Appendix A

Cultural Resources
and Section 106 Consultation
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APPENDIX A:
Cultural Resources
and Section 106 Consultation

The following documentation related to cultural resources and Section 106 consultation are included in this appendix:

- Attachment 4: SHPO Concurrence with APE and ATP, June 9, 2017, with APE figures.
- Attachment 5: SHPO Concurrence on Effect and Amended APE for Drainage Basin, October 12, 2017, with Amended APE figures.
- Attachment 6: SHPO Concurrence on Effect and Amended APE for GT Staging/APS Line, October 24, 2017, with Amended APE figures and City Archaeology’s Assessment Result Memo.
- Attachment 7: ACHP Letter to FAA on Section 106 Consultation, October 30, 2017.
- Attachment 8: Memorandum of Agreement (MOA) for the PHX Airport Development Program (2006).
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Attachment 1:

Archaeological Treatment Plan

for PHX Sky Train Stage 2

June 5, 2017
Historic Properties (Archaeological)
Treatment Plan for PHX Sky Train Stage 2,
Phoenix Sky Harbor International Airport,
Maricopa County, Arizona

T. Kathleen Henderson

Prepared for the City of Phoenix
PGM 2007-46

Desert Archaeology, Inc.
3975 N. Tucson Boulevard, Tucson, Arizona 85716
doc2017-02
Historic Properties (Archaeological)
Treatment Plan for PHX Sky Train Stage 2,
Phoenix Sky Harbor International Airport,
Maricopa County, Arizona

T. Kathleen Henderson

Prepared for the City of Phoenix
PGM 2007-46

Submitted to

Ms. Laurene Montero
Pueblo Grande Museum
4619 E. Washington Street
Phoenix, Arizona 85034
COMPLIANCE SUMMARY

Report Title: Historic Properties (Archaeological) Treatment Plan for PHX Sky Train Stage 2, Phoenix Sky Harbor International Airport, Maricopa County, Arizona

Project Name: PHX Sky Train Stage 2

Project Location: Phoenix, Maricopa County, Arizona

Project Sponsor: City of Phoenix

Lead Agency: Federal Aviation Administration

Other Involved Agencies: Arizona State Historic Preservation Office, Arizona State Museum, City of Phoenix

Applicable Regulations: National Historic Preservation Act of 1966, as amended; Arizona Antiquities Act (ARS §41-841 et. seq.); City of Phoenix Historic Preservation Ordinance (Chapter 8, Section 802)

Funding Source: City of Phoenix

Description of the Project/Undertaking: Construction of an extension to the existing Sky Train within Phoenix Sky Harbor International Airport (PHX) from where it currently ends at Terminal 3 westward to the Rental Car Facility at the southwestern end of the airport. Associated actions include construction of a full “west” station with platform and parking, an electrical substation and/or switchyard with microgrid generator system, propulsion building, relocation or modification of existing facilities, services, and utilities, and access to the train.

Area of Potential Effects (APE): 290 acres subdivided into three segments, a western APE comprising 268 acres where most Sky Train construction activity will take place, and an eastern APE comprising 22 acres in two parts (19 acres south, 3 acres north) slated for possible installation of an electrical switchyard and associated networks.

Legal Description: City of Phoenix, Maricopa County, Arizona, in Sections 10, 13, 14, and 15, Township 1 North, Range 3 East on the USGS 7.5-minute topographic quad Phoenix, Ariz. (AZ T:12:[NE]) and in Sections 7 and 8, Township 1 North, Range 4 East on the USGS 7.5-minute topographic quad Tempe, Ariz. (AZ U:9:[NW]), Gila and Salt River Base and Meridian

PHX Sky Train Stage 2 will be constructed within Sky Harbor Airport.

Land Jurisdiction: City of Phoenix

Consultant Firm/Organization: Desert Archaeology, Inc.

Project Numbers: City of Phoenix Cost Center No. AV10000011, PGM 2007-46, Desert Archaeology Project No. 12-121K
Number of Sites: 6


List of Register-ineligible Properties: None

Comments: This treatment plan proposes phased data recovery, including demolition monitoring, in those portions of National Register-eligible archaeological sites that have not previously been investigated and could be subject to disturbance from construction of PHX Sky Train Stage 2 and its associated facilities. Two affected sites are identified: AZ T:12:47/Pueblo Salado and AZ T:12:389/Canal Salado System. A work plan to complete the recommended data recovery activities is included.
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HISTORIC PROPERTIES (ARCHAEOLOGICAL)
TREATMENT PLAN FOR PHX SKY TRAIN STAGE 2,
PHOENIX SKY HARBOR INTERNATIONAL AIRPORT,
MARICOPA COUNTY, ARIZONA

INTRODUCTION

The City of Phoenix (City) Aviation Department is planning to extend the automated train system, named Sky Train, at Phoenix Sky Harbor International Airport (PHX) from where it currently ends at Terminal 3 to the Rental Car Center at the southwestern end of the airport. The Sky Train is one of several improvements proposed as part of the Airport Development Program (ADP), which aimed to serve projected increases in airline passenger activity. Proposed ADP improvements have and will provide additional facilities to balance the capacity of existing airfield and landside facilities and improve the efficiency of Airport operations. Construction of the Sky Train extension, PHX Sky Train Stage 2, is among the last of proposed ADP improvements to come to fruition.

A Final Environmental Impact Statement (FEIS) was completed for the ADP in April 2006. As part of this process, the Federal Aviation Administration (FAA) consulted with the State Historic Preservation Officer (SHPO) and other agencies as required by Section 106 of the National Historic Preservation Act to take into account the potential effects of the ADP on historic properties and archaeological resources. This consultation resulted in a Memorandum of Agreement (MOA), which delineates measures that will be taken by the City to ensure adverse impacts will be avoided. The MOA stipulates among its provisions that an archaeological treatment plan will be prepared to address potential adverse effects of the ADP on archaeological resources.

Given that the FEIS was completed more than 10 years ago, the City Aviation Department and the FAA is conducting a new Environmental Assessment (EA) to ensure that the evaluation of environmental impacts associated with PHX Sky Train Stage 2 remains current and that all updates to FAA policy and guidance and guidance under the National Environmental Policy Act (NEPA) is applied. This Historic Properties Treatment Plan has been prepared in concert with the EA to identify and address potential adverse effects of Sky Train Stage 2 construction on significant cultural resources.

PROJECT LOCATION AND DESCRIPTION

PHX Sky Train Stage 2 will be constructed within Sky Harbor Airport, which is located north of the Salt River in the southeastern portion of Phoenix, Maricopa County, Arizona (Figure 1). The Area of Potential Effects (APE) for the project comprises approximately 290 acres distributed in three parts on land owned by the City in Sections 10, 13, 14, and 15, Township 1 North, Range 3 East (western APE, 268 acres) on the USGS 7.5-minute topographic quad Phoenix, Ariz. (AZ T:12:[NE]) and in Sections 7 and 8, Township 1 North, Range 4 East (eastern APE, 22 acres) on the USGS 7.5-minute topographic quad Tempe, Ariz. (AZ U:9:[NW]).
Figure 1. General project location
Proposed actions include construction of the Sky Train extension from Terminal 3 to the Rental Car Center (RCC); construction of a platform on the third level of the RCC for the Sky Train to enter; construction of a West Ground Transportation Center (WGTC) Sky Train station, with surface parking to north and south; construction of parking garage or mixed-use parking facility to the northwest of the WGTC station; surface road improvements to accommodate the WGTC station and parking facilities; relocation of the Ground Transportation staging area; construction of a central utility plant for the WGTC; construction of three propulsion facilities along the Sky Train alignment; expansion of the Sky Train maintenance and wash facilities, and construction of new electrical facilities. All but the latter two actions will occur within the western APE (Figure 2a); the eastern APE circumscribes the potential impact area for expansion of Sky Train maintenance facilities and options for increased electrical service (Figure 2b). Connected actions include adjustment of roadway lane markings under I-10 where the Sky Train will pass below the interstate; construction of an access bridge over 25th Place; demolition of numerous buildings and facilities that conflict with the proposed Sky Train alignment and its associated constructions; construction of a stormwater management facility with retention basin(s) for the WGTC surface parking lots (see Figure 2a); and revised drainage in the vicinity of the Sky Train 44th Street Station (see Figure 2b).

The proposed undertaking extends across portions of three known Hohokam habitation and agricultural sites, AZ T:12:47 (ASM)/Pueblo Salado, AZ T:12:62 (ASM)/Dutch Canal Ruin, and AZ U:9:28 (ASM), and three Hohokam canal sites, AZ T:12:131 (ASM)/Canal Patricio System, AZ T:12:389(ASM)/Canal Salado System, and AZ U:9:2 (ASM)/Park of Four Waters Canals (Figures 3 and 4). All of these sites have been determined eligible or recommended eligible for inclusion in the National Register of Historic Places (NRHP). The extent to which Sky Train's ground-disturbing construction activity could impact archaeological resources associated with these NRHP-eligible sites is considered in this treatment plan.

GEOMORPHOLOGICAL CONTEXT

The Sky Train Stage 2 APE is located in the lower Salt River Valley within the north-central portion of the Phoenix Basin, a part of the larger Basin and Range physiographic province. The specific locale extends across the Holocene river terrace, the Lehi Terrace (Péwé 1978), on the northern side of the Salt River. Elevation ranges roughly 347-332 m (1140-1090 ft) above mean sea level, sloping gently from east to west. The APE has been highly modified from its precontact (prehistoric) condition by decades of historic agricultural use and modern airport construction. Despite these modifications, there remains buried evidence of prehistoric occupation and agricultural features across the airport area.

The active, now channelized, floodplain of the Salt River bounds the southern side of the airport. Prior to channelization, the Salt River was a braided stream, an interwoven network of shallow channels flowing around islands or channel bars. Braided channels are notoriously unstable, and diversion of flow during high discharge (floods) can cause catastrophic erosion of new channels and

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3Site boundaries shown in Figures 3 and 4 are those of the City Archaeology Office, which is the common practice for City of Phoenix projects, since the Archaeology Office will have the most current information pertaining to site boundaries in its jurisdiction. The figures include several sites newly designated during the Sky Harbor Airport Community Noise Reduction Program (CNRP) Archaeology project. Updates to the site shapes will be provided to the ASM Archaeological Records Office upon completion/curation of the CNRP project.
Figure 2a. Proposed actions, PHX Sky Train Stage 2, map 1 of 2. (Source: Figure 1a, Phoenix Sky Harbor International Airport Sky Train Stage 2 Environmental Assessment, prepared by HTNB Corporation.)
Figure 2b. Proposed actions, PHX Sky Train Stage 2, map 2 of 2. (Source: Figure 1b, Phoenix Sky Harbor International Airport Sky Train Stage 2 Environmental Assessment, prepared by HTNB Corporation.)
Figure 4. Eastern Sky Train Stage 2 APE and known archaeological sites.
the abandonment of old ones (Graf 1988). Prior to streamflow regulation in the 1900s, the tendency for instability was exaggerated in the Sky Harbor area because of the bedrock-imposed constriction of channel width between Papago Buttes and Tempe Buttes approximately 3 km upstream. In the constricted area, maximum stream width including the floodplain is less than 550 m. As floodwaters emerge from the constricted area, there is a tendency for the stream to widen significantly and for deposition to occur. Total stream width, including floodplain, in the airport area is about 6 km, almost 11 times wider than in the constricted area above (Nials 2003). Even in the modern era, the airport has been subject to flooding. Floods during the late 1970s and early 1980s damaged the eastern portion of the Central Runway, requiring its reconstruction above engineered fill (Boston et al. 2001).

The Lehi Terrace and Salt River channel comprise the geological floodplain, the area that has been prone to Salt River flooding over the past several thousand years. Prior to the construction of Roosevelt Dam in 1911, much of the Lehi Terrace was inundated by Salt River floodwaters every few decades, such as occurred in the late nineteenth and early twentieth centuries (Nials and Anderson 1994; Zarbin 1997). The Lehi Terrace is approximately 2–3 km wide and composed of coarse textured (coarse sands, gravels, and cobbles) channel deposits and finer textured (sand and silt with minor clay) overbank flood deposits (Birnie 1994; Nials and Anderson 1994). Numerous channel cut-and-fill unconformities extend beneath the surface reflecting past episodes of erosion, deposition, and channel shifting. A typical stratigraphic sequence beneath the modern Lehi Terrace consists of a plow zone overlying tabular sandy overbank flood deposits that in turn overlie irregular belts of channel gravels and cobbles (Huckleberry 2014). These channel belts or bars can rise to near surface at locations across the airport, such as was seen at the western end of the North Runway during archaeological excavations within Dutch Canal Ruin (Henderson 2003:Figure 2.1).

A significant geomorphic feature within the airport is an ancient river channel that local researchers refer to as Turney’s Gully (Nials and Anderson 1994; Greenwald 1995). Turney (1929) marked the lower reach of this channel as it debouches into the river on his map of prehistoric irrigation in the valley. Farther upslope, the paleochannel can be traced on soil maps of the airport area where it is indicated by a thin ribbon of Agualt loam (Adams 1974:Plate 7). The channel separates the two sites, Dutch Canal Ruin and Pueblo Salado, and may have provided obstacles for the delivery of irrigation waters to fields and settlements within the Canal Patricio System. Recent work along the southern margin of Dutch Canal Ruin determined that this paleochannel was contemporaneous with the Barranca Canal, a distribution canal within the Patricio system (Huckleberry et al. 2014). Stratigraphic exposures further indicated that sediment deposition continued in the paleochannel for some time after Barranca was abandoned (ca. A.D. 900). Evidently this paleochannel would have been recognizable as a gully or slough during the Hohokam occupation.

CULTURE HISTORY

Humans are known to have inhabited Arizona for at least the last 11,000 years, but evidence is scant for the presence of the earliest inhabitants, the Paleoindian (10,000-7,500 B.C.), in the Salt River Valley (but see North et al. 2005). Also scarce are cultural traces of the Archaic period (7,500 B.C.-1 A.D.), although these have been reported in the region with increasing frequency in recent years (for example, Graves et al. 2009; Hackbarth 1998; Wright 1999). It is well established, though, that the valley was utilized by people living and farming along the major watercourses for the last 2,000 years. The cultural group known as the Hohokam occupied the area for much of this time, from the first centuries A.D. to sometime around the fourteenth or fifteenth centuries.
The Hohokam cultural sequence is divided into four broad periods, the first of which is the Pioneer period (circa A.D. 1-750). The geographical range of the culture at this time appears to have been limited to the valleys of the Salt, Gila, Santa Cruz, and lower Verde rivers. Pioneer period Hohokam lived in pithouses arranged in small clusters. They manufactured plain ware and, later, red ware ceramics, and practiced irrigation agriculture (Henderson and Clark 2004), as well as floodwater farming (Cable and Doyel 1987). Subsistence evidence indicates that wild resources also played a significant role in sustaining the population.

The adoption of irrigation agriculture in the early centuries A.D. paved the way for the rapid growth of Hohokam populations after A.D. 750. The Colonial period (A.D. 750-950) is characterized not only by an expanding population, but also by increasing social complexity within Hohokam society. Pithouses were clustered into courtyard groups, which in turn were organized into larger village segments, each with their own roasting areas and cemeteries (Henderson 1987; Wilcox et al. 1981). Around A.D. 800, ballcourts were built at a number of the larger villages (Wallace 1999). Ballcourts are thought to represent the emergence of a regional system with religious, economic, and political functions (Wilcox and Sternberg 1983; Wallace 2014), tied together by the exchange of ceramics, marine shell, foodstuff, and other items (Abbott 2009; Doyel 1991; Wilcox 1991).

Settlements along the Salt River increased in both number and size during the Sedentary period (A.D. 950-1150). Many of the canal systems were also reconfigured during this time, with some reaching their greatest extent (Howard 1991), while others were newly established. The reconfiguration and expansion coincided with a more developed settlement hierarchy, with each canal system associated with at least one large village, in addition to smaller ones (Doyel 1980; Gregory and Nials 1985). By the late Sedentary, house clusters were arranged in more formalized rectangular patterns that forecast the development of suprhousehold compounds in the Classic period (Wilcox et al. 1981).

The Classic period (A.D. 1150-1450) is marked by dramatic changes in settlement patterns and probably social organization. Surface adobe architecture appeared for the first time, supplementing, but not replacing, the tradition of semisubterranean pithouse architecture. Burial modes also changed with an increasing dominance of inhumation over cremation burial. Buff ware pottery diminished in frequency during the period, being replaced by red ware pottery and, later, polychrome types. Ballcourts were largely abandoned during the late eleventh century (Wallace 1999), and sometime around the late thirteenth century (Gregory 1987), massive-walled platform mounds were constructed at large villages throughout much of the Hohokam region. Because construction of these features required considerable levels of organized labor, many think the mounds are symbols of a socially differentiated society (Elson 1998; Fish and Fish 1992; Gregory 1987). As the Classic period progressed, the Hohokam aggregated into fewer, but larger, villages. Population declined steadily after the mid-fourteenth century, a decline that may have been precipitated by catastrophic floods and consequent destruction of canal systems in the latter part of the century (Gregory 1991).

The disappearance of Hohokam cultural attributes from the archaeological record marks the end of the Prehistoric era in the Salt River Valley, and there is a break in the occupational record until the 1860s and the incursion of Euro-American settlers. This break coincides with the Protohistoric period, a time of general depopulation across southern Arizona, as suggested by the scarcity of archaeological remains assignable to this period. Based on documents provided by early Spanish explorers, it is known that Piman groups populated the area along the Gila and lower Santa Cruz rivers, but the Salt River Valley seems to have been largely uninhabited. Although there are reports
of Pima fishing parties using the area, and Pima and Cocomaricopa villages at and below the junction of the Salt-Gila confluence, the valley seems to have served chiefly as a buffer zone between Pima and Cocomaricopa farmers and their traditional enemies, the Yavapai and Apache, to the north (Dunne 1955; Hackenberg 1974; Spier 1933).

Beginning in the mid-nineteenth century, settlers were drawn to the region by the agricultural potential of the valley. Demand for food and fodder by miners in the Prescott and Wickenburg areas and the soldiers deployed to protect them from the Apaches was the primary stimulus for settlement in the basin (Trimble 1986). The ability of the early historic settlers to produce foodstuffs was facilitated by canal irrigation. In 1867, Jack Swilling and his irrigation company reexcavated several Hohokam canals in the Phoenix area, a venture quickly emulated by other canal companies (Luckingham 1989; Zarbin 1979).

The success of canal irrigation agriculture encouraged further development in the Salt River Valley. As the farming community grew, an official and permanent center for trade and commerce became necessary, leading to the establishment of the original Phoenix townsite in 1870 northwest of the Sky Harbor area. The growth and expansion of Phoenix was continuous after 1881, when the city was incorporated. Spurring its development was the construction of links to the transcontinental railroad in 1879. In 1889, Phoenix became the territorial capital. In the midst of these changes, the city infrastructure grew dramatically: water and sewer systems were installed, a streetcar line was constructed, firefighters were hired, and most of the streets in the original town site were paved.

Although the arrival of the railroad ensured local producers access to markets outside of Arizona, agricultural production was not reliable until after the construction of the Roosevelt Dam in 1911. The dam provided stable water for irrigation and reduced the danger of floods for both crops and residences. This stable water supply supported the production of citrus fruits and cotton. Cotton, in particular, was a high-demand item during World War I, causing an economic boom in the Phoenix area. By 1920, Phoenix had become a major market center in Arizona (Luckingham 1989). An early slow period in this growth was tied to the Great Depression. However, because few residents were heavily invested in the stock market, Arizona was touched relatively lightly. Although there was high unemployment in the metals and produce industries, the New Deal programs of the 1930s helped construct new highways and public buildings and structures, thereby providing employment to many in the community. The Phoenix economy took an upswing during World War II when a fledgling industrial center and three military training bases were established. After the war, soldiers who trained in the valley returned with their families to work on the bases and for defense contractors.

The population of Phoenix and the larger Salt River Valley has grown dramatically since the 1950s. Land use has gradually shifted from agricultural to residential and industrial uses. Jobs in the electronics and aerospace industries, as well as tourism, have been primary sources of income for local residents. Although city infrastructure and services have frequently lagged behind population growth, problems with transportation and water have been particularly acute since the 1980s. Multiple freeways have been constructed to respond to the transportation needs of the sprawling city and larger metropolis, while residential use of water has rapidly replaced that of agriculture. Today, Phoenix is among the largest and fastest growing cities in the nation.

The general vicinity of Sky Harbor Airport was one of the first places in the Salt River Valley that was settled in the Historic era. Homesteaders who arrived with Jack Swilling in the 1860s claimed land in and around the airport, and constructed canals – following long-abandoned Hohokam
alignments – to irrigate the land. Although agricultural uses of this area continued until the 1940s, much of the land was gradually converted to residential use as Phoenix grew. Located south of the railroad tracks, the airport vicinity was mostly occupied by the lower classes. Until the 1940s, when a federally funded housing bill sponsored the construction of more than 600 family homes in and around Sky Harbor, people in this area lived in tents and shacks—most without electricity, plumbing, or heat. Since that time, many of the neighborhoods created in the 1940s have been replaced by commercial structures or removed altogether as the airport increased in size.

The history of Sky Harbor Airport begins in 1928 when Scenic Airways graded a landing strip in an area of cotton fields. By 1935, when the City bought the facility and surrounding 280 acres, American Airlines was offering regular passenger, airmail, and express services. Development of the airport was accelerated by the outbreak of World War II. In the 1940s, the area was host to the Army’s Civilian Pilot Training Program as well as five commercial airlines. To support increased traffic and to accommodate larger aircraft, airport facilities were improved and expanded in the late 1940s. At the time, Sky Harbor was one of the busiest airports in the nation. This pattern of growth continued into the 1950s, which was marked by the construction of Terminal 1. Sky Harbor reached its present runway configuration in the 1960s, although major repairs took place after flooding in the 1970s and 1980s. In 2015 more than 44 million people passed through the airport, making it among the busiest airports in the nation.

PREVIOUS ARCHAEOLOGICAL RESEARCH

Rogge and Erickson (2005) completed a Class I cultural resources inventory and assessment of the entire ADP, which encompasses the current Sky Train Stage 2 APE, as part of the preparation of the FEIS for the ADP. At that time, five archaeological sites were identified that might be adversely affected by construction of the entire Sky Train; these sites included Pueblo Salado, Dutch Canal Ruin, AZ U:9:1 (ASM)/Pueblo Grande, AZ U:9:2 (ASM)/Park of Four Waters, and AZ U:9:28 (ASM) (see Figures 3 and 4). Historical resources were also inventoried, but none were identified that would be adversely affected by Sky Train construction. The only historic properties of concern were archaeological sites.

More recently, Desert Archaeology prepared an ESRI GIS dataset for the City Aviation Department and the City Archaeology Office that provides shapefiles and data for all cultural resources projects conducted prior to May 2013 and all archaeological sites recorded prior to 2014 within the bounds of the Sky Harbor Airport property. The data was compiled from records held by the City Archaeology Office at Pueblo Grande Museum (PGM) and in the statewide archaeological database, AZSITE, managed by the Arizona State Museum (ASM). As this dataset was to be used for the City Aviation Department’s planning purposes, each archaeological monitoring, testing, or data recovery project was perused to determine whether the project activity resulted in archaeological clearance or mitigation of the investigated property. Desert Archaeology has continued to update this dataset as the company has accomplished work elsewhere on the airport. Its findings provide the basis for the following consideration of potential impacts to archaeological resources from construction of Sky Train Stage 2. Descriptions of archaeological sites referred to in this section and projects that resulted in archaeological clearance of portions of the current APE are provided in Appendix A.

The western Sky Train Stage 2 APE extends across the presently known limits of four archaeological sites: Dutch Canal Ruin, Canal Patricio System, Pueblo Salado, and Canal
Salado System (Table 1) (see Figure 3). The presence of the prehistoric canals interwoven among Dutch Canal Ruin and Pueblo Salado was recognized by the 2005 ADP inventory, but these had not then been identified as distinct archaeological sites. All four of the sites have been determined or considered eligible for inclusion in the NRHP under Criterion D. Much of the airport property inside these NHRP-eligible sites within the western APE has been cleared or mitigated by previous archaeological monitoring, testing, and/or data recovery projects (Table 2) (Figure 5) (see also Appendix A); only two connected areas within Pueblo Salado remain uninvestigated (see Figure 3). These areas are discussed in more detail below, following consideration of the eastern APE.

The southern portion of the eastern Sky Train Stage 2 APE falls outside the limits of any archaeological site, effectively curtailing any adverse effects of Sky Train construction on archaeological resources in this portion of the APE. In addition, the City Archaeology Office confirmed that the area of the Sky Train Maintenance and Storage Facility (MSF), which contains this portion of the APE (Figure 6; also see Figure 2b), has no buried archaeological resources due to its location within the high-water flood scour zone of the Salt River (Bostwick

Table 1. Archaeological sites in the Sky Train Stage 2 APE.

<table>
<thead>
<tr>
<th>Site Number/Name</th>
<th>Description</th>
<th>Selected References</th>
<th>National Register Status</th>
<th>Potential Impact</th>
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<tbody>
<tr>
<td>AZ T:12:47 (ASM), Pueblo Salado</td>
<td>Hohokam village site with adobe-walled compounds; agricultural farmsteads and fieldhouses; canals and field areas also present; Classic period</td>
<td>Greenwald et al. 1995; Greenwald et al. 1996a, 1996b</td>
<td>Eligible (Criterion D), SHPO 2002</td>
<td>Western APE may disturb unstudied parts of the site</td>
</tr>
<tr>
<td>AZ T:12:62 (ASM), Dutch Canal Ruin</td>
<td>Hohokam agricultural site with fieldhouses, farmsteads, and field areas amidst irrigation canals; Preclassic-Classic periods</td>
<td>Greenwald et al. 1994; Henderson 2003, 2004</td>
<td>Eligible (Criterion D), SHPO 2001</td>
<td>None, APE overlaps previously mitigated area or Turney’s Gully</td>
</tr>
<tr>
<td>AZ T:12:131 (ASM), Canal Patricio System</td>
<td>Network of main, distribution and lateral canals; Preclassic-Classic periods</td>
<td>Anderson et al. 1994; Henderson 2003, 2004</td>
<td>Eligible (Criterion D), SHPO 2003</td>
<td>None, assuming no alteration to western APE</td>
</tr>
<tr>
<td>AZ T:12:389 (ASM), Canal Salado System</td>
<td>Network of main, distribution and lateral canals; Classic period</td>
<td>Anderson et al. 1994; Henderson and Darby 2016, 2017</td>
<td>Recommended eligible</td>
<td>Western APE may disturb unstudied parts of the site</td>
</tr>
<tr>
<td>AZ U:9:2 (ASM), Park of Four Waters Canals</td>
<td>Headwaters of Canal System 2; primary canal network delivering water to Hohokam villages and field areas across central Phoenix; Preclassic-Classic periods</td>
<td>Henderson 2015; Masse 1976</td>
<td>Eligible (Criterion D) SHPO 2008</td>
<td>None, APE located in previously mitigated area</td>
</tr>
<tr>
<td>AZ U:9:28 (ASM)</td>
<td>Hohokam agricultural site with canals, ditches, fields, and small habitation areas; Preclassic-Classic periods</td>
<td>Henderson 2015; Masse 1976</td>
<td>Recommended eligible</td>
<td>None, APE located in previously mitigated area</td>
</tr>
</tbody>
</table>
Table 2. Previous archaeological excavation and monitoring projects in and near the Sky Train Stage 2 APE.

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Project Name</th>
<th>Project Type</th>
<th>Site</th>
<th>Status Comment</th>
<th>Reference</th>
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<tbody>
<tr>
<td>APE WEST</td>
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<tr>
<td>PGM 2001-10</td>
<td>Sky Harbor Airport Center Runway (Runway 7L-25R) Reconstruction Project</td>
<td>Data Recovery</td>
<td>Pueblo Salado, AZ T:12:47 (ASM); Canal Salado System, AZ T:12:389 (ASM)</td>
<td>Requires further assessment; testing and data recovery confined to taxiway in-field areas and open areas west of the Center Runway</td>
<td>Aguila 2006</td>
</tr>
<tr>
<td>PGM 2001-16</td>
<td>Consolidated Rental Car Facility Testing</td>
<td>Testing</td>
<td>Pueblo Salado, AZ T:12:47 (ASM); Canal Salado System, AZ T:12:389 (ASM)</td>
<td>Cleared; no archaeological features identified during systematic testing in areas not subject to SWCA 1994 data recovery efforts</td>
<td>North et al. 2002</td>
</tr>
<tr>
<td>PGM 2001-22</td>
<td>Yuma Parking Lot Testing</td>
<td>Testing</td>
<td>Pueblo Salado, AZ T:12:47 (ASM)</td>
<td>Cleared; no archaeological features identified during systematic testing of the project area</td>
<td>Lindly 2001</td>
</tr>
<tr>
<td>PGM 2004-13</td>
<td>Swift Property Hangar Demolition Monitoring</td>
<td>Monitoring</td>
<td>Canal Patricio System, AZ T:12:131 (ASM)</td>
<td>Cleared; no cultural material observed during demolition monitoring; monitored locations previously disturbed to 1.2-m depths and greater</td>
<td>Lindly 2004a</td>
</tr>
<tr>
<td>PGM 2004-26</td>
<td>2400 E. Buckeye Road Pothole Monitoring</td>
<td>Monitoring</td>
<td>Dutch Canal Ruin, AZ T:12:62 (ASM)</td>
<td>Requires further assessment; no cultural materials identified in five 0.3-m diameter pothole excavations; pothole locations not provided within project area boundary</td>
<td>Lindly 2004b</td>
</tr>
<tr>
<td>PGM 2004-31</td>
<td>Consolidated Rental Car Facility Monitoring</td>
<td>Monitoring</td>
<td>Dutch Canal Ruin, AZ T:12:62 (ASM); Pueblo Salado, AZ T:12:47 (ASM)</td>
<td>Requires further assessment; report provides an overly broad project area with no indication of monitored locations therein other than two identified late historic features</td>
<td>Mitchell et al. 2006</td>
</tr>
<tr>
<td>PGM 2004-32</td>
<td>Archaeological Monitoring Mohave Street to Buckeye Road near Pueblo Salado and Dutch Canal Ruin</td>
<td>Monitoring</td>
<td>Dutch Canal Ruin, AZ T:12:62 (ASM); Pueblo Salado, AZ T:12:47 (ASM)</td>
<td>Cleared; no cultural material observed during monitoring of utility trench excavations; monitored locations had been previously disturbed to 1.5-m depths</td>
<td>Walsh-Anduze 2004</td>
</tr>
<tr>
<td>PGM 2005-25</td>
<td>Cultural Resources Monitoring within Pueblo Salado</td>
<td>Monitoring</td>
<td>Pueblo Salado, AZ T:12:47 (ASM); Canal Salado System, AZ T:12:389 (ASM)</td>
<td>Requires further assessment; not all portions of mapped project areas were monitored, however monitored locations commonly exhibited previous disturbance to 1.5 m depths or greater</td>
<td>Aguila and Carpenter 2005; Aguila and Schilling 2006; Bockhorst et al. 2006</td>
</tr>
<tr>
<td>Project Number</td>
<td>Project Name</td>
<td>Project Type</td>
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<tr>
<td>PGM 2007-91</td>
<td>Copperhead Drive Monitoring</td>
<td>Monitoring</td>
<td>Dutch Canal Ruin, AZ T:12:62 (ASM)</td>
<td>Cleared; no prehistoric cultural material observed during monitoring of trench excavations to 1.2-m depths; small historic canal recorded</td>
<td>Archual and Fangmeier 2007</td>
</tr>
<tr>
<td>PGM 2010-10</td>
<td>FAA Runway Status Lights Installation Monitoring</td>
<td>Monitoring</td>
<td>Pueblo Salado, AZ T:12:47 (ASM)</td>
<td>Cleared; no cultural material observed during monitoring of utility trench excavations to 1.2-m depths</td>
<td>Schilling and Florie 2011</td>
</tr>
<tr>
<td>PGM 2011-32</td>
<td>Airport Signage Monitoring</td>
<td>Monitoring</td>
<td>Dutch Canal Ruin; Canal Patricio System</td>
<td>Requires further assessment; not all areas within the project boundary were monitored; archaeology may be needed</td>
<td>Wadsworth 2012a</td>
</tr>
<tr>
<td>PGM 2012-13</td>
<td>Gate 202-205 Electrical Monitoring</td>
<td>Monitoring</td>
<td>Pueblo Salado, AZ T:12:47 (ASM)</td>
<td>Requires further assessment; monitored trench excavations were relatively shallow, 0.6-0.9 m deep; four flaked stone artifacts observed during monitoring</td>
<td>Wadsworth 2012b</td>
</tr>
<tr>
<td>PGM 2015-003</td>
<td>Consolidated Campus Building 1 Site Boundary Testing</td>
<td>Testing</td>
<td>Dutch Canal Ruin, AZ T:12:62 (ASM)</td>
<td>Cleared; no archaeological features identified during systematic testing of the project area</td>
<td>Darby 2015</td>
</tr>
<tr>
<td>PGM 2015-025</td>
<td>Terminal 3 South Concourse EA and Archaeology Consultation</td>
<td>Documents review</td>
<td>Pueblo Salado, AZ T:12:47 (ASM); Canal Patricio System, AZ T:12:131 (ASM)</td>
<td>Cleared; review of Terminals 2 and 3 as-built plans, historic aerial photographs, and archaeological reports indicate entire Terminal 3 APE disturbed to 1.2-m depths or greater</td>
<td>Henderson 2016</td>
</tr>
<tr>
<td>ASM 1984</td>
<td>Pueblo Salado Testing, I-10 Corridor</td>
<td>Testing</td>
<td>Pueblo Salado, AZ T:12:47 (ASM); Canal Salado System, AZ T:12:389 (ASM)</td>
<td>Cleared; project area mitigated through testing and data recovery</td>
<td>Euler and Sires 1984</td>
</tr>
<tr>
<td>BRW 1989</td>
<td>MeraBank Phase 2-3 Properties Testing</td>
<td>Testing</td>
<td>Pueblo Salado, AZ T:12:47 (ASM); Canal Salado System, AZ T:12:389 (ASM)</td>
<td>Cleared; testing identified multiple features; Pueblo Salado areas 8/9, 14, and 20 mitigated through later data recovery (SWCA 1994)</td>
<td>BRW, Inc. 1989</td>
</tr>
<tr>
<td>MNA 1988</td>
<td>Dutch Canal Ruin Investigations, Papago Freeway Corridor</td>
<td>Data Recovery</td>
<td>Dutch Canal Ruin, AZ T:12:62 (ASM); Canal Patricio System, AZ T:12:131 (ASM)</td>
<td>Cleared; project area mitigated through testing and data recovery</td>
<td>Greenwald and Ciolek-Torrello 1988</td>
</tr>
<tr>
<td>Project Number</td>
<td>Project Name</td>
<td>Project Type</td>
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<tr>
<td>SWCA 1994</td>
<td>Phoenix Sky Harbor Center</td>
<td>Testing and Data</td>
<td>Dutch Canal Ruin, AZ T:12:62 (ASM); Pueblo</td>
<td>Requires further assessment; Dutch Canal Ruin project area mitigated through monitoring, testing, and data recovery; Pueblo Salado west of I-10 and south of Mohave Street/S. Sky Harbor Circle cleared through testing and data recovery; portions of Pueblo Salado east of I-10 north of S. Sky Harbor Circle not investigated</td>
<td>Greenwald, ed. 1994; Greenwald et al. 1994, 1995</td>
</tr>
<tr>
<td>SWCA 1994-202</td>
<td>Pueblo Salado, Areas 6, 15</td>
<td>Testing and Data</td>
<td>Pueblo Salado, AZ T:12:47 (ASM); Canal</td>
<td>Cleared; project area mitigated through testing and data recovery</td>
<td>Greenwald 1994; Greenwald et al. 1996a, 1996b</td>
</tr>
<tr>
<td></td>
<td>and 16 Testing and Data</td>
<td>Recovery</td>
<td>Salado System, AZ T:12:389 (ASM)</td>
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<tr>
<td>APE EAST</td>
<td>PHX Sky Train Data Recovery</td>
<td>Data Recovery</td>
<td>Pueblo Grande, AZ U:9:1 (ASM); AZ U:9:2</td>
<td>Cleared; project area mitigated through testing and data recovery</td>
<td>Henderson 2015</td>
</tr>
<tr>
<td></td>
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<td>(ASM); AZ U:9:28 (ASM)</td>
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<tr>
<td>PGM 2007-46</td>
<td>Archaeological Monitoring</td>
<td>Monitoring</td>
<td>Pueblo Grande, AZ U:9:1 (ASM)</td>
<td>Requires further assessment; report provides an overly broad project area lacking individual monitored locations</td>
<td>Cureton 2009</td>
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<td>at Pueblo Grande Museum and</td>
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<td>Archaeological Park</td>
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<tr>
<td>PGM 2008-91</td>
<td>FSC Parcel Data Recovery</td>
<td>Data Recovery</td>
<td>AZ U:9:2 (ASM); AZ U:9:310 (ASM)</td>
<td>Cleared; project area mitigated through testing and data recovery</td>
<td>Darby and Henderson 2013</td>
</tr>
<tr>
<td>Masse 1976</td>
<td>Hohokam Expressway (SR 153)</td>
<td>Data Recovery</td>
<td>Park of Four Waters Canals, AZ U:9:2 (ASM); AZ U:9:28 (ASM)</td>
<td>Cleared; project area mitigated through testing and data recovery</td>
<td>Masse 1976</td>
</tr>
<tr>
<td></td>
<td>Hohokam Expressway</td>
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<tr>
<td>URS 2004</td>
<td>Central Phoenix/ East Valley</td>
<td>Data Recovery</td>
<td>Joint Head Canal</td>
<td>Cleared; project area mitigated through testing and historical documentation</td>
<td>Rogge and White 2003; Rogge and Schirtzinger 2004</td>
</tr>
</tbody>
</table>
Figure 5. Previous archaeological excavation and monitoring projects near the western Sky Train Stage 2 APE.
Deep exposures of the subsurface in this area revealed the substrate was predominately river cobbles; the MSF area has since been filled with engineered fill. Results from archaeological projects to the east of the MSF (see SSI 1994 and URS 2004 in Table 2 and Figure 6), confirm the continuation of flood scour disturbance across the southeastern APE. Those few locations where this disturbance did not occur in the APE have been cleared by the activity of the two overlapping projects. In sum, expansion of the MSF and installation of new electrical facilities and networks at this location will have no effect on archaeological resources. Installation of electrical facilities in the northern portion of the eastern APE will also have no adverse effect on archaeological resources associated with AZ U:9:2 and AZ U:9:28 (see Table 1) since the location of these proposed utilities was previously mitigated through intensive data recovery efforts as part of the Sky Train Stage 1 project (Henderson 2015) and original Hohokam Expressway project (Masse 1976).

Archaeological investigations within the western APE have been relatively comprehensive due to the development of Phoenix Sky Harbor Center in the 1990s and the Consolidated Rental Car Facility in the early 2000s. The data recovery work accomplished by SWCA, Inc., in particular, for these projects at Dutch Canal Ruin and Pueblo Salado (Greenwald, ed. 1994; Greenwald et al.
1994, 1995; North et al. 2002), as well as BRW, Inc. (1989), has effectively mitigated or cleared all portions of the APE north of Buckeye Road, and south of Buckeye Road, west of I-10 (see Figure 5). Other smaller projects have served to confirm that the limits of Dutch Canal Ruin do not extend south of Buckeye Road (Darby 2015; Huckleberry et al. 2014). Nials and Anderson (1994) and Huckleberry et al. (2014) both document the separation of Pueblo Salado from Dutch Canal Ruin by the paleochannel, Turney’s Gully.

Only two areas in the western APE within the limits of Pueblo Salado remain uninvestigated (Figure 7). One area extends south from the northern boundary and buffer zone of Pueblo Salado to S. Sky Harbor Circle between I-10 and S. 24th Street (Figure 8); the other area is roughly circumscribed by the parking lot of the LGS Sky Chefs facility on the western side of Copperhead Drive (see Figure 8). This eastern uninvestigated area also includes a thin strip of site buffer, which passes above an area of Pueblo Salado that was investigated in the early 1990s.

Figure 7. Affected archaeological sites.
Figure 8. Portions of Pueblo Salado, AZ 1:1247 (ASM), inside the APE that have not been previously investigated, with sources of Sky Train construction disturbance in and near these areas.
In this area, designated Area 6, Greenwald et al. (1996a, 1996b) documented 204 prehistoric features, including segments of adobe compound walls, adobe structures, pithouse structures, trash-filled pits and trash deposits, a cemetery with 55 cremation burials, 55 inhumation burials interred within the general limits of the adobe compound, and four separate canal alignments now recognized as components of the Canal Salado System. West of the APE within the I-10 right-of-way, Euler and Sires (1984) documented pithouses, roasting and fire pits, a possible occupation surface, one human burial, and two canals now recognized as continuations of two of the Canal Salado alignments found to the east in Area 6.

This previous research indicates there is high potential for archaeological features, including human burials, to be present in these portions of the APE. The previous archaeological investigations further indicate that Pueblo Salado features occur very near the existing ground surface; many originated less than 1 ft (30 cm) below surface. Even modest construction activities, such as grading and surface compaction, could have a devastating effect on underlying resources, if present. For this reason, phased data recovery efforts are recommended in the uninvestigated portions of the APE inside Pueblo Salado and its buffer.

RESEARCH DESIGN

Prehistoric Use of the Floodplain and Pueblo Salado

This project provides an opportunity to examine the landscape of the prehistoric floodplain and its role in the lives of Hohokam farmers, in specific, the community of Pueblo Salado. Located on the banks of the once mighty Salt River, development in and around the airport has blanketed part of a vast expanse of fertile floodplain that was home to countless acres of prehistoric farmland and communities intertwined with an extensive network of irrigation canals. Agriculture supported millennia of farmers and drove the social and economic landscape of the Phoenix Basin; project research is focused on understanding how prehistoric inhabitants utilized this landscape. Research themes that have potential to shed light on aspects of the prehistoric past of the APE are outlined in sections to follow. The curious and somewhat precarious place Pueblo Salado holds in this landscape is of particular interest.

Pueblo Salado is located on the floodplain at the very edge of the active Salt River channel. The site was established as an agricultural hamlet sometime during the thirteenth century A.D., and by the fourteenth century, the resident populations had aggregated in several adobe compounds. Because the site was supported by a small canal whose headwaters were 3-4 km downstream from the headgates of Canal System 2 – the immense irrigation network supporting most Hohokam villages on the north side of the Salt – Pueblo Salado is thought to represent an autonomous irrigation community, separate from Canal System 2 (Greenwald 1995). Ceramic evidence supported this conjecture; pottery types from the site suggested that the site’s inhabitants interacted more regularly with groups located south of the river than with those in Canal System 2 (Walsh-Anduze 1996a, 1996b).

Pueblo Salado’s location, and especially its apparent autonomy, is incongruent with what is known about the irrigation communities of small-scale agriculturalists. Based on the findings of Mabry (1996) and Clark (2004), the Canal System 2 Hohokam would have been, by necessity, territorial. It is difficult to believe that migrating populations, as suggested by ceramic evidence, could have settled Pueblo Salado in the active floodplain without some assent from the
occupants of the region’s primary villages, like Pueblo Grande and La Ciudad. Interestingly, recent work for the Community Noise Reduction Program (CNRP) just west of the current project area documented a new site, AZ T:12:288 (ASM), that likely represents a neighboring hamlet located along the northern branch of the Pueblo Salado canal (Canal Salado) (Henderson and Darby 2016). The CNRP project also encountered multiple alignments of the southern branch of Canal Salado, indicating the potential for a much more extensive Pueblo Salado irrigation community than was previously known. Similarly, the current project has potential to produce findings that will further inform on the intriguing dynamic between the communities of Pueblo Salado/Canal Salado and Canal System 2.

Research themes to further investigate and organize the study of this seemingly unique community include the following.

Settlement Patterns and Community Organization

Previous archaeological investigations on the northern floodplain of the Salt River suggest a settlement and land use system composed of irrigation communities organized around the distribution and control of water for agricultural activities. First appearing on the floodplain in the Pioneer period (A.D. 1-750), these irrigation communities are characterized by dispersed fieldhouse and farmstead loci positioned along canals and agricultural fields. Research indicates that the size and composition of these communities exhibit marked changes through time. For example, cumulative data from Dutch Canal Ruin (Greenwald et al. 1994; Henderson 2003) suggest that between the late Pioneer period and early Sedentary period (A.D. 750–1050), settlement in the area primarily consisted of seasonally occupied fieldhouses. The absence of these structures during the subsequent late Sedentary and early Classic period (A.D. 1050-1300) suggests a shift in use away from temporary, short-term occupations of the floodplain. Settlement practices changed again in the late Classic period (A.D. 1300-1450) when small, permanent farmsteads were established along the routes of the canals. Data from Pueblo Salado (Greenwald et al. 1995, 1996) provides contrast to this pattern, being established late and originating as scattered farmsteads that relatively rapidly coalesced in a compound village.

Patterns recognizable in how communities and the larger settlement system in which they thrive are organized inform on Hohokam socio-political organization and social change across time. Research questions to inform on prehistoric settlement pattern and community organization from the project area include: What was the nature of occupation within the subject property? Was it occupied permanently, seasonally, or infrequently for short periods? Were there changes in the distribution of features or activity areas across time? Is there evidence for the existence of a larger community network that extended beyond the project area? To address the issues raised above, information on the spatial distribution and character of architectural and extramural features and activities is necessary, as is establishing the age of features. Diagnostic ceramics in combination with radiocarbon techniques will be used to obtain dates for archaeological features.

Exchange and Interaction

The topic of exchange and interaction is particularly relevant given the apparent differences in the local interactions of Dutch Canal Ruin and Pueblo Salado inhabitants. As mentioned, ceramic studies suggest close ties between the pre-Classic residents of Dutch Canal Ruin and other settlements in Canal System 2, while the Classic period Pueblo Salado residents were relatively
isolated in their interaction with populations to their north. The localized nature of interaction at Pueblo Salado contrasts sharply with patterns reported by Abbott (2000) at nearby Pueblo Grande, where exchange networks broadened during the Classic period. At the crux of this pattern is the issue of how “open” or “closed” exchange networks were between Hohokam groups in a geographically small area of the Salt River Valley.

Ceramic studies, combined with the analyses of other material types, can be used to address issues of exchange and interaction within the project area. Is there evidence to suggest that networks of interaction became more restrictive over time, at least as reflected in the patterns of ceramic exchange? How similar are the ceramics and other artifact complexes to materials from other sites in the Salt River Valley? Are there regularities in the source areas of the ceramics? What items other than ceramics could have been traded? What artifacts are nonlocal and how common are they?

**Subsistence Organization and Production**

Given the agricultural focus of sites on the northern floodplain of the Salt River, subsistence organization and production is an important research issue for this portion of the landscape. At essence is not only understanding how local inhabitants obtained food and the types of food obtained, but also the techniques and processes used to control or modify the natural environment to meet their nutritional needs. Data about the layout and operation of local canals can provide insight about field locations, their sizes, and capacity to produce agricultural and encouraged wild foods.

Other aspects of subsistence organization can be evaluated using archaeological data from the investigated areas. Analyses of macrobotanical, pollen, and faunal remains provide a basis with which to evaluate the following questions: What kinds of subsistent resources were exploited in the floodplain area? Were subsistence activities exclusively focused on agricultural pursuits, or did residents also utilize wild resources? If so, are there temporal trends in the types of and degree to which wild food products were exploited?

**Irrigation and Water Control on the Floodplain**

Previous research indicates canals will be present in the uninvestigated portions of the APE. Beyond contribution of canal studies to address matters of subsistence, discussed above, their study can provide information on a variety of topics extending beyond local agriculture. Attributes of canal morphology can be used to generate estimates of the amount of water each feature carried and, in turn, the number of acres that could be irrigated by said feature. Approximations of irrigated acreage may be used to examine carrying capacity and the ultimate size of the population utilizing the canal and the water it delivered. The paleoecological content, derived from ostracode, mollusk, and pollen analyses of canal sediment samples, can be used to examine the ecological regime during the period of canal use. Pollen samples also provide information about both the crops being grown and the native flora extant in the area around the fields. Distinct ostracode species thrive in differing flow, temperature, and salinity regimes allowing reconstruction of environmental conditions within the canal. In combination, pollen and ostracode information can be used to provide insights into canal flow regimes, crops irrigated, and the surrounding natural environment. The potential also exists to compare samples and potential changes across time.
Chronology

Many of the questions posed in the preceding sections are dependent on accurate chronological control. Understanding differences in the utilization of the floodplain over time requires knowing the age of identified features or groups of features. This information can be obtained from temporally diagnostic artifacts collected from the archaeological features and deposits. Relative ages provided by the seriation of decorated ceramics and projectile points may be supplemented by numerical dates obtained from radiocarbon dating of carbonized botanical samples or luminescence dating of canal sediments. Once ages for features have been established, the other research themes can be addressed.

WORK PLAN

A plan of work to implement the archaeological research design for Sky Train Stage 2 is presented below. The ultimate purpose of this work is to assist the City Aviation Department in achieving project compliance under Section 106 of the National Historic Preservation Act. The archaeological work will also assist the City of Phoenix in its compliance with the Arizona Antiquities Act (ARS §41-841 et seq.). Project actions with potential to impact archaeological resources include construction of the Sky Train where it passes through unstudied portions of Pueblo Salado (see Figure 8); demolitions of existing buildings and shades and removal of surrounding surface pavements; and construction of new facilities, such as a propulsion building, the WGTC south parking lot, and adjacent stormwater management facility (compare Figures 8 and 2a). Archaeological measures to address these impacts include demolition monitoring and phased data recovery efforts; implementation of these measures will minimize potential project impacts on cultural resources.

Anticipated disturbances within the two unstudied areas of the APE are variable but extensive. For example, the Sky Train alignment paralleling the I-10 corridor will consist of at-grade beams mounted on a 12-15 inch (30-38 cm) concrete slab constructed atop a 12-15 inch (30-38 cm) compacted aggregate base; together the two elements could account for up to 30 inches (76 cm) of subsurface disturbance, not including any excavation and leveling of the existing grade for placement of the subgrade base. Guideway security fencing, which will require footings dug to 4 ft (1.2 m) depths, will border the two sides of the exterior length of the at-grade Sky Train alignment. A trench to contain a concrete-encased electrical and communications duct bank will also be excavated 3-5 ft (0.9-1.5 m) deep on the western side of the at-grade Sky Train rail line (see Figure 8). Construction of the WGTC parking lot to the east will involve demolition of existing facilities, grading of the site, excavations to install utilities for drainage, power, communications, and lighting. Ground disturbances minimally 2-3 ft (0.6-0.9 m) deep are anticipated across the area of the parking lot. A retention basin that extends to a 10 ft (3 m) depth will be constructed south of the parking lot (see Figure 8). Given the extensive nature of these disturbances, Phase I data recovery (archaeological testing) is advocated as the most efficient means to determine whether cultural features are present that might be affected by said constructions and their disturbances. However, demolition monitoring also plays an important role in the phased data recovery approach described below.
Permits

An Arizona Antiquities Act (AAA) Project Specific Permit issued by the ASM will be required to complete the archaeological project. A Memorandum of Understanding (MOU)/Repository Agreement from Pueblo Grande Museum (PGM) for curation of the project’s collections will support the application for the AAA permit. A request to work under the general City of Phoenix Burial Agreement will be submitted to the City Archaeology Office; the approved request will then be submitted to ASM to obtain the Burial Agreement and Case Number for the Sky Train Stage 2 project. Any other permits (e.g., dust control permit) necessary to conduct excavations within Maricopa County will also be obtained and the subject property blue-staked prior to initiating any ground disturbing archaeological work. A Storm Water Pollution Prevention Plan (SWPPP) will be developed to meet requirements of the Arizona Department of Environmental Quality.

Burial Treatment

Should any human remains or other mortuary contexts be discovered during excavation, these will be treated in accordance with the City Burial Agreement. When such are encountered, work will be halted in the area of the find and notifications immediately made to the City Archaeology Office, representatives of the Salt River Pima-Maricopa Community (SRPMIC), ASM, and SHPO. Tribes claiming affinity with the Archaic and Hohokam cultural traditions in the valley include the SRPMIC, the Gila River Indian Community, the Ak-Chin Indian Community, the Tohono O’odham Nation, and the Hopi Tribe. The SRPMIC assumes responsibility for implementation of agreements with respect to Hohokam and Archaic burials north of Baseline Road in the Phoenix metropolitan area, east of Buckeye, Arizona.

The area of the discovery will be secured and no further work done until SRPMIC representatives have had the opportunity to hold traditional observances at the location of the remains. Appropriate recording and recovery of the human remains will only then commence. All human remains found during this project will be treated with the utmost care and respect. The discovery of human remains will not be discussed in other than a professional setting, and the general public and media will be restricted from the area of their discovery. All mortuary features will be hand excavated by a qualified professional archaeologist or physical anthropologist. The human remains will be analyzed with only nondestructive techniques. No photographs will be taken during any stage of recovery or analysis. Following excavation and analysis, human remains and associated mortuary objects will be repatriated to the SRPMIC. All investigations associated with human remains will be conducted in a careful and respectful manner.

Demolition Monitoring

Monitoring is an appropriate form of archaeological investigation when the depth of disturbance for a proposed construction activity will be shallow or limited in extent (Bostwick 2006), as in the case of the various demolitions that are proposed in advance of Sky Train construction. Our experience with the airport indicates the demolition process will include destruction of all above grade structures and removal of structural debris; removal of concrete slabs, foundations, surface pavements, trees, and brush; and removal of all underground utilities, including electric,
fiber, gas, water, and sewer lines, subsurface tanks, and the like. Once all removals are complete, the ground surface is typically graded and stabilized in some fashion.

Specific targets for monitoring would include those portions of the LGS Sky Chefs buildings that intrude into the eastern uninvestigated area of Pueblo Salado, and the southernmost building inside the uninvestigated western area (see Figure 8). There are additional shades to the north of this southern building but demolition here should not intrude into the APE.

A qualified archaeologist will be present to monitor the ground disturbing activity associated with demolitions within the APE inside the uninvestigated portions of Pueblo Salado. The monitor will examine all exposures of the natural ground surface for evidence of cultural materials (e.g., pottery sherds, flaked stone, ash or charcoal-stained areas), including inspection of concrete slab footprints, utility trenches, bladed areas, and any backdirt generated therefrom. If deep cuts are made, as in the case of footer removals, the sidewalls of the cuts will be scraped with a trowel or hoe to expose a clear cross section. Close attention will be paid to the types of sediment unearthed, as these provide a quick measure for assessing the potential for encountering archaeological remains.

If an archaeological feature is located in a demolition excavation, the monitor may temporarily halt the activity, so the feature may be recorded in profile. If an archaeological feature is encountered during blading, it will be marked with striping paint or pin flags, so that the feature can be avoided in subsequent demolition work. If avoidance is impractical, data recovery excavations may ensue, following methods described later in this plan. The decision to excavate a feature will be determined through consultation with the City Archaeologist (excludes human burials which must be recovered in full, see Burial Treatment above).

All cultural features encountered during demolition work will be recorded. The archaeologist will document their presence through mapping, profile or plan drawings, photography, and written descriptions. The location of features and any collected artifacts will be recorded on construction plan maps, and standard feature description forms completed. A log of the monitoring activity will be kept, with notes taken about the sediments observed and features identified.

A monitoring report will be prepared upon conclusion of the demolition work. This report may be interim in form if additional construction activity is planned in the investigated area. The report will minimally provide relevant information about the monitored activity and describe any encountered cultural resources. This information will be supplemented by area maps, feature profile or plan drawings, artifact illustrations, and photographs, as needed. The significance of identified resources will be evaluated relative to the preceding research design, and recommendations for further actions will be provided as warranted. The report will be submitted to the City Archaeologist for review and comment.

**Phase I Data Recovery**

Phase I data recovery, also called archaeological testing, is the preferred treatment when a construction project is located within a known archaeological site, but the extent and integrity of the buried archaeological materials are not known. The specific purpose of Phase I fieldwork is to determine if archaeological features are present within a construction area and, when present,
their numbers and distribution. In the Phoenix area and much of Arizona, this subsurface exploration is typically accomplished using backhoe trenching.

The western uninvestigated area will be examined using backhoe trenches generally placed at systematic 20-m intervals within the APE; the trenches will stop short of the existing building, since it will not be demolished until after the Phase I effort is complete (Figure 9). Six trenches ranging from 25 m to 250 m in length are planned, for a total of approximately 600 m. Phase I testing in the eastern uninvestigated area will begin with trenches placed at 40-m intervals, to be supplemented by additional shorter trenches at 10-m to 20-m intervals adjacent to locations where features (if found) or other cultural deposits are identified. The initial broad spacing reflects our expectation that this eastern area will be mainly populated by canals and possibly associated irrigation-related features, as indicated by the results of previous investigations to the southwest, north of the Area 6 compound (see Figure 9). Nine trenches ranging from 40 m to 125 m are planned, also totaling approximately 600 m. All trenches will be oriented in a north-south direction in order to intersect expected east-west trending canals at a roughly perpendicular angle. More trenches or mechanically stripped areas may be excavated to explore areas where non-canal features are found; to trace canal lengths between trenches; or when a new trench is needed to obtain the preferred right-angle cut across a canal. The orientation of additional trenches may vary depending on what is found in the initial phase and/or as necessary to avoid on-site obstructions such as utility lines. In total, the trenching/striping program will provide an estimated 3-4 percent sample of the investigated areas.

Backhoe trenches will be 2 ft (0.6 m) wide and generally dug to depths no greater than 5 ft (1.5 m) to conform to OSHA standards. If a depth greater than 5 ft is required to investigate archaeological features, especially canals, said trenches will either be stepped or hydraulic shoring utilized per OSHA regulations. Trench walls will be scraped with hand tools to provide a clear exposure of subsurface cultural remains. Archaeological features identified in trench walls will be marked and assigned a number. A trench record form will be completed for each trench that includes its essential characteristics (trench number, length, width, and depth), the locations and types of archaeological features, the stratigraphy and characteristics of exposed sediments, and locations of disturbances such as utility lines.

Features located during trenching will be documented through standardized forms, scaled profile drawings, plan view maps, and photographs. Artifacts that can provide information about the age of archaeological features (e.g., decorated Hohokam pottery) will be collected. Generally, archaeological features will not be excavated during Phase I, with the exception of human burials. There may be a few instances where sample excavations are conducted, as in the case of a fieldhouse, to obtain data to better evaluate its worthiness for additional data recovery. Human remains encountered will be treated in accordance with the City Burial Agreement. Trench and feature locations will be mapped using a sub-meter precision GPS receiver. A site datum horizontally tied to the modified Arizona State Plane System will be established. An overall site map will be generated after fieldwork is completed.

End of Phase I

The goal of project implementation will be to transition from Phase I to Phase II fieldwork with a field consultation meeting with the City Archaeology Office, City Aviation Department, ASM, SHPO, and Desert Archaeology. If this is not possible, a preliminary report will be prepared that summarizes the results of Phase I and presents a work plan for Phase II. This preliminary report
Figure 9. Proposed pattern of Phase I trenches within the areas slated for archaeological investigations.
will be submitted to the City Aviation Department, City Archaeology Office, ASM, and SHPO for review.

Phase II Data Recovery

Phase II Fieldwork

Phase II data recovery will include additional documentation and sampling of canal and canal-related features, and excavations of non-canal features where appropriate.

Canals. Canals and other water control features along with the crops irrigated by canal waters represent an important use of the local landscape and as such are a focus of the current project. Canal exposures will be thoroughly documented by drawing detailed profiles with descriptions of individual strata and sedimentary characteristics both inside and outside the canal. The project geomorphologist will review all drawn profiles, providing corrections or additional description as needed. A suite of sediment samples for textural (particle-size) and other analyses will be drawn from at least one exposure of each identified canal. Flotation samples will be collected if burned lenses are observed in a canal to recover seeds or annual species that could be used to radiocarbon date the deposit. Samples for luminescence dating (OSL) will also be collected from appropriate canal contexts. Selection of sample contexts will be done in consultation with the project director and geomorphologist.

Mechanical Stripping. Based on the distribution of features identified in trenches, areas with concentrations of archaeological features will be mechanically stripped. The backhoe stripping-bucket provides an efficient way to remove overburden and sheet trash to expose the top of features. Mechanical stripping entails the use of a wide, smooth-bladed bucket to remove the overburden covering features in thin, 5 cm or less, levels, until feature outlines are visible. Mechanical stripping will target the specific depths at which features are concentrated; if certain locations have features at multiple depths, those areas will be stripped stratigraphically. Samples of the sets of features exposed in stripped areas and trenches will be excavated by hand.

Non-Canal Feature Excavations. Data recovery excavations for non-canal features may range from digging a few small pits to complete excavation of pithouses and adobe structures. Generally, structures will be initially sampled using a 1-m by 2-m control unit excavated into the structure fill, and will be excavated in natural levels to 5 cm above the floor. The final 5 cm of fill will be excavated separately from upper fill levels. Whether additional units are excavated will be based on the number of structures present and the results of the control unit sample. Structures with a high artifact density in the fill, presence of a floor assemblage, or evidence of burning will be targeted for additional excavation. The profile of the control unit will be used to guide subsequent house excavation. Once the excavation is completed, the floor and any floor-contact artifacts will be mapped, photographed, and collected.

Excavation of pit features will vary according to size and type. Generally the fill of smaller pits will be excavated as a single unit; larger pits may be bisected and one of the halves excavated in natural levels or the pit sampled using a 1-m by 2-m control unit. Human burials will be excavated completely and in accordance with the City Burial Agreement. Excavations will be conducted with hand tools in no more than 20-cm levels within natural strata. The fill from all excavations will be sifted through ¼-inch mesh (⅛-inch mesh for burials) and all
artifacts collected. At least one flotation sample will be collected per stratum and from appropriate floor features. Carbonized wood will be collected from postholes and fallen roof/wall beams to provide information on construction materials. Composite pollen samples will be collected from every floor, and the carbonized remains of annual plants will be collected from undisturbed contexts as potential radiocarbon samples. Excavated features will be documented through the use of measured drawings, photography, and with standardized forms that will allow the entry of data into a computer database.

**Burial Excavations.** Human remains, mortuary features, or funerary objects will be treated in strict accordance with the City Burial Agreement, ASM guidelines, and standards of Desert Archaeology. If human remains are encountered, or if a mortuary context is suspected on the basis of feature characteristics or associated artifacts, work will be discontinued in the area until notifications have been made to the City Archaeology Office, SRPMIC, ASM, and SHPO; the tribes have had an opportunity to conduct a blessing; and appropriate recording and recovery has been completed.

All mortuary features will be hand excavated by experienced archaeologists or osteologists with professionalism and respect in accordance to the City Burial Agreement. The feature fill will be screened through ⅛-inch mesh and all artifacts will be collected. If cremations contain dense, fine pieces of human bone, they will be collected with the surrounding matrix in cloth bags. The features will be mapped to scale and recorded on standard Desert Archaeology forms. No photographs will be taken.

The human remains will be processed and analyzed with only nondestructive techniques. The human bone will not be cleaned. There will be minimal to no contact with human remains by personnel other than the project osteologist. Flaked and ground stone artifacts will be washed in water. Ceramics also will be washed in water, but only the exterior surfaces of sherds associated with cremations will be cleaned. Vessel contents will not be removed. Stone or ceramic vessels with contents will be wiped on the exterior with moist paper towels. Fragile material such as animal bone, shell, and minerals will be dry brushed with a soft bristled tooth brush. No labels will be attached to any artifacts and all will be returned to their original paper bags, fastened with cotton string or other natural twine. After recording, the material will be stored in cardboard boxes and held in a private, secure area of the Desert Archaeology laboratory until it is repatriated. Following excavation and analysis, human remains and associated mortuary objects will be repatriated to the SRPMIC.

**Phase II End of Data Recovery Fieldwork Report**

A preliminary report (End of Fieldwork) will be prepared and submitted to the City Archaeology Office within 14 days of completing fieldwork. The report will summarize the methods and results of the fieldwork, including inventories and maps of archaeological features and excavated areas. The report will be sufficient in detail to satisfy compliance requirements and include a recommendation that the planned construction project may proceed within the identified areas.

**Discovery Situations**

If unanticipated cultural resources are encountered during construction activity within the larger APE, construction in the vicinity of the discovery will cease until the City Archaeologist and Desert
Archaeology can evaluate the resource. Procedures for investigating and documenting such resources may include hand-scraping of cut faces in the disturbed area to more clearly define the feature, followed by standard archaeological procedures, including taking measurements, photographs, and drawings, and collecting diagnostic artifacts if present. The archaeologist will then make recommendations to the City regarding the significance of the discovery and whether additional data recovery efforts are warranted. If data recovery is deemed appropriate, methods described above will be followed.

Artifact Analyses

Recovered artifacts will be brought to the laboratory facility at Desert Archaeology for processing and analyses. Processing includes washing, sorting, labeling, and boxing of all artifacts, faunal remains, and samples. Both in-house specialists and outside consultants will be used for the analysis of all major categories of cultural materials and environmental data, including ceramics, flaked and ground stone artifacts, faunal remains, and botanical remains. The scope of the analysis will depend on the yield of the fieldwork. Analyses will be focused by the research themes and questions posed in the preceding section. The following methods will be used for all non-mortuary contexts.

Ceramics

Analysis of ceramic materials provides information on the provenance and methods of vessel manufacture, dates of production, and site activities. In conjunction with good contextual data, ceramic studies can help address utilization of the local environment through questions about feature and site chronology, the organization of the craft economy, and site/locale function as represented by the proportions of cooking, storage, and serving vessels. The analysis of the ceramic sherds, partial and restorable vessels, and intact vessels will begin with their separation into basic categories of wares (plain, red-slipped, painted) by provenience, and totals will be counted. Temper types will be coded, and the provenance of vessels produced in the Phoenix Basin can potentially be identified through ceramic temper attributes and petrographic sourcing. Decorative styles applied to the wares and referred to as types, change through time. When possible, sherds will be identified as to type. Rims will be assigned codes for technological and functional attributes. Restorable and complete vessels will be measured and drawn or photographed.

Flaked and Ground Stone Artifacts

Analyses of flaked stone and ground stone lithic technologies are used to address questions about food acquisition and preparation, craft activities, and site occupational strategies in the floodplain landscape. Flaked stone artifacts, including manufacturing debitage, utilized flakes, retouched tools, cores, and core tools, will be measured and analyzed according to raw material and technological attributes. Analyses of projectile points provide information about hunting technologies, but other tools provide information about hide processing and other crafts that use a cutting edge.

Food preparation tools often comprise the majority of the ground stone assemblage. Because ground stone tools are less expedient than other technologies, their use, reuse, stockpiling, and design attributes offer additional information about the short-term or long-term utilization of
artifacts and the site at which they were used, thus providing clues about the occupational strategies and intentions of site residents. Ground stone artifacts will be subject to technological and use-wear analyses, with emphasis placed on tools recovered from floor contexts.

Shell Artifacts

Marine shell was often used for personal ornaments, and so provides one means of inferring the social status of occupants of the riverine landscape. When shell genera and species are recorded, the source of the shell and the trade routes by which it was acquired can often be identified. The artifact type, technological stage (for example, finished, unfinished raw, or partially worked), material taxon, and source (Sea of Cortez or Pacific Ocean) of shell artifacts will be recorded.

Faunal Remains

Analysis of faunal materials helps to reconstruct the economy of the occupants of the project area. Faunal analyses primarily examine the contribution of meat to the diet, and make related inferences about the changing availability of large and small game animals and the organization of hunting. With a large assemblage there is potential to identify site seasonality by examining the age of young specimens at death. Artifacts, such as hair pins and awls, are an additional source of data about site activities and social status. All recovered animal bones will be identified to taxon and body part as specifically as possible, and their quantities recorded. Genders and ages will be estimated if possible. Cultural modifications such as burning, fracturing, or polishing will be documented. Animal bone tools will be identified as to tool type, and then weighed and measured.

Human Remains

Human remains will be analyzed in accordance with the City Burial Agreement. Human remains will be macroscopically examined to determine the possible age and sex of each individual and assess their state of skeletal and dental health at death. Data will be recorded on condition, size, degree of fragmentation, degree of incineration (if burned), other taphonomic processes, pathological and genetic abnormalities, and basic information on the age of the individual at the time of death. Standard osteological techniques will be used in making these determinations and recorded using basic data recording procedures and forms set forth by the Standards for Data Collection from Human Skeletal Remains by Buikstra and Ubelaker (1994) and the ASM. Estimated age at death will follow procedures described by Buikstra and Ubelaker (1994); additional observations for the extent of root development of deciduous and permanent teeth and formation and eruption sequences will be used to determine the age of children.

Botanical Remains

Analysis of botanical remains typically focuses on patterns of wild and domestic plant use, the use of plant materials for construction and craft activities, and evaluating patterns of seasonal residence. Carbonized plant remains will be identified to taxon and plant part as specifically as possible, and their quantities recorded. If charred seeds or annual plant remains of sufficient size are recovered from intact contexts, specimens may be submitted for radiocarbon dating of site features. Pollen analyses offer complementary data about site environment and plant use, and
particularly on the degree of water flow in the surrounding environment, sometimes preserving when other macrobotanical materials do not.

**Canal Samples**

Study of canal attributes, sediments and their biological content will be conducted during this project. The project geomorphologist will use morphological attributes to reconstruct paleohydraulics, water capacity, and discharge of each canal; sediment particle-size analysis will inform on flow regimes. The biological remains may include examination of ostracodes, mollusks and clams, and fossil pollen. Paleoecological analyses of ostracodes, mollusks/clams, and fossil pollen will be performed to determine species abundance, composition, and diversity as well as to inform on habitat conditions. Samples obtained from canals for OSL dating will be processed during the analytical phase. The goal of these analyses is to achieve a fine-grained reconstruction of canal use and operation across time.

**Final Report**

A technical report describing the results of the data recovery investigations will be produced. The report will include discussions of the purpose and background of the project; the natural and cultural setting of the APE; descriptions of the methods and results of field and analytical tasks; and interpretive discussions of the project results that address the project research themes. The report will include professional quality maps and photographs showing the location of the APE, the investigated portion of the APE, trenches and other excavation units, archaeological features, and artifact illustrations and photographs, as needed.

One bound copy of the draft technical report will be provided to the City Archaeology Office. Following their review and comment, the draft report will be revised and copies submitted to the City Aviation Department for distribution to the FAA, SHPO, and ASM for review and approval. The final report will be prepared and submitted following all stages of review and comment. The report may be produced as a joint publication of Desert Archaeology and PGM.

**Curation**

With the exception of any mortuary materials repatriated to the SRPMIC, all project materials and documentation will be submitted to PGM for permanent curation following acceptance of the final report.
APPENDIX A

SUPPLEMENTARY DESCRIPTIONS OF ARCHAEOLOGICAL SITES AND PREVIOUS PROJECTS IN THE SKY TRAIN STAGE 2 APE
ABBOTT, David R.  
2000 *Ceramics and Community Organization Among the Hohokam.* University of Arizona Press, Tucson.


ABBOTT, David R. (editor)  
2003 *Centuries of Decline During the Hohokam Classic Period at Pueblo Grande.* The University of Arizona Press, Tucson.

ADAMS, E. D.  

AGUILA, Lourdes (editor)  

AGUILA, Lourdes, and Christina Carpenter  
2005 *Results of Cultural Resources Monitoring of a Proposed New Manhole and Associated Duct Banks at Sky Harbor International Airport Within the Site of Pueblo Salado [AZ T:12:47(ASM)], Phoenix, Maricopa County, Arizona.* ACS Project No. 05-024-08. Archaeological Consulting Services, Ltd., Tempe, Arizona.

AGUILA, Lourdes, and Linda M. Schilling  

ALHSTROM, Richard V. N., and David A. Phillips, Jr.  

ANDERSON, Kirk C., Gary Huckleberry, and Fred L. Nials  
Archual, Adam, and Kristin L. Fangmeier

Birnie, Robert I.

Bockhorst, Andrew, Lourdes Aguila, and Kristin Fangmeier

Boston, Richard L., Michael S. Droz, Kelly Melaniphy, Bruce G. Phillips, Shirley Powell, Kimberly Redman

Bostwick, Todd W.

2007 Subject: Automated Train Maintenance Facility Archaeological Assessment. Memorandum to Danny Murphy, Director, Aviation Department, dated 27 June 2007. City of Phoenix Aviation Department.

BRW, Inc.

Buikstra, Jane E., and Douglas H. Ubelaker (editors)

Cable, John S., and David E. Doyel
Clark, Tiffany C.

Cureton, Travis

Darby, Connie A.

Darby, Connie A., and T. Kathleen Henderson

Doyel, David E.


Dunne, Peter (editor)

Elson, Mark D.

Euler, R. Thomas, and Earl W. Sires, Jr.

Fish, Suzanne K., and Paul R. Fish
References Cited

Foster, Michael S. (editor)

Graf, William L.

Graves, William M., Robert M. Wegener, and Richard Ciolek-Torrello (editors)

Greenwald, David H.


Greenwald, David H. (editor and compiler)

Greenwald, David H., and M. Zyniecki

Greenwald, David H., M. Zyniecki, and Dawn M. Greenwald (editors and compilers)

Greenwald, David H., Mark L. Chenault, and Dawn M. Greenwald (editors and compilers)

Greenwald, David H., Jean H. Ballagh, and M. Zyniecki (editors)
Greenwald, David H., Jean H. Ballagh, Douglas R. Mitchell, and Richard A. Anduze (editors)  

Greenwald, David H., and Richard S. Ciolek-Torrello (editors)  

Gregory, David A.  


Gregory, David A., and Fred L. Nials  

Hackbarth, Mark R.  

Hackenberg, Robert A.  

Henderson, T. Kathleen  

Henderson, T. Kathleen (editor)


Henderson, T. Kathleen, Leslie D. Aragon, and Fred L. Nials

Henderson, T. Kathleen, and Tiffany C. Clark

Henderson, T. Kathleen, and Connie A. Darby


Howard, Jerry B.
Huckleberry, Gary

Huckleberry, Gary, T. Kathleen Henderson, and Connie A. Darby

Lindly, John M.


Luckingham, Bradford

Mabry, Jonathan B.

Masse, W. Bruce

Mitchell, Douglas R. (editor)

Mitchell, Douglas R., Michael Foster, Cara Bellavia, and Bryana Caldwell

Nials, Fred L.
Nials, Fred L., and Kirk C. Anderson

North, Chris D., Michael S. Foster, John M. Lindly, and Douglas R. Mitchell

North, Chris, John M. Lindly, and Michael S. Foster
2002 Archaeological Testing for the Consolidated Rental Car Facility at 16th Street and Buckeye Road, Phoenix, Maricopa County, Arizona. SWCA Archaeological Report No. 02-353. SWCA, Inc., Tucson.

Péwé, Troy L.

Rogge, A. E. (Gene), and Kirsten Erickson

Rogge, A. E. (Gene), and Erin E. Schirtzinger

Rogge, A. E. (Gene), and J. Joel White

Schilling, Linda M., and Paige B. Florie

Spier, Leslie

Trimble, Marshall
Turney, Omar A.
1929 *Prehistoric Irrigation in Arizona*. Arizona State Historian, Phoenix.

Wadsworth, Sandra L.


Wallace, Henry D.
1999 *Revision and Refinement of the Hohokam Buff Ware Ceramic Sequence: Results, Implications, and Applications*. Paper presented at the 64th Annual Meeting of the Society for American Archaeology, Chicago.


Walsh-Anduze, Mary-Ellen


Wilcox, David R.

Wilcox, David R., Thomas R. McGuire, and Charles Sternberg
Wilcox, David R., and Charles Sternberg

Wright, Thomas E.

Zarbin, Earl

Attachment 2:
End of Phase I Fieldwork Memorandum
October 5, 2017
MEMORANDUM

Date: October 6, 2017
To: Sarah Carter, City of Phoenix Aviation Department, and Laurene Montero, City Archaeologist
From: Kathy Henderson, Desert Archaeology, Inc.
Re: End of Phase I Fieldwork, PHX Sky Train Stage 2, Results of Phase I Data Recovery (Testing), City of Phoenix Project No. AV10000011, PGM Project No. 2007-46 (Desert Archaeology doc2017-14)

Desert Archaeology, Inc. has completed its Phase I data recovery fieldwork for the PHX Sky Train Stage 2 project (AV10000011, PGM Project No. 2007-46). The objective of this work was to determine whether archaeological cultural resources were present within two areas of the PHX Sky Train 2 Area of Potential Effects (APE) that fell inside the bounds and city site-sensitive buffer of AZ T:12:47 (ASM), Pueblo Salado, and had never been investigated by previous archaeological projects (Figure 1) (see also Henderson 2017). Alignments associated with AZ T:12:389 (ASM), Canal Salado System, might also pass through portions of these uninvestigated APE areas. Archaeological features (canals) associated with the Salado System were encountered during the fieldwork in the easternmost investigated area (Sky Chefs lot) (Figure 2); these features are considered significant elements of the canal system, worthy of Phase II data recovery efforts. Little evidence was found to suggest prehistoric activity in any other portion of the investigated APE. This memorandum summarizes the methods and results of this initial data recovery effort and provides recommendations for future action. Referenced figures and tables are attached at the end of this document.

FIELD METHODS

The Phase I field effort involved exploratory backhoe trenching implemented largely as described in the PHX Sky Train Stage 2 treatment plan (Henderson 2017), with some modifications necessitated in the layout and lengths of trenches due unusual conditions. Specifically, all the work took place in active paved parking lots. As a result, the perimeters of trenches had to be sawcut prior to excavation and, after excavation and documentation, backfilled with compaction to the 95 percent standard and then capped/stabilized with fine asphalt millings or asphalt paved in the case of the Sky Chefs lot. Trenching in the Parking Office lot (see Figure 2) had to be staged to allow availability to some portion of this lot’s parking spaces at all times. Similarly, due to the necessity to keep suitable traffic flow through the Sky Chefs lot, only one trench was to be excavated at a time and then backfilled and repaved before excavating a new trench in the lot. Locations with underground utilities were also to be avoided, resulting in some displacement (shifting) or shortening of trenches from the original plan.

In all, 15 trenches totaling 698 m (2290 ft) were excavated (Table 1) (see also Figure 2). This sum is smaller than suggested in the treatment plan largely due to the termination of trenching in the Sky Chefs lot upon discovery of the Salado System canals; continued trenching here would cause undue
damage to the archaeological features before they could be adequately studied. All excavated trenches were oriented north-south and dug to 1.5-m (4.9 ft) depths, where possible. A massive cobble substratum circumvented excavating trenches any deeper than 1.2 m (3.9 ft) in the Fed Ex lot; this substratum was also encountered in other trenches, but at deeper depths.

After excavation, the walls of each trench were scraped with hand-tools to provide clear subsurface exposures of natural and cultural deposits. A trench record form was completed for each trench that included its measurements, the locations and types of archaeological materials (when present), and the stratigraphy and characteristics of exposed sediments. Project area stratigraphy was also documented with photographs. Trenches were mapped a Sokkia sub-centimeter L1/L2 GPS system. A small number of prehistoric artifacts (mainly sherds) observed in the trench exposures were described in the trench records but not collected. The trenches were backfilled and stabilized/paved once documentation was complete.

FIELD RESULTS

Archaeological features were only encountered in the single trench (Trench 109) excavated in the Sky Chefs lot in eastern APE area (see Figure 2). Elsewhere unmodified natural floodplain alluvium consisting of silty clay loam (Materials lot) to fine sandy loam (western APE area) over a river cobble substratum dominated the trench exposures. The depth of loam was variable both across and within trenches, but never exceeded the maximum depth of trenches except in the vicinity of the large canal in Trench 109. Occasional prehistoric sherds were seen in trench walls or backdirt (see Table 1); however, their sporadic occurrence suggested all were likely pieces incidentally deposited through sheet wash flow or flood events. Completely lacking from all trenches were concentrations of charcoal- or ash-stained soil, such as seen at locations that were inhabited prehistorically. Based on these findings, we can state with confidence that the only area of archaeological concern for PHX Sky Train Stage 2 construction is the Sky Chefs lot within the eastern investigated APE area (see Figure 2). Descriptions of the features identified there are provided below and summarized in Table 2.

Feature 20, Main Canal

Exposed in the northern end of Trench 109 (see Figure 2), Feature 20 is a partial exposure of a large prehistoric canal (Figure 3-4). Based on its east-west trend and general dimensions, the canal appears to be the north branch of Canal Salado, described in earlier investigations a short distance west of the current project area (Greenwald et al. 1996a, 1996b). This exposure is upstream from the previously investigated segment and lies closer to where smaller distribution canals, which presumably diverge from this main, would originate. Trench 109 appears to provide a nearly perpendicular cross-section of the canal; however, the exposure is incomplete as the bottom of the canal lies below the base of the trench and its northern edge is not exposed.

This iteration of the canal can be recognized as similar to earlier findings (Greenwald et al. 1996a: Figure 2.9); both have minimum depths in excess of approximately 1.5 m (5 ft). In both instances, there is a variation of sediments that indicates multiple channels were constructed within the alignment over the span of its use life, resulting in a canal profile of considerable breadth. Within the current project area, 25 m (82 ft) of the canal is exposed in the Trench 109 with only its southern limit defined.
In the current exposure, the northern portion of the canal appears to be composed of fairly homogenous clay-rich sediment that likely represents post-abandonment sediment that accumulated in and above earlier deeper channels of the canal. The southern portion of the profile is composed of more distinct strata belonging to at least two of the canal’s youngest and highest channels. Canal sediment appears to originate immediately below the area’s initial stratum of historic/modern ground disturbance related to a combination of grading, demolition, and historic land use. This zone of upper level disturbance certainly impacts/truncates the upper limits of the younger channels in Feature 20, but likely does not affect the older deeper sediments in the northern portion of the canal.

The present exposure revealed only a few incidental artifacts (ceramic sherds) within canal-use deposits; however, a thin lens of charcoal observed in the sediments undoubtedly represents an in situ burn, which could produce material suitable for radiocarbon dating. Sediments suitable for luminescence dating are likely present at depth.

**Feature 21, Distribution Canal**

Exposed in the southern portion of Trench 109 (see Figure 2), Feature 21 is fairly complete exposure of a prehistoric canal (Figure 5). Based on its northeast-southwest trend and general dimensions, the canal appears to be a distribution canal from the north branch Canal Salado, described in earlier investigations a short distance west of the current project area (Greenwald et al. 1996a). This exposure is upstream and lies closer to the main (i.e., Feature 20) from which Feature 21 presumably originates. Its trajectory suggests the canal will diverge from the main within the current project area. The exposure in Trench 109 appears to provide a somewhat oblique-cut cross-section of the canal. The exposed profile is truncated by a relatively thick upper stratum of disturbance at this location, but the exposure is relatively complete as the canal bottom lies just at the base of the trench and its northern and southern edges are exposed (see Figure 5).

This canal can be recognized as similar to earlier findings to the west (Greenwald et al. 1996a: Figure 1.4) where a number of small distribution canals were identified. These smaller canals have a depth of around 1 m (3 ft) and are approximately 1-2 m (3-7 ft) in width. Wide variation is seen in the sediments of these distribution canals, but generally they are filled with bands of waterlain sediment composed of some combination of clay, silt, sand, and loam of varying composition. The slightly oblique exposure of Feature 21 extends to 1.2 m (4 ft) below the modern ground surface and is roughly 3.0 m (9.8 ft) in width. The canal is filled with loamy sand, clay loam, and fine sand with some coarse sand at its base. However, this profile is also made more complex by the presence of numerous cobbles possibly placed in the channel to act as some sort of water control feature, such as a low dam to check the flow of water or to protect the channel from erosion. The stones used in the canal were generally larger (most 20-30 cm in diameter) than those seen locally exposed in the underlying natural stratum of sand and cobble. One metate fragment was also noted in the deposit, a fragment of spent ground stone simply contributing its weight to the effort. Stones were more densely concentrated on the western side of Trench 109 indicating some spatial difference in how the stones are distributed within the channel. Minimally, further investigation of this water control feature would be needed to determine its function. Examination of Feature 21, away from this mass of stones, would also be needed to more accurately correlate it with any of the distribution canals previously identified to the west.
Feature 22, Possible Distribution Canal

Exposed in the southern portion of Trench 109 (see Figure 2), Feature 22 is a fairly complete exposure of a feature that appears to have a canal-shaped cross-section but is filled with loosely banded gravelly sediment that appears more like dry-deposited fill than waterlain canal sediment (Figure 6). Despite the odd sediments, rough correspondence with the track of a distribution canal recorded to the west suggests Feature 21 is indeed linear in nature and on-track to intersect with the Salado main, Feature 20, only slightly farther upstream. The exposed profile is slightly truncated by an upper stratum of disturbance, but the exposure is relatively complete as the bottom of the canal lies just at the trench base and its northern and southern edges are exposed. In profile, the shape of this feature is similar to previously identified canals to the west (Greenwald et al. 1996a: Figure 1.4) where a number of small distribution canals were identified. As described above (see Feature 21 discussion) these smaller canals have a depth of around 1 m (3 ft) and are approximately 1-2 m (3–7 ft) in width. The oblique exposure of Feature 22 extends to 1.4 m (4.6 ft) below the modern ground surface and is roughly 1.65 m (5.7 ft) in width; the feature is primarily filled with loamy sand supporting fine to medium rounded gravels. While the sediments do not appear waterlain, soil outside the feature is stained yellow with iron oxyhydroxides typically associated with water-saturated sediments. In the end, this feature requires further investigation to establish its true nature, function, and age; for the time being, the simple attribution of this feature to the prehistoric era must remain uncertain.

CONCLUSIONS

Phase I data recovery efforts within the PHX Sky Train Stage 2 APE have confirmed the presence of archaeological cultural resources within the Sky Chefs lot at the eastern end of the investigated APE areas. The identified features, all canals or possible canals, can be attributed to AZ T:12:389 (ASM), the Canal Salado System, a site eligible for inclusion in the National Register of Historic Places. Important information can be gained by further study of the newly identified features. The ultimate size of main canal Feature 20, its use-history and age, the evidence for a water control device in the smaller Feature 21, the likelihood for junctions between the main and smaller canals that occur within the lot, and the unresolved nature of Feature 22 are all aspects that warrant investigation and are aspects that have not been addressed by previous investigations.

In addition, more than 25 years have passed since the few known canals in the Salado system were last examined (1989, 1992). There has been considerable progress in the study of canals, including new techniques, and an evolving understanding of Hohokam canals over this period of time. Two recent techniques that have particularly advanced our knowledge in this regard include luminescence dating of canal sediments and the use of broad-scale stripping to trace canal alignments and their points of intersection. The first Sky Train archaeology project (Henderson 2015) was among the first to employ broad-scale stripping with the result of exposing not only canals but also a network of irrigated fields – the first such exposure in the Salt River Valley.

However, Phase II data recovery of the identified Sky Train 2 canals cannot be conducted within the constraints of working only within the traffic avenues available in the currently used Sky Chefs lot. The entire parking lot is the sampling universe for Phase II. To adequately treat the cultural resources it will be necessary to trace the canal alignments to their points of intersection and then conduct intensive excavations at these locations with the goal of understanding how the Hohokam were controlling the flow of river water from the main canal into its diverging laterals.
For Phase II, we recommend using broad-scale stripping or strip trenches (wide, shallow trenches excavated using a 5-ft-wide blading bucket) to trace alignments and then excavations and sampling of alignments, concentrating on areas of intersection. A benched trench that exceeds the depth of the main Salado canal, Feature 20, will also need to be excavated, as would two additional standard trenches along the entire southern and eastern edges of the Sky Chefs lot to determine if additional canals are present that were not detected in the single excavated Phase I trench (T. 109). These standard trenches and, certainly, broad-scale stripping cannot be excavated at this time due to Sky Chefs parking lot obstructions.

**RECOMMENDATIONS**

- Phase II data recovery is recommended to investigate the Salado system canals and any other alignments or features that are present in the Sky Chefs parking lot within the PHX Sky Train Stage 2 APE, to recover their significant values in advance of Sky Train 2 constructions. The Phase II effort would be conducted in accordance with the historic properties (archaeological) treatment plan prepared for this construction project.

- The Sky Chefs parking lot must be demolished/pavement removed before the cultural resources (canals) can be adequately treated, that is, before Phase II data recovery is implemented.

- In light of negative Phase I findings, no further archaeological work is needed within the Sky Train 2 APE outside the area of the Sky Chefs lot.
REFERENCES CITED

Greenwald, David H., Jean H. Ballagh, and M. Zyniecki (editors)

Greenwald, David H., Jean H. Ballagh, Douglas R. Mitchell, and Richard A. Anduze (editors)

Henderson, T. Kathleen

Henderson, T. Kathleen (editor)
ATTACHMENTS

Figure 1. Areas overlapping prehistoric sites within the PHX Sky Train Stage 2 APE that had not been investigated by previous archaeological projects.

Figure 2. Location of Phase I trenches and archaeological features identified within the current investigated areas of the PHX Sky Train Stage 2 APE. (11 x 17 inch, landscape format)

Figure 3. Feature 20 in the eastern wall of Trench 109, view to north-northeast. The youngest canal channel appears in the foreground; older channels, some of which descend below the base of the trench, extend northward to the end of the trench.

Figure 4. Close-up view of older channel in Feature 20 descending below the base of Trench 109, view to south-southeast.

Figure 5. Feature 21 in the eastern wall of Trench 109, view to north-northeast.

Figure 6. Feature 22 in the eastern wall of Trench 109, view to east.

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Figure 5. Feature 21 in the eastern wall of Trench 109, view to north-northeast.

Figure 6. Feature 22 in the eastern wall of Trench 109, view to east.
<table>
<thead>
<tr>
<th>Trench Number</th>
<th>Maximum Length (m)</th>
<th>Maximum Width (m)</th>
<th>Maximum Depth (m)</th>
<th>Location</th>
<th>Features Present</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>69.0</td>
<td>0.7</td>
<td>1.5</td>
<td>North lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow</td>
</tr>
<tr>
<td>101</td>
<td>19.2</td>
<td>0.7</td>
<td>1.4</td>
<td>North lot</td>
<td>None</td>
<td>Trench discontinued due to unexpected presence of active water main alignment coincident with planned trench location</td>
</tr>
<tr>
<td>102</td>
<td>98.0</td>
<td>0.7</td>
<td>1.2</td>
<td>Fed Ex lot</td>
<td>None</td>
<td>Interface with cobble substratum very shallow with occasional pockets of deeper sediment</td>
</tr>
<tr>
<td>103</td>
<td>99.2</td>
<td>0.7</td>
<td>1.2</td>
<td>Fed Ex lot</td>
<td>None</td>
<td>Interface with cobble substratum very shallow with occasional pockets of deeper sediment</td>
</tr>
<tr>
<td>104</td>
<td>60.0</td>
<td>0.7</td>
<td>1.5</td>
<td>Parking Office lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow in places; 2 ceramic sherds noted in backdirt</td>
</tr>
<tr>
<td>105</td>
<td>39.6</td>
<td>0.7</td>
<td>1.4</td>
<td>Parking Office lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow in places; 1 ceramic sherd observed</td>
</tr>
<tr>
<td>106</td>
<td>18.0</td>
<td>0.7</td>
<td>1.5</td>
<td>Parking Office lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow in places; 2 ceramic sherds observed</td>
</tr>
<tr>
<td>107</td>
<td>25.3</td>
<td>0.7</td>
<td>1.3</td>
<td>Parking Office lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow in places</td>
</tr>
<tr>
<td>108</td>
<td>53.5</td>
<td>0.7</td>
<td>1.5</td>
<td>Parking Office lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow in places</td>
</tr>
<tr>
<td>109</td>
<td>68.1</td>
<td>0.7</td>
<td>1.5</td>
<td>Sky Chefs lot</td>
<td>Canals 20, 21, 22</td>
<td>Features attributable to AZ T:12:389 (ASM), Canal Salado System</td>
</tr>
<tr>
<td>110</td>
<td>33.7</td>
<td>0.7</td>
<td>1.2</td>
<td>Materials lot</td>
<td>None</td>
<td>Interface with cobble substratum very shallow; 3 ceramic sherds observed</td>
</tr>
<tr>
<td>111</td>
<td>29.0</td>
<td>0.7</td>
<td>1.5</td>
<td>Materials lot</td>
<td>None</td>
<td>Particularly thick layer of upper level demolition related disturbance</td>
</tr>
<tr>
<td>112</td>
<td>29.0</td>
<td>0.7</td>
<td>1.5</td>
<td>Materials lot</td>
<td>None</td>
<td>Particularly thick layer of upper level demolition related disturbance</td>
</tr>
<tr>
<td>113</td>
<td>30.0</td>
<td>0.7</td>
<td>1.5</td>
<td>Materials lot</td>
<td>None</td>
<td>Large portion of the trench is disturbed due to the removal of large subterranean fuel tanks that once occupied the area</td>
</tr>
<tr>
<td>114</td>
<td>26.3</td>
<td>0.7</td>
<td>1.5</td>
<td>Materials lot</td>
<td>None</td>
<td>Particularly thick layer of upper level demolition related disturbance; trench shortened at southern end due to the presence of a thick concrete driveway</td>
</tr>
</tbody>
</table>
Table 2. Summary characteristics of identified archaeological features, PHX Sky Train Stage 2 Phase I data recovery.

<table>
<thead>
<tr>
<th>Feature Number</th>
<th>Feature Type</th>
<th>Location</th>
<th>Maximum Width in Trench (m)</th>
<th>Maximum Depth in Trench (m)</th>
<th>Data Recovery Effort/Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Canal, main</td>
<td>Trench 109</td>
<td>&gt; 25.0</td>
<td>&gt; 1.50</td>
<td>Partial profile; full breadth and depth not fully exposed, but E-W trajectory is indicated as are multiple episodes of use/multiple channels; this feature correlates with the northern branch of Canal Salado.</td>
</tr>
<tr>
<td>21</td>
<td>Canal, distribution; water control</td>
<td>Trench 109</td>
<td>3.00</td>
<td>&gt; 0.60</td>
<td>Profile drawn; NE-SW alignment is indicated; probable water control device indicated by mass of stones (cobbles, spent ground stone) at base of canal channel.</td>
</tr>
<tr>
<td></td>
<td>subfeature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Possible canal, or dry ditch/trench</td>
<td>Trench 109</td>
<td>1.65</td>
<td>&gt; 0.85</td>
<td>Profile drawn; NE-SW alignment is indicated; this canal-shaped feature correlates with purported canal trajectory from previous investigation to the west, however, exposed sediment is atypical for canal fill.</td>
</tr>
</tbody>
</table>
Attachment 3:
Addendum to Archaeological Treatment Plan
for PHX Sky Train Stage 2: APE Amendments and
Phase II Data Recovery Work Plan
November 27, 2017
COMPLIANCE SUMMARY

Report Title: Addendum to Historic Properties (Archaeological) Treatment Plan for PHX Sky Train Stage 2, Phoenix Sky Harbor International Airport, Maricopa County, Arizona: APE Amendments and Phase II Data Recovery Work Plan

Project Name: PHX Sky Train Stage 2

Project Location: Phoenix, Maricopa County, Arizona

Project Sponsor: City of Phoenix

Lead Agency: Federal Highway Administration

Other Involved Agencies: Arizona State Historic Preservation Office, Arizona State Museum, City of Phoenix

Applicable Regulations: National Historic Preservation Act of 1966, as amended; Arizona Antiquities Act (ARS §41-844 et. seq.); City of Phoenix Historic Preservation Ordinance (Chapter 8. Section 802)

Funding Source: City of Phoenix

Description of the Undertaking: Construction of an extension to the existing Sky Train within Phoenix Sky Harbor International Airport (PHX) from where it currently ends at Terminal 3 westward to the Rental Car Facility at the southwestern end of the airport. Associated actions include construction of a full “west” station with platform and parking, an electrical substation and/or switchyard with microgrid generator system, propulsion building, relocation or modification of existing facilities, services, and utilities, and access to the train.

Area of Potential Effects (APE): 299 acres subdivided into three segments, a western APE comprising 277 acres where most Sky Train construction activity will take place, and an eastern APE comprising 22 acres in two parts (19 acres south, 3 acres north) slated for possible installation of an electrical switchyard and associated networks.

Legal Description: City of Phoenix, Maricopa County, Arizona, in Sections 10, 13, 14, and 15, Township 1 North, Range 3 East on the USGS 7.5-minute topographic quad Phoenix, Ariz. (AZ T:12:[NE]) and in Sections 7 and 8, Township 1 North, Range 4 East on the USGS 7.5-minute topographic quad Tempe, Ariz. (AZ U:9:[NW]), Gila and Salt River Base and Meridian

PHX Sky Train stage 2 will be constructed within Sky Harbor International Airport.

Land Jurisdiction: City of Phoenix

Consultant Firm/Organization: Desert Archaeology, Inc.

Project Numbers: City of Phoenix Cost Center No. AV10000011, PGM 2007-46, Desert Archaeology Project No. 12-121K
Number of Sites: 4 (Addendum specific)


List of Register-ineligible Properties: None

Comments: This document presents an area-specific work plan to implement Phase II data recovery investigations and archaeological monitoring efforts within areas of Register-eligible archaeological sites that will be subject to disturbance from construction of PHX Sky Train Stage 2 and its associated facilities. This work will be implemented in accordance with the historic properties (archaeological) treatment plan prepared for the Sky Train Stage 2 project. Amendments to the project APE since the treatment plan was approved are also discussed.
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ADDENDUM TO HISTORIC PROPERTIES (ARCHAEOLOGICAL) TREATMENT PLAN FOR PHX SKY TRAIN STAGE 2, PHOENIX SKY HARBOR INTERNATIONAL AIRPORT, MARICOPA COUNTY, ARIZONA: APE AMENDMENTS AND PHASE II DATA RECOVERY WORK PLAN

INTRODUCTION

The City of Phoenix (City) Aviation Department is planning to extend the automated train system, named Sky Train, at Phoenix Sky Harbor International Airport (PHX) from where it currently ends at Terminal 3 to the Rental Car Center at the southwestern end of the airport. As the project requires Federal Aviation Administration (FAA) approval of an Airport Layout Plan change, it constitutes a federal undertaking subject to review under the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR part 800. At the City’s request, Desert Archaeology, Inc., prepared a historic properties (archaeological) treatment plan to identify and address potential effects of this new Sky Train (Stage 2) construction on cultural resources (Henderson 2017). This treatment plan has been approved by the Arizona State Historic Preservation Office (SHPO) (June 9, 2017) and Arizona State Museum (ASM) (August 14, 2017).

In late August and September 2017, Desert Archaeology, under contract to the City Aviation Department, completed Phase I data recovery efforts for the Sky Train Stage 2 project in accordance with the approved treatment plan. The objective of the work was to determine whether archaeological cultural resources were present within two areas of the Sky Train Area of Potential Effects (APE) that fell inside the bounds and city site-sensitive buffer of AZ T:12:47 (ASM)/Pueblo Salado, and had never been investigated by previous archaeological projects (Figure 1). Alignments associated with AZ T:12:389 (ASM)/Canal Salado System, might also pass through portions of these uninvestigated APE areas. Archaeological features (canals) associated with the Salado System were encountered during the fieldwork in the easternmost investigated area. These features are considered significant elements of the canal system, worthy of Phase II data recovery efforts. Little evidence was found to suggest prehistoric activity in any other portion of the investigated APE.

The FAA made a finding of adverse effect on archaeological resources for this project based on the Phase I results; SHPO concurred (October 10, 2017). To resolve this effect, the FAA has directed the City and its contractor Desert Archaeology to conduct Phase II data recovery investigations of the Salado System canals within the project APE. In keeping with the Sky Train 2 treatment plan, this document summarizes the results of the Phase I data recovery effort and presents an area-specific work plan to implement the requested Phase II data recovery effort. The document also addresses amendments to the project APE to accommodate Sky Train 2 design changes that require inclusion of additional small portions of the airport landscape.

PROJECT LOCATION AND AREA OF POTENTIAL EFFECTS

PHX Sky Train Stage 2 will be constructed within Sky Harbor Airport, which is located north of the Salt River in the southeastern portion of Phoenix, Maricopa County, Arizona (Figure 2). The APE for the project now comprises approximately 299 acres distributed in three parts on land owned by the
City in Sections 10, 13, 14, and 15, Township 1 North, Range 3 East (western APE, 277 acres) on the USGS 7.5-minute topographic quad Phoenix, Ariz. (AZ T:12:[NE]) and in Sections 7 and 8, Township 1 North, Range 4 East (eastern APE, 22 acres) on the USGS 7.5-minute topographic quad Tempe, Ariz. (AZ U:9:[NW]).

The project APE extends across portions of three known Hohokam habitation and agricultural sites, AZ T:12:47 (ASM)/Pueblo Salado, AZ T:12:62 (ASM)/Dutch Canal Ruin, and AZ U:9:28 (ASM), and three Hohokam canal sites, AZ T:12:131 (ASM)/Canal Patricio System, AZ T:12:389(ASM)/Canal Salado System, and AZ U:9:2 (ASM)/Park of Four Waters Canals (see Figure 2). All of these sites have been determined eligible or recommended eligible for inclusion in the National Register of Historic Places (NRHP). The extent to which Sky Train’s ground-disturbing construction activity would impact archaeological resources associated with these NRHP-eligible sites was evaluated in the Sky
Figure 2. General project location and known archaeological sites.
Train 2 treatment plan (see Henderson 2017). The study determined there would be no effect on archaeological resources in the eastern APE because site areas there, including AZ U:9:2 (ASM) and AZ U:9:28 (ASM), had been previously mitigated through intensive data recovery efforts as part of past projects. Most of the airport property inside the NRHP-eligible sites within the western APE also had been cleared or mitigated by previous archaeological monitoring, testing, and/or data recovery projects. As of June 2017, only two areas in the western APE within the limits of Pueblo Salado remained uninvestigated (see Figure 1). These are the same areas where Phase I data recovery for the current project was conducted and the focus of this document.

Three small areas have been added to the APE since September 2017. Two of the new APE areas are proximate to the area investigated by the Phase I data recovery (Figure 3). The first of these involves expansion of the APE to include the entire catchment basin that bounds the south side of the Sky Chefs facility parking lot (see APE Expansion 1 in Figure 3). The basin will be converted to a deeper (9–10 ft) surcharge basin to contain storm water resulting from modifications to upstream storm drain piping related to construction of Sky Train 2 facilities to the north. The second is an extension of the APE along the east side of 24th Street to encompass a utility trench (1.3 ft wide, 2.5 ft deep) to link proposed Arizona Public Service (APS) lines (see APE Expansion 2 in Figure 3). Each of these new APE areas are located in the NE ¼ of Section 15, Township 1 North, Range 3 East, Phoenix, Arizona.

The third amended APE area is situated roughly 0.5 mile to north, extending between 24th Street and Interstate 10, immediately south of Sky Harbor Circle N (Figure 4). This area was added to the project APE to accommodate relocation of a Ground Transportation Staging (GT) area. This new area falls inside the bounds of the Dutch Canal Ruin and is crossed by canals associated with the Canal Patricio System. The City Archaeology Office evaluated this new addition and found that while the area had been previously tested by SWCA, Inc. (Greenwald 1994; Greenwald et al. 1994), there was still a possibility that archaeological features could be present in the new APE area. Therefore, the City Archaeology Office recommended that archaeological monitoring of construction ground-disturbing activities should be conducted in this area. Anticipated disturbances include excavations related to the foundation for a new staging area building, utility lines, and light/security poles (see Figure 4). The FAA consulted with the SHPO regarding this amendment and recommendation; SHPO approved the amendment and concurred with the City Archaeology Office’s recommendation for monitoring (October 24, 2017). This amended APE area is located in the SE ¼ of Section 10, Township 1 North, Range 3 East, Phoenix, Arizona.

PHASE I DATA RECOVERY RESULTS

The Phase I data recovery effort for PHX Sky Train Stage 2 was authorized under Arizona Antiquities Act Project Specific Permit 2017-103ps (ASM Accession Number 2017-285) and conducted in accordance with the approved project treatment plan (Henderson 2017). The fieldwork was completed between August 28, 2017 and September 27, 2017, under the direction of Connie Darby of Desert Archaeology. Thirty-seven person-days were expended in the effort.

The Phase I field effort involved exploratory backhoe trenching implemented largely as described in the project treatment plan, with some modifications necessitated in the layout and lengths of trenches due to the fact that all the work took place in active paved parking lots, requiring staging of trench excavations and local utility lines needed to be avoided. In all, 15 trenches totaling 698 m (2,290 ft) were excavated (Figure 5; Table 1). This sum is smaller than suggested in the treatment plan largely due to the termination of trenching in the Sky Chefs lot upon discovery of Salado System canals; continued trenching in this lot would have caused undue damage to the archaeological features before
Figure 3. Amended APE locations in the vicinity of Pueblo Salado, AZ T:12:47 (ASM).
Figure 4. Amended APE location in the vicinity of Dutch Canal Ruin, AZ T:12:62 (ASM).
Figure 5. Location of Phase I trenches and archaeological features identified within the current investigated areas of the PHX Sky Train Stage 2 APE.
<table>
<thead>
<tr>
<th>Trench No.</th>
<th>Maximum Length (m)</th>
<th>Maximum Width (m)</th>
<th>Maximum Depth (m)</th>
<th>Location</th>
<th>Features Present</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>69.0</td>
<td>0.7</td>
<td>1.50</td>
<td>North lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow</td>
</tr>
<tr>
<td>101</td>
<td>19.2</td>
<td>0.7</td>
<td>1.40</td>
<td>North lot</td>
<td>None</td>
<td>Trench discontinued due to unexpected presence of active water main</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>alignment coincident with planned trench location</td>
</tr>
<tr>
<td>102</td>
<td>98.0</td>
<td>0.7</td>
<td>1.20</td>
<td>FedEx lot</td>
<td>None</td>
<td>Interface with cobble substratum very shallow with occasional pockets</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>of deeper sediment</td>
</tr>
<tr>
<td>103</td>
<td>99.2</td>
<td>0.7</td>
<td>1.20</td>
<td>FedEx lot</td>
<td>None</td>
<td>Interface with cobble substratum very shallow with occasional pockets</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>up deeper sediment</td>
</tr>
<tr>
<td>104</td>
<td>60.0</td>
<td>0.7</td>
<td>1.50</td>
<td>Parking office lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow in places; 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ceramic sherds noted in backdirt</td>
</tr>
<tr>
<td>105</td>
<td>39.6</td>
<td>0.7</td>
<td>1.35</td>
<td>Parking office lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow in places; 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ceramic shard observed</td>
</tr>
<tr>
<td>106</td>
<td>18.0</td>
<td>0.7</td>
<td>1.50</td>
<td>Parking office lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow in places; 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ceramic sherds observed</td>
</tr>
<tr>
<td>107</td>
<td>25.3</td>
<td>0.7</td>
<td>1.30</td>
<td>Parking office lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow in places</td>
</tr>
<tr>
<td>108</td>
<td>53.5</td>
<td>0.7</td>
<td>1.50</td>
<td>Parking office lot</td>
<td>None</td>
<td>Interface with cobble substratum relatively shallow in places</td>
</tr>
<tr>
<td>109</td>
<td>68.1</td>
<td>0.7</td>
<td>1.50</td>
<td>Sky Chefs lot</td>
<td>Canals 20, 21, 22</td>
<td>Features attributable to AZ T:12:389 (ASM), Canal Salado System</td>
</tr>
<tr>
<td>110</td>
<td>33.7</td>
<td>0.7</td>
<td>1.20</td>
<td>Materials lot</td>
<td>None</td>
<td>Interface with cobble substratum very shallow; 3 ceramic sherds observed</td>
</tr>
<tr>
<td>111</td>
<td>29.0</td>
<td>0.7</td>
<td>1.50</td>
<td>Materials lot</td>
<td>None</td>
<td>Particularly thick layer of upper level demolition-related disturbance</td>
</tr>
<tr>
<td>112</td>
<td>29.0</td>
<td>0.7</td>
<td>1.50</td>
<td>Materials lot</td>
<td>None</td>
<td>Particularly thick layer of upper level demolition-related disturbance</td>
</tr>
<tr>
<td>113</td>
<td>30.0</td>
<td>0.7</td>
<td>1.50</td>
<td>Materials lot</td>
<td>None</td>
<td>Large portion of the trench is disturbed due to the removal of large</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>subterranean fuel tanks that once occupied the area</td>
</tr>
<tr>
<td>114</td>
<td>26.3</td>
<td>0.7</td>
<td>1.50</td>
<td>Materials lot</td>
<td>None</td>
<td>Particularly thick layer of upper level demolition-related disturbance;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>trench shortened at southern end due to the presence of a thick concrete</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>driveway</td>
</tr>
</tbody>
</table>
they could be adequately studied. All excavated trenches were oriented north-south and dug to 1.5 m (4.9 ft) depths, where possible. A massive cobble substratum circumvented excavating trenches any deeper than 1.2 m (3.9 ft) in some lots; this substratum was also encountered in other trenches, but at deeper depths.

Archaeological features were only encountered in the single trench (Trench 109) excavated in the Sky Chefs lot (see Figure 5). Elsewhere, unmodified natural floodplain alluvium consisting of silty clay loam (Materials lot) to fine sandy loam (western APE area) over a river cobble substratum dominated the trench exposures. The depth of loam was variable both across and within trenches, but never exceeded the maximum depth of trenches except in the vicinity of the large canal (Feature 20) in Trench 109. Occasional prehistoric sherds were seen in trench walls or backdirt (see Table 1); however, their sporadic occurrence suggested all were likely pieces incidentally deposited through sheet wash flow or flood events. Completely lacking from all trenches were concentrations of charcoal- or ash-stained soil, such as seen at locations that were inhabited prehistorically. These findings indicate that the only area of archaeological concern for this portion of the Sky Train 2 APE is the Sky Chefs lot within the eastern area investigated during Phase I (see Figure 5). Descriptions of the features identified there are provided below and summarized in Table 2.

**Feature 20, Main Canal**

Exposed in the northern end of Trench 109 (see Figure 5), Feature 20 is a partial exposure of a large prehistoric canal (Figures 6–7). Based on its east-west trend and general dimensions, the canal appears to be the northern branch of Canal Salado, described in earlier investigations a short distance west of the current project area (Greenwald et al. 1996a, 1996b). This exposure is upstream from the previously investigated segment and lies closer to where smaller distribution canals originate and diverge this main. Trench 109 appears to provide a nearly perpendicular cross-section of the canal; however, the exposure is incomplete as the bottom of the canal lies below the base of the trench and its northern limit was not exposed.

This canal can be recognized as similar to earlier findings (Greenwald et al. 1996a:Figure 2.9); both have minimum depths in excess of approximately 1.5 m (5 ft). In both instances, there is a variation of sediments that indicates multiple channels were constructed within the alignment over the span of its use life, resulting in a canal profile of considerable breadth. Within the current project area, 25 m (82 ft) of the canal is exposed in the Trench 109 with only its southern limit defined.

In the current exposure, the northern portion of the canal appears to be composed of fairly homogeneous clay-rich sediment that likely represents post-abandonment sediment that accumulated in and above earlier deeper channels of the canal. The southern portion of the profile is composed of more distinct strata belonging to at least two of the canal’s youngest and highest channels. Canal sediment appears to originate immediately below the area’s initial stratum of historic/modern ground disturbance related to a combination of grading, demolition, and historic land use. This zone of upper level disturbance certainly impacts/truncates the upper limits of the younger channels in Feature 20, but likely does not affect the older deeper sediments in the northern portion of the canal.

The present exposure revealed only a few incidental artifacts (ceramic sherds) within canal-use deposits; however, a thin lens of charcoal observed in the sediments undoubtedly represents an in situ burn, which could produce material suitable for radiocarbon dating. Sediments suitable for luminescence dating are likely present at depth.
Table 2. Summary characteristics of identified archaeological features, PHX Sky Train Stage 2 Phase 1 data recovery.

<table>
<thead>
<tr>
<th>Feature No.</th>
<th>Feature Type</th>
<th>Location</th>
<th>Maximum Width in Trench (m)</th>
<th>Maximum Depth in Trench (m)</th>
<th>Data Recovery Effort / Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Canal, main</td>
<td>Trench 109</td>
<td>&gt; 25.0</td>
<td>&gt; 1.50</td>
<td>Partial profile; full breadth and depth not fully exposed</td>
</tr>
<tr>
<td>21</td>
<td>Canal, distribution; water control sub-feature</td>
<td>Trench 109</td>
<td>3.00</td>
<td>&gt; 0.60</td>
<td>Profile drawn; northeast-southwest alignment is indicated; probably water control device indicated by mass of stones (cobbles, spent ground stone) at base of canal channel</td>
</tr>
<tr>
<td>22</td>
<td>Possible canal or dry ditch/trench</td>
<td>Trench 109</td>
<td>1.65</td>
<td>&gt; 0.85</td>
<td>Profile drawn; northeast-southwest alignment is indicated; this canal-shaped feature correlates with purported canal trajectory from previous investigation to the west; however, exposed sediment is atypical for canal fill</td>
</tr>
</tbody>
</table>

**Feature 21, Distribution Canal**

Exposed in the southern portion of Trench 109 (see Figure 5), Feature 21 is fairly complete exposure of a small prehistoric canal (Figure 8). Based on its northeast-southwest trend and general dimensions, the canal appears to be a distribution canal from the northern branch Canal Salado, described in earlier investigations a short distance west of the current project area (Greenwald et al. 1996a). This exposure is upstream and lies closer to the main (i.e., Feature 20) from which Feature 21 presumably originates. Its trajectory suggests the canal will diverge from the main within the Sky Chefs lot. The exposure in Trench 109 appears to provide a somewhat oblique-cut cross-section of the canal. The exposed profile is truncated by a relatively thick upper stratum of disturbance at this location, but the exposure is relatively complete as the canal bottom lies just at the base of the trench and its northern and southern edges are exposed (see Figure 8).

This canal can be recognized as similar to earlier findings to the west (Greenwald et al. 1996a:Figure 1.4) where a number of small distribution canals were identified. These smaller canals have a depth of around 1 m (3 ft) and are approximately 1–2 m (3–7 ft) in width. Wide variation is seen in the sediments of these distribution canals, but generally they are filled with bands of water-lain sediment composed of some combination of clay, silt, sand, and loam of varying composition. The slightly oblique exposure of Feature 21 extends to 1.2 m (4.0 ft) below the modern ground surface and is roughly 3.0 m (9.8 ft) in width. The canal is filled with loamy sand, clay loam, and fine sand with some coarse sand at its base. However, this profile is made more complex by the presence of numerous cobbles possibly placed in the channel to act as some sort of water control feature, such as a low dam to check the flow of water or to protect the channel from erosion. The stones in the canal were generally larger (most 20–30 cm in diameter) than those seen locally exposed in the underlying natural stratum of sand and cobbles. One metate fragment was also noted in the deposit, a fragment of spent ground stone simply contributing its weight to the effort. Stones were more densely concentrated on the western side of Trench 109 indicating some spatial difference in how the stones are distributed within the channel. Minimally, further investigation of this water control feature would be needed to determine its function. Examination of Feature 21, away from this mass of stones, would also be needed to more accurately correlate it with any of the distribution canals previously identified to the west.
Figure 6. Feature 20 in the eastern wall of Trench 109, view to the north-northwest. The youngest channel appears in the foreground; older channels, some of which descend below the base of the trench, extend northward to the end of the trench.

Figure 7. Close-up view of older channel in Feature 20 descending below the base of Trench 109, view to the south-southeast.
Feature 22, Possible Distribution Canal

Exposed in the southern portion of Trench 109 (see Figure 5), Feature 22 is a fairly complete exposure of a feature that has a canal-shaped cross section but is filled with loosely banded gravelly sediment that appears more like dry-deposited fill than waterlain canal sediment (Figure 9). Despite the odd sediments, rough correspondence with the track of a distribution canal recorded to the west suggests Feature 21 is indeed linear in nature and on-track to intersect with the Salado main, Feature 20, only slightly farther upstream. The exposed profile is slightly truncated by an upper stratum of disturbance, but the exposure is relatively complete as the bottom of the canal lies just at the trench base and its northern and southern edges are exposed.

In profile, the shape of this feature is similar to previously identified canals to the west (Greenwald et al. 1996a:Figure 1.4) where a number of small distribution canals were identified. As described above (see Feature 21 discussion), these smaller canals have a depth of around 1 m (3 ft) and are approximately 1-2 m (3-7 ft) in width. The oblique exposure of Feature 22 extends to 1.4 m (4.6 ft) below the modern ground surface and is roughly 1.7 m (5.6 ft) in width; the feature is primarily filled with loamy sand supporting fine to medium rounded gravels. While the sediments do not appear waterlain, soil outside the feature is stained yellow with iron oxyhydroxides typically associated with water-saturated sediments. In the end, this feature requires further investigation to establish its true nature, function, and age; for the time being, the simple attribution of this feature to the prehistoric era remains uncertain.
RESEARCH DESIGN

The Phase I data recovery effort confirmed the presence of archaeological cultural resources within the Sky Chefs lot at the eastern end of the investigated APE. The identified features, all canals or possible canals, can be attributed to the Canal Salado System, a site eligible for inclusion in the National Register of Historic Places. Important information can be gained by further study of the newly identified features. The ultimate size of main canal Feature 20, its use-history and age, the evidence for a water control device in the smaller Feature 21, the likelihood for junctions between the main and smaller canals that occur within the lot, and the unresolved nature of Feature 22 are all aspects that warrant investigation and are aspects that have not been addressed by previous investigations.

In addition, more than 25 years have passed since the few known canals in the Salado system were last examined (Greenwald et al. 1996a, 1996b). There has been considerable progress in the study of canals, including new techniques, and an evolving understanding of Hohokam canals over this period of time. Two recent techniques that have particularly advanced our knowledge in this regard include optically stimulated luminescence (OSL) dating of canal sediments and the use of broad-scale stripping to trace canal alignments and their points of intersection. The first PHX Sky Train archaeology project (Henderson 2015) was among the first to employ broad-scale stripping with the result of exposing not only canals but also a network of irrigated fields, the first such exposure in the Salt River Valley.

Figure 9. Feature 22 in the eastern wall of Trench 109, view to the east.
Data recovered from a Phase II investigation of this canal complex will directly address the research theme, *Irrigation and Water Control on the Floodplain*, identified in the Sky Train 2 treatment plan (Henderson 2017:25–28). Beyond understanding the basic mechanics of operating these canals, information could be provided on a variety of topics that include the size of the population utilizing the canal, the ecological regime during the period of canal use, crops irrigated, and surrounding native plants and animals. Data gained here will permit exploration of a second research theme, *Subsistence Organization and Production*. Exploration of these themes will contribute to the overall research goal of better understanding the role of the prehistoric floodplain landscape in the lives of Hohokam farmers.

The research design presented in the Sky Train 2 treatment plan focused specifically on the sites of Pueblo Salado and the Canal Salado System because these were the only sites at the time that would be affected by Sky Train construction activities. An amendment to the project APE has resulted in the inclusion of Dutch Canal Ruin and the Canal Salado System among the affected sites. Dutch Canal Ruin is an extensive agricultural site spread across the northern Salt River floodplain north of Pueblo Salado. The site is characterized by small fieldhouse and farmstead locales scattered amidst irrigation canals, the same canals that comprise the irrigation network known as the Canal Patricio System (see Figure 2). Important to understand is that these sites share a common environment and common characteristics with Pueblo Salado and the Canal Salado System. Therefore, the research themes (*Settlement Patterns and Community Organization, Exchange and Interaction, Subsistence Organization and Production, Irrigation and Water Control on the Floodplain, Chronology*) and questions posed in the Sky Train treatment plan’s research design apply equally to the study of any cultural resources that might be associated with either Dutch Canal Ruin or the Canal Patricio System. Given that archaeological monitoring has been recommended in the amended APE area and construction disturbances will be relatively limited (see Figure 4), data results from any cultural finds are likely to be relatively modest but will still contribute to the cumulative dataset that informs on past patterns of floodplain land use and their relationship to aspects of the social and economic organization of the larger cultural groups utilizing the area (see for example, Henderson and Clark 2004).

**PHASE II DATA RECOVERY WORK PLAN**

The primary objective of the proposed Phase II data recovery investigations is to document, sample, and provide analysis and interpretations for the Salado System canals in the Sky Chefs parking lot, as well as any other archaeological features that might be found therein. Although the focus of Phase II activity is the Sky Chefs lot, an archaeological monitoring component is included below for the APE area where construction activity has potential to disturb resources associated with Dutch Canal Ruin or the Canal Patricio System. The methods to be used to implement this effort are described below.

**Preparation**

Prior to completing the Phase I effort, Desert Archaeology obtained an Arizona Antiquities Act Project Specific Permit (No. 2017-103ps) and Burial Agreement (Case No. 2017-026) from Arizona State Museum for the archaeological work. This permit and agreement will remain in force for the Phase II investigations. Environmental permits, such as air quality and storm water pollution prevention, will be obtained as necessary prior to implementing the Phase II fieldwork.

A critical element of the Phase II effort is the ability to trace the two smaller canal alignments found during Phase I to their points of intersection with the Salado main. However, this activity, as well as further sampling the lot for cultural resources, could not be accomplished within the constraints of working only within the traffic avenues available in the currently used Sky Chefs lot. It was clear at
the conclusion of Phase I that the Sky Chefs parking lot pavement must be removed before any cul-
tural resources located therein could be adequately identified and treated in a Phase II effort. Project
authorities have agreed with this assessment and the City Aviation Department will have Sky Train
construction contractors remove the pavement and other parking lot accoutrements prior to imple-
mentation of the Phase I investigations. Desert Archaeology will be responsible for fencing the lot for
security purposes once the pavement is removed. In addition to arranging for fencing, other tasks to
be completed prior to the initiation of fieldwork will include scheduling backhoe services; arranging
access to a City fire hydrant for the water required to control dust; installing erosion and sediment
control devices; and gathering project crew and field equipment.

Phase II Fieldwork

A combination of backhoe trenching, strip trenches, mechanical (broad-scale) stripping, and hand-
excavations will be used to expose and study the Salado System canals and any other features that
might be present within the Sky Chefs lot.

The first step will be to complete the exploratory trenching that was suspended when canals were
encountered during the Phase I effort. This will be done in two parts. Initially, standard (2-ft-wide, 5-
ft-deep) trenches will be excavated along the southern and eastern perimeter of the Sky Chefs lot to
determine where Feature 20, the main canal, enters the project area, as well as to determine if other
alignments are also present that were not identified in the single Phase I trench. A series of standard
trenches, ranging 20–60 m long, will then be excavated at roughly 20 m intervals across the lot while
generally avoiding the area where the intersections of canals are anticipated. These trenches will be
oriented north-south as planned in the Phase I effort. The walls of all trenches will be scraped with
hand tools and any identified features recorded using standardized forms and profile drawings. App-
proximately 630 linear meters of trench are planned; the trenches will serve to define the general
population of feature types and their locations within the Sky Chefs lot.

Once the trenching effort is complete, strip trenches (wide shallow trenches excavated using a 5-ft-
wide blading bucket) will be used to trace the smaller distribution canals to their points of intersec-
tion with the main canal (Feature 20). The area of each intersection will then be excavated using a
combination of hand and mechanical techniques to remove filling sediments and expose any interior
secondary features (e.g., dams, posts, stone rip rap) that were used to control the flow of water from
main into lateral. Two units measuring approximately 5 m by 10 m are anticipated for this activity,
one for each intersection. A similarly size unit will also be excavated where Feature 22 is crossed by
Trench 109, to expose and determine the nature or function of the numerous stones seen near the base
of the canal in the trench. Any additional alignments identified during the perimeter trenching will
be treated in a similar fashion.

Mechanical stripping will be used to remove overburden and expose the upper outline of any non-
canal features (pithouses, pits) identified during the trenching effort. This stripping will extend up to
10 m around any given feature to ensure that any unseen associated features are also identified. Ex-
cavations of at least a sample of these features will then proceed. Generally, structures will be sam-
pled using an excavated 1-m by 2-m control unit. Whether additional units are excavated will be
based on the number of structures present and the results of the control unit sample. Structures with
a high artifact density in the fill, presence of a floor assemblage, or evidence of burning will be target-
ed for additional excavation. Excavation of pit features will vary according to size and type. General-
ly, the fill of smaller pits will be excavated as a single unit; larger pits may be bisected and one of the
halves excavated or the pit sampled using a 1-m by 2-m control unit. Except for stripping to remove
overburden above features, all excavations will be done by hand in natural or arbitrary levels no
more than 20-cm deep, with fill screened through ¼-inch mesh. Standard Desert Archaeology techniques and procedures will be used for all excavations. Additional detail about feature excavations is provided in the project treatment plan (Henderson 2017:33–34).

If hints of small laterals are recognized during the strip-trench exposures of the small distribution canals, mechanical (broad-scale) stripping will be used to trace and expose in outline what likely are the remains of agricultural fields. These fields and accompanying lateral channels would be sampled via backhoe- and hand-dug trenches and plan view exposures with consequent detailed profiling, plan mapping, and sediment sample collections of the field features. Subsequent study would be focused on preserved field surfaces and their associated soil properties as revealed through the content of collected sediment samples. Material that could be dated by radiocarbon or luminescence dating (OSL) techniques would be collected.

The Phase II effort will also include detailed documentation and sampling of the Salado main, Feature 20. This will be achieved by excavating a trench cut as closely as possible to perpendicular the canal trend and to a depth that exceeds the maximum canal depth so that the bottoms of any iterations (channels) are exposed. The trench will be benched to ensure safe access according to the standards of the Occupational Safety and Health Administration. Because inconsistencies in prehistoric cleaning and remodeling of canals along their length may cause a single exposure to yield an incomplete picture of a canal’s history, a second trench as far apart as possible within project area limits may be excavated. Also because it is important geomorphologically to examine what lies outside of a canal’s walls, these benched trenches will be excavated some distance to each side of the canal. Two benched trenches measuring 30-40 m in length are anticipated.

The canal exposures will be thoroughly documented by drawing detailed scaled profiles with descriptions of individual strata and sedimentary characteristics both inside and outside the canal. The project geomorphologist will review all drawn profiles, providing corrections or additional description as needed. A suite of sediment samples for textural (particle-size) and other analyses (e.g., ostracodes) will be drawn from at least one exposure of the canal. Flotation samples will be collected if burned lenses are observed in a canal to recover seeds or annual species that could be used to radiocarbon date the deposit. Samples for OSL dating will also be collected from appropriate canal sediments. Selection of sample contexts will be done in consultation with the geomorphologist.

All excavated features will be hand mapped to scale, photographed (except mortuary features) and recorded on standard Desert Archaeology forms. These forms have coded information to make these data comparable to the data from previous Desert Archaeology excavations in the Phoenix Basin. All feature outlines, excavation areas, and disturbances will be mapped using high precision GPS equipment.

**Archaeological Monitoring**

A qualified archaeologist will be present to monitor all ground disturbing activity associated with construction of the relocated GT Staging area south of Sky Harbor Circle N. Anticipated disturbances include excavations related to preparing the foundation for a new GT building, utility lines, and light/security poles (see Figure 4). The monitor will inspect all exposures of the natural ground surface for evidence of cultural materials (e.g., pottery sherds, flaked stone, ash or charcoal-stained areas). If deep cuts are made, as in the case of utility line trenches, the sidewalls of the cuts will be scraped with hand tools to expose a clear cross section. Close attention will be paid to the types of sediment unearthed, as these provide a quick measure for assessing the potential for encountering archaeological resources.
If an archaeological feature (excludes human burials) is identified a utility line excavation, the monitor will temporarily halt the activity, so the feature may be recorded in profile. If an archaeological feature (excludes human burials) is encountered during blading, it will be marked with striping paint or pin flags, so that the feature can be avoided until the City Archaeology Office can be consulted regarding the feature’s treatment. Most likely, data recovery excavations would ensue following methods described above and in the project treatment plan (see Henderson 2017:33–34). The decision to excavate a feature will be determined through consultation with the City Archaeologist (excludes human burials which must be recovered in full, see Burial Treatment above). Procedures identified in the project Burial Agreement will be implemented if human burials are encountered (see below).

All cultural features encountered during monitoring work will be recorded. The archaeologist will document their presence through mapping, profile or plan drawings, photography, and written descriptions. The location of features and any collected artifacts will be recorded on construction plan maps and standard feature description forms completed. A log of the monitoring activity will be kept, with notes taken about the sediments observed and features identified.

**Burial Treatment**

There is a possibility that human burials may be discovered during fieldwork at any archaeological site. Any identified human remains, mortuary features, or funerary objects will be treated in strict accordance with the project Burial Agreement, ASM guidelines, and standards of Desert Archaeology. If human remains are encountered, or if a mortuary context is suspected on the basis of feature characteristics or associated artifacts, work will be discontinued in that area until appropriate recording and recovery can be completed. All mortuary features will be hand-excavated by a qualified professional archaeologist or physical anthropologist. The human remains will be analyzed with only non-destructive techniques. Additional detail about excavation and analytical procedures relating to human burials are provided in the Sky Train treatment plan (Henderson 2017:34). Following excavation and analysis, human remains and associated mortuary objects will be repatriated to the Salt River Pima-Maricopa Indian Community.

**Analysis**

The artifacts and samples recovered from the Phase II and monitoring efforts will be brought to the laboratory facility for processing and analyses. All basic laboratory and field data will be entered into the project database. Both in-house specialists and outside consultants will be used for the analysis of all major categories of cultural materials and environmental data, including canal attributes and sediments, ceramics, flaked and ground stone artifacts, and botanical, faunal, and shell remains. The scope of each analysis will depend on the yield of the fieldwork. All analysis will be focused by the research themes and questions posed in the project treatment plan.

A relatively intensive study of the Salado canals is planned. The project geomorphologist will use canal morphological attributes to reconstruct paleohydraulics, water capacity, and discharge of each canal; sediment textural (particle-size) analysis will inform on flow regimes. Biological remains from the canals may include mollusks and clams, ostracodes, and fossil pollen. Paleoecological analyses of these remains will be performed to determine species abundance (by class), composition, and diversity as well as to inform on habitat conditions. Samples obtained from canals for radiocarbon and OSL dating will be processed during the analytical phase. The goal of these analyses is to achieve a fine-grained reconstruction of canal use and operation across time.
Analyses for agricultural fields, if these are found, would focus on their soil properties and biological content. Particle-size and soil chemistry could be used to trace linked canal and field features. Ostracode and pollen analyses could inform on water conditions and botanical content. Any radiocarbon or OSL dating samples obtained from field areas would be processed during the analytical phase.

Ceramic sherds will be counted and identified to the most specific level possible for ware, type, and temper categories. Body sherds will be further categorized by basic vessel type. If large enough, morphological characteristics of rim sherds will be recorded, allowing vessel size and minimum numbers of vessels to be estimated. General temper types will be coded, with tempers sourced using petrofacies models where appropriate. Ceramics other than pottery will be analyzed using standard techniques consistent with the artifact type. Ceramic attribute data will be used to inform on feature age, feature function, and potentially the relationships of the people who created the features with populations located elsewhere in the valley.

All flaked and ground stone artifacts will be inventoried. Flaked stone will be measured and analyzed according to raw material and a number of technological and morphological attributes. Ground stone artifacts will be subdivided by type, and then attributes of morphology, use wear, and raw material will be recorded. The technological attributes of artifact types will be used to address issues of feature function and site activity.

Animal bone will be inventoried by species, and a number of other attributes will be recorded for all specimens. Bone artifacts will be separated by type, measured and examined for evidence of use wear and other modifications. The faunal data will provide information about animal procurement and use.

Paleobotanical material from flotation samples will be examined for variation in the types and diversity of economic plants. Macrobotanical analysis can also be used to inform on the environmental conditions that existed at the time of occupation, as well as on agricultural practices.

**Curation**

With the exception of any materials that may be repatriated to affiliated groups, all project materials and documentation will be submitted to Pueblo Grande Museum for permanent curation following acceptance of the final report.

**REPORT PREPARATION**

A preliminary report (End-of-Fieldwork) will be prepared and submitted to the City within two weeks of completing data recovery fieldwork within the Sky Train 2 APE. The report will summarize the methods and results of the fieldwork, including inventories and maps of archaeological features and excavated areas. The report will be sufficient in detail to satisfy compliance requirements and include a recommendation that Sky Train construction may proceed within the investigated areas. One copy of the draft preliminary report will be provided to the City Archaeology Office. Following their review, the draft report will be revised to address any comments and submitted to the City Aviation Department and FAA for review and approval.

A final technical report describing the results of all data recovery investigations will be produced. The report will include discussions of the purpose and background of the project; the natural and cultural setting of the APE; descriptions of the methods and results of field and analytical tasks; and
interpretive discussions of the project results that address the project research themes. The report will include professional quality maps and photographs showing the location of the APE, the investigated portion of the APE, trenches and other excavation units, archaeological features, and artifact illustrations and photographs, as needed.

One bound copy of the draft technical report will be provided to the City Archaeology Office. Following their review and comment, the draft report will be revised and copies submitted to the City Aviation Department for distribution to the FAA, SHPO, and ASM for review and approval. The final report will be prepared and submitted following all stages of review and comment. The report may be produced as a joint publication of Desert Archaeology and PGM.

PROJECT SCHEDULE

The Phase II data recovery work can begin once notice of the scheduled demolition of the Sky Chefs parking lot. Field preparation and mobilization for this effort is estimated to take three weeks, given the need to prepare and submit some documents, such as the county dust permit, at least 15 days in advance of fieldwork. The fieldwork can be completed within 12 weeks. A preliminary (End of Fieldwork) report will be submitted to the City Archaeology Office within two weeks of fieldwork completion. Analyses and the draft technical report will be completed within 12 months of fieldwork completion, dependent on the turn-around time for processing and analysis of special samples, like OSL. Although the technical report should be largely completed within a 9-month interval, we would need time to interpret and incorporate the OSL results into our report followed by the time needed to produce the draft report.

The timing and duration of archaeological monitoring for relocation of the GT Staging area cannot be estimated at this time since the work is dependent on the Sky Train construction schedule for this area.
REFERENCES CITED

Greenwald, David H. (editor and compiler)

Greenwald, David H., M. Zyniecki, and Dawn M. Greenwald (editors and compilers)

Greenwald, David H., Jean H. Ballagh, and M. Zyniecki (editors)

Greenwald, David H., Jean H. Ballagh, Douglas R. Mitchell, and Richard A. Anduze (editors)

Henderson, T. Kathleen

Henderson, T. Kathleen (editor)

Henderson, T. Kathleen, and Tiffany C. Clark
Attachment 4:

SHPO Concurrence with APE and ATP

June 9, 2017

(with APE figures)
Dear Ms. Leonard:

The City of Phoenix (City), in cooperation with the Federal Aviation Administration (FAA), is proposing to extend the Sky Train from Terminal 3 (T3) westward to the Rental Car Center (RCC) at the Phoenix Sky Harbor International Airport (Airport). As the project requires the Federal Aviation Administration (FAA) approval of an airport layout plan change, it constitutes a federal undertaking subject to review under National Historic Preservation Act as amended, and its implementing regulations, 36 CFR part 800.

The proposed undertaking will improve ground access to the Airport and RCC, and include the following:

- Construct the Sky Train from T3 westward approximately 2.2 miles to the RCC;
- Construct a platform on the third level of the RCC for the Sky Train to enter and a West Ground Transportation Center Sky Train Station (WGTC);
- Construct surface parking to the south and northwest of the WGTC Station;
- Construct a parking facility up to seven (7) stories to the northwest of the WGTC Station;
- Construct surface roads to accommodate the WGTC Station and parking facility;
- Relocate the Ground Transportation Rest Area to the existing parking lot area north of E Sky Harbor Boulevard and east of 24th Street;
- Expand the Sky Train Maintenance Facility and construct Sky Train wash facility east of 44th Street;
- Construct three (3) propulsion facilities to support the Sky Train, small enclosed single story buildings (600 to 1,000 square feet) that house electrical switchgear and transformers to assist with voltage drops along the train’s alignment;
- Construct an electrical Arizona Public Service (APS) microgrid generator site to accommodate voltage drops and feed power to the train.
- Demolition of buildings and facilities to accommodate the Sky Train alignment and associated drainage improvements.

The FAA defines the Area of Potential Effect (APE) to include approximately 290-acre areas to account for direct and indirect effects (see attached APE exhibits). In accordance with the 2006 Memorandum of Agreement for the Airport Development Program, an Archeological Treatment Plan (ATP) has been prepared to address potential effects on archeological resources. The attached ATP focuses on the areas that have not been previously investigated within the project’s APE.

This letter serves as FAA request for your review and concurrence of the APE and the adequacy of the treatment plan. The FAA will consult with your office on the project’s effect once the result of Phase I archeological investigation is known. Should you have any questions or require additional information, please contact me at (602) 792-1066 or by email at dee.phan@faa.gov.

Sincerely,

Dee Phan
Environmental Protection Specialist

Attachments: - APE Exhibits and Archeological Treatment Plan
Copy (by email): David Jacobs, Compliance Specialist

CONCUR

[Signature]

Arizona State Historic Preservation Office
Figure 1a
Area of Potential Effect

LEGEND
- Proposed Action
- Connected Action
- Airport Property Boundary
- Sky Train Alignment
- Demolition
- Construction Staging Area
- Roadway Improvements
- Existing Cargo Buildings
- Terminal 2 Demolition
- WGTC Facilities and Parking
- GT Staging Area
- Area of Potential Effect

Proposed Action
1 Construct Sky Train
2 Construct Third-Level Platform for Sky Train Entrance
3 Construct West Ground Transportation Center (WGTC) with Surface Parking
4 Construct Parking Facility or Mixed-Use Facility
5 Roadway Improvements
6 Relocate Ground Transportation (GT) Rest Area
7 Construct Central Utility Plant for WGTC
8 Sky Train Maintenance Facility Expansion and Wash Facility
9 Adjust Roadway Lane Markings
10 Bridge 25th Place
11 Demo Parking Offices
12 Demo Bus Maintenance Facility
13 Demo Sky Chef’s Building
14 Demo GT Rest Area
15 Demo C&D Gate Areas of Terminal 2
16 Construct Stormwater Management Facility for WGTC Surface Parking
17 Modify 44th Street Drainage

Note: *Reviewed under separate EA.

Sources: USDA NAIP Aerial (2015), City of Phoenix
Figure 1b

Area of Potential Effect

Sources: USDA NAIP Aerial (2015), City of Phoenix

LEGEND
- Proposed Action
- Connected Action
- Airport Property Boundary
- Sky Train Alignment
- Potential APS Service Line
- Existing APS Service Line
- Area of Potential Effect

--- Proposed Action ---
1. Construct Sky Train
2. Construct Third-Level Platform for Sky Train Entrance
3. Construct West Ground Transportation Center (WGTC) with Surface Parking
4. Construct Parking Facility or Mixed-Use Facility
5. Roadway Improvements
6. Relocate Ground Transportation (GT) Rest Area
7. Construct Central Utility Plant for WGTC
8. Sky Train Maintenance Facility Expansion and Wash Facility
9. Construct Three Propulsion Facilities along Sky Train Alignment

--- Power Option ---
10. Adjust Roadway Lane Markings
11. Bridge 25th Place
12. Demo Parking Offices
13. Demo Bus Maintenance Facility
14. Demo Sky Chef’s Building
15. Demo GT Rest Area
16. Demo C&D Gate Areas of Terminal 2
17. Construct Stormwater Management Facility for WGTC Surface Parking
18. Modify 44th Street Drainage

--- Existing APS ---
- Existing APS 12.47kV Lines
- Existing APS Hohokam Substation

--- Proposed APS ---
- Proposed APS Microgrid Generator Site
- Proposed APS Microgrid Generator Site (150’ x 150’)
- Proposed 12.47 kV Service in Duct Bank
- Proposed 12.47 kV Switchyard

--- Existing APS ---
- Existing APS 12.47kV Lines

--- Areas of Potential Effect ---
- Proposed Action
- Connected Action
- Airport Property Boundary

See Figure 1a for details.
Attachment 5:

SHPO Concurrence on Effect
and Amended APE for Drainage Basin

October 12, 2017

(with Amended APE figures)
October 10, 2017

Kathryn Leonard
State Historic Preservation Officer
Arizona State Parks
1100 West Washington Street
Phoenix, AZ 85007

RE: Proposed Sky Train Stage 2
Phoenix Sky Harbor International Airport, Phoenix, Maricopa County, Arizona
Continuing Section 106 Consultation - Finding of Effect

Dear Ms. Leonard:

As you are aware, the City of Phoenix (City), in cooperation with the Federal Aviation Administration (FAA), is proposing to extend the Sky Train from Terminal 3 (T3) westward to the Rental Car Center (RCC) at the Phoenix Sky Harbor International Airport (PHX). The proposed undertaking includes construction of approximately 2.2 miles of the Sky Train system from T3 westward to the RCC.

Previous consultation with your office in June 2017 resulted in your concurrence on the area of potential effects (APE) and the archeological treatment plan. Subsequently, the APE has been revised to include an additional 1.2-acre area to accommodate a stormwater management detention basin (see attached figure). A Phase I archeological investigation was conducted for PHX Sky Train Stage 2 to determine whether archaeological resources were present within two previously uninvestigated areas of the Sky Train Stage 2’s APE. This purpose of this letter is to provide your office with the results of Phase I investigation and to request your concurrence on the revised APE and FAA’s finding of effects.

Within the APE, there are no National Register of Historic places (NRHP) listed, eligible, or historic-age standing structures. The Sky Chefs facility, which would be demolished, is not a historic-age structure (see attached figure). Phase I archeological investigation found significant archeological features (canals) associated with the Canal Salado System in the Sky Chefs lot within the eastern investigated APE area (see attached Phase I memo). The Canal Salado System, AZ T:12:389 (ASM), is a site eligible for inclusion in the NRHP under Criterion D. The proposed demolition of the Sky Chefs facility will accommodate the construction of a new surface parking lot and associated drainage improvement work within the area where the canal features were discovered during Phase I investigation. As a result, the FAA has made a finding of “adverse effect” for this undertaking (36 CFR 800.5). To resolve adverse effect on site AZ T:12:389 (ASM), the City will conduct Phase II data recovery to investigate the Salado System in the Sky Chefs parking lot within the APE in accordance with the archeological treatment plan prepared for this undertaking.

Please review the information provided in this letter, attached revised APE and Phase I results. If you agree with the above determinations, please respond with a concurrence. Should you have any questions or require additional information, please contact me at (602) 792-1066 or by email at dee.phan@faa.gov.

Sincerely,

Dee Phan
Environmental Protection Specialist

Attachments: Revised APE and Standing Structures Figures, Phase I Report memo
Copy (by email): David Jacobs, Compliance Specialist
Area of Potential Effect - Expansion

LEGEND

- Proposed Action
- Connected Action
- Airport Property Boundary
- Sky Train Alignment
- Demolition
- Construction Staging Area
- Roadway Improvements
- Existing Cargo Buildings
- Terminal 2 Demolition
- WGTC Facilities and Parking
- GT Steaging Area
- Area of Potential Effect
- Area of Potential Effect - Expansion

Note: *Reviewed under separate EA.

Proposed Action
1. Construct Sky Train
2. Construct Third-Level Platform for Sky Train Entrance
3. Construct West Ground Transportation Center (WGTC) with Surface Parking
4. Construct Parking Facility or Mixed-Use Facility
5. Roadway Improvements
6. Relocate Ground Transportation (GT) Rest Area
7. Construct Central Utility Plant for WGTC
8. Sky Train Maintenance Facility Expansion and Wash Facility
9. Construct Three Propulsion Facilities along Sky Train Alignment
10. Power Options (A and B)

Connected Actions
9. Adjust Roadway Lane Markings
10. Bridge 25th Place
11. Demo Parking Offices
12. Demo Bus Maintenance Facility
13. Demo Sky Chefs Building
14. Demo GT Rest Area
15. Demo C&D Gate Areas of Terminal 2
16. Construct Stormwater Management Facility for WGTC Surface Parking
17. Modify 44th Street Drainage

Sources: USDA NAIP Aerial (2015), City of Phoenix
Attachment 6:

SHPO Concurrence on Effect
and Amended APE for GT Staging/APS Line

October 24, 2017

(with Amended APE figures
and City Archaeology’s Assessment Result Memo)
October 24, 2017

Kathryn Leonard
State Historic Preservation Officer
Arizona State Parks
1100 West Washington Street
Phoenix, AZ 85007

RE: SHPO File # 2017-0594
Proposed Sky Train Stage 2
Phoenix Sky Harbor International Airport, Phoenix, Maricopa County, Arizona
Continuing Section 106 Consultation- Amended Area of Potential Effects

Dear Ms. Leonard:

As you are aware, the City of Phoenix (City), in cooperation with the Federal Aviation Administration (FAA), is proposing to extend the Sky Train from Terminal 3 (T3) westward to the Rental Car Center (RCC) at the Phoenix Sky Harbor International Airport (PHX). The proposed undertaking includes construction of approximately 2.2 miles of the Sky Train system from T3 westward to the RCC.

Previous consultations with your office in June 2017 and October 2017 resulted in your concurrence on the area of potential effects (APE), the archeological treatment plan (ATP) based on the 2006 MOA, and a finding of adverse effect. Subsequently, the APE has been amended to accommodate the relocation of the Ground Transportation Staging (GT) area (~7.15 acres) and a trench for connection to existing APS utility line (~0.48 acre). (See attached figures for amended APE areas and construction detail). The amended APE associated with the GT is located within AZ T:12:62(ASM) (Dutch Canal Ruin) and within a portions of AZ T:12:131(ASM) (the Canal Patrico System), a network of prehistoric canals. Archaeological testing has been conducted within the amended APE as part of a larger past project. However, due to the potential for encountering additional archeological features, archeological monitoring will be conducted for ground-disturbing activities within the GT area. (See attached City’s Archaeology Assessment Result memo for additional information).

This letter serves as our request for your concurrence on the amended APE, the proposed archeological monitoring for GT, planned Phase II data recovery on the Sky Chefs lot in accordance with the ATP, and the finding of "adverse effect" for the proposed undertaking. Should you have any questions or require additional information, please contact me at (602) 782-1066 or by email at dec.phan@faa.gov.

Sincerely,

Dee Phan
Environmental Protection Specialist

Attachments: Amended APE Figures; City’s Archaeology Assessment Result Memo

Copy (by email): David Jacobs, Compliance Specialist
Phoenix Sky Harbor International Airport Sky Train Stage 2 Environmental Assessment

Area of Potential Effect - Expansion Areas

**Proposed Action**
1. Construct Sky Train
2. Construct Third-Level Platform for Sky Train Entrance
3. Construct West Ground Transportation Center (WGTC) with Surface Parking
4. Construct Parking Facility or Mixed-Use Facility
5. Roadway Improvements
6. Relocate Ground Transportation (GT) Staging Area - Revised Location
7. Construct Central Utility Plant for WGTC
8. Sky Train Maintenance Facility Expansion and Wash Facility
9. Construct Three Propulsion Facilities along Sky Train Alignment
10. Power Options (A and B)

**Connected Actions**
9. Adjust Roadway Lane Markings
10. Bridge 25th Place
11. Demo Parking Offices
12. Demo Bus Maintenance Facility
13. Demo Sky Chefs Building
14. Demo GT Rest Area
15. Demo C&D Gate Areas of Terminal 2
16. Construct Stormwater Management Basins
17. New APS Line
18. Modify 44th Street Drainage

**Legend**
- Proposed Action
- Connected Action
- Airport Property Boundary
- Sky Train Alignment
- Roadway Improvements
- Existing Cargo Buildings
- Terminal 2 Demolition
- WGTC Facilities and Parking
- GT Staging Area
- Existing APS Line Demolition
- Proposed APS Line
- Note: *Reviewed under separate EA.

Sources: USDA NAIP Aerial (2015), City of Phoenix
Archaeology Assessment Result

Project Name: West Ground Transportation Staging Area          AV10000011

Project Location: Southwest of Sky Harbor Circle North & 24th Street

Project Sponsor: Aviation (Sarah Carter)

Review Agencies: City of Phoenix, SHPO, FAA

Survey   X Monitoring   Testing   Data Recovery

Comments:
Since this project has federal (FAA) involvement, it is a federal undertaking subject to Section 106 of the National Historic Preservation Act. This amended area of potential effects (APE) is located within AZ T:12:62(ASM) (Dutch Canal Ruin), a large prehistoric village that contains numerous human burials and within portions of AZ T:12:131(ASM) (the Canal Patrico System), a network of prehistoric canals. According to our records, archaeological testing has been conducted within this amended APE as part of a larger project, the results of which are documented in the following reports:

Greenwald, David H., Ed.  
Greenwald, David H., M. Zyniecki, and Dawn M. Greenwald Eds.  

The Greenwald 1994 & Greenwald et al. 1994 project identified two archaeological features within the current amended APE: the South Main Canal and Canal Barranca, both prehistoric canals.
Recommendations:

Due to the potential for encountering further archaeological features, the City of Phoenix Archaeology Office (CAO) recommends that archaeological monitoring should be conducted for ground-disturbing activities within the current amended APE. If previously unidentified archaeological resources or human remains are encountered during construction, ground-disturbing activities must cease within 10 meters of the discovery and the CAO must be contacted and allowed time to properly assess the discovery.

The FAA will need to consult with the Arizona State Historic Preservation Office in compliance with the Arizona State Historic Preservation Act or the National Historic Preservation Act, as appropriate. This consultation must be conducted prior to any ground-disturbing activities, and ideally as soon as possible in the planning process.

Reviewed By: April Carroll for
Laurene Montero, M.A.  Date: 10/20/2017
Attachment 7:

ACHP Letter to FAA on Section 106 Process

October 30, 2017
October 30, 2017

Ms. Dee Phan
Environmental Protection Specialist-PHX-612
Federal Aviation Administration
Western-Pacific Region, Airports Division
Phoenix Airports District Office
3800 N Central Avenue, Suite 1025, 10th Floor
Phoenix, AZ 85012

Ref: Stage 2 of the Proposed Sky Train Project at the Phoenix Sky Harbor International Airport
Phoenix, Maricopa County, Arizona

Dear Ms. Phan:

The Advisory Council on Historic Preservation (ACHP) has received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information provided, we have concluded that Appendix A, Criteria for Council Involvement in Reviewing Individual Section 106 Cases, of our regulations, “Protection of Historic Properties” (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and it is determined that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Arizona State Historic Preservation Officer (SHPO), and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA, and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the notification of adverse effect. If you have any questions or require further assistance, please contact Ms. Sarah Stokely at (202) 517-0224 or via email at sstokely@achp.gov.

Sincerely,

LaShavio Johnson
Historic Preservation Technician
Office of Federal Agency Programs
Attachment 8:

Memorandum of Agreement (MOA)

for the PHX Airport Development Program

2006
MEMORANDUM OF AGREEMENT
BETWEEN THE
FEDERAL AVIATION ADMINISTRATION,
ARIZONA STATE HISTORIC PRESERVATION OFFICER,
BUREAU OF RECLAMATION, SALT RIVER PROJECT
AND THE CITY OF PHOENIX
REGARDING THE
CITY OF PHOENIX AIRPORT DEVELOPMENT PROGRAM
AT PHOENIX SKY HARBOR INTERNATIONAL AIRPORT

WHEREAS, the City of Phoenix has requested that the Federal Aviation Administration (FAA), as the lead Federal agency, approve the City of Phoenix Aviation Department's (City) proposed Airport Development Program (ADP) and associated Airport Layout Plan (ALP) for Phoenix Sky Harbor International Airport; and

WHEREAS, the ADP consists of the demolition of Terminal 2 and other ancillary facilities, construction of a new 33-gate West Terminal and its associated facilities, modifications to the Terminal 4 N4 Concourse International gates, construction of crossfield Taxiways Uniform "U" and Victor "V", modifications to Sky Harbor Boulevard and construction of Stage 2 of the Automated People Mover (APM) consisting of Stage 2-East and Stage 2-West. (See Attachment 1); and

WHEREAS, the FAA is responsible for completing the requirements of Section 106 of the National Historic Preservation Act, 16 USC § 470 (NHPA) for this undertaking; and

WHEREAS, the FAA has consulted with the Arizona State Historic Preservation Officer (SHPO) and other interested parties pursuant to 36 CFR 800; and

WHEREAS, the FAA, in consultation with the SHPO, has established the Areas of Potential Effects (APE) for construction and visual impacts, as depicted on Attachment 2; and

WHEREAS, the FAA has consulted with the Advisory Council on Historic Preservation and provided the Council its adverse effect determination with specified documentation pursuant to the regulations for Protection of Historic Properties, Title 36, Code of Federal Regulations (CFR), Part 800.6(a)(1), which implement Section 106 of the National Historic Preservation Act (16 U.S.C. Section 470), and the Council chose not to participate in the consultations pursuant to 36 CFR 800.6(a)(1)(ii); and

WHEREAS, the proposed development may occur in several separate phases over a decade or longer; and

WHEREAS, the FAA, in consultation with the SHPO, determined that the implementation of the proposed undertaking could potentially affect eight historic properties listed in or eligible for listing in the National Register of Historic Places (National Register) (Attachment 3), as well as other historical and archaeological resources that might be discovered during project implementation; and

WHEREAS, the SHPO is authorized to advise and assist federal and state agencies in carrying out their historic preservation responsibilities and cooperate with these agencies under Arizona Revised Statutes § 41-511.04(D)(4); and
WHEREAS, the SHPO is authorized to enter into this Agreement in order to fulfill its role of advising and assisting federal agencies in carrying out their Section 106 responsibilities under the following federal statutes: Sections 101 and 106 of the National Historic Preservation Act of 1966, as amended, 16 U.S.C. Section 470f and pursuant to 36 CFR 800, regulations implementing Section 106, at 36 CFR 800.2(c)(1)(i) and 800.6(b); and

WHEREAS, the APM Stage 2-East would cross the Grand Canal which would require an easement. The Grand Canal is owned by the Bureau of Reclamation and managed by the Salt River Project. The FAA has invited the Bureau of Reclamation and the Salt River Project to be signatories to this Agreement; and

WHEREAS, the City is the project proponent and has primary responsibility for funding and implementing many provisions of this Agreement and ensures the City’s archaeological contractor holds an Archaeological Resources Protection Act (ARPA) permit from the Bureau of Reclamation for data recovery on federal land and therefore is a signatory to this Agreement; and

WHEREAS, the archaeological data recovery necessitated by the undertaking must be permitted by the Arizona State Museum pursuant to A.R.S. § 41-842; and

WHEREAS, the City of Phoenix Historic Preservation Officer and the City of Phoenix Archaeologist participated in the consultation process; and

WHEREAS, the FAA consulted with the National Park Service pursuant to 36 CFR 800.10(c) and invited that agency to be a participant in this Agreement as a representative of the Department of the Interior, but the National Park Service chose not to participate; and

WHEREAS, the Salt River Pima-Maricopa Indian Community (SRPMIC), Gila River Indian Community (GRIC), Fort McDowell Yavapai Nation, Hopi Tribe, Ak-Chin Indian Community, Yavapai-Prescott Indian Tribe and Tohono O’Odham Nation participated in the consultation process and have been invited to concur with this Agreement; and

NOW, THEREFORE, the FAA, the Bureau of Reclamation, Salt River Project, SHPO and City agree that upon signing this MOA, the FAA’s issuance of a Record of Decision approving the proposed ADP, and the City’s decision to proceed with the ADP, the FAA shall ensure that the following stipulations are implemented in order to take into account the effects of the undertaking on historic properties and archaeological resources.

STIPULATIONS

The FAA shall ensure that the following stipulations are implemented:

Stipulation 1. Treatment of Archaeological Properties

The FAA shall ensure that the City prepares an Archaeological Treatment Plan (ATP) to address potential adverse effects on archaeological resources. These areas include and will take into account that the development will occur over time in phased construction build-out.

The ATP will address known archaeological resources and potential unrecorded sites within the APE. Known archaeological resources within the APE include Dutch Canal Ruin [AZ T:12:62(ASM)], Pueblo Salado [AZ T:12:47(ASM)], Pueblo Grande [AZ U:9:1(ASM)] and sites AZ U:9:2(ASM) and AZ U:9:28(ASM) depicted within Attachment 4.

The proposed 33-gate West Terminal, crossfield taxiways, APM Stage 2 West, and reconfiguration of Sky Harbor Boulevard may affect the resources known as Dutch Canal Ruin [AZ T:12:62(ASM)] and Pueblo Salado [AZ T:12:47(ASM)]. The proposed APM Stage 2 East and
APM Maintenance, Control, and Storage Facility may affect the resource known as Pueblo Grande [AZ U:9:1(ASM)] and sites AZ U:9:2(ASM) and AZ U:9:28(ASM).

**Attachments 5 and 6** identify areas where there is a potential that other unrecorded Hohokam sites, canals and other historic-era sites could be found. The ATP shall include a strategy for archaeological testing and/or archaeological monitoring to identify buried archaeological resources within areas that could be affected by ground-disturbing demolition or construction activities. The ATP shall define a process for evaluating the National Register eligibility of any identified archaeological resources, assessing project effects, and designing and implementing mitigation measures, which are most likely to entail excavations and studies to recover and preserve archaeological data. The ATP shall also include a strategy for addressing unanticipated discoveries.

Because full development of the ADP will take several years to complete, treatment of archaeological resources may need to be phased to mesh with the implementation schedule. Once archaeological investigations are completed for each identified phase, the FAA shall authorize construction to proceed based on review and acceptance of preliminary reports documenting the accomplishment of each phase of the ATP.

The ATP shall be consistent with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*, as amended and annotated (http://www.cr.nps.gov/local-law/arch_stnds_0.htm); and the *City of Phoenix Guidelines for Archaeology*, 2004. The Archaeological Treatment Plan shall specify, at a minimum:

a) The property, properties, or portions of properties that are to be investigated;

b) Any property, properties, or portions of properties that will be destroyed without data recovery;

c) The research questions to be addressed, with an explanation of their relevance and importance;

d) The fieldwork and analytical methods to be used, with an explanation of their relevance to the research questions;

e) The methods to be used in data management and dissemination of data including a schedule;

f) The proposed disposition of recovered materials and records;

g) A proposed schedule for the submittal of preliminary, draft, and final plans and reports to FAA and consulting parties.

h) The FAA shall ensure that archaeological investigations are conducted under the direction of individuals who meet the Secretary of the Interior's professional qualification standards, and the ATP shall include the names and a summary of the professional experience of the individuals who will supervise such work.

i) The FAA shall ensure that all archaeological investigations are conducted in accordance with a permit issued by the Arizona State Museum pursuant to the Arizona Antiquities Act (Arizona Revised Statutes § 41-841 et seq.) and data recovery is conducted under terms of an ARPA permit from the Bureau of Reclamation.

j) The FAA shall ensure that all archaeological materials collected in accordance with the ATP (excluding any human remains and cultural objects that are discovered and repatriated in accordance with Stipulation 5) and associated documentation are curated
in accordance with regulations for *Curation of Federally-Owned and Administered Archaeological Collections*, 36 CFR 79. The FAA shall ensure that all archaeological materials discovered on federal land managed by the Bureau of Reclamation shall be curated at the Huhugam Heritage Center on the Gila River Indian Reservation. If human remains are discovered on federal land managed by the Bureau of Reclamation, that agency shall treat the human remains in accordance with the Native American Graves Protection and Repatriation Act and the Bureau of Reclamation Treatment Plan (*Attachment 7*).

**k)** The ATP or phases of the plan shall be reviewed and revised in accordance with Stipulation 5.

**Stipulation 2. Paul Coze Mural, The Phoenix**

The FAA, in consultation with the SHPO, has determined that implementation of the proposed undertaking would have no adverse effect upon *The Phoenix*, a three-panel, multimedia mural by Paul Coze. The City shall move the mural prior to demolition of Terminal 2 and display the three panels of the mural together in an appropriate public location on the Airport. The FAA shall ensure the City prepares a plan for moving the mural. The plan shall include provisions for photo-documenting the mural in place in Terminal 2, measures to minimize damage to the mural when it is moved, selection of a suitable public space on the airport for displaying the mural, a timely schedule for reinstalling the mural, documentation of the history of the mural, and public interpretation of the mural when it is again displayed. The plan shall be reviewed and revised in accordance with Stipulation 5.

**Stipulation 3. Pueblo Grande Ruin and Irrigation Sites National Historic Landmark**

The FAA, in consultation with the SHPO, has determined that implementation of the proposed undertaking would have no adverse affect on the Pueblo Grande Ruin and Irrigation Sites National Historic Landmark within the Pueblo Grande Museum and Archaeological Park. The FAA shall consult with the Director of the Pueblo Grande Museum and Archaeological Park, City of Phoenix Archaeologist, City of Phoenix City Historic Preservation Officer, SHPO, and National Park Service throughout the design process to ensure that a sensitive and compatible design will avoid adverse visual effect to Pueblo Grande Museum and Archaeological Park. The FAA shall review construction plans for the APM Stage 2-East and APM Maintenance Control and Storage Facility to determine whether there is potential for construction-induced ground vibration to damage the archaeological ruins of the Pueblo Grande Ruin and Irrigation Sites National Historic Landmark within the Pueblo Grande Museum and Archaeological Park. If warranted, a vibration-abatement and monitoring plan shall be prepared and implemented in accordance with Stipulation 5.

**Stipulation 4. Treatment of Human Remains and Cultural Objects**

The treatment of human remains and any cultural objects found on non-federal land shall follow the requirements and specifications contained in the City Burial Agreement. The FAA shall ensure that all archaeological materials discovered on federal land managed by the Bureau of Reclamation shall be curated at the Huhugam Heritage Center on the Gila River Indian Reservation. If human remains are discovered on federal land managed by the Bureau of Reclamation, that agency shall treat the human remains in accordance with the Native American Graves Protection and Repatriation Act and the Bureau of Reclamation Treatment Plan (*Attachment 7*).
Stipulation 5. Review, Comment, and Consultation

Plans and reports prepared in accordance with this Agreement shall be consistent with guidelines of the Arizona State Museum, SHPO, City Historic Preservation Officer, and City Archaeologist. As appropriate, the FAA shall coordinate preparation of draft documents prepared pursuant to this Agreement with the City Historic Preservation Officer, City Archaeologist, and Director of the Pueblo Grande Museum and Archaeological Park. The FAA shall submit draft documents to the SHPO and other participants in this Agreement for a thirty-day review period. The FAA in consultation with the signatories to this agreement shall consider any comments provided within thirty days, and request the City to revise reports as appropriate. The FAA shall provide the consulting parties with a copy of final reports.

Stipulation 6. Airport Development Program Modifications

As final designs of the various components of the ADP are prepared by the City, the FAA will review the results of the assessment of effects in consultation with the City Archaeologist and City Historic Preservation Officer. If design modifications expand the APE, the FAA shall ensure the City undertakes supplemental inventory to identify any historic properties in the expanded area of potential effects. The City shall provide the results of the review of final designs to the FAA. The FAA shall consult with the SHPO about the National Register-eligibility of those newly identified properties, about the effect of the ADP on any eligible properties, and about treatment to avoid, reduce, or mitigate any identified adverse effects.

Stipulation 7. Professional Qualifications

The FAA shall ensure that all historic preservation work carried out pursuant to this Agreement is carried out by or under the supervision of a person or persons meeting at a minimum the Secretary of the Interior’s Professional Qualifications Standards (36 CFR Part 61).

Stipulation 8. Arbitration

The parties agree to utilize any arbitration that is required under applicable court rules.

Stipulation 9. Conflict of Interest

This Agreement is subject to cancellation by the State under ARS § 38-511 if a person significantly involved in the Agreement on behalf of the State is an employee or consultant of any other party in the Agreement at any time while the Agreement or any extension of the Agreement is in effect, but no later than three years after its execution.

The SHPO may terminate this Agreement upon finding that an Arizona State Parks employee was significantly involved in the creation of this Agreement is, at any time the Agreement is in effect but no later than three years after its execution, an employee or consultant of any other party in the Agreement.

Stipulation 10. Equal Opportunity/Non-Discrimination

The Consulting Parties agree to comply with all applicable federal or state laws relating to equal opportunity and non-discrimination.

Stipulation 11. Non-Availability of Funding

This Agreement shall be subject to available funding and nothing in this Agreement shall bind the City, State or Federal agencies to expenditures in excess of funds authorized and appropriated for the purposes outlined in the Agreement.
Stipulation 12. Confidentiality

Maintaining confidentiality of certain historic information is allowed under Section 304 of the National Historic Preservation Act and A.R.S.39-125. Therefore, the nature and location of certain historic properties discussed in the Agreement shall be maintained per 36 CFR 800.11(c).

Stipulation 13. Dispute Resolution

Should any party to this Agreement or member of the public object within thirty-days to any actions proposed or carried out pursuant to this Agreement, the FAA shall consult with the objecting party to resolve the objection. The FAA shall notify the SHPO of any objection. If the FAA determines that the objection cannot be resolved, the FAA shall forward all documentation relevant to the dispute to the Council. Within thirty-days after receipt of all pertinent documentation, the Council will either:

a) Provide the FAA with recommendations, which the FAA will take into account in reaching a final decision regarding the dispute; or
b) Notify the FAA that it will comment pursuant to 36 CFR Part 800.7(c), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the FAA in accordance with 36 Part CFR 800.7(c)(4) with reference to the subject of the dispute.

c) Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; the FAA responsibility to carry out all actions under this Agreement that are not subject of the dispute will remain unchanged.

Stipulation 14. Amendment

Any of the signatories may request that MOA be amended according to 36 CFR 800.6(c)(7). Any amendment will be effective on the date an amended Agreement is signed by all signatories. The FAA will ensure a copy of any executed amended Agreement is filed with the Advisory Council.

Stipulation 15. Duration

The FAA, SHPO and the City shall review this Agreement in January every five years from the year of the Agreement’s execution to determine whether the Agreement needs to continue and whether any changes may be needed. The review and determinations may take place on a conference call or in a physical meeting as needed. Reviews of this MOA shall occur until the completion of the ADP.

Stipulation 16. Termination

In the event the terms of the MOA cannot be or are not being carried out, the signatories shall consult to seek amendment of the Agreement. If an agreement cannot be reached on an amendment, the FAA or the SHPO may terminate it pursuant to 36 CFR 800.6(c)(8). The FAA will either execute a new Memorandum of Agreement under 36 CFR 800.6(c)(1) or request and consider the comments of the Advisory Council for Historic Preservation pursuant to 36 CFR 800.7(a).
Execution of this Agreement, filing of the Agreement with the Council pursuant to 36 CFR 800.6(b)(1)(iv), and implementation of its terms is evidence that the FAA has taken into account the effects of the undertaking on historic properties protected under Section 106 of the National Historic Preservation Act and afforded the Council an opportunity to comment on the undertaking pursuant to that Act.

FEDERAL AVIATION ADMINISTRATION

By ___________________________ Date 1/13/06

Manager, Airports Division, Western-Pacific Region

ARIZONA STATE HISTORIC PRESERVATION OFFICE

By ___________________________ Date 1/23/06

Arizona State Historic Preservation Officer

BUREAU OF RECLAMATION

By ___________________________ Date 1/23/06

Manager, Phoenix Area Office

SALT RIVER PROJECT

By ___________________________ Date 1/23/06

Senior Principal Scientist

CITY OF PHOENIX, A MUNICIPAL CORPORATION

By ___________________________ Date 1/27/06

David Krietor, Aviation Director

ATTEST: ___________________________

City Clerk

APPROVED AS TO FORM: ___________________________

City Attorney

ACTING City Attorney
CONCUR:

FORT McDOWELL YAVAPAI NATION

By [Signature] Date 1-31-06

Title [Signature]
CONCUR:

YAVAPAI-PRESCOTT INDIAN TRIBE

Title  Director, Cultural Resource Dept.

By  Gregory P. Giasco  Date 2-13-06
### HISTORIC PROPERTIES SUBJECT TO POTENTIAL ADVERSE EFFECTS

<table>
<thead>
<tr>
<th>Site Name / Number</th>
<th>Location</th>
<th>Description</th>
<th>National Register Status</th>
<th>Section 106 Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Pueblo Salado</td>
<td>Southwest part of Airport</td>
<td>Habitation site, Classic period, pit houses, adobe compounds, field houses,</td>
<td>Eligible, Criterion D</td>
<td>Stage 2-West APM may disturb unstudied part of site, adverse effect¹</td>
</tr>
<tr>
<td>AZ T:12:47(ASM)</td>
<td></td>
<td>canals, pits, burials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Dutch Canal Ruin</td>
<td>Northwest part of Airport</td>
<td>Habitation site, pre-Classic and Classic periods, pit houses, canals, pits,</td>
<td>Eligible, Criterion D</td>
<td>Sky Harbor Boulevard realignment may disturb unstudied part of site, adverse effect¹</td>
</tr>
<tr>
<td>AZ T:12:62(ASM)</td>
<td></td>
<td>burial areas, canals, pits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Pueblo Grande</td>
<td>Northeast of Airport</td>
<td>Village with many habitation and burial areas, canals, pits</td>
<td>Eligible, Criterion D</td>
<td>Stage 2-East APM may disturb unstudied part of site, adverse effect¹</td>
</tr>
<tr>
<td>AZ U:9:1(ASM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(outside park)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Pueblo Grande</td>
<td>4619 E. Washington St.</td>
<td>Museum and park interpret platform and ballcourt of Pueblo Grande site</td>
<td>Listed, Criteria A and</td>
<td>Elevated section of Stage 2-East APM and APM maintenance and control facility would be within 300 to 800 feet of park boundary, potential adverse visual effect²</td>
</tr>
<tr>
<td>Museum and</td>
<td></td>
<td></td>
<td>D; National Historic</td>
<td></td>
</tr>
<tr>
<td>Archaeological</td>
<td></td>
<td></td>
<td>Landmark</td>
<td></td>
</tr>
<tr>
<td>Park AZ U:9:1(ASM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 AZ U:9:2(ASM)</td>
<td>Northeast of Airport</td>
<td>11 Hohokam canals, Sedentary and Classic periods, 1884 Joint Head Canal</td>
<td>Eligible, Criterion D</td>
<td>Stage 2-East APM may disturb buried canal remnants that extend west of site, adverse effect¹</td>
</tr>
<tr>
<td>6 AZ U:9:28(ASM)</td>
<td>Northeast of Airport</td>
<td>8 Hohokam canals, Sedentary and Classic periods, 2 activity areas, 3</td>
<td>Data recovery studies</td>
<td>Stage 2-East may disturb buried canal remnants that extend west of site, adverse ¹</td>
</tr>
<tr>
<td></td>
<td></td>
<td>historical trash pits</td>
<td>completed</td>
<td>effect</td>
</tr>
<tr>
<td>7 Hohokam Canal</td>
<td>Airport and vicinity</td>
<td>Irrigation canals</td>
<td>Intact segments</td>
<td>Construction may disturb buried canal remnants, adverse effect¹</td>
</tr>
<tr>
<td>Systems 2 and 10</td>
<td></td>
<td></td>
<td>eligible, Criterion D</td>
<td></td>
</tr>
<tr>
<td>8 Paul Coze Mural,</td>
<td>2908 East Sky Harbor Blvd</td>
<td>Mural by Paul Coze installed in Terminal 2 when it was built</td>
<td>Eligible, Criterion C</td>
<td>To be relocated, no adverse effect if photo documented, moved carefully, and publicly displayed and interpreted</td>
</tr>
<tr>
<td>The Phoenix</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Traditional cultural concerns about any human remains, funerary objects, sacred objects, and objects of cultural patrimony will be addressed in accordance with The City Burial Agreement, if remains are found on non-Federal land, or in accordance with Attachment 7 if found on Federal land managed by the Bureau of Reclamation.

² Phoenix Aviation Department will work to avoid adverse visual effects through sensitive design of APM facilities. No potential for damage from construction vibrations was identified, but will be reassessed after construction techniques are determined.
Attachment 7

The following burial treatment plan will be used in the unlikely event that prehistoric Native American burials are found on Federal land managed by the Bureau of Reclamation:

1. All excavations will be conducted by professional archaeologists and executed with respect.

2. Photographs will be taken but only for archival purposes. They will not be published or for public use.

3. Human remains and associated cultural objects will be transported to an approved laboratory and analyzed in that location.

4. The laboratory will have appropriate security equipment and procedures.

5. Analysis will be nondestructive – skeletal material will be dry brushed, and objects will be cleaned using agents that will not deteriorate or harm them.

6. Analysis will be completed within 60 days after completion of fieldwork.

7. A complete inventory of Native American human remains and cultural objects will be prepared.

8. A final report will be completed within 90 days after fieldwork has ended.

9. Disposition of Native American human remains and associated cultural objects will be completed within 30 days after completion of the final report.

Before any burial is removed, Reclamation archaeologists will be notified, and the above treatment plan implemented. Disposition of the human remains and associated funerary items will be treated in accordance with the Native American Graves Protection and Repatriation Act.