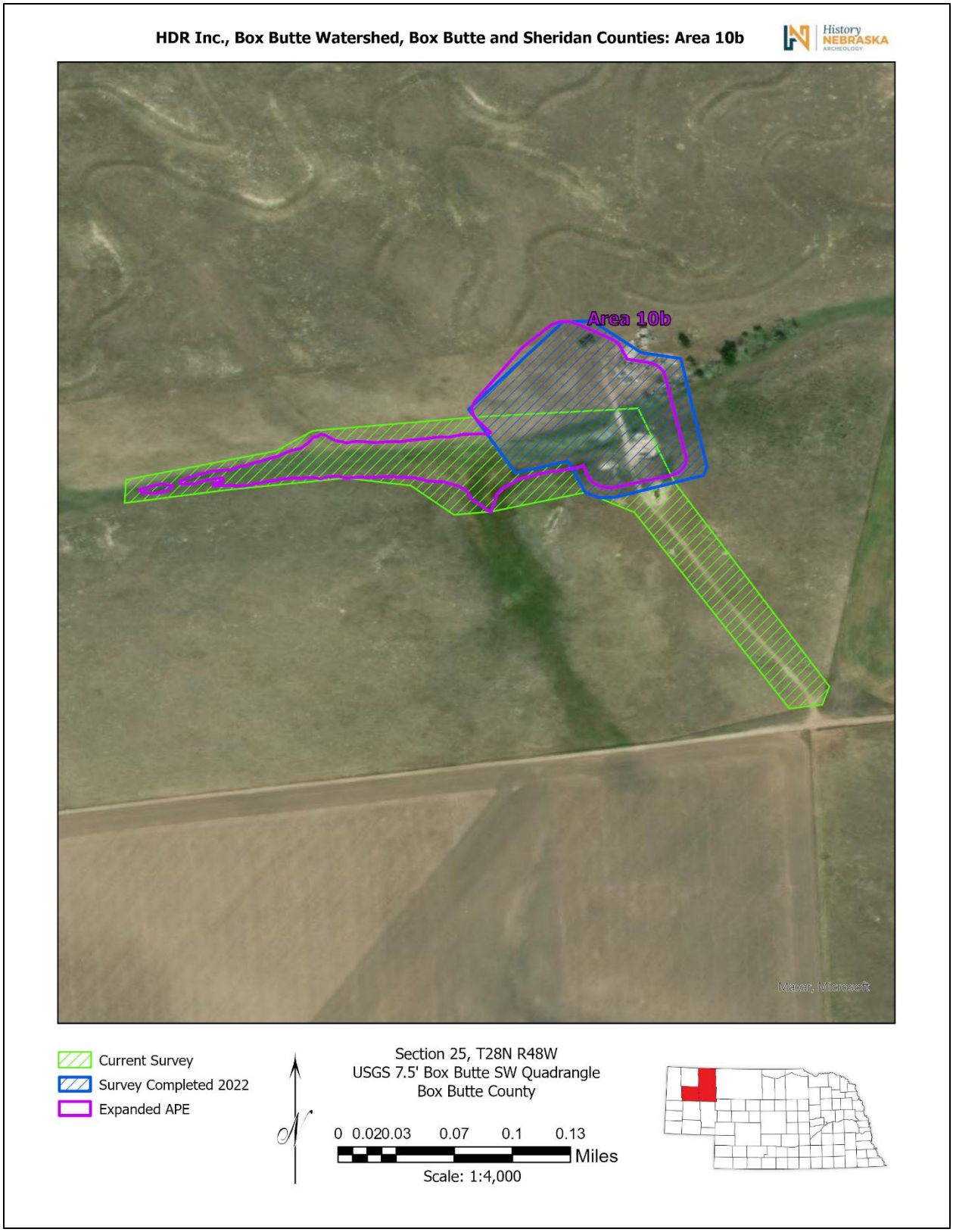


Figure 41. Box Butte Watershed Area 10b APE, previous work and current survey coverage illustrated on FSA orthophoto.

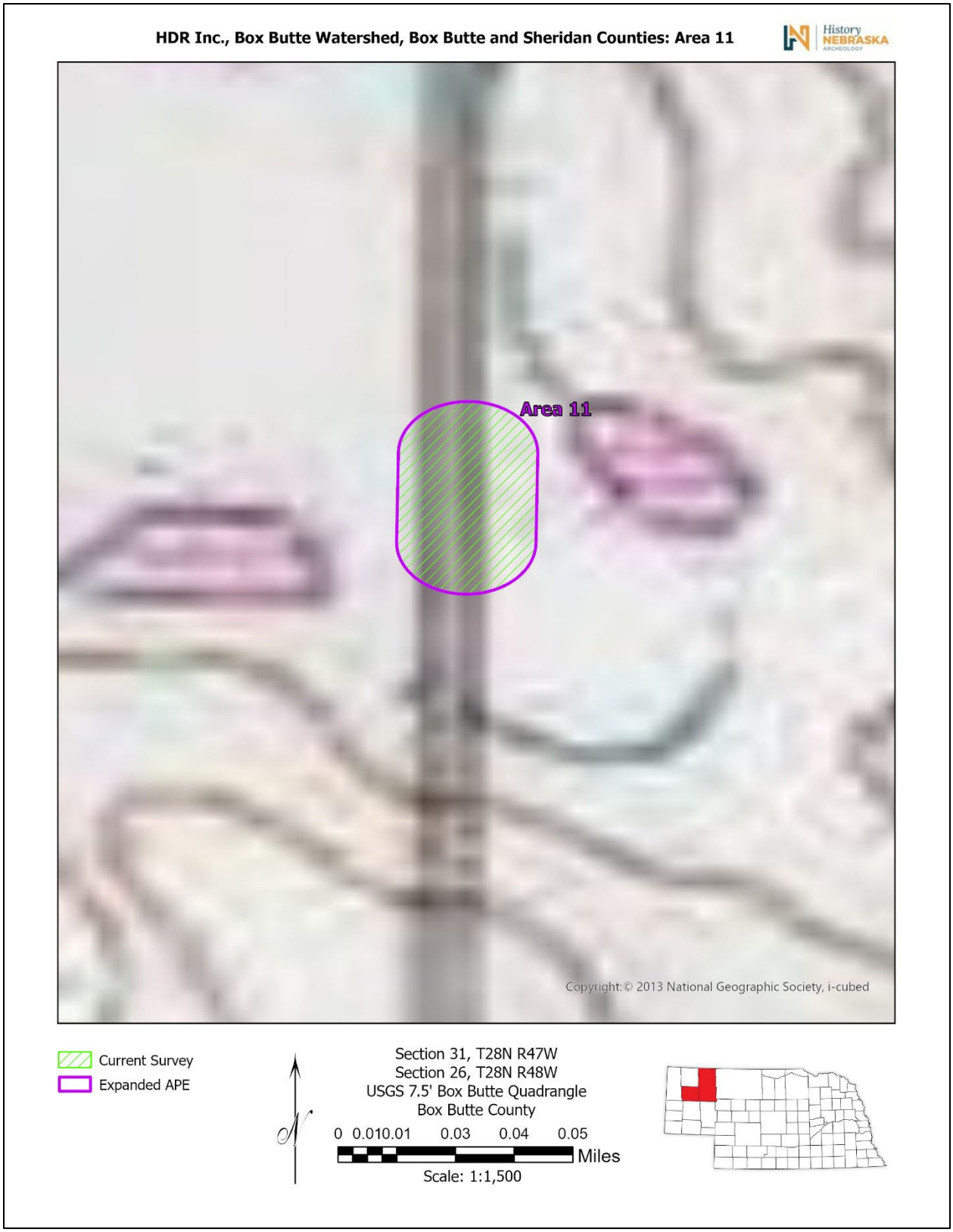


Figure 42. Box Butte Watershed Area 11 APE, current survey coverage illustrated on USGS 7.5' quadrangle.

Figure 43. Box Butte Watershed Area 11 APE, current survey coverage illustrated on FSA orthophoto.

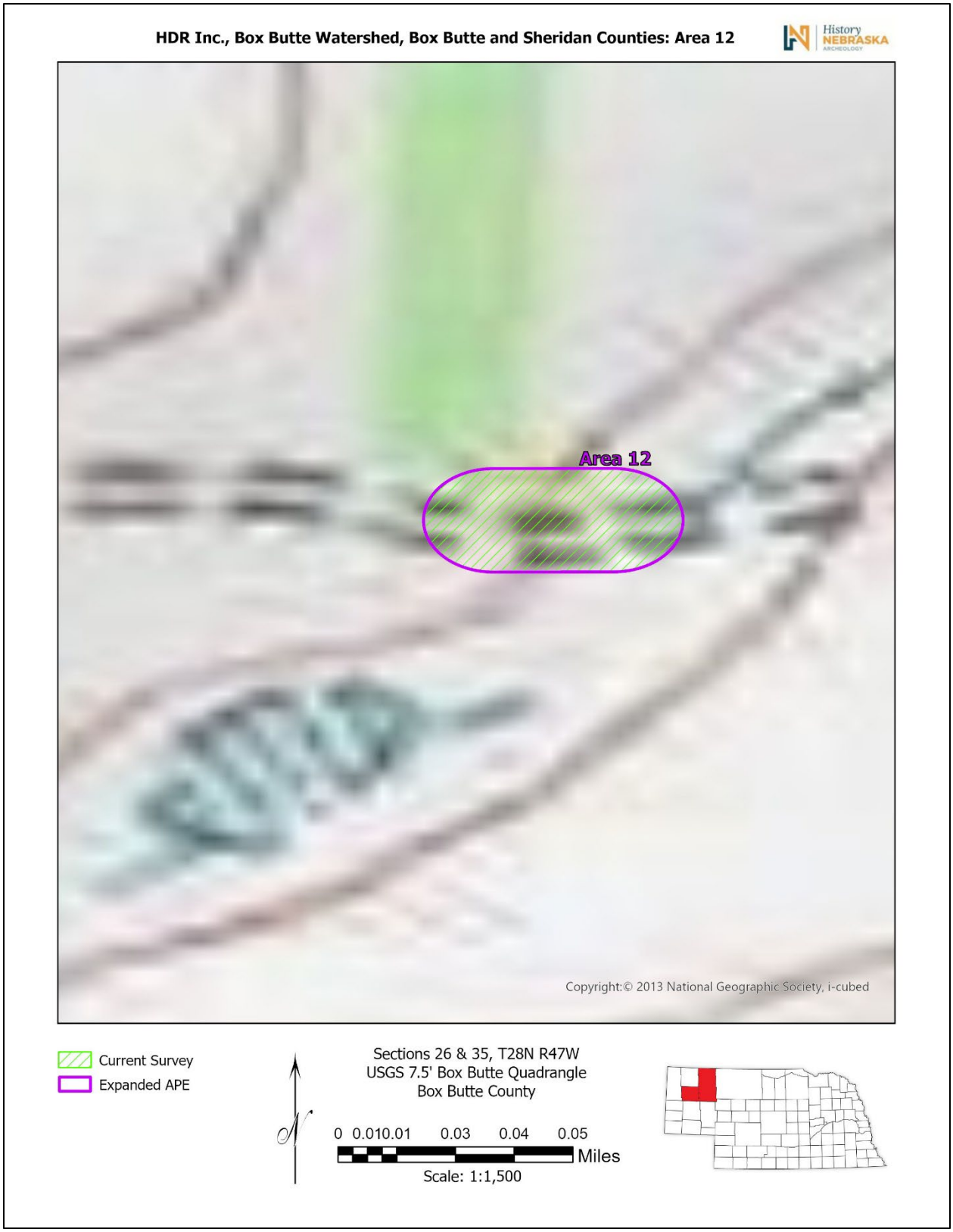


Figure 44. Box Butte Watershed Area 12 APE, current survey coverage illustrated on USGS 7.5' quadrangle.

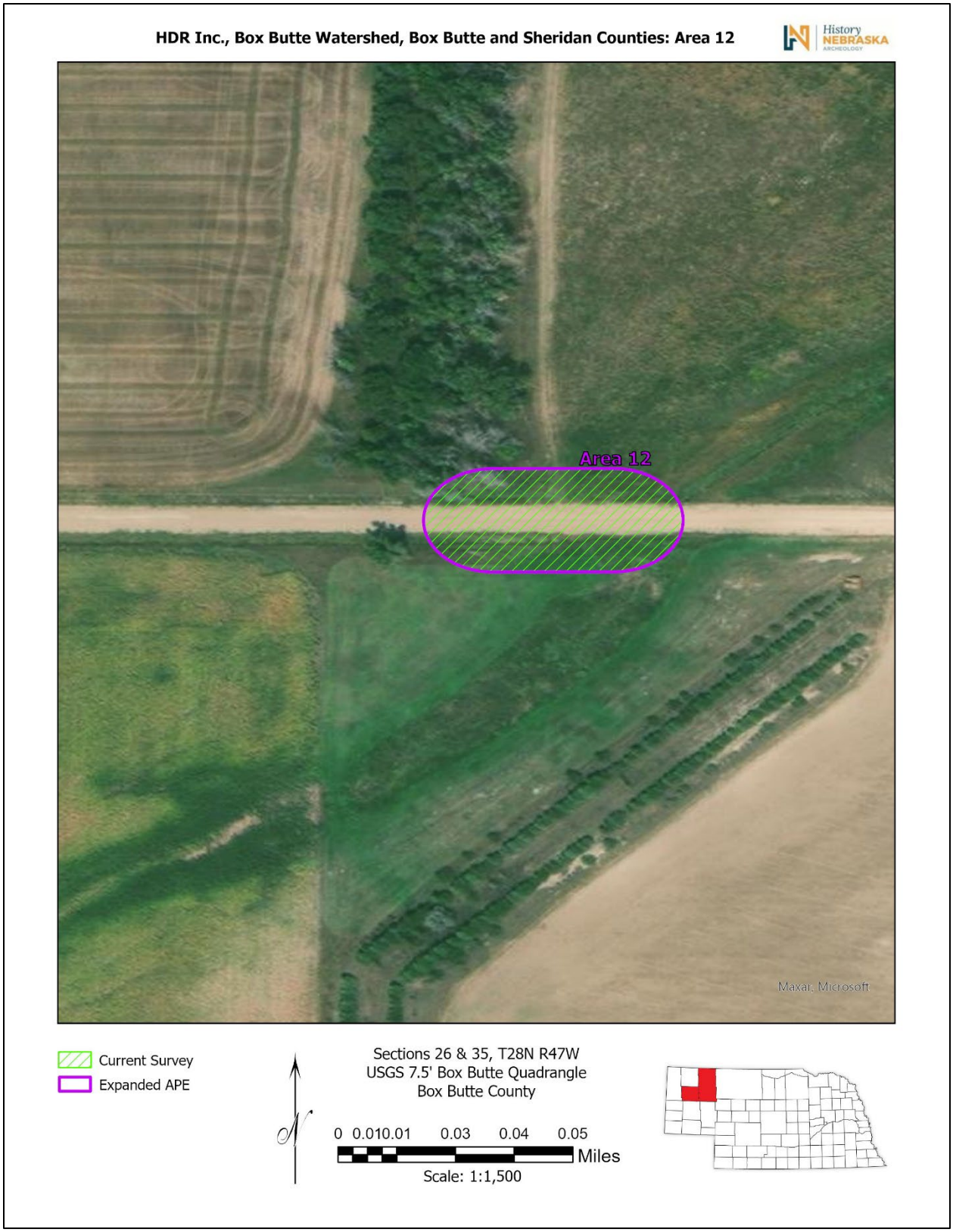


Figure 45. Box Butte Watershed Area 12 APE, current survey coverage illustrated on FSA orthophoto.

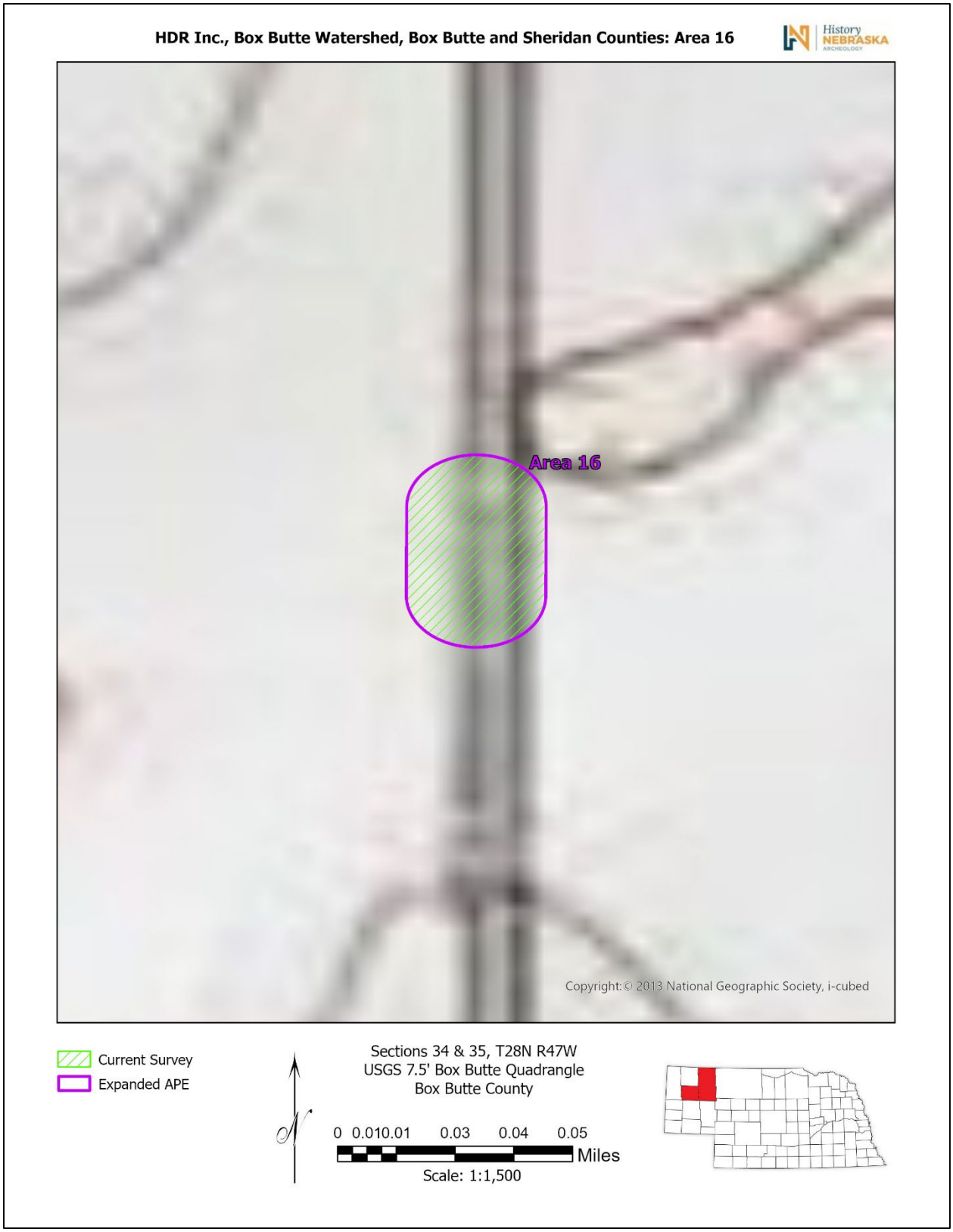


Figure 46. Box Butte Watershed Area 16 APE, current survey coverage illustrated on USGS 7.5' quadrangle.

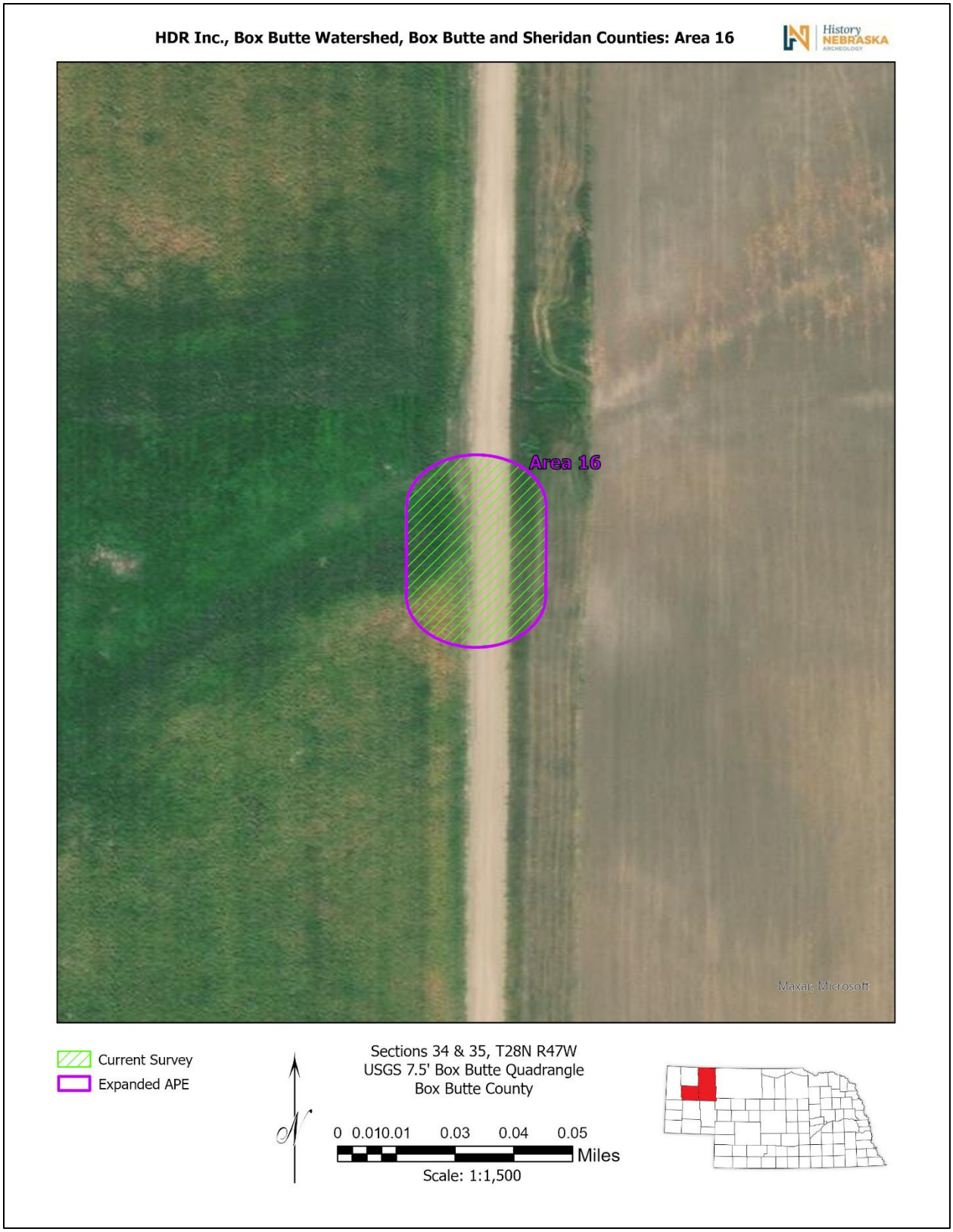


Figure 47. Box Butte Watershed Area 16 APE, current survey coverage illustrated on FSA orthophoto.

Figure 48. Box Butte Watershed Area 20 APE, current survey coverage illustrated on USGS 7.5' quadrangle.

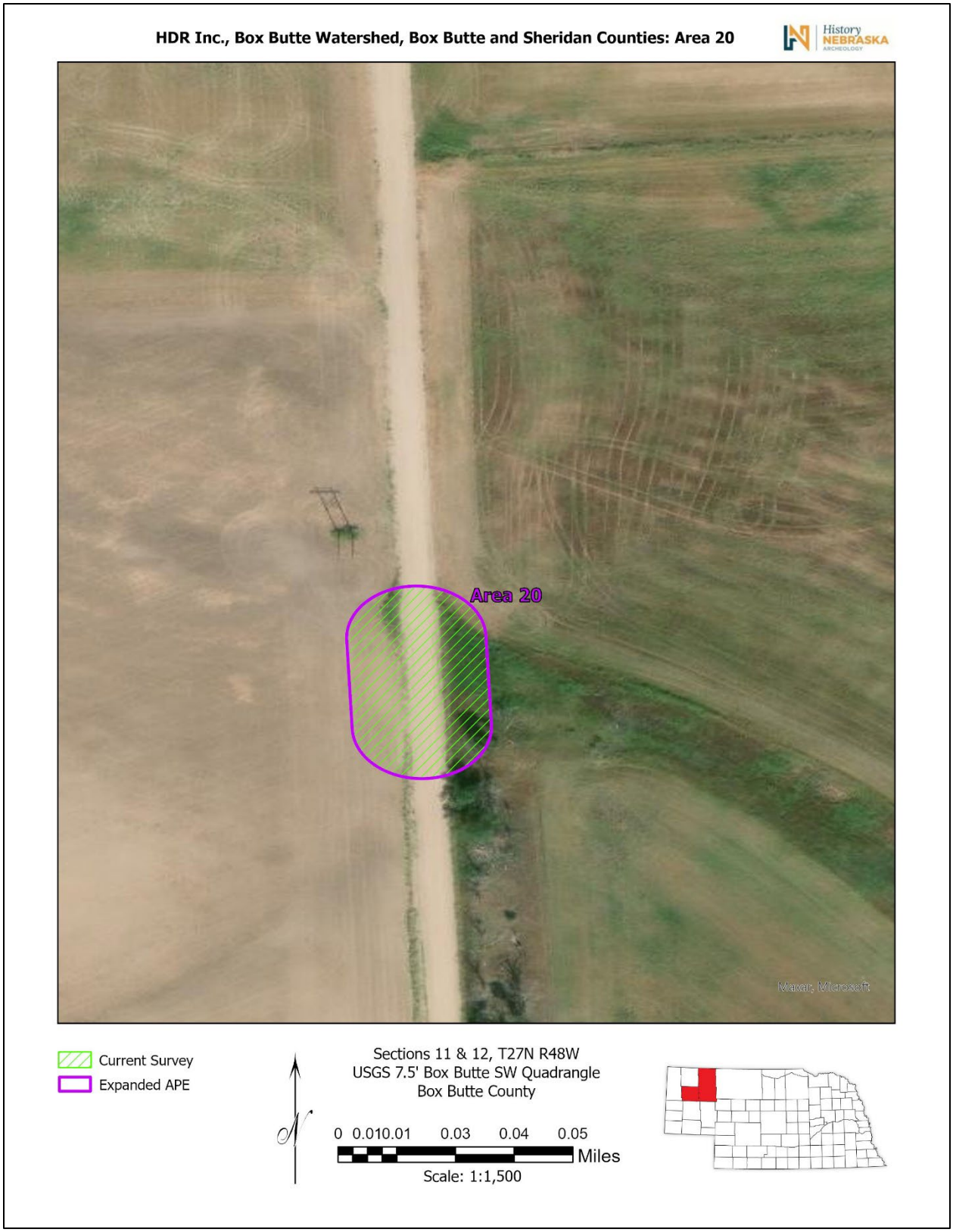


Figure 49. Box Butte Watershed Area 20 APE, current survey coverage illustrated on FSA orthophoto.

SUMMARY AND CONCLUSIONS

The current investigation resulted in the survey of the proposed Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. Proposed project activities may include, but are not limited to, the installation of dams, multi-use facilities for recharge basins or retiming flows, watershed BMPs, retention basins, and levees. Initial fieldwork was completed by SAO personnel between July 5 and August 18, 2022. Subsequent field work was initiated to address expanded APEs as well as the APEs associated with new areas of interest. This secondary round of field work was completed by SAO personnel between December 5, 2022, and May 5, 2023. As a result of this supplemental cultural resource investigation, no new archeological sites or cultural resources were documented during survey and testing activities within the expanded APEs. No historic properties were identified within the expanded APEs. No further work is recommended for this project as proposed.

Provided NRCS and the SHPO concur with these recommendations, the investigators recommended a Section 106 Finding of No Historic Properties Affected relative to the proposed Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment. It is further recommended that should any evidence of buried cultural resources be encountered during project construction activities, such activities be immediately halted and the SHPO or the SAO in Lincoln be notified immediately in order to determine an appropriate course of action. As a reminder, the information included in this report is protected by state law (Statute 84-712.05[14] and [15]) and is not for public distribution.

REFERENCES CITED

Layzell, Anthony, Rolfe D. Mandel, Courtney L.C. Ziska, and John R. Bozell

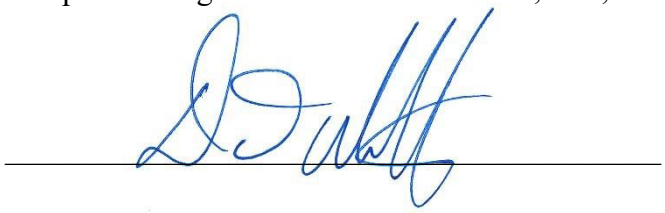
2021 Nebraska Buried Sites GIS (Phase II)-Final Report. Prepared for the Nebraska Department of Transportation. On file, State Archeology Office, History Nebraska. Lincoln.

A Class III Intensive Cultural Resources Survey for the Development of WFPO Watershed Plan– Environmental Assessment for Box Butte Creek Watershed Improvement Project; Box Butte and Sheridan Counties, Nebraska: A Second Supplemental Report Regarding Expanded APEs

By
David T. Williams and Trent Carney

November 4, 2024

Principal Investigator – David T. Williams, MA, RPA



A report prepared for HDR Inc.,
and the Upper Niobrara White Natural Resources District
By the State Archeology Office, Lincoln, Nebraska
A program of the Nebraska State Historical Society

Note: Archaeological site and historic building location information has been removed from the report per Section 304 of the National Historic Preservation Act and Nebraska Revised Statute 84-712.05 ([14] and [15]).

ABSTRACT

HDR, Inc., and the Upper Niobrara White Natural Resources District requested the State Archeology Office (SAO), a division of the Nebraska State Historical Society, conduct a Class III intensive cultural resources investigation, including pedestrian survey, subsurface testing, and archeological site documentation, in advance of the Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. Proposed project activities may include, but are not limited to, the installation of dams, multi-use facilities for recharge basins or retiming flows, watershed BMPs, retention basins, and levees. The USDA Natural Resources Conservation Service (NRCS) is the lead federal agency for this project. The entire Box Butte watershed and proposed planning area encompasses 65,607 hectares (ha) (162,119 acres [ac]). Eleven proposed project areas of potential effects (APE) requiring Class III intensive cultural resources survey were located in: Section 31, T28N R46W; Section 26, T28N R48W; Sections 16, 22, 23, and 25, T27N R47; Section 6, T27N R46W; Section 3, T26N R47W; and Section 3, T26 R48W on the USGS 7.5' Box Butte, Box Butte SW, and Skunk Lake SW quadrangles. The total APE covered 32.23 ha (79.86 ac). The initial Class III intensive cultural resources investigation of these areas, including pedestrian survey, and shovel and auger testing, was completed by SAO personnel between July 5 and August 18, 2022.

In September 2024, HDR, Inc., and the Upper Niobrara White Natural Resources District requested the SAO conduct a second supplemental Class III intensive cultural resources investigation, including pedestrian survey and subsurface testing, on expanded portions of previously investigated APEs 1, 7, 11, 12, and 16 within the Box Butte Watershed Area in advance of the Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. The expanded APEs included the locations of retention basins and culvert locations associated with the project, that have had their APEs expanded since the first supplemental Class III intensive cultural resource assessment conducted by the SAO between December 5, 2022, and May 9, 2023. The secondary supplemental Class III intensive cultural resource assessment was conducted by SAO staff between October 8 and October 16, 2024. No new archaeological sites or standing structures were identified within the project areas over the course of the subsequent investigation. No further work is recommended for any of the expanded APE locations.

Provided NRCS and the State Historic Preservation Office (SHPO) concur with the site recommendations, the investigators recommended a Section 106 Finding of No Historic Properties Affected relative to the proposed Box Butte Creek Watershed Improvement Project Work Plan. It is further recommended that should any evidence of buried cultural resources be encountered during project construction activities, such activities be immediately halted and the SHPO or the SAO in Lincoln be notified immediately in order to determine an appropriate course of action. As a reminder, the information included in this letter is protected by state law (Statute 84-712.05[14] and [15]) and is not for public distribution.

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INTRODUCTION

HDR, Inc., and the Upper Niobrara White Natural Resources District requested the State Archeology Office (SAO), a division of the Nebraska State Historical Society, conduct a Class III intensive cultural resources investigation, including pedestrian survey, subsurface testing, and archeological site documentation, in advance of the Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. Proposed project activities may include, but are not limited to, the installation of dams, multi-use facilities for recharge basins or retiming flows, watershed BMPs, retention basins, and levees. The USDA Natural Resources Conservation Service (NRCS) is the lead federal agency for this project. The entire Box Butte watershed and proposed planning area encompasses 65,607 hectares (ha) (162,119 acres [ac]). Eleven proposed project areas of potential effects (APE) requiring Class III intensive cultural resources survey were located in: Section 31, T28N R46W; Section 26, T28N R48W; Sections 16, 22, 23, and 25, T27N R47; Section 6, T27N R46W; Section 3, T26N R47W; and Section 3, T26 R48W on the USGS 7.5' Box Butte, Box Butte SW, and Skunk Lake SW quadrangles. The total APE covered 32.23 ha (79.86 ac). The Class III intensive cultural resources investigation of these areas, including pedestrian survey, and shovel and auger testing, was completed by SAO personnel between July 5 and August 18, 2022.

As a result of the original survey, one new archeological site was documented and evaluated under the four criteria (A–D) for eligibility consideration in the National Register of Historic Places (NRHP). The site, 25SH20, is an isolated find containing a single flake made of Spanish Diggings quartzite. Site 25SH20 is not associated with events or persons of local, regional, or national significance (Criteria A and B), nor does it possess any unique architectural elements (Criterion C). Subsurface testing conducted in the surrounding area yielded no additional cultural material. Therefore, it was determined that the archaeological site in question is unable to provide additional research value related to its site type in Nebraska (Criterion D). As such, the newly recorded archeological site is recommended Not Eligible for listing in the NRHP. Additional subsurface cultural materials encountered at other locations within the project area were found in disturbed contexts along the slope of a hill prone to erosion events suggesting that the original context of these finds lies outside the boundaries of the APE. No new standing structures were identified within the project area over the course of the investigations.

In September 2024, HDR, Inc., and the Upper Niobrara White Natural Resources District requested the SAO conduct a secondary supplemental Class III intensive cultural resources investigation, including pedestrian survey and subsurface testing, on expanded portions of previously investigated APEs 1, 7, 11, 12, and 16 covering a total of 13.9 ha (34.34 ac) within the Box Butte Watershed Area in advance of the Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. The expanded APEs included the locations of retention basins and culvert locations associated with the project, that have had their APEs expanded since the first supplemental Class III intensive cultural resource assessment conducted by the SAO between December 5, 2022, and May 9, 2023. The secondary supplemental Class III intensive cultural resource assessment was conducted by SAO staff between October 8 and October 16, 2024. No new archaeological sites or standing structures

were identified within the project areas over the course of the subsequent investigation. No further work is recommended for any of the expanded APE locations.

Provided NRCS and the State Historic Preservation Office (SHPO) concur with the site recommendations, the investigators recommended a Section 106 Finding of No Historic Properties Affected relative to the proposed Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment. It is further recommended that should any evidence of buried cultural resources be encountered during project construction activities, such activities be immediately halted and the SHPO or the SAO in Lincoln be notified immediately in order to determine an appropriate course of action. As a reminder, the information included in this report is protected by state law (Statute 84-712.05[14] and [15]) and is not for public distribution.

PREVIOUS INVESTIGATIONS

There are 70 previously recorded archeological sites in Sheridan and Box Butte counties reflecting 75 discrete components (see Table 1). Approximately 33 percent of these are related to Euro-American settlement, transportation, or military operations and approximately 53 percent are Native American but cannot be associated with a particular time period or cultural complex. The remaining components are associated with the following cultural traditions: Paleoindian (n=1), Archaic (n=3), Woodland (n=2), Central Plains Tradition/Ancestral Caddoan (n=2), and Equestrian Nomads/Lakota (n=2).

Table 1. Archeological cultural components previously identified in Box Butte and Sheridan Counties, Nebraska

Cultural Affiliation	Box Butte Co. Cultural Components	Sheridan Co. Cultural Components	Combined Total
Paleoindian	-	1	1
Archaic	-	3	3
Woodland	-	2	2
Central Plains	-	2	2
Equestrian Nomads	-	2	2
Unassigned Pre-Contact	12	28	40
Euro-American	10	15	25
Total:	**22**	**38**	**75**

Table 2. Standing structure results within one mile of Box Butte Creek Watershed project area, Box Butte and Sheridan Counties.

NE SHPO Survey Number	NR Eligibility	Historic Property Name	Historic Context	Property Type
BX00-016	Not Eligible		Czech Church	Religious
B00-039	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-40	Individually		Farmstead	Sod Farmhouse
BX00-41	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-42	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-46	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-47	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-48	More Information Needed	Fairview Cemetery	Cemetery	Religious
BX00-54	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-55	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-56	More Information Needed		Farming and Ranching	Farmsteads and Ranches
BX00-67	More Information Needed		Cemetery	Religious
BX00-81	More Information Needed	Running Water Cemetery	Cemetery	Religious
SH00-066	More Information Needed		Farming and Ranching	Farmsteads and Ranches
SH00-067	More Information Needed		School House	Education

Prior to beginning fieldwork for the second supplemental survey, an updated record search was completed by the second author using the Nebraska Cultural Resources Geographic Information System (NCRGIS) database maintained by the SAO and SHPO for the Box Butte Creek Watershed APEs. In and within one mile of the combined APEs, four cultural resources surveys have been conducted; as a result of earlier efforts on this project one archeological site, 25SH20, has been recorded within the Area 9a APE (Table 3; Figures 1–6). No cultural resources have been recorded in the four expanded APE locations investigated for the present report.

Table 3. Previous cultural resource investigations in and within one mile of the expanded Box Butte Watershed project area, Box Butte County.

Within Project Area			
SHPO Survey No.	**Year**	**Author(s)**	**Title**
12-0077	2012	Parks, Stanley M.	Archeological Survey and Assessment: NebraskaLink Fiber-Optic Cable Installation Keith, Garden, Cheyenne, Morrill, Box Butte, and Dawes Counties, Nebraska
17-0013	2016	Prouty, Michael	A Class III Cultural Resource Inventory of Western Area Power Administration's Box Butte-Chadron 115-kV Transmission Line and Access Roads, Box Butte and Dawes Counties, Nebraska.
Within 1 Mile of Project Area			
SHPO Survey No.	**Year**	**Author(s)**	**Title**
15-0045	2014	Lindland, Trevor R.	A Class III cultural resource inventory of the Western Area Power Administrations Box Butte Alliance 115-kV transmission line and Structure 362 on the Alliance Snake Creek Tap 115-kV Line, Box Butte County, Nebraska.
08-0150	2008	Giliberti, Joseph	A Cultural Resources Inventory of Pole Replacements Box Butte-Chadron 115-KV Transmission Line Box Butte and Dawes Counties, Nebraska.

Between July and August 2022, SAO staff conducted pedestrian survey, subsurface testing–including hand excavation of shovel tests (STs) and auger tests (ATs)–and documentation and evaluation of newly discovered cultural resources within the 11 original project areas.

Subsurface testing occurred at Areas 2, 6a, 7, 8, 9a, 9b, and 10a, and one new archeological site, 25SH20, was documented. The site was recommended Not Eligible for inclusion in the NRHP, and the investigators recommended a Section 106 Finding of No Historic Properties Affected for the proposed project. Upon review by the NRCS, it was determined that the previously identified APEs needed to be expanded to fully account for additional potential impacts. As a result, supplemental fieldwork was proposed to investigate the expanded APEs associated with 10 of the

previously defined project areas, as well as the examination of four additional project areas: Area 11, 12, 16, and 20.

Between December 2022 and May 2023, the second author led pedestrian survey and subsurface testing in expanded and added project APEs. As a result of those investigations, no cultural resources were identified and no further work was recommended.

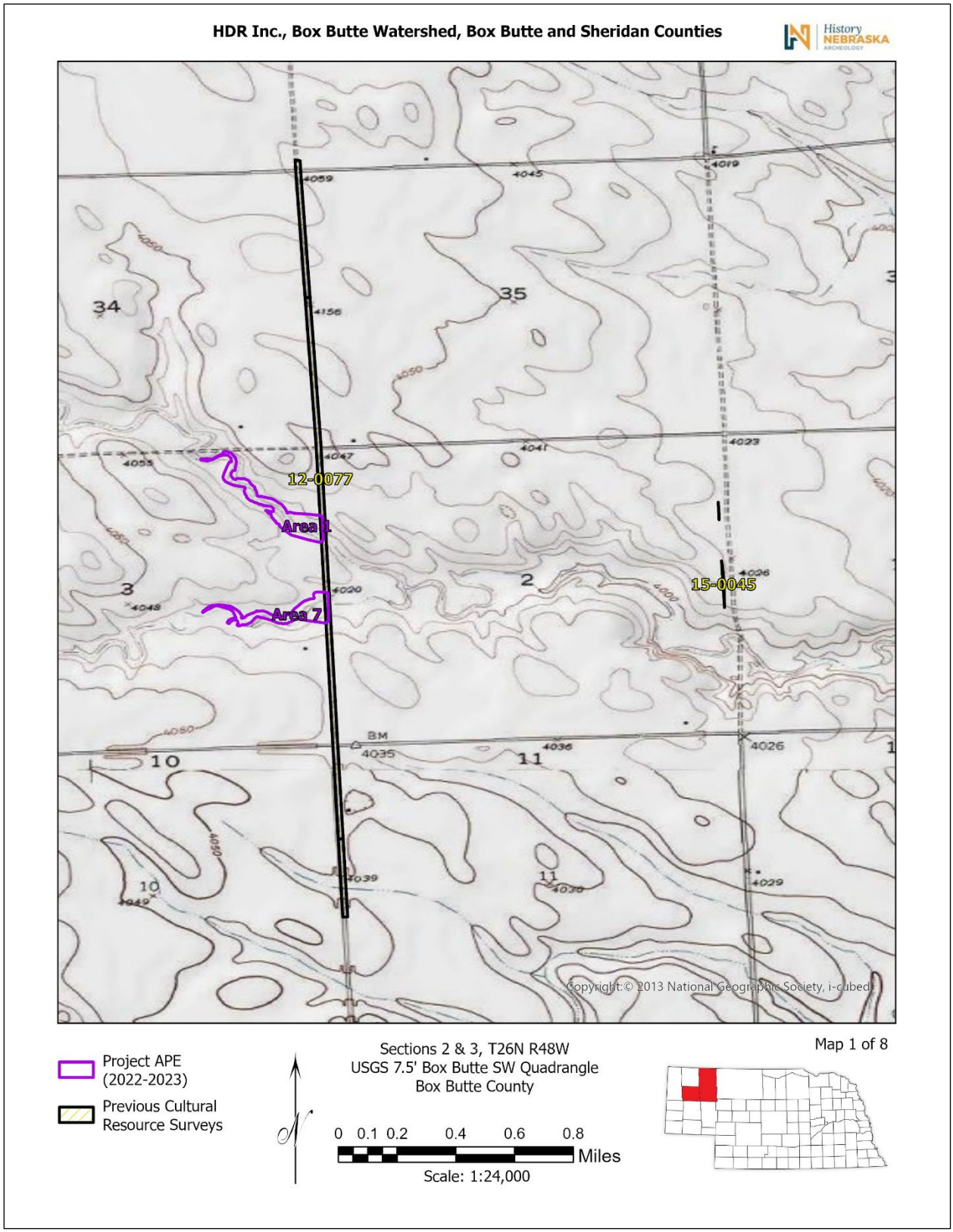

Figure 1. Box Butte Creek Watershed Area 1 and 7 expanded APEs and previous cultural resources survey illustrated on USGS 7.5' quadrangle.

Figure 2. Box Butte Creek Watershed Area 1 and 7 expanded APEs and previous cultural resources survey illustrated on Farm Service Agency (FSA) orthophoto.

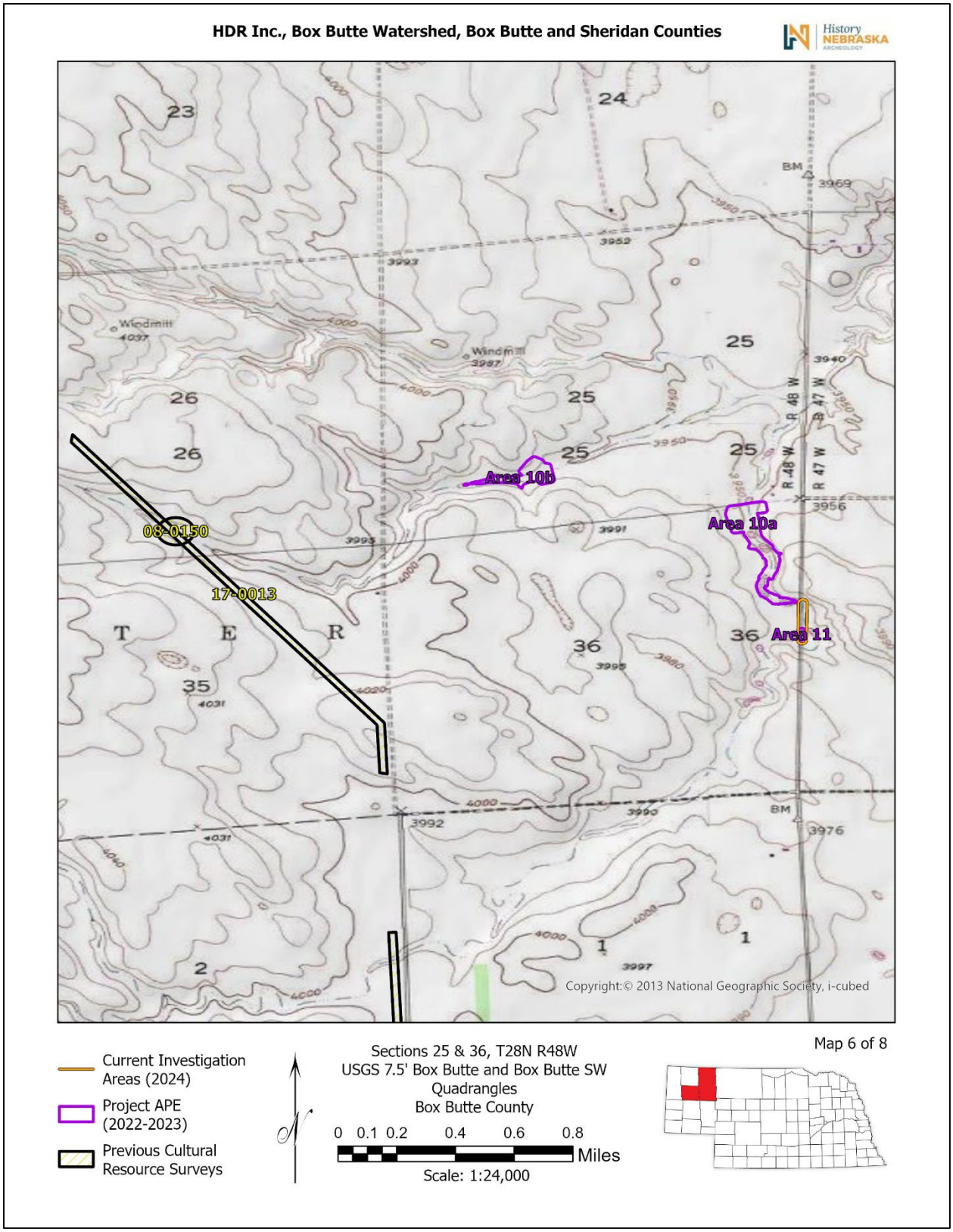

Figure 3. Box Butte Creek Watershed Area 10a, 10b and 11 APEs and previous cultural resources survey illustrated on USGS 7.5' quadrangle.

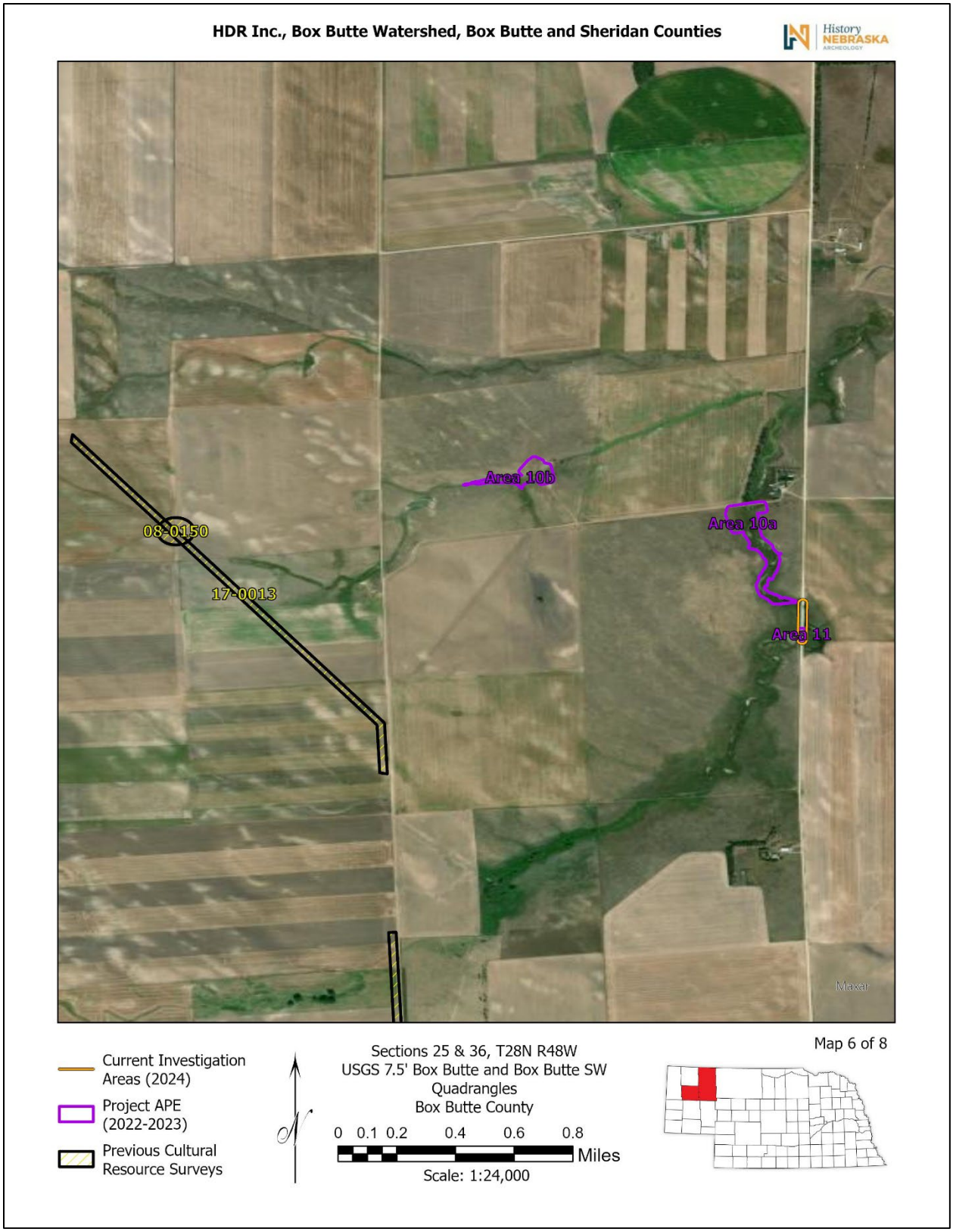

Figure 4. Box Butte Creek Watershed Area 10a, 10b, and 11 APEs and previous cultural resources survey illustrated on FSA orthophoto.

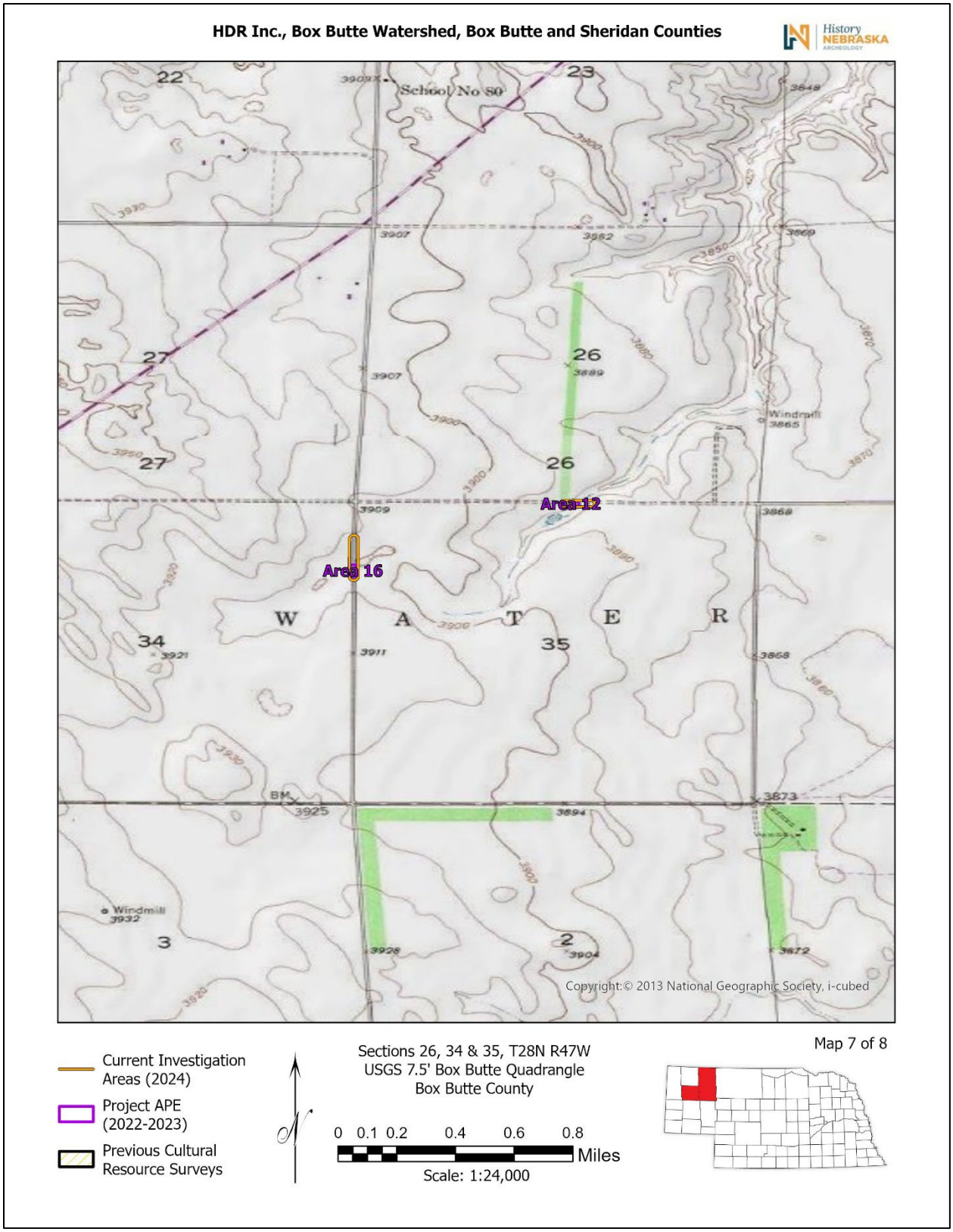

Figure 5. Box Butte Creek Watershed Area 12 and 16 APEs illustrated on USGS 7.5' quadrangle.

Figure 6. Box Butte Creek Watershed Area 12 and 16 APEs illustrated on FSA orthophoto.

ENVIRONMENTAL AND CULTURAL SETTING

Comprehensive environmental and cultural setting descriptions were provided in the original Class III survey report and will not be repeated in this supplemental report.

CURRENT INVESTIGATION

Buried Soils and Buried Sites Potential

Prior to resuming survey in October 2024, SAO staff reviewed the SAO's Deeply Buried Sites Geographic Information System (GIS) (see Layzell et al. 2018) and USDA's Web Soil Survey databases for information on soil types and potential within the expanded APEs for containing buried soils and cultural horizons. A total of 35 soil components are mapped across the original and expanded APEs. Two of the identified soil components were identified in the current expanded investigation areas; those components have high (Soil Unit 1362: Bridget, sandy loam) and low-moderate (Soil Unit 5616: Craft, sandy loam) potential for containing deeply buried archeological sites (Table 4; Appendix A). Ground-truthing to determine the presence of buried soils was conducted during the field investigations via a combination of shovel tests (STs), standard auger tests (ATs), and deep auger tests (AT-Ds) at Areas 1 and 7. Two buried soils were identified during the excavations at Area 7, however these buried soils were inconsistent in their depth and the spatial extent of their deposition, and did not yield any cultural materials.

Table 4. Mapped soil units within the expanded Box Butte Creek Watershed project area and their potential for buried soils that may contain cultural components.

Soil Unit	Soil Name	Slope (%)	Description	Potential
1189	Las Animas-Lisco, sandy loam	N/A	Forms on flood plains. Parent material consists of alluvium.	Low-Moderate
1320	Beckton, silt loam	0-2	Forms on alluvial fans on uplands. Parent material consists of alluvium.	N/A
1362	Bridget, sandy loam	1-3	Forms on alluvial fans on river valleys. Parent material consists of alluvium.	High
1683	Manter-Satanta, sandy loam	0-3	Forms on knolls on uplands. Parent material consists of Eolian deposits.	N/A
1684	Manter-Satanta, sandy loam	3-6	Forms on ridges on uplands. Parent material consists of Eolian deposits.	N/A
1726	Rosebud, loam	1-3	Forms on broad interstream divides on tablelands. Parent material consists of residuum.	N/A

Table 4 continued.

Soil Unit	Soil Name	Slope (%)	Description	Potential
1736	Rosebud-Canyon, complex	3-9	Forms on ridges on uplands. Parent material consists of loess.	N/A
1737	Rosebud-Canyon, complex	3-30	Forms on ridges on uplands. Parent material consists of loess.	N/A
1809	Satanta, sandy loam	1-3	Forms on sand sheets and tablelands. Parent material consists of Eolian deposits.	N/A
1813	Satanta, sandy loam	6-9	Forms on sand sheets and tablelands. Parent material consists of Eolian deposits.	N/A
1823	Satanta-Canyon, complex	6-12	Forms on paleo-terraces on tablelands. Parent material consists of Eolian deposits.	N/A
3228	Lute, loam	0-2	Forms on hill slopes on uplands. Parent material consists of colluvium.	High
3522	Lamo, variant loam	0-1	Forms on flood plains and on drainage ways on uplands. Parent material consists of alluvium.	Low-Moderate
4716	Orpha-Niobrara, complex	6-11	Forms on hill slopes and uplands. Parent material consists of Eolian sands.	N/A
5101	Alliance loam	1-2	Forms on broad interstream divides, plains, and drainageways. Parent material consists of loess over residuum.	Low-Moderate
5108	Alliance-Rosebud, loam	1-3	Forms on drainage ways and plains on tablelands. Parent material consists of loess.	N/A
5109	Alliance-Rosebud, loam	3-6	Forms on interfluves on uplands. Parent material consists of loess.	N/A
5120	Busher, sandy loam	3-6	Forms on hill slopes and uplands. Parent material consists of residuum.	N/A
5139	Busher-Tassel, complex	6-30	Forms on flood plains on uplands. Parent material consists of residuum	N/A

Table 4 continued.

Soil Unit	Soil Name	Slope (%)	Description	Potential
5134	Busher-Jayem, loamy very fine sands	3-6	Forms on ridges on uplands. Parent material consists of residuum.	N/A
5143	Busher-Tassel, loamy sand	6-30	Forms on hill slopes and uplands. Parent material consists of residuum	N/A
5179	Hemingford, loam	0-1	Forms on plains on tablelands. Parent material consists of loess	N/A
5180	Hemingford, loam	1-3	Forms on interfluves on tablelands. Parent material consists of loess.	N/A
5181	Hemingford, loam	3-6	Forms on ridges on uplands. Parent material consists of loess.	N/A
5206	Oglala-Canyon, complex	3-9	Forms on hill slopes and tablelands. Parent material consists of residuum.	N/A
5215	Oglala-Canyon, sandy loam	9-30	Forms on hill slopes and uplands. Parent material consists of residuum.	N/A
5281	Vetal, fine sandy loam	0-3	Forms on fans and valleys on tablelands. Parent material consists of alluvium.	N/A
5616	Craft, sandy loam	N/A	Forms on flood plains on uplands. Parent material consists of alluvium	Low-Moderate
5625	Duroc, loam	N/A	Forms on swales on uplands. Parent material consists of alluvium.	N/A
5643	Janise, loam	0-2	Forms on flood plains on uplands. Parent material consists of alluvium.	Moderate-High
5644	Janise, loam	0-3	Forms on flood plains on uplands. Parent material consists of alluvium.	Moderate-High
5646	Janise, loamy fine sand	0-3	Forms on flood plains on uplands. Parent material consists of alluvium	Moderate-High
5934	Creighton, very fine sand	1-3	Forms on flats on uplands. Parent material consists of Eolian deposits.	N/A

Table 4 continued.

Soil Unit	Soil Name	Slope (%)	Description	Potential
5943	Duroc, loam	1-3	Forms on swales and tablelands. Parent material consists of alluvium	N/A
5965	Jayem, fine sandy loam	0-3	Forms on plains on tablelands. Parent material consists of Eolian deposits.	N/A

Field Work and Methodology

Between October 8 and October 16, 2024, SAO staff conducted pedestrian survey, subsurface testing–including hand excavation of STs, ATs, and AT-Ds. Staff assisting with survey and testing included: the second author, and Archeological Technicians MaKenzie Coufal and Elsie McCabe. Based on the results of the project background review, topography of the APE, and data contained within the SAO's deeply buried sites GIS database, it was determined that there was a reasonable probability of encountering archaeological sites within the expanded APEs of project areas 1, 7, 11, 12, and 16. Therefore, it was determined that 100 percent of the expanded APEs required survey. Each of these expanded APEs were pedestrian surveyed, and subsurface testing was conducted in project areas 1 and 7.

Pedestrian Survey

Pedestrian survey within the expanded project APEs was conducted using a combination of linear and meandering pedestrian survey transects spaced no more than 20 meters (m) (65.6 feet [ft]) apart. Vegetation throughout the APE consisted mainly of areas of mixed prairie grass pasture with wetland grasses along ephemeral waterways and some agricultural fields (Figures 7–8). All areas with likelihood of containing surface or near-surface cultural materials, including stream cuts, animal burrow back dirt piles, and cleared agricultural fields, were closely examined. Ground surface visibility (GSV) was highly variable throughout the total project area. Agricultural fields, when present, were recently tilled and contained 60–90 percent GSV. Grassy pastures had more variable GSV ranging from 10–75 percent.

All five of the project areas had sufficient GSV to permit adequate pedestrian survey coverage. Subsurface testing was conducted to determine the presence of buried soils which could contain cultural resources in project areas with high to moderate potential (see Table 4). Topography within the APE ranged from level to near-level with some gently sloping hills, and a few hills with steeper inclines, on either side of the floodplains of Box Butte Creek and its tributaries. Noted disturbances throughout the APE included impacts from general agricultural practices including planting, harvesting, and ranching activities, as well as erosion from streams and wind.

Fieldwork documentation included GPS mapping, digital photography, and completion of standardized SAO field forms. Mapping data was collected using the ESRI *Field Maps* mobile application using a Trimble DA-2 RTK Bluetooth receiver and Trimble Catalyst software on a

Galaxy S20 FE 5G cell phone. Field photographs were taken using a 21.51-megapixel Nikon Z50 digital camera. All field datasets generated during this project are on file at the SAO.

No surface artifacts were recorded during the current survey. No new standing structures were identified in or within one-quarter mile of the combined Box Butte Creek Watershed APE.

Subsurface Testing

Figure 7. Example of a shovel test excavated from Area 7. Photo date: 10/16/2024.

Subsurface excavation–including STs, ATs, and AT-Ds–were excavated by hand in project Areas 1 and 7 where retention basins are anticipated (see Table 5; Figures 9–17). Each ST measured between 30 and 40 centimeters (cm) in diameter and was excavated to a depth of 50–55 cm below surface (cmbs). ATs were excavated with a 4-in bucket auger, and ranged in depth from 50–62 cmbs. AT-Ds were excavated with a 4-in bucket auger, and ranged in depth from 180-266 cmbs. A single outlier, AT-D-8, was located at the extreme western edge of Area 7. This deep test reached a depth of only 87 cmbs due to the presence of palm-sized rocks that prevented further excavation. All hand excavations were completed in arbitrary 10-cm levels for vertical control, and all sediment was screened through ¼-inch hardware mesh. Soil stratigraphy, texture, depth, and color were documented for each excavated test, and each excavation was documented collected using the ESRI *Field Maps* application on a Galaxy S20 FE 5G cell phone.

Buried soils were encountered in Area 7 along the northern edge of the current investigation area. These buried soils were identified in AT-D-4, AT-D-5, AT-D-6, and AT-D-7. The buried soil identified in AT-D-4 and AT-D-5 consisted of a layer of 10YR 4/2 loess located beneath a gravel-filled layer of 10YR 8/2 loess. The buried 10YR 4/2 loess, which matched the soil type and the Munsell coloration and hue of Area 7's top soil, appeared between 202 and 208 cmbs, respectively, and extended to a depth 216 cmbs in both test units. The buried soil identified in AT-D-6 and AT-D-7 consisted of a layer of 10YR 4/2 sandy loam with a slight clay content, which extended from 218 cmbs in AT-D-6 and 221 cmbs in AT-D-7, to depths of 230 cmbs and 266 cmbs, respectively. This buried soil was located beneath a layer of 10YR 4/3 loess which began at 20 cmbs in both units. The buried loam layer coincides with soil identification number 1362 (Bridget, sandy loam), a soil component with high potential for buried cultural material in this portion of the project area

(See Table 4). These findings are consistent with the seasonally flooded waterways, and the two buried soils that were identified during the excavations at Area 7 were inconsistent in the depth and the spatial extent of their deposition. Additionally, neither observed buried soil yielded any cultural materials. As a result of subsurface testing, no cultural material or archeological contexts were identified.

Figure 8. Overview of Box Butte Creek Area 1 grassy pasture where testing was conducted illustrating typical GSV. View is to the northwest. Photo date: 10/10/2024.

Table 5. Box Butte Watershed project area descriptions secondary supplemental investigation.

Project Area	Legal Location	GSV (%)	Acres (Hectares)	Testing	No. of Tests
1	Sections 2 and 3, T26N R48W	50-75%	17.57 (7.11)	Y	n=2 ST; n=17 AT; n= 6 AT-D
7	Sections 2 and 3, T26N R48W	10-90%	11.46 (4.64)	Y	n=2 ST; n=AT; n=11 AT-D
11	Section 26, T28N R48W	20-50%	2.05 (0.83)	N	--
12	Sections 26 & 35, T28N R47W	10-20%	1.17 (0.47)	N	--
16	Sections 34 & 35 T28N R47W	35-60%	2.09 (0.85)	N	--
Total Acreage (Hectares)			***34.34 (13.9)***		

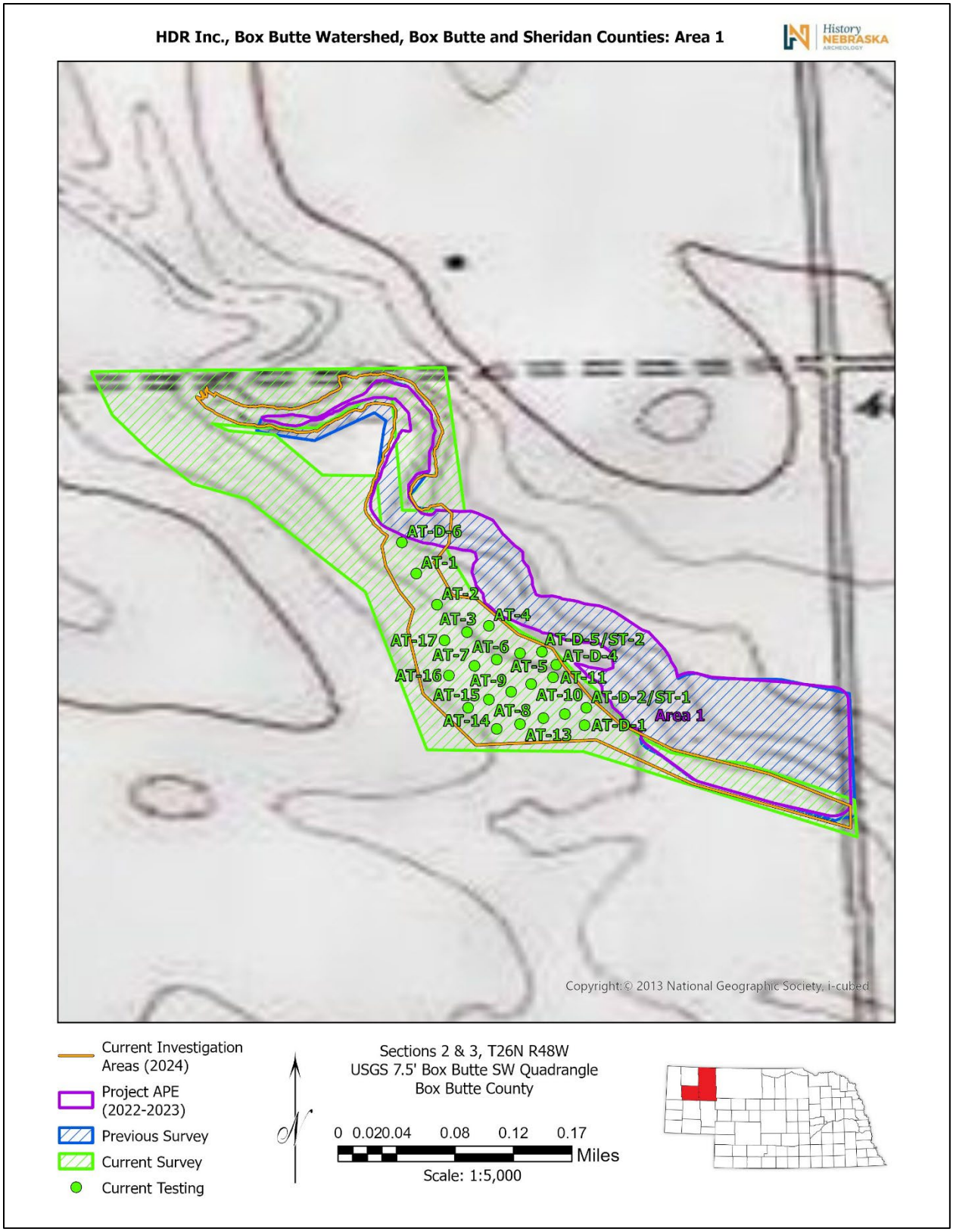

Figure 9. Box Butte Watershed Area 1 APE, previous work, and current survey coverage and subsurface testing locations illustrated on USGS 7.5' topographic map.

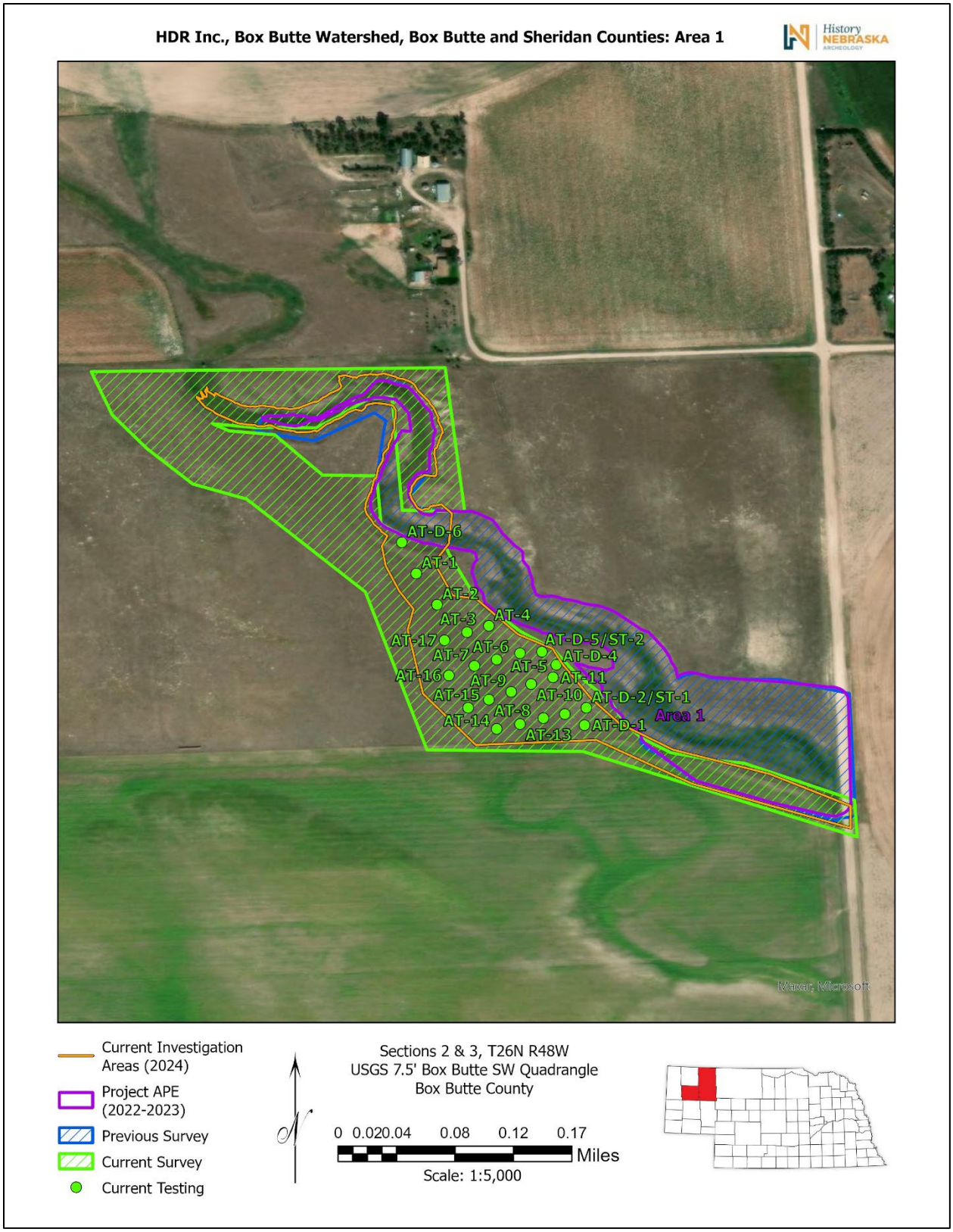

Figure 10. Box Butte Watershed Area 1 APE, previous work, and current survey coverage and subsurface testing locations illustrated on FSA orthophoto.

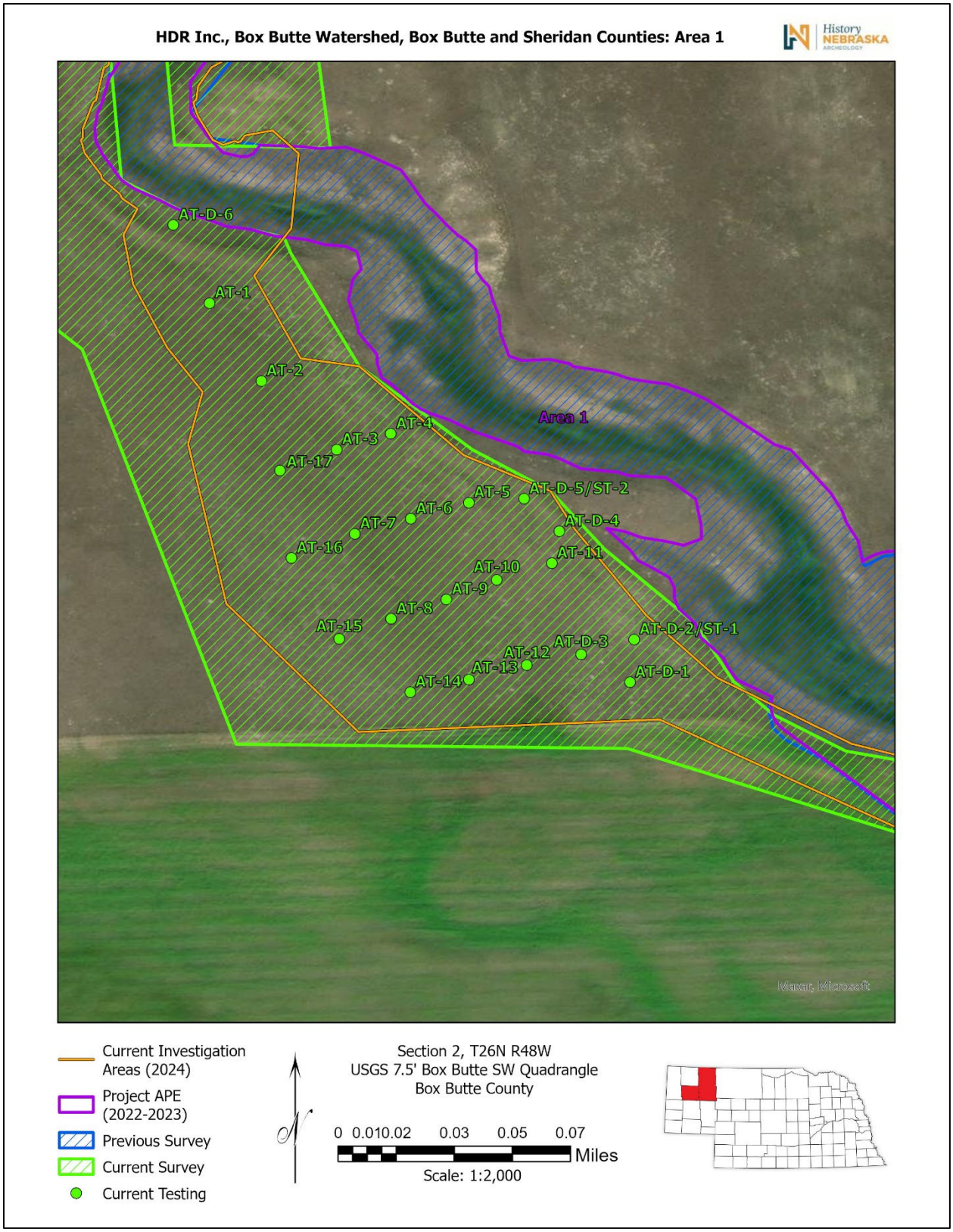

Figure 11. Box Butte Watershed Area 1 APE, zoomed into the current subsurface testing locations illustrated on FSA orthophoto.

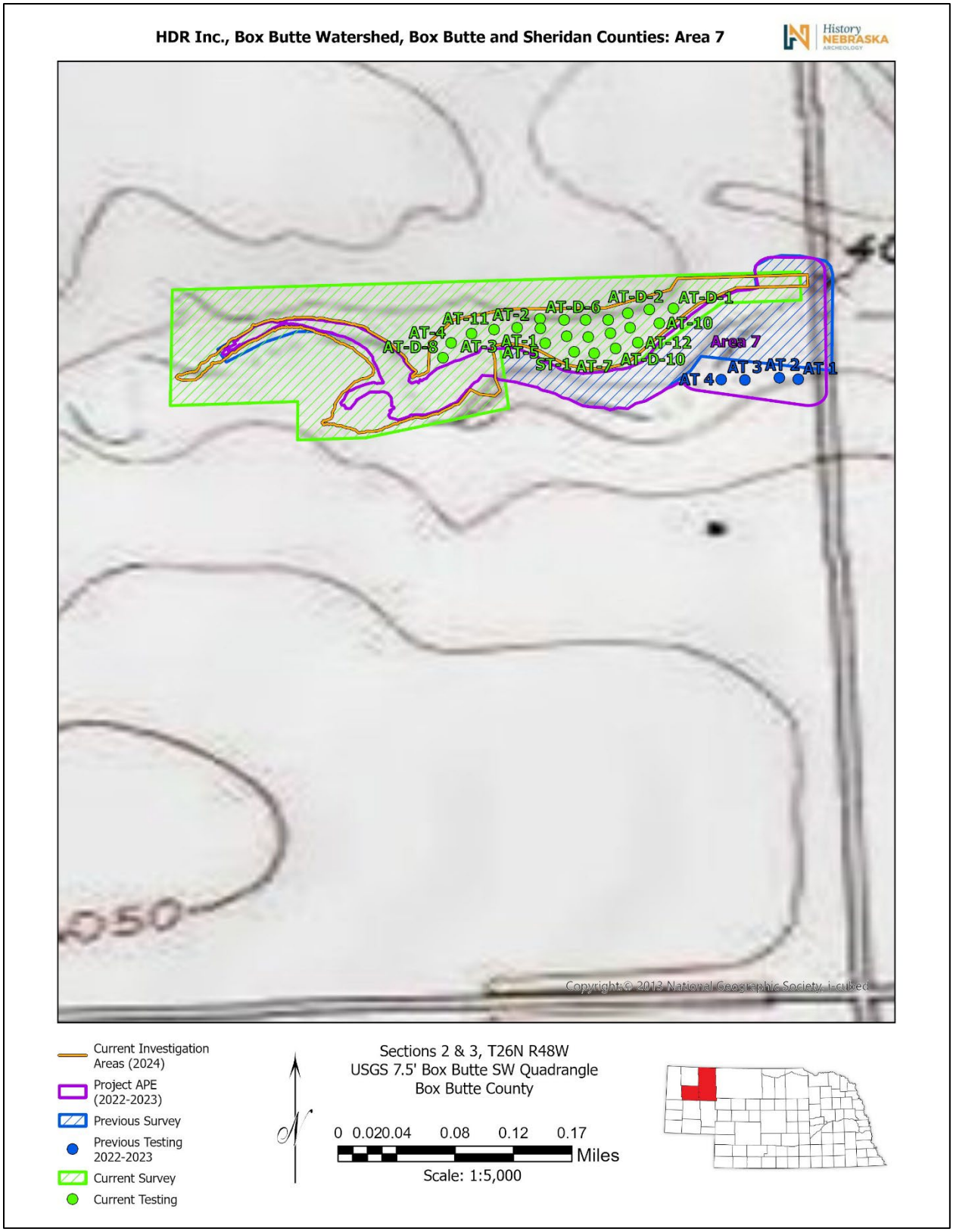

Figure 12. Box Butte Watershed Area 7 APE, previous work, and current survey coverage and subsurface testing locations illustrated on USGS 7.5' topographic map.

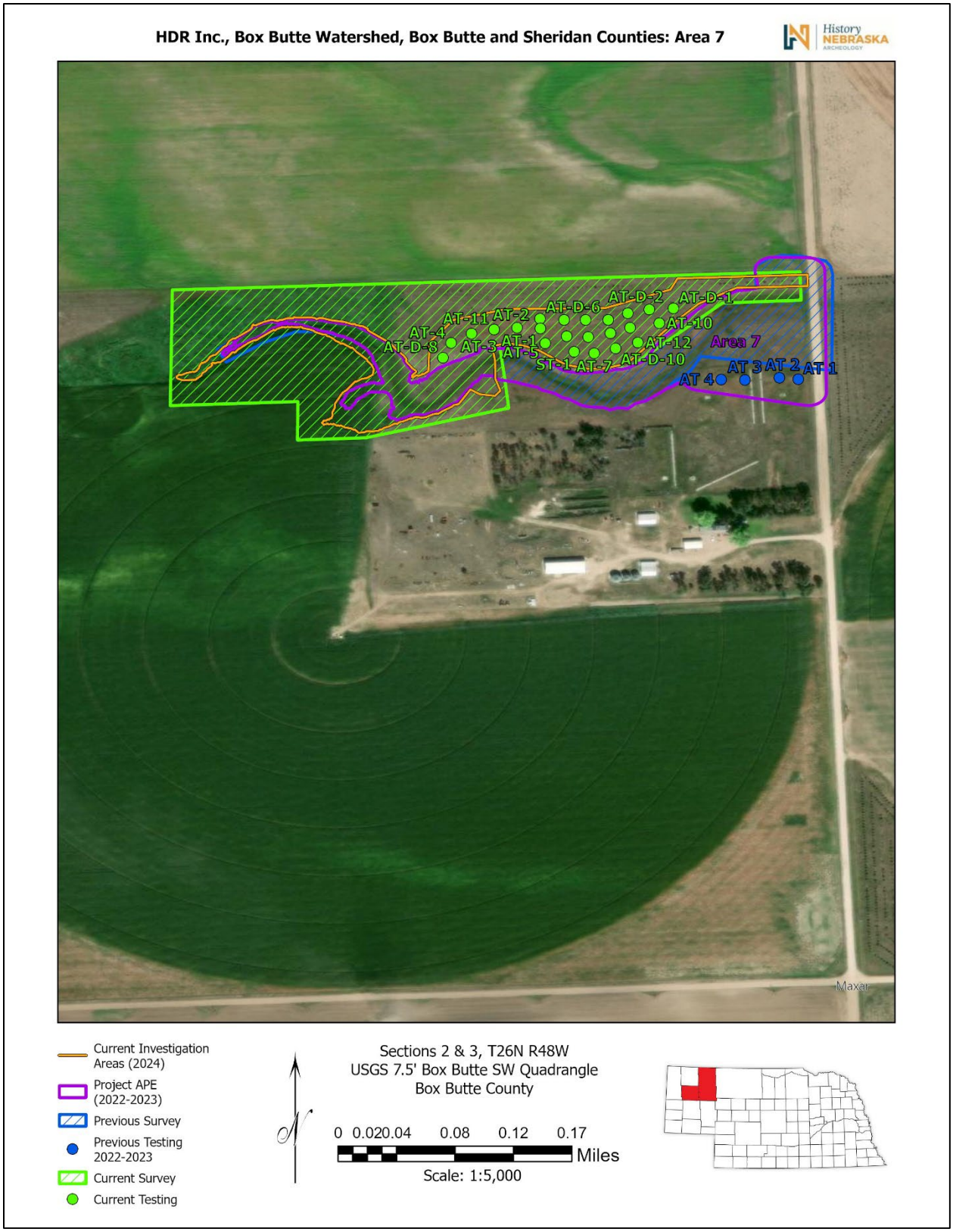

Figure 13. Box Butte Watershed Area 7 APE, previous work, and current survey coverage and subsurface testing locations illustrated on FSA orthophoto.

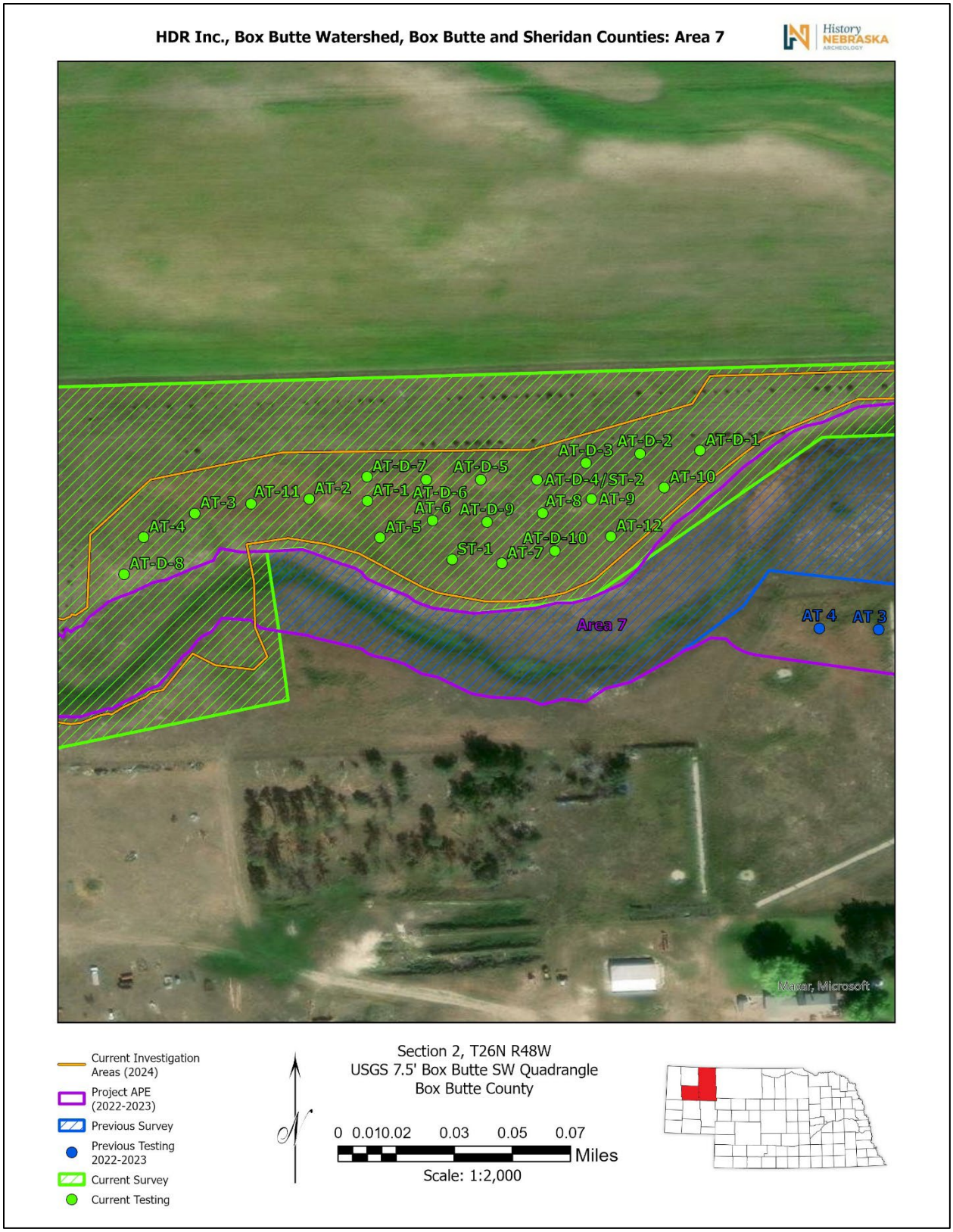

Figure 14. Box Butte Watershed Area 7 APE, zoomed into the current subsurface testing locations illustrated on FSA orthophoto.

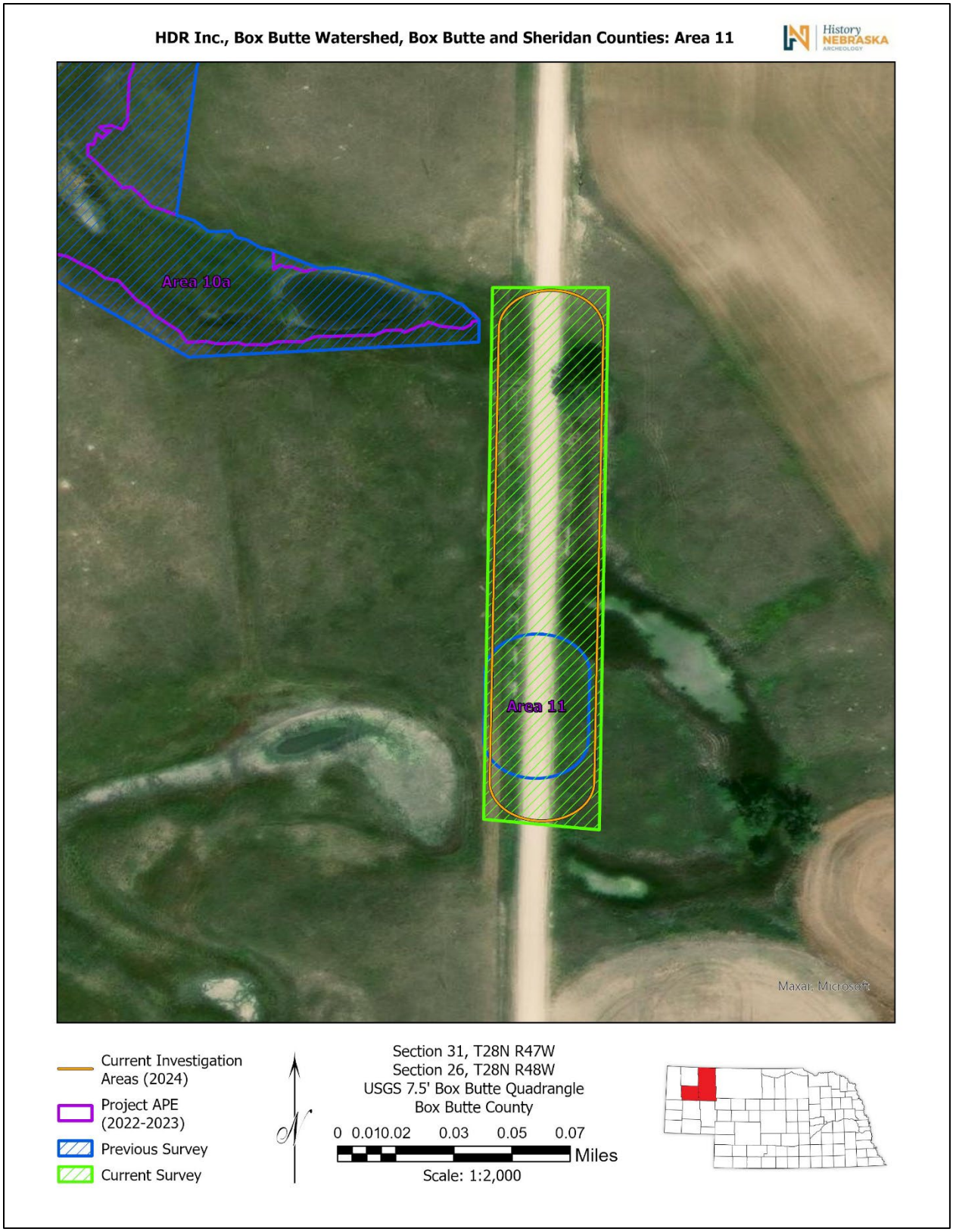

Figure 15. Box Butte Watershed Area 11 APE, previous work and current survey coverage illustrated on FSA orthophoto.

Figure 16. Box Butte Watershed Area 12 APE, previous work and current survey coverage illustrated on FSA orthophoto.

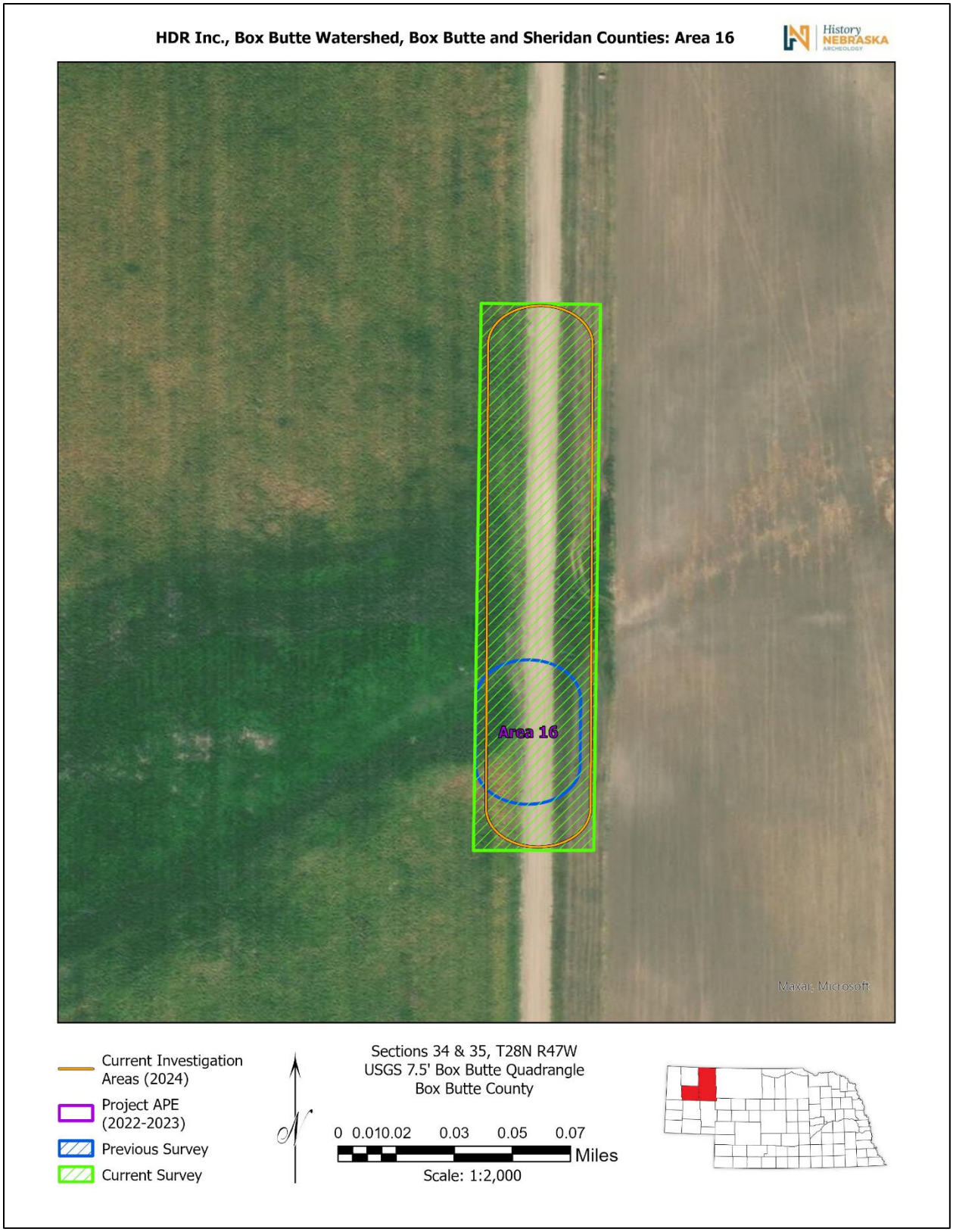

Figure 17. Box Butte Watershed Area 16 APE, previous work and current survey coverage illustrated on FSA orthophoto.

SUMMARY AND CONCLUSIONS

The current investigation resulted in the survey of the proposed Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment, Box Butte and Sheridan Counties, Nebraska. Proposed project activities may include, but are not limited to, the installation of dams, multi-use facilities for recharge basins or retiming flows, watershed BMPs, retention basins, and levees. The NRCS is the lead federal agency for this project. Initial fieldwork was completed by SAO personnel between July 5 and August 18, 2022. Subsequent field work was initiated to address expanded APEs as well as the APEs associated with new areas of interest between December 5, 2022, and May 5, 2023. A secondary supplemental cultural resource evaluation was conducted between October 8 and October 16, 2024, to address the additional expansions to five of the APEs. As a result of this secondary supplemental cultural resource investigation, no new archeological sites or cultural resources were documented during survey or testing activities within the expanded APEs. No historic properties were identified within the expanded APEs. No further work is recommended for this project as proposed.

Provided NRCS and the SHPO concur with these recommendations, the investigators recommended a Section 106 Finding of No Historic Properties Affected relative to the proposed Box Butte Creek Watershed Improvement Project Work Plan and Environmental Assessment. It is further recommended that should any evidence of buried cultural resources be encountered during project construction activities, such activities be immediately halted and the SHPO or the SAO in Lincoln be notified immediately in order to determine an appropriate course of action. As a reminder, the information included in this report is protected by state law (Statute 84-712.05[14] and [15]) and is not for public distribution.

REFERENCES CITED

Layzell, Anthony, Rolfe D. Mandel, Courtney L.C. Ziska, and John R. Bozell
2021 *Nebraska Buried Sites GIS (Phase II)-Final Report*. Prepared for the Nebraska Department of Transportation. On file, State Archeology Office, History Nebraska. Lincoln.