LOGS OF TEST PITS
BICKFORD RANCH
Placer County, California
WKA No. 3571.02

TEST PIT 1

0 to 1½'	Brown, dry, silty, gravel and cobble conglomerate (GM) Cemented and difficult to excavate below 1½ feet Bottom of test pit at 1½ feet

TEST PIT 2

0 to 3'	Brown, dry, silty, gravel and cobble conglomerate (GM) Large boulders up to 24 inches across Test pit terminated at 3 feet due to difficult excavation conditions

TEST PIT 3

0 to 1½'	Brown, dry, silty, gravel and cobble conglomerate (GM) Cemented and difficult to excavate below 1½ feet Bottom of test pit at 1½ feet

TEST PIT 4

0 to 3'	Brown, dry, silty, gravel and cobble conglomerate (GM) Large boulders up to 18 inches across Test pit terminated at 3 feet due to difficult excavation conditions

TEST PIT 5

0 to 2½'	Brown, dry, silty, gravel and cobble conglomerate (GM) Bottom of test pit at 2½ feet on cemented conglomerate

TEST PIT 6

0 to 2'	Brown, dry, silty, gravel and cobble conglomerate (GM) Boulders up to 18 inches in diameter Test pit terminated at 2 feet on cemented conglomerate

TEST PIT 7

0 to ½'	Brown, dry, silt with rock (ML)
½' to 1'	Gray, cemented mudflow breccia Test pit terminated at 1 foot due to refusal

LOGS OF TEST PITS
BICKFORD RANCH
Placer County, California
WKA No. 3571.02

TEST PIT 8

0 to 3'	Brown, dry, silty, gravel and cobble conglomerate (GM)
	Bottom of test pit at 3 feet on cemented conglomerate

TEST PIT 9

0 to 2'	Brown, dry, silt with some rounded rock (ML)
2' to 3½'	Dark brown, damp sandy clay (CL/CH)
3½' to 4'	Brown, silty, gravel and cobble conglomerate (GM)
	Test pit terminated at 4 feet on cemented conglomerate

TEST PIT 10

0 to 3'	Brown, dry, silty, gravel and cobble conglomerate (GM)
	Test pit terminated at 3 feet due to difficult excavation conditions

TEST PIT 11

0 to ½'	Brown, dry, silt with rock (ML)
	Test pit terminated at ½ foot due to difficult excavation conditions

TEST PIT 12

0 to ½'	Brown, dry, sandy silt with rock (ML)
	Test pit terminated at ½ foot due to refusal on cemented mudflow breccia

TEST PIT 13

0 to ½'	Brown, dry, sandy silt with rock (ML)
	Test pit terminated at ½ foot due to refusal on cemented mudflow breccia

TEST PIT 14

0 to ½'	Brown, dry, sandy silt with rock (ML)
	Test pit terminated at ½ foot due to refusal on cemented mudflow breccia

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOLS	CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 1/2 of soil > no. 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > no. 4 sieve size)	GW		Well graded gravels or gravel - sand mixtures, little or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, little or no fines
		GM		Silty gravels, gravel - sand - silt mixtures
		GC		Clayey gravels, gravel - sand - clay mixtures
	SANDS (More than 1/2 of coarse fraction < no. 4 sieve size)	SW		Well graded sands or gravelly sands, little or no fines
		SP		Poorly graded sands or gravelly sands, little or no fines
		SM		Silty sands, sand - silt mixtures
		SC		Clayey sands, sand - clay mixtures
FINE GRAINED SOILS (More than 1/2 of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL > 50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils

OTHER SYMBOLS

= Drive Sample: 2-1/2" O.D. California sampler

= Drive Sample: no recovery

= Initial Water Level

= Final Water Level

— — — = Estimated or gradational material change line

——— = Observed material change line

Laboratory Tests

PI = Plasticity Index

EI = Expansion Index

UCC = Unconfined Compression Test

TR = Triaxial Compression Test

GR = Gradational Analysis (Sieve)

CON = Consolidation Test

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
coarse (c)	3" to 3/4"	76.2 to 19.1
fine (f)	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
coarse (c)	No. 4 to No. 10	4.76 to 2.00
medium (m)	No. 10 to No. 40	2.00 to 0.420
fine (f)	No. 40 to No. 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

CONSISTENCY CLASSIFICATION

COHESIVE SOILS		GRANULAR SOILS	
Description	Blows/ft.*	Description	Blows/ft.*
Very Soft	< 3	Very Loose	< 5
Soft	3 - 5	Loose	5 - 15
Medium (firm)	6 - 10	Medium Dense	16 - 40
Stiff	11 - 20	Dense	41 - 65
Very Stiff	21 - 40	Very Dense	> 65
Hard	> 40		

*SPT

WALLACE • KUHL & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING
GEOLOGIC & ENVIRONMENTAL SERVICES

BICKFORD RANCH

Placer County, California

WKA NO: 3571.02

DATE: 9/98

PLATE NO: 14

APPENDIX A

APPENDIX A

A. GENERAL INFORMATION

The performance of a preliminary geotechnical engineering investigation at the site of Bickford Ranch, located southeast of the intersection of Highway 193 and Sierra College Boulevard in Placer County, California, was authorized by Jodi Christensen with SWD Holdings, Inc. Authorization was for an investigation as described in our proposal letters, dated January 14, 1998 and February 25, 1998, sent to our client, SWD Holdings, Inc., whose mailing address is 263 Nevada Street, Auburn, California 95603; telephone (530) 889-0154. In performing this investigation, we referenced a 1" = 300' scale topographic map of the site prepared by GW Consulting Engineers, whose mailing address is 7447 Antelope Road, Suite 202, Citrus Heights, California 95621; telephone (916) 723-0210; facsimile (916) 723-0204.

B. FIELD EXPLORATION

Seven test borings were accomplished on June 23, 1998 utilizing a Mobile B-53 truck-mounted drill rig, and four additional test borings were drilled on June 30, 1998 utilizing a CME 850 all-terrain drill rig. Approximate locations of the 11 borings are indicated on Plate No. 2. The test borings were drilled to a maximum depth of about 40 feet using four-inch diameter continuous flight helical augers and eight-inch diameter hollow stem augers. At various intervals, relatively undisturbed samples were recovered with a 2½-inch O.D., 2-inch I.D. California sampler driven by a 140 pound hammer freely falling 30 inches. The number of blows of the hammer required to drive the 18-inch long sampler each 6-inch interval was recorded with the sum of the blows required to drive the sampler the lower 12-inch interval, or portion thereof, being designated the penetration resistance or "blow count" for that particular drive. The Boring Logs, Plates No. 3 through 13, contain descriptions of the materials encountered.

Fourteen test pits were excavated across the site on July 20, 1998 utilizing a Case 580K rubber-tire backhoe. The maximum depth penetrated by the trenching was about four feet. The materials encountered by the test pits were visually classified by the field engineer; descriptions of the materials observed in the test pits are included after Plate No. 13 for reference. An explanation of the Unified Soil Classification System and the symbols used on the Boring Logs and in our Test Pit descriptions is contained on Plate No. 14.

Phase II Evaluation of Cultural Resources
Bickford Ranch
Placer County, California

Rocklin and Gold Hill, Calif. 7.5' Quadrangles

Portions of Sections 19-22, 28-30
T.12N, R.7E of the Mt. Diablo Meridian
1,957 Acres

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Donald S. Napoli, Ph.D
Daniel J. Osanna, M.A.

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May, 1998

MANAGEMENT SUMMARY

Bickford Ranch is a planned residential, commercial and recreational development located between Penryn on the east and Lincoln on the west. The planned 1957 acre development lies south of State Route 193 and largely east of Sierra College Boulevard, Placer County, California.

A Phase I cultural resources inventory of Bickford Ranch was conducted by Peak & Associates in 1995. As a result of that work, 50 cultural resources were identified by the firm. The resources included Native American campsites, isolated bedrock milling stations, ditches, canals, rock walls and fence lines, small mines, homestead sites, a cattle chute, work camp site, cabin site, small granite quarries, the Bickford Ranch buildings and a small, modern trash dump.

"Phase I" is an inventory, the initial step towards evaluating cultural resources for their eligibility for the California Register of Historical Resources. Phase II, the evaluations, was conducted during late 1997 and early 1998 by Ric Windmiller, Consulting Archaeologist. Peak & Associates anticipated the need for evaluations and conducted extensive archival resource to provide relevant historical documentation for many of the Bickford Ranch heritage sites. The firm also conducted test excavations at two Native American archaeological sites that could not be evaluated by surface evidence alone.

The Windmiller field teams revisited the resources identified by Peak & Associates, evaluated their present condition, and conducted test excavations at seven additional sites. Further excavations were also conducted at one of the sites tested by Peak & Associates where the previous work was inconclusive.

As a result, nine of the 50 cultural resources on Bickford Ranch are considered by the consultants as eligible for the California Register of Historical Resources. As of January 1, 1998, eligibility for the California Register is an official guide used under CEQA to determine which resources should be protected against substantial adverse change.

It is the consultants' opinion that the following Bickford Ranch sites are eligible for the California Register: BR-01, BR-08 and DCN-16, prehistoric campsites; BR-05, an isolated bedrock milling station with a cultural deposit (midden); DCN-12, a bedrock milling station with a cultural deposit (midden) and historic railroad-related features; DCN-17, a historic homestead site and Native American campsite; DCN-23, a historic railroad-related work camp site; DCN-25, bedrock milling stations with cultural deposits (middens); and DCN-29, a historic cabin site or homestead.

The potential effects of the development on these resources are as follows:

BR-01 (prehistoric campsite): disturbance or destruction by grading for homesite.

BR-05 (bedrock mortars with midden): disturbance or destruction by driveway construction.

BR-08 (prehistoric campsite): disturbance or destruction by driveway or structure construction.

DCN-12 (bedrock mortars with midden and railroad features): disturbance or destruction by golf course construction.

DCN-16 (prehistoric campsite): No direct effect. Possible indirect effect: artifact collecting.

DCN-17 (homestead and Native American campsite): No direct effect. Possible indirect effect: artifact collecting.

DCN-23 (work camp site): disturbance or destruction by potential golf course construction, or if site is in open space, there may be no direct effect, but indirect effect by artifact collecting.

DCN-25 (bedrock mortars with middens): disturbance or destruction by construction of buildings.

DCN-29 (cabin or homestead site): No direct effect. Possible indirect effect: artifact collecting.

The following proposals are designed to mitigate the potential adverse direct effects of the development on California Register-eligible resources to a less-than-significant level.

1. BR-01 and BR-08 (prehistoric campsites): deed these two sites as permanent historical conservation easements. Prior to earthmoving in site vicinity, place orange construction fencing around the sites to avoid damage.
2. BR-05 (bedrock mortars with midden): deed site as permanent historical conservation easement. Prior to earthmoving in site vicinity, place orange construction fencing around site to avoid damage.
3. DCN-12 (bedrock mortars with midden and railroad features): If golf course construction is anticipated, cap midden and historic kitchen refuse area with soil. Place water and other utility lines on original ground surface or in capping soil. Avoid scarification of original ground surface. Avoid plantings such as trees and shrubs with invasive roots. Cap the powder magazine feature with soil with the same restrictions, or avoid capping and plant feature with shallow rooted grasses.
4. DCN-23 (work camp site): If golf course construction extends to this site, cap the entire site with soil. Place water and other utility lines on original ground surface or in capping soil. Avoid scarification of original ground surface. Avoid plantings such as trees and shrubs with invasive roots. If the site remains in open space, surround site with orange construction fencing prior to any ground-disturbing activity in the area.
5. DCN-25 (bedrock mortars with middens): deed the California Register-eligible features of this site as permanent historical conservation easement(s). Prior to earthmoving or heavy equipment activity in the vicinity, place orange construction fencing around site to avoid damage.
6. DCN-16 (prehistoric campsite), DCN-17 (homestead with Native American component) and DCN-29 (cabin site): Prior to earthmoving or heavy equipment activity in the vicinity, place orange construction fencing around each site.

While it is the consultants' opinion that isolated bedrock milling features are not eligible for the California Register, nonetheless, these features are important to Native Americans. Therefore, isolated milling stations BR-02, BR-04, BR-06, BR-07, BR-10, BR-12, DCN-07, DCN-10, DCN-13, DCN-15, DCN-18, DCN-21, DCN-26, DCN-32, DCN-33 should be avoided by construction, incorporated into the landscape or otherwise preserved. Orange construction fencing should be placed around each milling station site prior to any ground-disturbing activity or movement of heavy equipment in the area.

To insure the long-term preservation of the bedrock milling stations and California Register-eligible resources located in the open space, the CC&Rs should include a clause that prohibits the defacing of such resources and the collecting, digging or removal of any stone, artifact or other prehistoric or historic object from the open space.

The consultants also recommend that a professional archaeologist familiar with the Bickford Ranch cultural resources should attend the preconstruction meeting. The archaeologist should then brief the contractors on the important sites and their locations.

If any important archaeological site is damaged as a result of construction, earth-moving or related activity, the adverse effect would be mitigated by a program of scientific excavation or other form of documentation needed to salvage information remaining within the damaged area.

If unrecorded cultural resources are encountered, the consultants recommend that all work should stop in the immediate area. An appropriately qualified archaeologist should be engaged to record, evaluate and recommend a plan to mitigate any adverse effects. If a Native American site is discovered, then the evaluation process should also include consultation with the appropriate Native Americans.

If human remains are discovered, California law requires that all work in the vicinity of the find must stop immediately and the county coroner must be notified.

ACKNOWLEDGMENTS

The Phase I cultural resources inventory of Bickford Ranch was conducted by Peak & Associates, Inc. in 1995. The firm also initiated the Phase II evaluation of resources with archival research and with test excavations at two of the Native American archaeological sites. Native American consultations were initiated by Peak & Associates, as well.

In the fall, 1997, Ric Windmiller, Consulting Archaeologist revisited the cultural resources identified by Peak & Associates two years previously. Archaeologist John W. Foster, M.A. and historian Daniel Osanna, M.A. documented the present condition of each resource and provided the basis to determine which sites required further study to complete the evaluation for California Register eligibility. As Mr. Osanna had been a member of the Peak & Associates field team, his insights were invaluable.

The Bickford Ranch buildings had not been recorded or evaluated by a qualified architectural historian. For this reason, Donald S. Napoli, Ph.D., an architectural historian, revisited the Bickford Ranch structures, recorded them on forms required by the California Office of Historic Preservation, and made his evaluations for both California Register of Historical Resources and National Register of Historic Places.

As a result of these initial phases of work, the consultants concurred that test excavations were required at eight archaeological sites. The information provided by the test excavations would help complete the evaluation process.

Archaeologist Louis A. Payen, Ph.D. supervised the excavations. Jane Russell, M.A. was the laboratory technician who processed and catalogued the artifacts. Larry Felton provided the catalog and other reports from the FoxPro database.

Leonard Davis, Robin Gibson, Julian Hayden, Jerald J. Johnson and Gerry Logan provided information on archaeology and local history. Pamela Payen assisted in the fieldwork. Mrs. Rose Enos, Sonja Jaime, April Moore and Jeff Murray provided Native American perspectives on the project and cultural resources. Doris Parker-Coons, Chief Museum Curator, Placer County Department of Museums, shared her concerns as well.

R.W.

TABLE OF CONTENTS

Management Summary i

Acknowledgments iv

List of Figures vi

List of Tables vi

Introduction 1

Setting 2
- Prehistory/Archaeology 2
- Ethnography 5
- History 7
- Records Search 12
- Consultations 14

Methods 16

Findings 19
- Prehistoric Archaeological Sites 19
- Historic Archaeological Sites 22
- Muticomponent Archaeological Sites 26
- Historic Buildings 29
- Recent or Contemporary Cultural Resources 30

Evaluations 30
- Prehistoric Archaeological Sites 32
- Historic Archaeological Sites 33
- Muticomponent Archaeological Sites 37
- Historic Buildings 40
- Recent or Contemporary Cultural Resources 40

Potential Effects 40

Mitigation Proposals 42

References Cited 45

Appendix A: Statement of Qualifications 51

Appendix B: Records Search Results 55

Appendix C: Consultations 61

Appendix D: Confidential Resource Location Map 68

TABLE OF CONTENTS (continued)

Appendix E: Confidential Resource Records 70

Appendix F: Artifact Catalogue 494

LIST OF FIGURES

Figure 1. Bickford Ranch location 3

Figure 2. Confidential location of cultural resources 69

LIST OF TABLES

Table 1. California register-eligible historical resources and potential effects 41

INTRODUCTION

Bickford Ranch is a planned residential, commercial and recreational development located four miles east of Lincoln and two miles northwest of Penryn, Placer County, California (see Figure 1). The development lies south of State Route 193 and largely east of Sierra College Boulevard. The project encompasses approximately 1,957 acres.

A Phase I inventory of cultural resources was undertaken in 1995 by Peak & Associates, Inc. (Peak & Associates, Inc. 1995b). To meet CEQA guidelines, archaeologists usually study cultural resources in three phases (de Barros and Weber 1993:7). Phase I is the inventory or identification of cultural resources within a project area, which usually includes a pre-field records search, a field survey and a written report. A Phase I inventory may also include preliminary evaluations of importance and estimates of potential effects, although use of primary sources such as county records and interviews with local historians and others are generally not required.

Phase II is a comprehensive evaluation of any cultural resources discovered during Phase I. Comprehensive evaluation may include research into primary sources, archaeological test excavations and other documentation to adequately evaluate the significance of an archaeological site. Phase III is the treatment of those resources considered "important" as a result of the Phase II evaluation. Phase III includes either avoidance of the resources, a means to lessen any adverse effects, "mitigation," or a combination of the two.

As a result of Peak & Associates work, 50 cultural resources were identified. The resources included: Native American campsites; isolated bedrock milling stations; ditches; canals; rock walls and fence lines; small mines; homestead sites; a cattle chute; work camp site; cabin site; small granite quarries; the Bickford Ranch buildings and a small, modern trash dump. Peak & Associates also conducted archaeological test excavations at two Native American sites to further evaluate their potential importance.

The present report by Windmiller, Napoli and Osanna, extracts, supplements and updates information provided in the Peak & Associates study to evaluate the cultural resources under the California Environmental Quality Act statutes and guidelines (see Appendix A: Statements of Qualifications).

CEQA statutes (Public Resources Code section 21001(b) *et seq.* and guidelines for their implementation (State of California 1997:59ff) require planning agencies to carefully consider the potential effects of a project on historical resources. A "historical resource" is any cultural resource that is historically or archaeologically significant (California Office of Historic Preservation 1995c:1). Advice on procedures to identify such resources, evaluate their importance and estimate potential effects is given in several agency publications (cf. State of California 1994a, 1994b and California Office of Historic Preservation 1989a).

California law also protects Native American burials, skeletal remains and associated grave goods regardless of their antiquity, and provides for the sensitive treatment and disposition of

those remains (California Health and Safety Code section 7050.5, California Public Resources Code sections 5097.94 *et seq.*).

SETTING

The planned development lies within the first tier of foothills of the Sierra Nevada. The Sacramento Valley-Sierra foothills edge is located several miles to the west in the vicinity of Lincoln. The elevation of Bickford Ranch varies from 360 to 900 feet above sea level. Prominent landforms include: Boulder Ridge, a mile-long volcanic plateau or scabland, whose surface is littered with igneous rocks; narrow canyons and drainages on the north side of Boulder Ridge; and Clover Valley Creek on the south side of the ridge. Granite outcroppings also occur on Bickford Ranch. The granite comes from a portion of a large batholith that extends from Folsom northwest to the Lincoln vicinity.

Climate of the locality is Mediterranean. Summers are hot and rainless; winters are moderate with 15-40 inches of rainfall and fog (Storer and Usinger 1963:27).

Prehistory/Archaeology

While scholars have conducted a number of excavations in the deep village mounds along the Sacramento and Feather rivers, relatively little scientific work, other than surface surveys and limited test excavations, has been accomplished in the Sierra foothills away from the valley's rivers and major tributaries.

Since the early 1950's, stone tools of the so-called "Farmington Complex" have been unearthed periodically on the Sacramento Valley-Sierra foothills ecotone (Moratto 1984:62). Archeologist Eric Ritter has shown that the artifacts are either contemporaneous with, or older than the Modesto Formation, which would date the tools between 10,000 and 5000 B.C. (Ritter and others 1976).

Commenting on the 1979 excavations by Peak & Associates of a stone tool quarry and campsites near Rancho Murieta, Sacramento County, Southwestern archeologist Julian Hayden remarked about the similarity of the Farmington artifact types with those of San Dieguito II from southern California and the Lower Colorado River area (Peak 1981; Julian Hayden, personal communication 1994).

San Dieguito II is coeval with the Western Pluvial Lakes Tradition, an adaptation of hunter-gatherers to lake, marsh and grassland habitats along the eastern side of the Sierra Nevada as early as 9000 B.C. (Moratto 1984:90-91). The development of the Western Pluvial Lakes Tradition and its regional variants such as the Farmington complex may, as Moratto suggested, correspond to the emergence and initial differentiation of Hokan languages (1984:544).

The Archaic Period, which in California lasted from about 6000 B.C. to A.D. 1000, is divided by archaeologists into three subperiods: lower, middle and upper (Fredrickson 1994:100, Figure 9.1). During the Lower Archaic, between 6000 and 3000 B.C., many of the pluvial lakes in California became dry playas as a result of climatic changes. Early milling stone complexes of

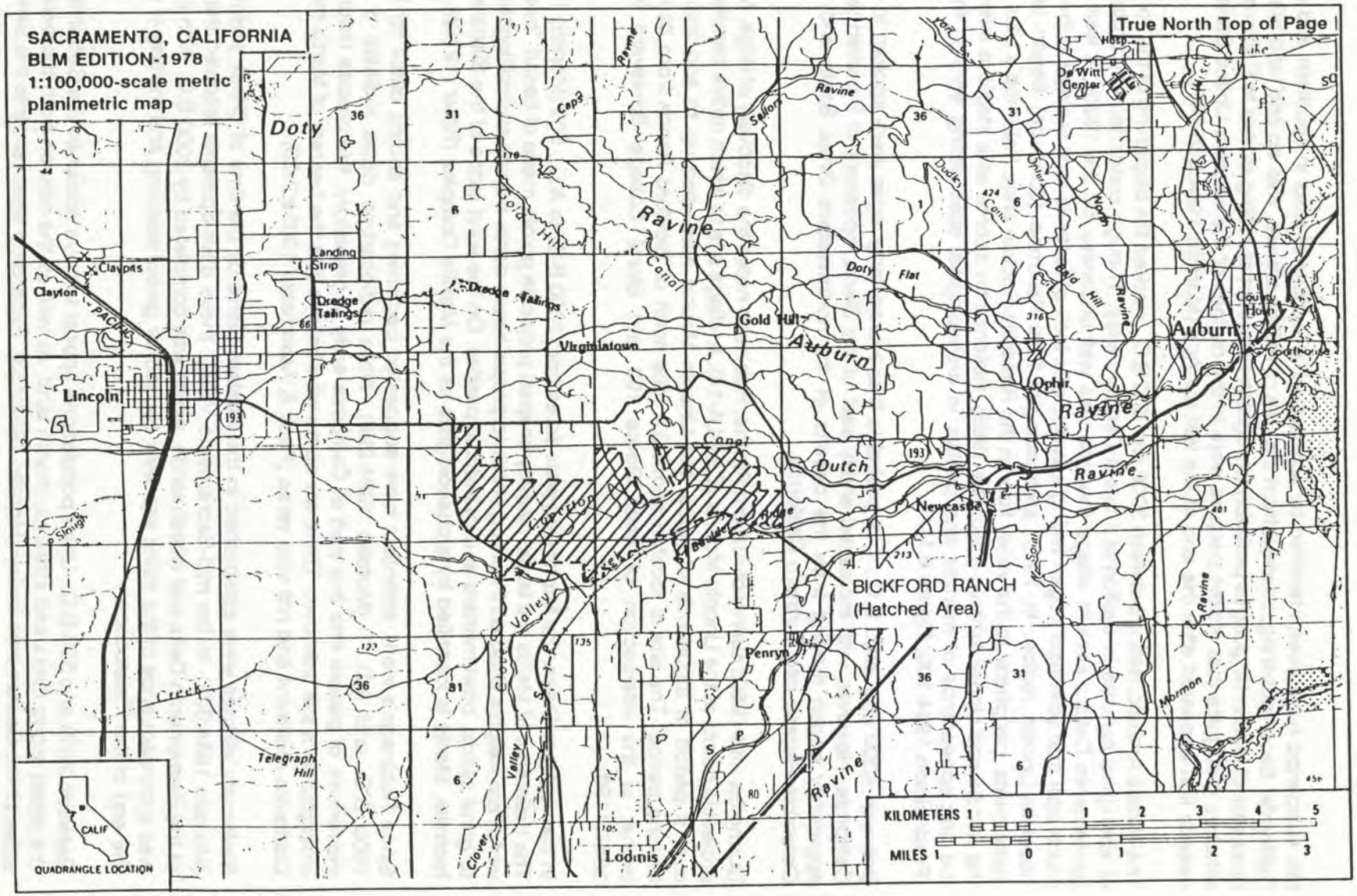

Figure 1. Bickford Ranch location.

this subperiod have been identified by scholars at a number of sites in southern and northern California. Seed gathering, inferred from the use of milling stones, was an arid land adaptation. Speakers of Hokan languages probably brought the concept of milling stones to California, since scholars recognize that Hokan peoples were in the regions of the western United States where deserts first appeared after the end of the last Ice Age (Moratto 1984:546-547).

The Middle Archaic, dating between 3000 and 500 B.C., marked the beginning of the florescence of aboriginal cultures in California's Great Central Valley. Though concerted exploration of the Sacramento Delta's ancient village mounds was well underway by the 1930s, it was not until much later that scientists began taking a systematic look at foothills archaeology in the Auburn-Roseville-Lincoln region. In 1963, archaeologist Patti Palumbo (Johnson) began identifying settlements peripheral to the valley floor in the Roseville-Rocklin area. Palumbo's sites dated to the Middle and Upper Archaic (Palumbo 1966). Reliance on acorns as a staple is inferred from the first appearance of mortars and pestles in archeological sites dating early in the period (Fredrickson 1994:100, Figure 9.1).

Between 4000 and 2000 B.C., it is probable that Hokan languages were spoken in much of California. However, with increased aridity east of the Sierra, speakers of Penutian languages apparently began moving from the deserts of the northwestern Great Basin and southern Columbia Plateau into northern California.

During his mid-1960s survey of Auburn Ravine, Robinson noted the discovery of large, Martis-like projectile points at the Lincoln Mound (CA-PLA-14). A village site to which native people returned over a period of thousands of years, the Lincoln Mound was used up to and including the historic period. The site is located about 0.2 mile north of Bickford Ranch from its northwest corner at the intersection of State Route 193 and Sierra College Boulevard (Robinson 1967:119ff).

In the northern Sierra, the Martis Complex dates from 2000 B.C. to A.D,. 500 (Moratto 1884:299). The hallmarks of Martis are large, roughly shaped projectile points made of basalt, "boatstones," which are weights used on throwing sticks to propel heavy darts, manos and millingstones used to grind seeds, bowl mortars and cylindrical pestles. On the west slope of the Sierra and Sierra foothills, Martis is identified by archaeologists as the Mesilla Complex (Ritter (1970a).

Since Robinson's work, scientists have suggested beginning and ending dates for Mesilla as 1000 B.C. and A.D. 1 (Moratto 1984:299). While radiocarbon dates indicate a westward movement of people into this part of California early in prehistory, the precise nature of such immigration is still unknown. There are some who believe that the bearers of Martis moved from California eastward and not vice versa (Peak & Associates 1995a:2-20).

Sedentary villages were established in the western Sierra by the time of Christ, possibly earlier (Moratto 1984:303). In the mid-Sacramento Valley, these developments followed the formation of the Sacramento Delta and marsh lands, which was completed by 2000 B.C. Birth of the delta was a consequence of the rising sea level caused by global warming and melting of glaciers at the end of the Pleistocene.

Between 2000 and 500 B.C., Utian populations appear to have occupied the Sacramento Delta, the areas along rivers and streams, marsh land, as well as the hills on both the east and west sides of the Sacramento Valley (Moratto 1984:553). Expansion westward into the San Francisco

Bay area seems to have brought about some type of fusion between the bearers of Utian languages and the resident speakers of Hokan and Yukian languages. This apparent fusion of cultures, whatever its precise nature, resulted in what archaeologists now recognize as the Berkeley Pattern, sometimes still referred to as the "Middle Horizon." Some Middle Horizon artifacts were also identified at the Lincoln Mound during Robinson's excavations there (Robinson 1967:122).

Ancestors of the Nisenan, a Maiduan people who historically inhabited the American and Yuba river drainages encompassing the planned Bickford Ranch development, probably emigrated to the region rather late in time. Increasing aridity in the Great Basin seems to have been a factor initially that prompted entry of ancestral Maiduans into the northern Sierra Nevada. During the first 200 years of the Christian Era, Maiduan groups penetrated farther to the Yana territory of northeastern California (Moratto 1984:562). Ritter's Bidwell Complex may represent the radiation of Maiduan speakers into the Oroville locality around A.D. 600-700 (Ritter 1970a,b and Moratto 1984:562). After comparing various linguistic models of Maiduan radiation, archaeologist Makoto Kowta suggested that Maiduan-speakers entered California from the north around A.D. 500 and settled first in the foothills or valley edge in what historically was Nisenan territory (1988:190).

During the Bidwell phase, population growth in the foothills is evident from the archaeological discoveries. In the Sacramento Valley, such growth is reflected by the occurrence of large village mounds dating to the period. Along Auburn Ravine, however, the evidence for population growth is different. Robinson observed a settlement pattern of "workshop" middens (and bedrock mortars) along with "habitation" middens," which he identified as a "site complex" or clusters of sites (Robinson 1967:170). Peak & Associates noted a wide variety of Native American sites along Orchard Creek, a tributary to Auburn Ravine: large and small "occupation" sites, large and small camp sites, isolated bedrock mortar/milling stations, a chert quarry site and cupule or rock art sites (Peak & Associates 1995a:2-1).

The Emergent Period, A.D. 1000-1800, was characterized by the consolidation of territories formed as a result of the immigration of native groups, including the Nisenan. Robinson indicated that the region around Auburn Ravine saw increased intensity of use by Native Americans after circa A.D. 1200 and into the historic period (Robinson 1967:121; Moratto 1984:184, Fig. 5.7). The tribal territories formed during the Emergent probably remained in much the same locations as noted by early Spanish observers (cf. Fredrickson 1994:100, Figure 9.1). Interregional trade seems to have expanded greatly during the Emergent, up to the succeeding Mission Period when Spanish intrusions began tearing the fabric of native life in California.

Ethnography

The foothill Nisenan constructed their villages near water sources. The tribelet, a loose political organization, controlled specific districts usually bounded by major stream or river drainages. The foothill people were mobile hunter-gatherers who, out of necessity, maintained a settlement pattern that was different from their valley counterparts (Wilson 1995:2.37). Generally, foothill Nisenan did not have large year-round villages. Instead, there were hundreds of small campsites and villages. A few of the villages, larger than most, functioned as tribelet centers.

This pattern of socio-political organization was different from the Valley Nisenan whose large, sedentary villages were located along water courses bounded by the land between drainages

(Wilson 1995:2-36). Territories of the Valley, Foothill and Hill Nisenan together encompassed the American, Feather, Bear and Yuba river drainages from the west bank of the Sacramento to the Sierra crest (Wilson and Towne 1978:387).

A major foothills tribelet center was located at Auburn. Its sphere of influence during the early years of European-American contact included Forest Hill Ridge to the east, Bear River to the north, south to the Middle Fork of the American River and down Auburn Ravine to the Lincoln vicinity. Auburn Ravine was known by the native people as *wishmin sayo* (Wilson 1995:2.40).

Winter villages were located by permanent water sources and included a large, semi-subterranean assembly house and substantial residences which were partly excavated into the ground. The residences were supported by strong wood frames covered with brush, mud, cedar or pine bark. These houses had an indoor hearth and sometimes a portable mortar set into the dirt floor. The people slept near the walls on mats and skins; benches or shelves held food and equipment. A sweat lodge and acorn granaries were also found at the permanent villages. Cemeteries were often located nearby.

A second type of residence was constructed at camps away from the winter villages. This type of house was constructed of a frame covered with brush or tules. Though excavated slightly into the ground with the earth piled around the exterior base to keep out drafts, often it did not have a hearth. This type of house was used for sleeping and storage only.

Other structures included frames for drying meat and plants, and sun shades constructed over bedrock mortar stations. Acorns were gathered in the fall, and their meats pulverized in mortars, after which the bitterness was removed by leaching in water. The Nisenan sometimes picked up and used manos or hand stones as acorn anvils or for other types of food processing; generally, though, manos and metates or the grinding slicks found on granite outcrops belonged to more ancient cultures. Acorns were the staple among many California native groups. From acorns, an unleavened bread was made. Acorn gruel, heated in baskets with hot stones, was also made and consumed.

The many small camp and village sites scattered across the foothills around Auburn were each no more than two days' travel by foot. In his recent summary of Nisenan ethnohistory, Wilson suggested that the area's winter village was located at Auburn because the people enjoyed living above the fog and in the sunlight during the wet season (Wilson 1995:2.39). By late winter, early spring, however, the people would trek down to the valley's edge to fish, engage in waterfowling and communal rabbit drives, harvest the first green plant growth and visit the salt springs, which are located three miles west of Bickford Ranch on the southeast side of Lincoln.

In the fall, foothill people moved to the middle elevations between 1000 and 3000 feet to gather acorns of the black oak and trade with Hill Nisenan, Washo and Paiute (Wilson 1995:2.45). It is not clear from recorded ethnographies whether or not the Foothill Nisenan also gathered and processed acorns in the Bickford Ranch locality.

At the time of initial European-American contact, the large group that came during late winter, early spring to the Lincoln area from Auburn's winter village, probably came in numbers for both the seasonally-available resources and mutual protection. It is likely that the Lincoln area was also used by these people intermittently during the remainder of the year. Valley people probably also used the area for acorn gathering, obtaining salt and trade.

Because large middens (former village sites) are known for the lower Auburn Ravine area, there probably was a time when the locality supported a denser population (Wilson 1995:2.44). Wilson suggested that if there had been an intermediate group or groups who occupied the Lincoln area year-round, the 1833 epidemic, probably malaria brought south from Oregon by a party of trappers, and the early years of the gold rush, would have brought about revolutionary changes in demography. Also, because large numbers of Nisenan were known to have settled around Sutter's Fort and worked for Sutter during the 1840s, it is possible that some of those people were drawn away from edge areas such as the Auburn Ravine and Bickford Ranch locality (Wilson 1995:2.46).

History

Recorded history began with accounts of Spanish expeditions into California's interior (Wilson and Towne 1978:396). By 1776, José Canizares had explored Miwok territory south of the Nisenan. In 1808, Gabriel Moraga led an expedition up the Sacramento River to the lower reaches of the Feather, thus crossing Nisenan territory. Despite these early incursions by the Spanish, however, there is no record of Nisenan having been removed to the missions, according to Wilson and Towne (1978:396).

In 1820, Capitán Luis Arguello continued exploration of the Feather River. By the late 1820's, American and Hudson's Bay Company trappers began exploiting the region for beaver pelts and establishing camps in Nisenan country.

In 1839, when John Sutter arrived to realize his dreams of building a feudal colony, "there was a loose consortium of extended families and small (Indian) villages that looked to the large Auburn area village and its chiefs as the center of their social-political life" (Wilson 1995:2.43). The Auburn center's large sphere of influence during the early years of recorded history may have been the result of the 1833 epidemic as well as a significant shift in the Indian populations during the gold rush; it may have had something to do with a consolidation of Native American strength and available places where Indians could live without persecution.

Native Americans were an important source of labor in the early part of the gold rush. Nisenan headmen frequently contracted with miners to provide labor from their villages. This changed after 1850; the influx of miners from Oregon where Anglo-Indian relations were bitter and often bloody, fueled a strong resentment against native people and probably did much to provoke severe treatment of visible "wild" Indians (cf. Wilson 1995:2.43).

Gold was found in Auburn Ravine above Ophir on May 16, 1848, four months after Marshall's discovery at Coloma (Logan 1990:3). Claude Chana, a Frenchman who had worked as a cooper at Sutter's Fort, was travelling from Sicard's ranch, about eight miles northwest of Bickford Ranch, towards Coloma. Chana was with his party of men including 25 Nisenan. At camp on their second night from Sicard's, Chana was practicing his panning technique when he discovered the precious metal. Subsequent finds were made by others up and down the ravine. In the first two years of the gold rush, over 100,000 immigrants poured into California, mining every stream and gulch (Lardner and Brock 1924:163).

A discovery was made by miners from Georgia at Gold Hill in the fall, 1851 (Logan 1990:3; Lardner and Brock 1924:187). Gold Hill is located about a mile north of Bickford Ranch. As the

result of a dispute in 1852, a minority of the town's citizens moved a half-mile downstream and founded Oro City (later known as "Mugginsville"). The town of Virginia, the successor to Gold Hill, was founded about the same time, 1852. The site of Virginiatown is also located about a mile north of Bickford Ranch. A field class of anthropology students and instructors from California State University, Sacramento has conducted archaeological excavations at Virginia No. 2 or "Chinatown," which was located immediately west of Virginiatown; two years ago, the digging was conducted at the site of Virginiatown's blacksmith shop (Jerald J. Johnson, personal communication 1996).

The placer mines at Virginiatown were reputed to have been very rich. In 1853, the miners constructed a railroad, California's first, to haul auriferous soil from Virginia Hill down to Auburn Ravine for washing (Logan 1990:4; Steele and others 1861:197). The hard, gravel conglomerate of nearby Quartz Flat was mined within lightly-timbered drifts (Steele and others 1861:198).

Fox's Flat, or Fort Trojan, was established in 1858, 0.75 mile northwest of Bickford Ranch on Auburn Ravine (Jerry Logan, personal communication 1996). The town was named after a miner from Missouri, William Fox. Its hotel, store, blacksmith shop, saloons and livery stable were established mostly by dissident businessmen from the neighboring town of Virginia.

The first miners worked the bars, then turned to the gold-bearing sediments above the ravine's banks. Local ditches were dug to transport water to sluices where the alluvial deposits were washed for gold. In 1853, the 14 mile long Gold Hill and Bear River Ditch was engineered, carrying water to the Gold Hill and Virginiatown diggings. The articles of incorporation of the Gold Hill and Bear River Water Company stipulate that the corporation's purpose was to convey water by ditches to the mineral district including Gold Hill, Virginiatown, Oro City, etc. (Ireland 1996:2). Auburn Ravine became a steady producer of gold. The profits apparently financed mining at Iowa Hill, Dutch Flat, Todd's Valley and Forest Hill (Lardner and Brock 1924: 180;192-193).

East and southeast of Bickford Ranch, the towns of Newcastle, Penryn and Loomis rose from mining camps along Secret Ravine. On December 1, 1852, the *Sacramento Union* reported the ascent of the new town of Newcastle in the center of what had been Secret Diggings (Davis 1993:4). The first placers at Secret Diggings had been mined during the wet season in 1850. From Secret Diggings, miners worked south, down the ravine and established two additional camps, Stewart's Flat (Penryn) and Pine Grove (Loomis) (Davis 1993:2).

The first quartz mill in the county was located at Rosecrantz Lead at the Secret Ravine diggings. The mill operated in 1851, but was reported as a failure. Mexican miners later operated arrastres to crush ore. Davis indicated that Preston & Worrell operated a quartz mill at Stewart's Flat during 1857-1858, crushing ore from the Jenny Lind, later known as the Schnabel Mine, which was located near Newcastle (Davis 1993:2).

Gold Hill attracted a population of well over 1,000 by the mid-1850's (Logan 1990:4). Virginiatown probably had no more than a few hundred. Both towns dwindled shortly after 1860. Oro City was abandoned, then taken over by Chinese miners. Businesses in Fox's Flat moved to Lincoln shortly after the narrow-gauge railroad began operating on October 31, 1861. Lincoln was instantly transformed into a major rail head with stage coach connections to points east, west and north (Logan 1990:6).

By 1854, Auburn Ravine itself was opened seasonally in search of gold until winter rains and flooding would drive out the miners. Companies of miners dug drain ditches through the ravine. Where draining was impractical, water powered pumps kept the ravine claims dry while overburden was removed by hand or by horse-drawn scraper. The gold-rich bottom sediments were washed by sluice (Steele and others 1861:47-48;198).

Auburn Ravine produced more gold for the effort than any other auriferous ravine in California. At the ravine's head, nuggets and coarse gold were found; the gold diminished to dust where the ravine meets the Sacramento Valley (Steele and others 1861:198).

The placers were worked for most of the remaining years of the 19th century. There was a brief revival of placer mining in the county during the Great Depression in the 1930s (Wilson 1993:4).

After 1861, the economy of the region became tied to the railroads. When the line through Lincoln was extended north to Marysville (1866-1868) and then to Portland, Oregon, population of the town dwindled to less than 300 (Logan 1990:29). In 1869, the transcontinental railroad completely bypassed Lincoln on its route through Roseville, Auburn and Colfax (Logan 1993:6; Youtsey and others 1989:3).

The remnant mining camps along Secret Ravine moved to sites along the transcontinental railroad. From a nearly defunct town in 1861, Newcastle became a busy railroad terminus for nearly a year in 1864 as construction work continued to Auburn (Davis 1993:5, 13).

Many small granite quarries are located between Rocklin and Lincoln. Granite occurs in the region as residual surface boulders and massive exposures of a large batholith that extends from Folsom, Sacramento County, northwest to Lincoln (Davis 1990:13). The first quarry in Placer County was opened circa 1863 by Griffith Griffith at Wildwood on the Sacramento, Placer and Nevada Railroad. Quarrying operations supplied local and distant markets with finished stone and waste material during the industry's florescence between 1864 and 1890; quarries cut back or ceased operations altogether during the Great Depression of the 1930s.

The granite quarries at Rocklin were opened in 1863 when the Central Pacific Railroad was completed to that point. The silver-gray, fine grained granite of Rocklin was highly desired as building stone. Because of its quality, the stone was shipped by rail to Sacramento for the state capitol building, San Francisco for the United States Mint, and for construction of other buildings in the city as well as in Oakland, San Jose, Stockton, Fresno, Auburn, Truckee and Tonapah, Nevada (Davis 1990:129). Waste material was used for railroad culverts and riprap along northern California levees.

The quarries located between Rocklin and Lincoln supplied local markets with curbing along streets, building and monument stone. The Lincoln area quarries were small, mostly surface operations. While these small, local quarries flourished during the 1890s, Lincoln granite was not extensively exploited and the quarries never developed on the scale of the Rocklin operations (Leonard Davis, personal communication 1996). The Twelfth Report of the State Mineralogist for the year ending September 15, 1894, lists the following granite quarries in and near Lincoln (Crawford 1894:384-385): Burns & Coffey Quarry; Calderwood; Jeter Quarry. The Burns & Coffey Quarry, located at Lincoln, employed four men. Two derricks were used; the operation consisted mainly in working up granite boulders. Calderwood was located 1.5 miles east of Lincoln; by 1896 it was idle (Crawford 1896:621). The Jeter Quarry was a small pit, 30 feet deep, located at

Lincoln. The Jeter operation employed five men; two stonecutters and three quarrymen.

Other quarries were located 1-3 miles east of Lincoln. In the mid-1890s, these quarries included: Grimes Quarry, Paran Quarry, Borghese & Silvino's Quarry, Burlin & Temple Quarry, McDonald's Quarry and Burns Quarry (formerly Burns & Coffey). However, the oldest and best known granite quarries were located near Folsom and at Penryn and Rocklin on the Central Pacific (cf. Browne 1868:247). By 1906, there was no mention of the Lincoln area quarries in the California State Mining Bureau's bulletin (Aubury 1906:34-40).

Literally and figuratively, it was the seeds sown by Claude Chana and Theodore Sicard at Johnson's Rancho, 1846, that helped transform the regional economy to farming. Sicard, Johnson and Chana planted wheat, almonds and peach pits from dried peaches (Gittings 1996:1). Within the first few months of the gold rush, Chana had amassed a fortune from mining, returned to Sicard's, purchased a grant of land and both Frenchmen began growing fruit orchards and vineyards in the Bear River bottom lands. Chana's almonds took first prize at the debut of California's State Fair in 1854. Chana's wine production soon reached 10,000 gallons per year, and he constructed a water-powered flouring mill (Gittings 1996:2). In the decade of 1865-1875, the Lincoln became a local shipping point for agricultural produce and a supply center for area farmers (Logan 1993:6).

Early agriculture in semi-arid western Placer County was restricted to the river bottom lands and flood plains along the ravines; the intervening hills and prairie were suitable only for livestock grazing. The ravines and rivers, however, were subject to flooding. For example, the floods of 1861-1862 destroyed Chana's mill and agricultural land along the Bear River (Gittings 1996:2-3).

One of the most notable early ranchers in the region was Joseph Walkup, who became a state senator and, later, lieutenant governor. Walkup and his partner, Samuel Wyman, owned several thousand acres of land along Auburn Ravine. The 1850s ranch was located east and south of Lincoln. In 1852, Walkup and Wyman harvested the first large crop of wheat in the area (Logan 1990:34).

Lincoln area historian Gerry Logan emphasizes that the "showplace of early Placer County agriculture was the Nickerson Ranch on Doty Ravine" (Logan 1990:34). In 1852, James Nickerson purchased the tract, three miles north of Bickford Ranch. There, Nickerson experimented with 20 varieties of apple and peach trees, 15 varieties of cherry and nine of plum, irrigated by water from the Gold Hill and Bear River Ditch (Gittings 1996:7).

During the 1870's and 1880's, with the decline of gold mining, the region's vast network of ditches was used increasingly for agriculture, which was expanded beyond the river and ravine bottom lands (Gittings 1996:25).

Spring Valley Ranch was another of the region's early successes. Encompassing over 20,000 acres south of Lincoln, the ranch was started in 1855 by George Whitney and later developed by J.P. Whitney. By 1892, Spring Valley Ranch remained one of western Placer County's largest ranches at 21,756 acres. The region's other large ranches were Kaseberg, 16,284 acres; Atkinson, 6426 acres; Ahart, 4200 acres; J.S. Mariner, 3113 acres; James French, 2788 acres and Christian Kier, 2,033 acres (Logan 1990:35).

Lardner and Brock's 1924 *History of Placer and Nevada Counties, California* devoted two and a

half pages to John Bickford as one of Placer County's pioneers. Bickford raised sheep, then began a fruit farm in 1889.

Around 1896, Bickford went into the stock and dairy business on the Little Truckee River. Lardner and Brock indicated that by early part of the twentieth century, Bickford's fruit orchard encompassed 40 acres, while his stock range included 1500 acres in Placer County and 280 acres in Sierra County (Lardner and Brock 1924:951).

In a recent historical overview of the region, Logan listed John Bickford as one of 40 farmers of the Gold Hill-Fruitvale-Virginiatown area in the period after 1875 (Logan 1990:55).

Farming in the region was spurred by completion of the transcontinental railroad. In 1909, work began on double tracking and other improvements between Rocklin and Colfax. On March 31, 1912, the first through freight train used the new line (Davis 1993:45-47).

Because of the railroad, fruit production saw steady, continuous growth until it became Placer County's leading industry (Gittings 1996:27). Due to the complexities of orchard management, however, initial growth was slow. Many of the county's orchardists were miners who practiced agriculture only part-time. In 1872, when J.A. Filcher purchased half interest in the *Placer Herald,* he began a campaign of expanding orchards in Placer County by advocating use of the water "going to waste" in the old mining ditches (Gittings 1996:34).

To encourage this potential market, F. Birdsall, owner of the Bear River Ditch Company, offered free water to those starting new farms from 1877 to 1882 (Gittings 1993:42). Birdsall himself purchased a 480 acre ranch two miles from Rocklin, cleared and levelled the land, and planted 30,000 orange trees, which were irrigated with a new ditch.

Joel Parker Whitney organized, promoted and financed the Placer County Citrus Colony at Penryn in 1890 (Gittings 1996:71; Lardner and Brock 1924:199). The Citrus Colony was located on the south side of Bickford Ranch, west of Penryn and north of Loomis. The development encompassed approximately 2000 acres in Sections 26, 27, 28, 29, 32, 33 and 34, Township 12 north, and Sections 3, 4, 5 and 6, Township 11 north, Range 7 east of the Mt. Diablo Meridian (Lardner and Brock 1924:199). While both the Birdsall and Whitney ventures failed, the experiments did stimulate long term interest in Placer County fruit production.

Dairying in the region appears to have been most popular during the 1920s and 1930s. Those which endured longest and had the most impact on the local economy included: Lincoln Dairy and Poultry; Cap's Ravine Creamery; Sorenson's Dairy, W.P. Adams Dairy, Creek Flat Dairy, Hillcrest Dairy, The People's Dairy, Scheiber's Dairy, Lincoln Jersey Dairy, F.M. Glenn Dairy, Lincoln Dairy and the Clay City Dairy (Logan 1993:43).

People of Chinese ancestry comprised the labor force at many of the orchards until circa 1893. The number of Chinese and Chinese-Americans employed in the fruit industry decreased rapidly after passage of the Chinese Exclusion Act in 1882. Japanese and Japanese-Americans soon replaced the Chinese; many worked on a lease basis. Orchardists planted in 20 and 40 acre units for lease to people of Japanese ancestry (Gittings 1996:72). When the California Alien Land Law was amended in 1924, leasing was outlawed, and orchardists replaced labor with equipment.

In the 1930s, local farming suffered from pear blight and depression-era markets; many farms were abandoned. World War II provided an increased demand for fresh fruit, but labor was scarce. After the war, by the 1950s, many of the farms were subdivided and sold for home sites, while others were used for livestock grazing.

Records Search

Peak & Associates conducted a records search for Bickford Ranch at the North Central Information Center, Historical Resources Information System. The research was completed on April 12, 1995.

As a result of that study, Peak & Associates reported that only one small portion of Bickford Ranch had been previously surveyed by archaeologists. The survey was part of a California Department of Transportation project along Highway 193. No cultural resources were reported on the ranch by the Caltrans archaeologists (Peak & Associates 1995b:20).

However, the records search did indicate the presence of cultural resources in the vicinity. The Caltrans field team found a bedrock mortar site west of Sierra College Boulevard and an isolated stone tool on the north side of Highway 193.

Another archaeological survey had been conducted by Michael Claytor immediately south of Bickford Ranch. There, Claytor discovered two midden sites with bedrock mortars. These may be "workshop middens" as defined years earlier by Robinson during his Auburn Ravine work.

The Peak & Associates study indicated that its records search also identified the work of Foothill Archaeological Services on Placer Ranch (Twelve Bridges) located west of Bickford Ranch (Peak & Associates 1995b:21).

An updated records search for the present study was requested of the North Central Information Center on September 18, 1997. The records search was completed by the information center on October 23, 1997 (see Appendix B: Records Search Results).

Information center records indicated that the entire planned development had been examined for cultural resources by Peak & Associates, Inc. (Peak & Associates, Inc. 1995b). As a result of that survey, the firm's archaeologists identified 23 prehistoric resources, five of which had both prehistoric and historic components. An additional 27 resources were recorded as historic sites, buildings or structures.

The information center's assistant coordinator noted the old California Department of Transportation survey along the State Route 193 corridor (California Department of Transportation 1992; Tordoff and Lortie 1992). A small portion of the northwest corner of Bickford Ranch had been included in that survey. However, no cultural resources were reported on that portion of Bickford Ranch encompassed by the Caltrans project (cf. Peak & Associates, Inc. 1995b:20).

Five additional studies were noted by information center staff within a half-mile radius of Bickford Ranch, according the information center's records search. The half-mile radius intersects a portion of Auburn Ravine included in Robinson's research for his Master's thesis during the

1960s (Robinson 1967). In 1986, John W. Foster, Daniel G. Foster and Richard C. Jenkins conducted an archaeological survey on Placer Ranch located on the west side of Sierra College Boulevard (Foster and others 1986). Peak & Associates, Inc., and later, Pacific Legacy, Incorporated, conducted studies on the same property, which became the Twelve Bridges Development (Jackson 1996; Peak & Associates, Inc. 1995a). And, again, the old California Department of Transportation work along 193 resulted in an Archaeological Survey Report (Offerman 1992), a Historic Study Report (Tordoff and Lortie 1992) and a Historic Property Survey Report (California Department of Transportation 1992). All three reports were required by Caltrans to identify and evaluate cultural resources for proposed highway widening project.

The information center listed five recorded prehistoric sites located within the half-mile radius of Bickford Ranch. CA-PLA-14, located on the south side of Auburn Ravine, was a large habitation midden with more than 300 bedrock mortars and "baby rocks." Artifacts recovered from the site included clam shell disc beads, manos, hammerstones, pestle fragments, olivella beads, projectile points and worked bone. Two isolated bedrock mortar stations without site numbers are illustrated on the information center's maps immediately north, across the ravine from CA-PLA-14.

Another site, CA-PIA-105, is located nearly a half-mile east of CA-PLA-14 on the south side of Auburn Ravine. The site includes four rock outcrops with mortar holes and a few artifacts, according to the information center's report.

On the portion of the Twelve Bridges Golf Club nearest Bickford Ranch, CA-PLA-619, -620 and -621 encompassed a large, composite site consisting of three previously recorded archaeological sites, nine other loci including bedrock mortars, lithic scatters, grinding slicks and 34 circular depressions scattered throughout the "site area."

West of Sierra College Boulevard, southwest of Bickford Ranch, the information center identified PL-10, an isolated site of three bedrock mortars. Isolated bedrock mortars BRM-193-6, 193-7 and 193-8 were also recorded during the California Department of Transportation studies along 193 immediately west of Bickford Ranch. An isolated stone core tool was discovered during the same highway project on the north side of 193.

Recorded historic sites within a half-mile radius of Bickford Ranch include 193-Trash, a 1925-1950 trash deposit, and a segment of an old Nevada Irrigation District ditch. Both historic sites were recorded during the California Department of Transportation studies.

The Pacific Legacy study noted ditches, a rock pile, mine prospects and tailings dumps on the northeast portion of Twelve Bridges nearest Bickford Ranch.

The 1856 Government Land Office (GLO) plat showed four road segments within the half-mile radius of Bickford Ranch. Also, a farm house and an Indian rancheria with "15 huts" were illustrated immediately adjacent to the property. Clover Valley is also shown on the south side of Bickford Ranch. The information center's report noted the existence of old fruit orchards in the general region.

A second Indian rancheria with "15-20 huts" is illustrated one mile east of Bickford Ranch. Peak & Associates described this second rancheria as the post-contact site of *Piuhu* (Peak & Associates, Inc. 1995b:11; see also Littlejohn 1928:34; Robinson 1967:167-168; Wilson and

Towne 1978:388). The site, known as CA-PLA-292/293, was excavated by the former landowner, William Blanchard.

In addition to the information center's official maps and records of archaeological sites and surveys in Placer County, the following references were also reviewed by the center's assistant coordinator:

- The Directory of Properties in the Historical Resources Inventory (California Office of Historic Preservation 1997a).
- Archeological Determinations of Eligibility, Placer County (California Office of Historic Preservation 1997b).
- National Register of Historic Places, Listed Properties (California Office of Historic Preservation 1996)
- Survey of Surveys: Historic and Architectural Resources (California Office of Historic Preservation 1989b)
- *California Historical Landmarks* (California Office of Historic Preservation 1990) and updates.
- *California Points of Historical Interest* (California Office of Historic Preservation 1992) and updates.

Also consulted were *California Place Names* (Gudde 1969), *Historic Spots in California* (Rensch 1992); "Gold Districts of California" (Clark 1970); *California Gold Camps* (Gudde 1975); and the Historic Bridge Inventory (California Department of Transportation 1986).

Consultations

Peak & Associates initiated consultations with Native Americans in 1995. The firm's representative contacted the Native American Heritage Commission for names of Native Americans with traditional ties to the Bickford Ranch vicinity. Peak & Associates then sent letters to those individuals, requesting information on any archaeological sites or traditional cultural properties located on the ranch (Peak & Associates 1995b:21).

A traditional cultural property is a location that is important to an ethnic group or subculture because of its association with the community's traditional practices or beliefs. A Native American traditional cultural property may be a location associated with traditional beliefs about the group's origins, culture history or philosophy regarding the nature of the world. It may also be a location where Native American religious practitioners have gone to perform ceremonies or to conduct similar activities.

As a result of this consultation process, Peak & Associates reported one reply. April Moore's research at the Placer County Recorder's Office revealed the death certificate for Lonnie (sic) Jack, interred at "Boulder Ridge" in 1911. A check of the census records showed that the Jacks were residents mainly of Colfax and its vicinity. According to the Peak & Associates report, there

was some question whether or not the reference pertained to the Boulder Ridge located on Bickford Ranch or another Boulder Ridge elsewhere. April Moore's comment had been received after the Peak & Associates survey, therefore, the field team was not looking specifically for Jack's grave during the field work.

In September, 1997, Windmiller asked the Native American Heritage Commission to conduct a search of its sacred lands file and to provide a second list of Native American contacts for Bickford Ranch. Results of the file search were negative. The commission's search failed to show the presence of any traditional cultural properties or other Native American cultural resources (see Appendix C: Consultations).

In January, 1998, Windmiller mailed a letter to each Native American group and individual listed by the commission for Placer County. The letter outlined the type of development planned for the ranch and described the types of cultural resources previously recorded. In the letter, Windmiller asked the recipients for any further knowledge of and concerns for the cultural resources. The same letter was sent to Placer County Department of Museums and Placer County Historical Society.

No responses were received from the letters until telephone contacts were made by Windmiller in May, 1998.

Ms. April Moore expanded on her concern for the grave of her great aunt, Latti Jack. Mrs. Jack died in her early twenties and, according to the death certificate, was buried somewhere on Boulder Ridge. Ms. Moore did not have any description of the grave or its specific location. When asked if other graves may accompany that of Latti Jack on Boulder Ridge, Ms. Moore replied that she was not aware of any.

While Ms. Moore expressed concern for the grave, she indicated that since it was not found during the archaeological surveys, it was unlikely that it would be located.

Ms. Moore also expressed concern for the Native American cultural sites on Bickford Ranch. She favored preservation of the isolated bedrock milling sites. Also, she was in favor of preserving the middens in open space or by capping them with soil to protect the resources during construction of the golf course. Ms. Moore agreed that a clause in the CC&Rs prohibiting the collection of artifacts in the open spaces would help preserve the area's Native American heritage.

Mr. Jeff Murray, Shingle Springs Rancheria and Mrs. Rose Enos responded favorably to preserving the isolated bedrock milling stations. Mrs. Enos indicated that she also favored the protection of any middens from golf course construction by capping the cultural deposits with soil. Mr. Murray expressed interest in visiting Bickford Ranch with his uncle, Mr. Hickey Murray. Windmiller responded that he would arrange the visit.

Ms. Doris Parker-Coons responded for the Placer County Department of Museums. Ms. Parker-Coons indicated that generally, the county's Native Americans oppose destruction of their heritage sites and support efforts to preserve the resources including isolated bedrock milling sites.

Regarding the non-Native American historic sites on Bickford Ranch, Ms. Parker-Coons indicated that the railroad work camp (site DCN-23) was probably the most important. In light of plans for a golf course that may affect site DCN-23, Ms. Parker-Coons agreed that capping the site with soil was a valid mitigation alternative to scientific excavation. She preferred the capping alternative, because such action would preserve the site for future study. Ms. Parker-Coons also favored soil capping of midden and historic features at the site nearby, DCN-12. This procedure, she indicated, would protect the site from golf course construction.

Preserving California Register-eligible sites in open space and prohibition in the CC&Rs against artifact collecting were Ms. Parker-Coons other suggestions.

METHODS

Peak & Associates, Inc. conducted a field survey of Bickford Ranch during April, May and June, 1995 (Peak & Associates 1995b:ii). Open meadows and flat ridges characterize much of the ranch. These areas were well-suited for the transect method of field survey where individual team members walked across the country no more than 15 meters apart (Peak & Associates 1995b:24). The steep, sometimes brushy slopes of Boulder Ridge were inspected on an opportunistic basis. Brushy canyons were also inspected on an opportunistic basis. However, access problems were few, according to the firm's account of the research (Peak & Associates 1995b:24).

Because the ranch was used for livestock grazing, grasses were low and brush was absent on much of the terrain. Wet meadows in the western part of the ranch supported relatively high grass, but rarely high enough to hinder the inspection by archaeologists (Peak & Associates 1995b:25).

Resource Designations

Peak & Associates assigned a temporary number (designation) for each cultural resource and, in 1995, submitted copies of the record forms to the North Central Information Center. However, the information center did not assign official numbers for the resources as required by the California Office of Historic Preservation (California Office of Historic Preservation 1995a:12). Therefore, Ric Windmiller, Consulting Archaeologist filed a formal request for the numbers in September, 1997, prior to any supplemental field work. The request was followed by numerous reminders. As of this writing, no numbers have been received by the consultants.

The 1997 Field Inspections

The cultural resources identified by Peak & Associates, Inc. were revisited in September, October, November and December, 1997. The inspection was conducted by John W. Foster, M.A., senior archaeologist and Daniel J. Osanna, M.A., field associate. Donald S. Napoli, Ph.D., architectural historian, revisited the Bickford Ranch buildings, documented the structures and reevaluated their potential importance. The research project was conducted under the general

direction of the principal investigator, Ric Windmiller, M.A.

Since Peak & Associates had conducted a thorough field survey only two years previous, the Windmiller field effort focused on revisiting each cultural resource recorded by that firm, documenting the location of the resource, verifying site boundaries and other aspects of the original resource descriptions, and noting any changes in condition.

No new archaeological sites were found during the field inspection. Additional observations of previously recorded archaeological sites were added to existing site records by means of Continuation Sheets and corrected Sketch Maps. The Bickford Ranch buildings were rerecorded on DPR 523x series forms by the architectural historian (cf. California Office of Historic Preservation 1995b).

During the field inspection, all evidence of prehistoric and historic activity was sought. This included midden soils, bedrock mortars and milling surfaces, flaked stone tools and tool debris, ground stone tools, fire-affected rock, housepits, cairns, petroglyphs and rock alignments. Historic remains such as foundations, mine tailings, structures, dumps, pits, ditches, mounds, cemeteries, exotic vegetation, rock walls and artifact concentrations were also sought.

The previously recorded cultural resources were identified from the sketch maps, location maps and directions provided on the Peak & Associates records. These records proved to be quite accurate; forty-eight of the 50 resources originally recorded by Peak & Associates were found without difficulty.

When the Windmiller field team visited an archaeological site, the features described on its site record were inspected. The site datum was identified when possible. Otherwise, a new datum point was established. The archaeological site was then photographed and its boundaries measured. The location of the site was plotted on large scale project maps and checked against the USGS Quadrangle locations. The old Peak & Associates site sketch maps were checked for accuracy and supplemented with compass bearing and distance observations to nearby landmarks. These data were added to the site record as a supplement. Important site attributes were noted and artifacts were photographed, as well. No artifacts were collected during the study.

A hand-held unit for Global Positioning System (GPS) mapping was used to provide a satellite-based position for the datum at each site. The unit employed was the Garmin 12XL, which calculated the 3D position of the datum from a maximum of 12 satellites. Although this unit is not capable of differential positioning, and thus is subject to Selective Availability Error introduced by the military for national security reasons, it provides an estimated position error as each position is acquired. This error is based on the angle of the satellites visible to the unit. The position is most accurate when the satellite positions are divergent. However, the position error is greater if the satellites are grouped close together across the horizon. The field team exercised care to record this estimated error for each site datum. The error usually ranged from 20m to 40m. When the error was greater than the 20-40m range, the site was revisited at a different time to record the coordinates. This kept the accuracy well within acceptable ranges.

The UTM positions recorded by GPS in the field are very accurate. As a test, the length of a N-S rock wall (site DCN-06) was measured by paced distance and also measured by GPS calculation. The Peak & Associates field team originally calculated its length as 211m. Our paced

measurement was 205m. The GPS recorded positions at each end as:

Wall North End	0656826mE; 4304519mN
Wall South End	0656857mE; 4304339mN

The difference between northings is 519 minus 339, or 180m. When a route is calculated between them by the GPS, it calculated the distance as .2km or 200m. The difference between the easting measurements was also quite precise. The wall was not aligned exactly north-south. The wall's ends varied some 25 paces from each other in an east-west direction. The GPS calculated them as 31m apart (857 minus 826).

The Windmiller field team was unable to locate two archaeological sites. One of sites (DCN-27) was a bedrock milling station situated in thick riparian growth along Clover Valley Creek. When the Peak & Associates field team recorded the site in 1995, it had to be uncovered from silt and heavy duff, and it has since been reburied by stream deposits.

Site BR-07 is the other archaeological site that could not be located for purposes of the present study. BR-07 was a bedrock mortar locale on a boulder-strewn hillside. The Windmiller field team could not find this site despite repeated attempts. The site consisted of a total of four mortar pits on two boulders, 13m apart. During the 1995 Peak & Associates study, no artifacts were noted at either location.

Particular attention was paid during the present study to possible rock burial cairns in response to Native American concerns. However, none were identified. And, while there is abundant surface rock on the scabland of Boulder Ridge, the field team concluded that the burial of Latti Jack may be located on a portion of ridge located outside the Bickford Ranch property.

Test Excavations

Peak & Associates conducted archaeological test excavations at two prehistoric campsites to further evaluate their significance: site BR-01 and BR-08, bedrock mortars and accompanying cultural deposits. The test excavations were conducted in June, 1995. Informal shovel test pits were excavated by the field team to a minimum depth of 40cm and all sediments removed from the excavations were screened through one-eighth inch hardware cloth (Peak & Associates 1995b:29-30).

In March, 1998, the Windmiller field team, lead this time by senior archaeologist Louis A. Payen, Ph.D., returned to seven of the archaeological sites. Test excavations at the seven sites were aimed at gathering further information where archival research and surface evidence were not sufficient to complete the evaluations. The field team returned to site BR-08 to fill a perceived gap in the Peak & Associates study at that site. Test excavations were also directed by Payen at BR-05, another bedrock milling station; DCN-12, multiple bedrock milling stations along Clover Creek; DCN-17 and DCN-22, homestead sites; DCN-23, a work camp site; DCN-25, bedrock mortars with possible cultural deposits and historic component(s); and DCN-29, an old cabin site.

The Windmiller field team employed a mixed strategy during the test excavations. Payen used shovel tests (30cm x 30cm square) placed at regular intervals along a transect to check the

depth, nature and horizontal extent of cultural deposits such as middens around bedrock milling stations. Historic features such as cellar pits and wells were tested by excavating single units. The units were excavated in arbitrary levels. The material from the units was screened through quarter-inch hardware cloth. However, screening was not universally employed. Rainy weather and wet soil conditions often precluded screening as a discovery technique.

Generally, the work focused on identifying the nature and integrity of the cultural deposits. The resulting information was used to evaluate the eligibility of each site for California Register eligibility (see Appendix D: Catalogue and Appendix F: Confidential Resource Records).

FINDINGS

Fifty cultural resources were identified on Bickford Ranch as a result of the 1995 study by Peak & Associates (see Appendix E: Confidential Site Location Map and Appendix F: Confidential Resource Records). The cultural resources include: three prehistoric campsites, 14 isolated bedrock milling stations, five ditches, segments of the Caperton and Antelope canals, six rock walls and/or fencelines, six small mines, the Kluss family home site, ruins of a cattle chute, a work camp site, a cabin site and a granite quarry.

The study also identified the following multicomponent sites (sites with remnants of both prehistoric and historic activity): a bedrock milling station with a small midden, historic fence line and historic ditch remnant; a homestead with a Native American component; a rock wall and fence line with a bedrock mortar; a site encompassing bedrock mortars, midden and railroad construction-related features, small granite quarry and a mine, another mine with a bedrock mortar, and a stone foundation with bedrock mortars nearby.

The Bickford Ranch buildings were also recorded. A trash scatter recorded by Peak & Associates was later identified by the Windmiller field team as a contemporary dump site.

Prehistoric Archaeological Sites

BR-01 (Prehistoric Campsite). This site was identified by Peak & Associates as a small prehistoric campsite with two bedrock milling stations and other milling debris. The site covers an area 49m x 92m. Peak & Associates conducted limited shovel test excavations and found the site to contain a diffuse subsurface collection of artifacts, lithic debris and small stone tools. The site depth was recorded as 50cm.

BR-02 (Isolated Bedrock Milling Station). An isolated milling station, this site is located in an open grassy field 200m north of the Bickford Ranch buildings. Three of the mortar pits are located in a fracture across the boulder. The fourth is found nearby on the same 5m x 6m andesite boulder. No artifacts or midden deposit were observed by Peak & Associates.

BR-04 (Isolated Bedrock Milling Station). This site consists of an isolated bedrock milling station. A total of four mortar holes were discovered on two adjacent granite boulders. The site is situated on the slope of a small hill. The deepest mortar hole is 8cm, and conical in shape.

No artifacts or cultural deposit were observed.

BR-06 (Isolated Bedrock Milling Station). Three deep mortars on a single granite boulder constitute this archaeological site. The mortar holes are unusually deep (10-23cm). The site is located on a small terrace covered with volcanic rocks. Most of the outcrops are too small and irregular for use as mortars. Oak grassland surrounds the site. No artifacts or cultural deposit were observed.

BR-07 (Isolated Bedrock Milling Station). This archaeological site consists of a bedrock milling station on a hillside with scattered oaks and many surface boulders. Peak & Associates indicated that the rocks containing mortar holes were inconspicuous; the Windmiller field team found that to have been an accurate statement. A total of four mortar holes were reported on two low granite boulders. The holes are shallow (1cm-7cm). A single pestle was the sole artifact reported at the site.

BR-08 (Prehistoric Campsite). This site includes one of the largest concentrations of bedrock mortars identified on Bickford Ranch. Eleven mortar holes were found on a single massive granite boulder at the foot of a low hill. The site is situated on the edge of an open meadow, which is an ideal location for a food processing camp. The 1995 Peak & Associates study concluded that there was no midden or cultural deposit at the site. However, the 16 shovel test pits excavated by Peak & Associates yielded a mano fragment and an obsidian flake.

The Windmiller field team noted that the site soil had a dark hue. As Peak & Associates did not conduct many tests on the south and east portions of the site, the Windmiller field team concentrated its excavation efforts in those areas.

A 30cm x 30cm excavation on the south side of the bedrock milling station revealed a small area of dark, greasy midden soil (Munsell 2.5YR 2.5/1). The midden averaged 60cm deep. Midden constituents included fire-fractured rocks and charcoal. A 30cm x 30cm test excavation 4m north of the bedrock milling station revealed a lighter-colored brown soil (Munsell 7.5YR 4/2) with scattered charcoal and a chert flake. Six meters west of the bedrock milling station, the field team noted the same brown soil (Munsell 7.5YR 4/2) and no rocks.

The third 30cm x 30cm excavation was placed 29m east of the bedrock milling station. The excavation proceeded through a brown soil (7.5YR 4/2) to 50cm below the surface to contact with a yellowish red decomposed granite Cr horizon (Munsell 5YR 4/6).

While the site area defined by Peak & Associates remained largely the same, the additional test excavations resulted in identification of the midden heap at the bedrock milling station and verified the presence of subsurface artifacts in undisturbed contexts elsewhere at the site.

BR-10 (Isolated Bedrock Milling Station). This site is a single bedrock mortar in the bed of a shallow drainage. The stream has numerous cobbles and loose rock, but no artifacts were seen in the vicinity. The area supports a thick riparian growth, and ground visibility is partially obscured. The mortar pit occurs in a small granite rock that could have been transported downstream.

BR-12 (Isolated Bedrock Milling Station). This site consists of a bedrock milling station situated in an oak grove near the edge of Clover Valley Creek. A total of six mortar holes are located on

a low granite boulder on the slope of a small hill. The deepest mortar hole is 10cm, and shallowest is 5cm. The mortars are sharply conical in shape. No artifacts or cultural deposit were observed.

DCN-07 (Isolated Bedrock Milling Station). This site consists of an isolated milling station with two bedrock mortar holes on a low andesite boulder. The mortar pits are shallow, 2cm deep. The site is situated on a rocky volcanic ridge with grasses and oaks. Many boulders are strewn across the landscape. No evidence of a developed midden or surface artifacts were observed by the field team.

DCN-10 (Isolated Bedrock Milling Station). This site is an isolated milling station composed of a single bedrock mortar hole on a boulder situated on the edge of the Mehrten Formation. An oak grove is located nearby. The pit is shallow (.5cm deep) and no associated artifacts or midden could be located at the site.

DCN-13 (Isolated Bedrock Milling Station). This is an isolated milling station located on the north bank of Clover Valley Creek. The site consists of a single andesite boulder, 1.5m high, with a shallow mortar hole and grinding basin. The boulder was found on the slope below a rocky ridge. Numerous cobbles surround the boulder and there are abundant cobbles in the stream, but none other than the single boulder were found with use wear. No evidence of a cultural deposit or artifacts was observed. Scattered oaks and digger pines are the locality's dominate plant types.

DCN-15 (Isolated Bedrock Milling Station). This site consists of an isolated bedrock milling station with a single mortar hole on a low andesite boulder. It is situated in an oak grove on the edge of a volcanic ridge. The pit is quite shallow, and occurs in a natural basin on the top of the rock. No artifacts or cultural deposit were associated with the milling station.

DCN-16 (Prehistoric Campsite). This site consists of a bedrock milling complex in rock outcrops along Clover Valley Creek. Three stations make up the site, but only one of them is located on the Bickford Ranch property, according to the Peak & Associates study. The Bickford Ranch milling station is a low flat granite boulder containing four mortar holes and situated on a terrace overlooking Clover Valley Reservoir. The deepest mortar pit is 7cm and the shallowest measures 2.5cm. A shallow prospect hole was found adjacent to the milling station. No associated artifacts were observed. Other bedrock mortars occur under dense thickets of blackberries along the creek. There is evidence of intensive Native American use of the vicinity, however, the cultural deposit occurs outside Bickford Ranch.

DCN-18 (Isolated Bedrock Milling Station). This site consists of a bedrock milling complex at the base of a low ridge 120m north of Clover Valley Creek. The site consists of two bedrock milling stations with five mortar pits in a large boulder under a massive oak, and two mortar pits in a small, low bedrock protrusion nearby. The mortar pits are rather deep: 3-23cm. No artifacts were observed at the location and no midden deposit was identified.

DCN-21 (Isolated Bedrock Milling Station). Two mortar pits in a single rock outcrop constitute the cultural evidence at this site. The two mortar pits were found in a low granite formation adjacent to Clover Valley Creek. The mortar holes measure 3cm and 4cm deep. The site is overgrown with blackberries. No cultural deposit, midden or artifacts were detected at the site.

DCN-26 (Isolated Bedrock Milling Station). This site consists of an isolated bedrock mortar station with two mortar pits. The site is situated in a grove of oaks and pines. The shallow mortar pits were found in a small basin on the surface of a flat granite boulder. No evidence of cultural deposit or artifacts was found in the site locality.

DCN-32 (Isolated Bedrock Milling Station). A single bedrock mortar station with one pit constitutes this archaeological site. The bedrock milling station is located in an area of dense riparian growth near the confluence of two shallow drainages. The streams are choked with blackberry bushes. The site is located on the north side of the drainage. The small granite boulder is surrounded by pines and oaks. No artifacts were found at the site.

DCN-33 (Isolated Bedrock Milling Station). A single basalt boulder containing a large grinding slick constitutes this prehistoric site. The boulder is situated in a shallow drainage on an east-facing hillside in Section 21. While there is an abundance of cobbles in the stream bed, no grinding stones were identified. No other artifacts or developed midden was identified at the site. Oak-grassland surrounds the site.

Historic Archaeological Sites

BR-09 (Ditch). This site is a shallow irrigation ditch originating at the Caperton Canal. The ditch distributed water down a steep hillside. The ditch is not lined with stone or gunite. It does not appear to be very old since no large trees grow along its margins (as can be observed in the older canals). A section of iron pipe and another of PVC feed water into the ditch. The ditch may have been used to irrigate the hillside for improved grazing.

BR-11 (Ditch). This is a small irrigation ditch built to convey water to the narrow ridge and hill slopes adjacent to the Caperton Canal. The ditch is less than 1m wide and unlined. Its depth is about 20cm. The ditch has an observed length of 425m. No gates or distribution equipment was observed, and there were no associated artifacts noted. Age of the ditch is unknown. It may be less than 45 years old.

BR-14 (Caperton Canal). This site is the Caperton Canal, which is still in use. The canal was originally a simple ditch. Modern improvements include cement lining along some sections, siphons and gates. Other sections of the Caperton Canal remain unlined and unimproved. The original construction may date back to the 1870s. Approximately three miles of the canal occur on Bickford Ranch. However, the Bickford Ranch segment is only a small portion of the entire canal.

DCN-00 (Rock Wall). This site consists of a low unmortared rock wall trending north-south. This old fence line measures approximately 480m long, and averages 20-60cm wide and 20-30cm high. Fence posts have been placed along the wall. The rock wall probably served as a boundary marker for Bickford Ranch. An upright quarried granite post marks the site of a gate through the wall. The granite post was designated as the datum point for the site. No other associated artifacts or features were observed.

DCN-01 (Mine). This site is a mine adit dug into the hillside in the Mehrten volcanic formation. It is an untimbered drift that measures 1.5m wide and penetrates the hill to a depth of 10m. No tailings or mining debris was observed, nor were other features observed. Standing water is