

# Archaeological Investigations of an Architectural Feature at Trueheart Ranch (41BX1816), Bexar County, Texas



by  
Kristi M. Ulrich

*Prepared for:*  
Los Compadres de San Antonio Missions  
*and*  
San Antonio Missions National Historical Park



*Prepared by:*  
Center for Archaeological Research  
The University of Texas at San Antonio  
Technical Report, No. 18

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## **Abstract:**

In May of 2009, The University of Texas at San Antonio-Center for Archaeological Research (UTSA-CAR) conducted archaeological investigations at the Trueheart Ranch. A stone arch feature and rock alignments were recorded on the premises. The goal of the San Antonio Missions National Historical Park was determine if the features were of the Spanish Colonial Period and warranted inclusion in the park's holdings. Two 1-x-2 meter and one 1-x-0.5 meter units were hand excavated by CAR staff. In addition, three trenches were hand excavated to investigate rock alignments noted on the surface. Artifacts collected from these investigations and all project related documentation are curated at the CAR laboratory. The archway was recorded as site 41BX1816. Our assessment is that the arch and associated rock alignments date to the later half of the nineteenth century.

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The author would like to thank Cyndi Dickey and Steve Smith, the field crew, which worked extremely hard to accomplish the tasks we set out to finish. Bruce Moses and Christopher Castillo worked with the map data from the TDS. Bruce Moses also served as technical editor and prepared the figures and maps for the report and site form submission. Dr. Steve A. Tomka served as Principal Investigator.

## The Stone Arch at Truehart Ranch

### Introduction

The Los Compadres de San Antonio Missions National Historical Park organization contracted the Center for Archaeological Research of The University of Texas at San Antonio to investigate a stone-built arch that was identified on the Truehart Ranch. The feature is reminiscent of the stone arches of the Espada Aqueduct and preliminary inspection suggests that it was built of local stone and mortar that contains no Portland cement. Initial indications suggest that the feature may date to the historic period (mid-19th century) and may have been built by the previous landowner. However, the similarity of the feature to Spanish Colonial arches and the absence of cement in the mortar may potentially indicate a Colonial Period temporal affiliation.

The goals of the investigations included: 1) define the architectural characteristics of the feature and other stone alignments in the vicinity of the arch; 2) if feasible, establish the age of the feature through artifacts collected during excavations; and 3) compare mortar samples from the Spanish Aqueduct at Mission Espada with mortar samples from the arch feature.

### Environmental Setting

The Truehart Ranch is located in south-central Bexar County along the banks of the San Antonio River (Figure 1). The architectural feature is located on a terrace just above the river, at the base of a series of ravines. The ravines channel water during rain episodes from higher elevations to the channel of the San Antonio River located approximately 50 meters from the archway. The property owner indicated that his information of the property allowed him to believe that there was a spring located along the ravine that may have provided a continuous flow of water. The area potentially was a low-lying perennially wet area that used the archway to facilitate travel to and from the house located to the east.

The soils of the area are identified as Gillied land-Sunev complex, 3-2- percent slopes (Web Soil Survey), and consist of a clay loam with pockets of sand interspersed throughout the stratigraphy. The area immediately to the north west of the archway, closer to the river, exhibits exposed portions of

white sand. Calcium carbonate flecks were noted throughout the excavation of the units.

Much of the project contained dense thickets of oak, juniper, and thorny brush. Along the river bank were large cypress and pecan trees. Mustang grape, cat claw, and poison oak were very prominent in the area. Animals common to the area include domestic cow, feral pig, white-tailed deer, skunk, opossum, raccoon, and a variety of birds.

### Historical Background

The property on which the feature sits (Figure 2) was acquired by James L. Trueheart in 1848. On February 15, 1848, Trueheart married Petra Margarita de la Garza, and by marriage, he obtained rights to her familial property (Copeland 2009). Petra de la Garza was the daughter of José Antonio de la Garza. José Antonio de la Garza was an early landowner in San Antonio. Garza received permission from the Spanish governor to coin money in Texas. He became the first person in Texas to produce coins. In 1824, Garza received a title to two leagues of land between the San Antonio and Medina Rivers. In 1834, he purchased Mission Espada,

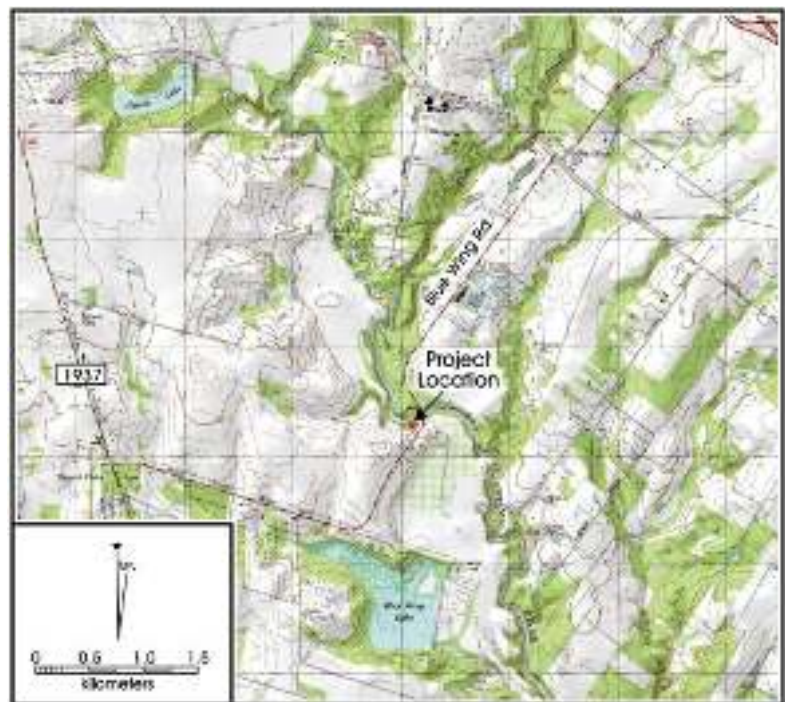


Figure 1. Location of the project area on the Southtown, Tx. 7.5 Minute Series USGS Quadrangle Map.





Figure 2. John D. Rullman's 1897 map showing the project location in relationship to the Trueheart property and the San Antonio River.

which created some turmoil in the community. Garza had a total of 7 children during his two marriages (Orozco 2009). His landholdings were divided between his children.

James Trueheart was a Virginian that moved to Texas in 1838. When he settled in San Antonio, Trueheart became a clerk of the court in 1841. The next year, Mexican troops incarcerated Trueheart and others at the Perote Prison. During his incarceration, Trueheart kept a diary which was later edited by Frederick Chabot. On returning to San Antonio in 1844, Trueheart once again served as

district clerk. In 1848, he became the county clerk. After marrying Petra de la Garza in 1848, Trueheart worked on the property he obtained in the marriage (Figure 2). He improved the land, constructed an irrigation system to water the croplands, and allowed a number of families to settle on portions of the property on small farm plots. The 1897 Rullman map depicted in Figure 2 shows a drainage labeled as "Bexar Irrigation and Canal Company".

Located on the Trueheart property on the opposite side of Blue Wing Road from the stone feature is *Casa Vieja*, which

is the house that Truehart built in 1848. The structure is built with local limestone, plastered on the interior, and stuccoed on the exterior.

The stone archway appears to have also been constructed of native limestone (Figure 3 and 4). HABS documentation completed in the 1935 by Charles Bertrand reports that the archway is contemporaneous with the construction of the house and was used by the builders of the house to transport lime during the construction of the house (HABS 2009). Photographs of the arch were taken in 1936 by Arthur W. Stewart to be included in the HABS documentation.

### **Fieldwork Methodology**

Over the course of four days, CAR staff conducted archaeological investigations in the form of hand-excavated units and trenches. As outlined in the Scope of Work, the staff of the Center set out to accomplish several tasks. CAR excavated two 1-x-2 meter units (Figure 5). One was located at the base of the feature to determine the depth of the feature and method of construction. The other unit was placed directly on top of the archway to uncover the surface of the arch and define any aspects of construction that may help determine its use. San Antonio Missions National Historical Park (SAMNHP) personnel hypothesized that the archway could have been constructed for several different uses. First, it was speculated that the archway was part of an aqueduct possibly constructed during the Spanish Colonial Period. Another thought was that it was a crossing in a road system. If it was part of a road, CAR felt that evidence such as wheel ruts, cobble lining, or compacted soil should be revealed. In addition to these units, a 1-x-0.5 meter unit was excavated to the south of the archway to investigate a rock alignment and determine its relationship to the arch. Finally, CAR proposed to excavate up to three trenches to examine the areas on either sides of the arch.

The trenches were excavated using shovels and were positioned on either side of the arch in matrix that may have been covering extension of the feature on either side of the mouth of the ravine (Figure 5). The purpose of these trenches was to determine if the arch is connected to any other rock walls leading to

and from it in either direction. Such additional construction may help more accurately determine its use. An additional trench was excavated to expose the base of the retaining wall located on the southeast side of the arch. Finally, samples of the mortar from the arch were collected to conduct SEM-EDS analysis to compare to mortar collected by SAMNHP personnel from the Espada Aqueduct.

The units were excavated in arbitrary 20 cm levels, with all matrix screened through a ¼-inch wire mesh screen. Collected



Figure 3. *East face of archway.*



Figure 4. *West face of archway.*

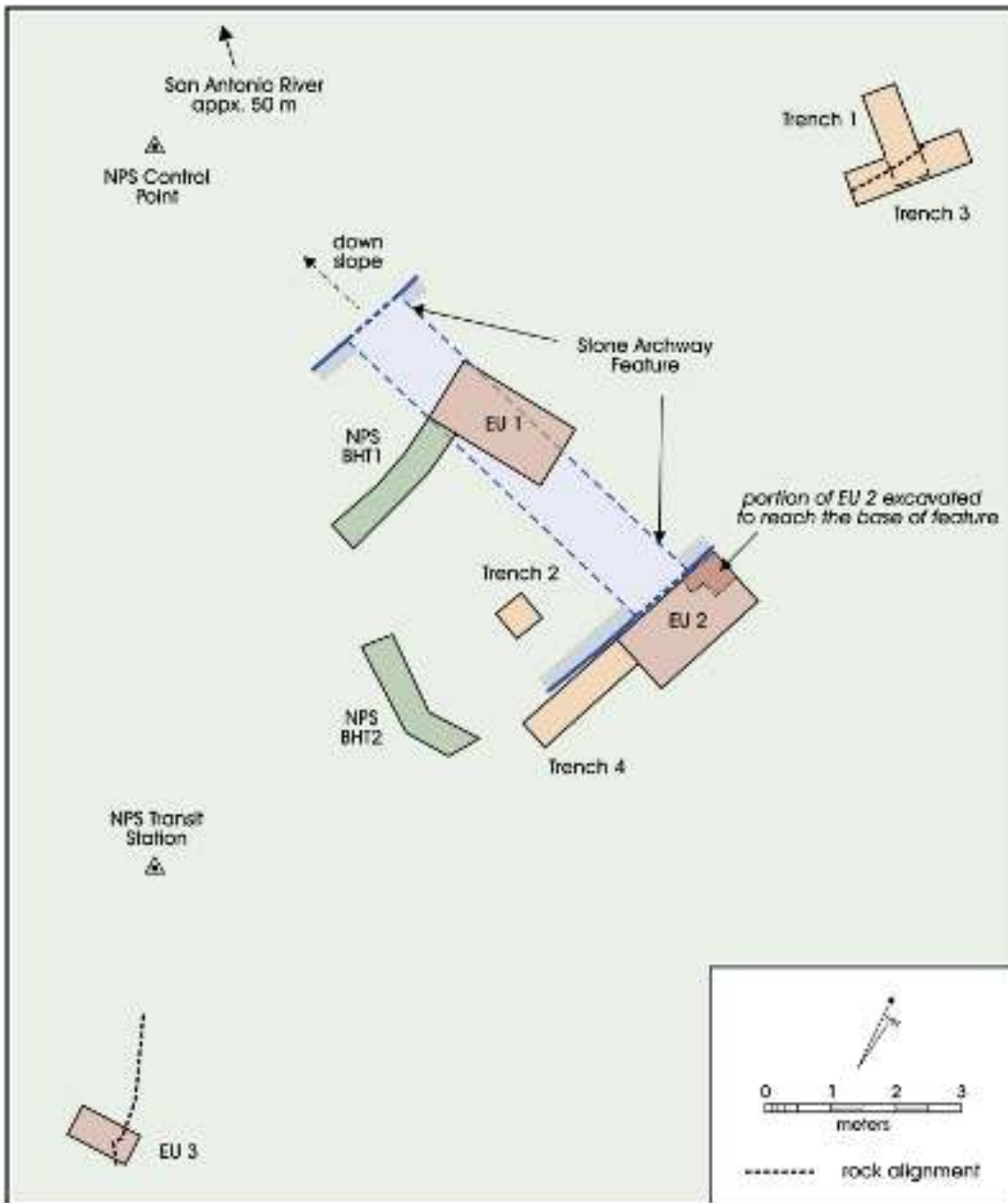


Figure 5. Map of the site with the location of excavation units and trenches.

artifacts were bagged with appropriate provenience for laboratory processing, analysis, and curation. Appropriate unit/level forms were completed for each unit, and materials associated with each unit and level were designated a field sack number. The trenches were excavated by hand, though the matrix was not screened.

### Laboratory Methods

All cultural materials and records obtained and generated during the project were prepared in accordance with federal regulation 36 CFR part 79, and THC requirements for State

Held-in-Trust collections. Additionally, the materials were curated in accordance with current guidelines of the CAR. Artifacts processed in the CAR laboratory were washed, air-dried, and stored in 4 mil zip locking archival-quality bags. Materials needing extra support were double-bagged. Acid-free labels were placed in all artifact bags. Each laser printer generated label contained provenience information and a corresponding lot number. Selected artifacts were labeled with permanent ink over a clear coat of acrylic and covered by another acrylic coat. Artifacts have been separated by class and stored in acid-free boxes identified with standard tags. Field notes, forms, photographs,

and drawings were placed in labeled archival folders. Photographs, slides, and negatives were labeled with archivally appropriate materials and placed in archival-quality sleeves. Digital photographs were printed on acid-free paper, labeled with archivally appropriate materials, and placed in archival-quality sleeves. All field forms were completed with pencil. Any soiled forms were placed in archival quality page protectors. Ink-jet produced maps; illustrations, etc. were also placed in archival quality page protectors to provide against accidental smearing due to moisture. All artifacts are permanently curated at the CAR laboratory.

### Results of Field Investigations

Three excavation units and three trenches were excavated during the course of the project. In addition to these, a trench was excavated with a shovel near the edge of the retaining wall. The units were excavated in 20 cm levels, with the matrix being screened through a ¼ inch wire mesh.

Excavation Unit (EU) 1 was placed on top of the arch. Each level was excavated in arbitrary 20 cm levels. The purpose of this unit was to determine if the archway was in fact an aqueduct or to locate wheel ruts that would indicate traffic across the top of the feature. The EU was excavated to a final depth of 143 cm below datum (cmbd) in the southeast corner (Figure 6).

Level 1 (0-20 cmbd) was characterized by a sandy silt. A few fragments of burned limestone were encountered during the excavation of the level, but no cultural material was noted. Level 2 (20-40 cmbd) exhibited a change in the matrix to a sandy clay with few pebbles and some carbonate flecking. The matrix was more compact than the previous level. Cultural material encountered included bone fragments and debitage (Table 1). Level 3 (40-60 cmbd) continued to have a compact sandy clay matrix with carbonate flecks. Cultural material encountered included debitage, burned rock, burned limestone, mortar, plaster, and a metal fragment. Level 4 (60-80 cmbd) continued to exhibit similar sandy clay

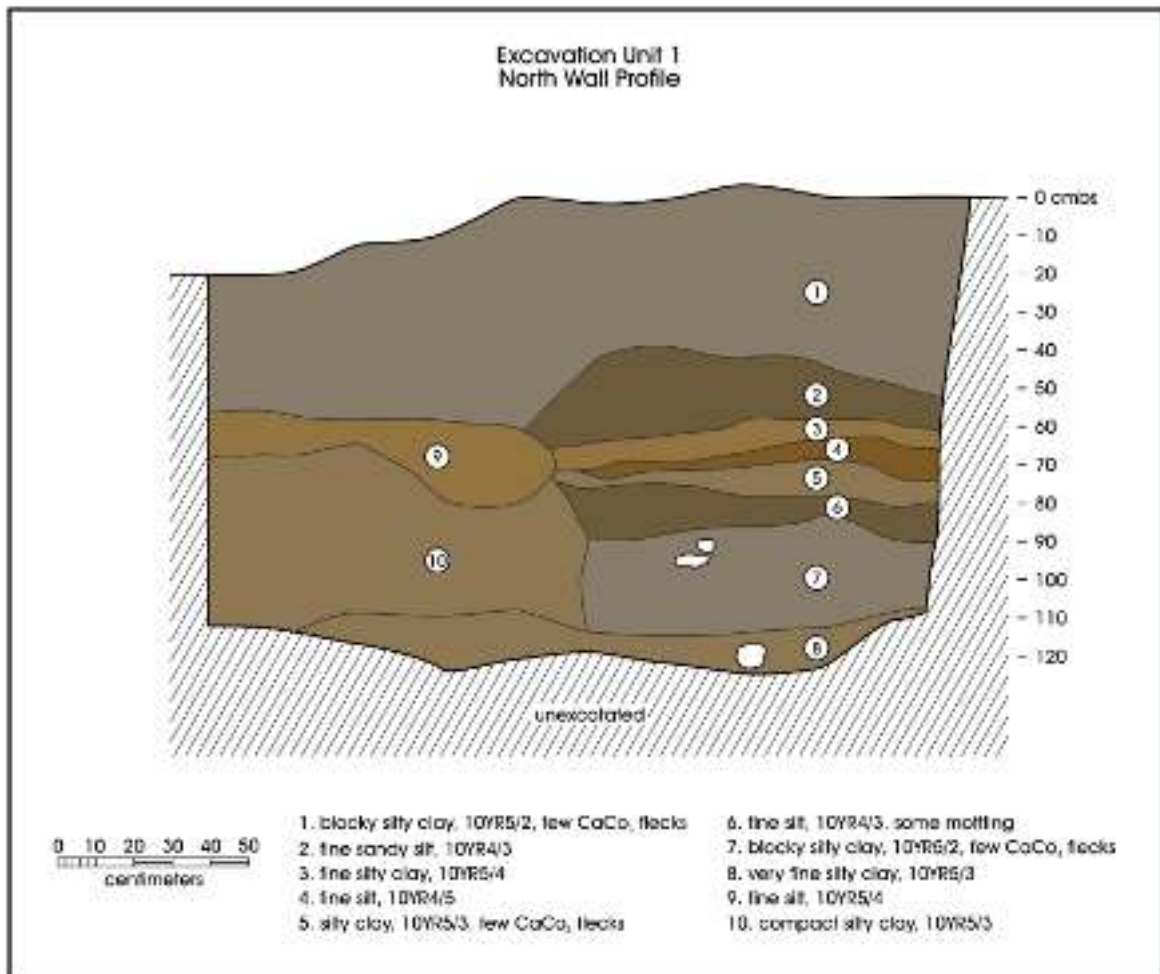


Figure 6. Profile of the east wall of Excavation Unit 1

Table 1. Artifacts Recovered from Excavation Unit 1.

Unit	Level	Depth (cmbd)	Data	Bone	Burned Rock	Brick	Burned Limestone	Concrete	Mortar	Other	Plaster	Debitage	Scrap Metal	Total	
1	2	20-40	Count									2		2	
			Wt (g)	0.8											0.8
	3	40-60	Count		6		2		1		1	2	1	13	
			Wt (g)	25.7											25.7
	4	60-80	Count			1				2		3		6	
			Wt (g)	21.6											21.6
	5	80-100	Count		1		1				1	3		6	
			Wt (g)	21.6											21.6
	6	100-120	Count					1	1						2
			Wt (g)	75.8											75.8
	Total Count					7	1	3	1	2	2	2	10	1	29
	Total Weight (g)				123.9										123.9

matrix, though a change was noted in the southern portion of the unit between 70-80 cmbd. Overall the soil appears to be compact, though a few pockets of softer matrix were encountered. Excavation of this level produced bone fragments, debitage, a brick fragment, and mortar and plaster (Table 1). Carbonate flecks were also noted in this level. Level 5 (80-100 cmbd) exhibited a variation of soil colors in the southern portion of the unit. Overall, the matrix appears to remain compact, though a shift to a sandy silt was noted. Cultural materials encountered included debitage, burned rock, burned limestone and lime. Charcoal and carbonate flecks were observed throughout the level. Level 6 (100-143 cmbd) initially was to be excavated to 120 cmbd. Due to the need to uncover the top of the arch, the level was excavated below this depth to fully expose the top of the archway. The arch was first encountered in the northwest corner of the unit at 125 cmbd. The lowest elevation at which the archway was uncovered was in the southeast corner at 143 cmbd (Figure 7). The only cultural material recovered was a bone fragment. The soil encountered was a compacted silty clay. Roots averaging approximately 4 cm in diameter were encountered just above the arch.

Excavation Unit 2 was located at the base of the arch on the eastern side of the feature. Few artifacts were encountered in this unit (Table 2). The EU initially started as a 1-x-2 meter unit, but its size was reduced shortly after the excavation of the second level to pursue

the base of the archway (Figure 8). The soil was fairly compact, silty clay with leaf litter in Level 1 (0-20 cmbd). One small piece of black plastic was noted in this level. Level 2 (20-40) continued to exhibit compact sandy clay. A piece of modern brown glass was encountered that appeared to have come from a beer bottle. The glass fragment was not collected. In addition, one piece of mussel shell was noted within the level. Level 3 (40-60 cmbd) continued to exhibit a silty clay, though the matrix appeared to be slightly blocky in this level. More gravel also was noted. Cultural material collected from Level 3 included a fragment of barbed wire, brown glass fragment, a ceramic bathroom tile, and metal can fragments. Excavations in Level 4 (60-80 cmbd) noted an increase in the density



Figure 7. Excavation Unit 1 with the top of the archway uncovered.

Table 2. Artifacts Recovered from Excavation Unit 2.

Unit	Level	Depth (cmbd)	Construction Tile	Brown Glass	Clear Glass	Scrap Metal	Stoneware	Total
2	3	40-60	1	1		5		7
	6	100-120			1			1
	7	120-140					1	1
Total Count			1	1	1	5	1	9

of gravels. The matrix remained a blocky, silty clay. The level exhibited charcoal flecks. No cultural material was encountered. Though the profile in Figure 8 terminates at 80

cmbd, excavation of a small portion of the unit continued to uncover the base of the stone archway. Level 5 (80-100 cmbd) experienced a change in the soil to a sandy clay. Gravels remained consistent with the previous level. The soil was increasingly compacted. One fragment of metal was noted in this level. Level 6 (100-120 cmbd) exhibited a soil change to a less blocky sandy clay. There was a decrease in the density of gravels throughout the level. Larger limestone rocks were noted in the matrix close to the archway. One fragment of patinated glass was recovered from the excavation of this level. Excavation of Level 7 (120-140 cmbd) encountered a hard silty clay with an increase in the density of gravels with some as large as 4 cm in diameter. The soil was lighter in color than the previous level and appeared to have consisted of less clay. Large stones were located abutting the archway in the northern portion of the unit. The base of a stoneware

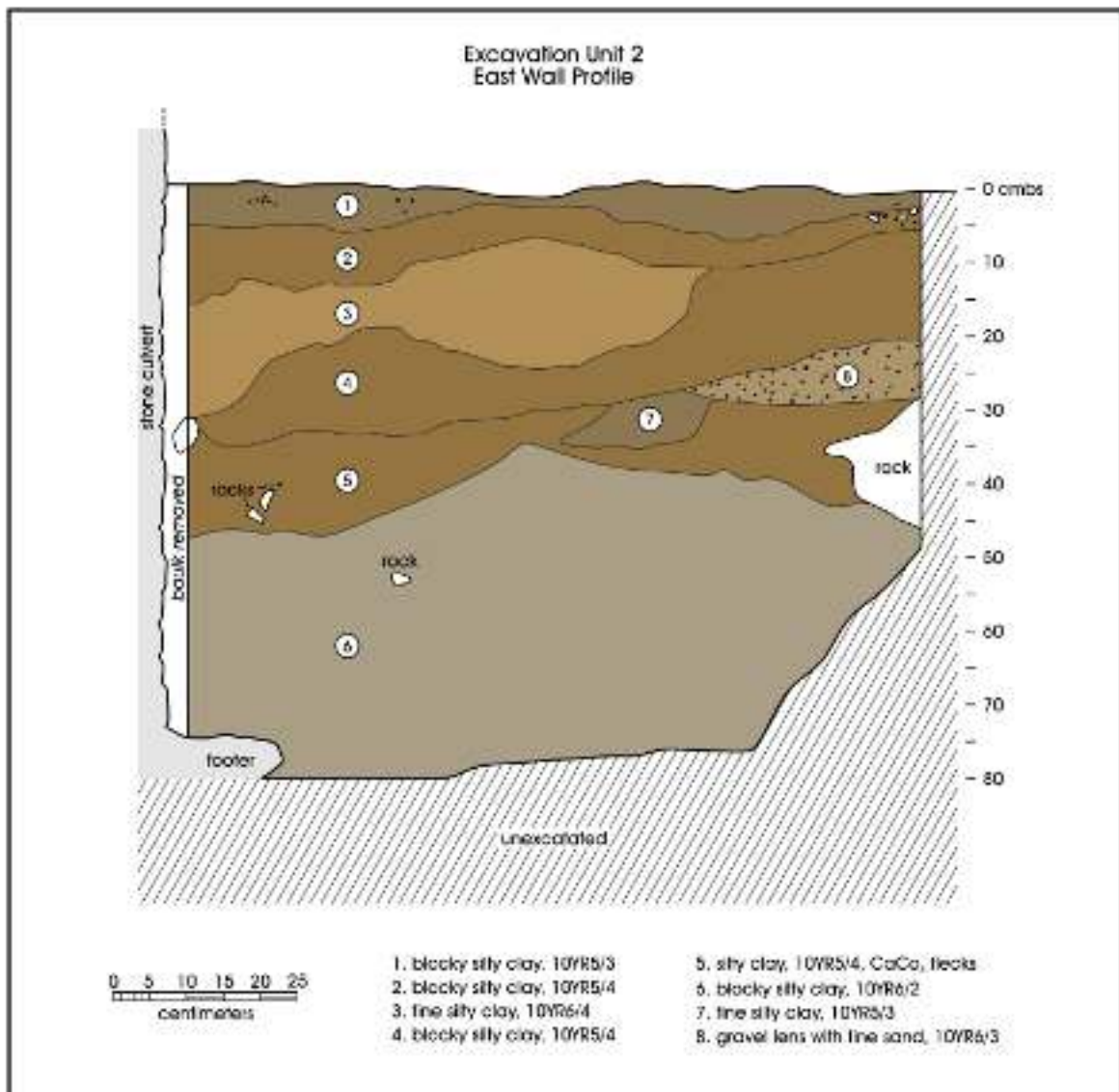


Figure 8. Profile of the north wall of Excavation Unit 2.

vessel was recovered during the excavation of this level. Excavation of this unit was terminated when the base of the archways was located at 150 cm below datum. The arch appears to have been built on a limestone footer (Figure 9). Additional soil to the east of the unit was removed to get a



Figure 9. *Base of the archway in Excavation Unit 2.*

better understanding of the construction of the feature. The base of the archway feature was exposed at 150 cmbd.

Excavation Unit 3 was located southwest of the archway and to straddle the upright stones that were exposed on the surface. The unit was 1-x-0.5 meters. The first few centimeters excavated in the unit consisted of sandy silt that quickly became compacted. Carbonate nodules were noted throughout the level. The top portions of the stones were fully exposed during the excavation of Level 1 (0-20 cmbd). A yellowish mortar was noted between the two stones that resembles the mortar in the archway. One metal wire fragment was recovered during the excavation of Level 1 (Table 2). Level 2 (20-40 cmbd) exposed more of the stones. The stones appear to be leaning to the west, possibly due to flooding episodes that would have washed water over the path. The soil continued to be compact with carbonate flecks throughout. Along the base of the stones, an orange, sandy clay was noted with a heavy density of gravels. The orange soil was not consistent along the stones, but appeared in pockets. No cultural materials were encountered during the excavation of Level 2. Level 3 (40-60 cmbd) was excavated to reveal the base of the stones. The stones appeared to be only one course deep, the base of the stones was revealed at 55 cmbd (Figure 10). River gravels were noted against the base of the stones, but not in the remainder of the unit. No cultural material

was encountered in this level. The unit excavation was terminated at 60 cmbd.

Two trenches (T1 and T3) were excavated northeast of the archway in an area believed to be in the pathway of the possible road or aqueduct. These trenches were excavated by hand, and the matrix was not screened. Trench 1 was excavated east to west. Trench 3 was perpendicular to Trench 1, running north to south. Trench 1 was excavated to a depth of 1 meter below surface. No cultural material was noted during the excavation. In the eastern portion of the trench two stones were observed that appeared to be in line. Trench 3 was excavated by hand to determine if there was a rock alignment. The alignment continued in a north-south direction (Figure 11). The alignment consisted mainly of limestone, but a few fragments of sandstone also were noted. The top of the alignment was approximately 20 cmbd, and appears to have extended to 50 cmbd. The alignment was only one stone wide and one course thick. No mortar was noted between the stones. No cultural material was encountered in Trench 3.

An additional trench (T2) was excavated above the archway. This trench was 0.5-x-0.5 meters



Figure 10. *Excavation Unit 3 showing the upright stones.*



Figure 11. West wall profile of Trench 1 and the rock alignment in Trench 3.

adjacent to a rock alignment. The matrix was not screened and the unit was excavated in 20 cm levels below surface (bs). The soil was removed from the top of the wall next to the archway. In Level 1 (0-20 cmbs), the top of the wall was exposed and revealed that a course of upright stones were set abutting the flat stones of the wall (Figure 12). Excavation in the northern portion of Trench 2 revealed no stones. Level 2 (20-40 cmbs) exposed the base of the upright stones. No other stones were noted underneath, and none extended further to the north (Figure 12). The trench was not located right up against the retaining wall. It is possible that behind the upright stones the retaining wall would have been encountered. No cultural material was encountered during the excavation of Trench 2. It is not clear whether this stone alignment continued to the edge of the arch because the area was not excavated.

To expose the extent of the retaining wall, archaeologists used shovels and a pick to remove the soil and find the edge of the feature (Figure 13). This trench was identified as Trench 4. The retaining wall may have acted as protection during flooding episodes. The wall is one course thick, and extended to a maximum depth of approximately 130 cmbs. The base of the retaining wall was sitting on soil rather than large footing stones such as those under the arch (Figure 13). The end of the wall protruded to the south approximately 2 meters from the arch. It appeared that there was possibly a second arch, but further excavation revealed that the depth of the wall decreased as it moved to the south.

In addition to the areas excavated by CAR staff, NPS brought out a mini-excavator to trench in areas of interest. NPS-BHT 1 began at the south wall of Excavation Unit 1 and ran to the south (Figure 5). The trench was approximately one bucket wide (50 cm) and extended approximately two meters to the southwest (Figure 14). The trench removed a portion of EU 1's south wall. It was excavated to see if a second arch was located in the vicinity. The trench revealed that there was no second arch and that the arch was a lone standing feature. The exterior edge of the arch was uncovered and followed the curve of the arch to the base of the feature (Figure 14). There was no evidence suggesting that the feature was built to serve as an aqueduct.

A second trench excavated by the NPS mini-excavator (NPS-BHT 2) was located to the south of Trench 2 (Figure 5). This trench was excavated to determine if the retaining wall adjoining the southern end of the arch continued past the exposed portion.



Figure 12. Stacked stones in Trench 2.





Figure 13. *Base of the retaining wall along the north face of the arch.*



Figure 14. *NPS BHT 1, looking southwest.*

Trenching revealed that no other portion of the feature was located to the west of the arch.

### Results of Scanning Electron Microscopy

The SEM-EDS analysis of the two mortar samples revealed that both samples contained the same ten minerals (Table 3 and 4).

Table 3. Elemental Composition of Mortar from Espada Aqueduct

Element	Intensity (c/s)	Error (s-sigma)	Concentration
C	2.78	0.431	2.785
O	8.16	0.738	4.93
Mg	54.23	1.901	7.452
Al	71.54	2.184	9.846
Si	242.66	4.022	34.425
K	4.88	0.571	0.858
Ca	117.31	2.796	22.194
Ti	1.02	0.261	0.27
Fe	10.3	0.829	4.848
Te	13.62	0.953	12.391

Table 4. Elemental Composition of Mortar from Trueheart Arch

Element	Intensity (c/s)	Error (s-sigma)	Concentration
C	5.3	0.595	2.283
O	7.47	0.706	4.389
Mg	6.07	0.636	0.629
Al	79.71	2.305	7.559
Si	206.03	3.706	19.538
K	12.62	0.917	1.38
Ca	379.08	5.027	47.849
Ti	1.15	0.277	0.216
Fe	10.01	0.817	3.25
Te	21.07	1.185	12.906

Therefore, in terms of broad constituent elements, the two samples are very similar. However, the two samples different in terms of two criteria. First, the microscopic examination of the structure of the mortars indicates that the sample derived from the Mission Espada Aqueduct is coarser than the sample from the arch (Figure 15 and 16). Typically, the older the mortar is, the less likely that it is refined whereas, the more recent it is, the more likely that it is factory-refined.

Second, the Espada mortar sample contained high proportion (34%) of Silica (Si) by weight and lower proportions (22% of Calcium (Ca) by weight (Table 3 and 4). The silica is derived from the sand and the calcium from the lime constituent of the mortar. In contrast, the mortar sample from the arch contained

lower proportions of Silica (19%) and higher proportions of Calcium (47%). No sample of Portland Cement was analyzed using the SEM-EDS, but visual inspection of the samples showed that neither contained Portland Cement. In summary, the two mortar samples are distinct on two of the three criteria they were compared on. However, neither criterion helps establish the age of the arch feature.

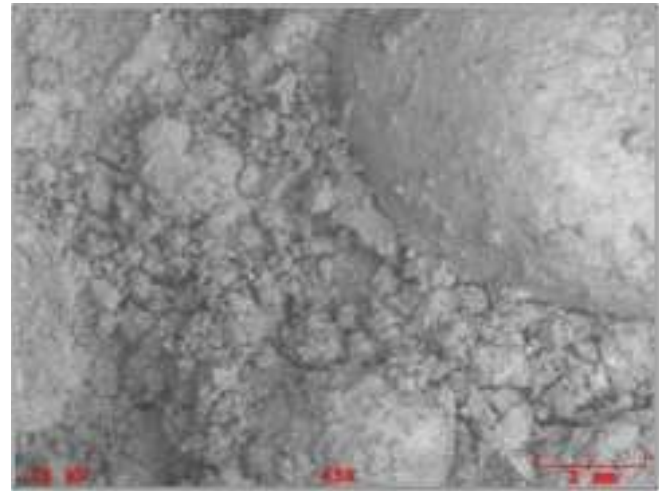


Figure 15. Scanning electron micrograph of mortar from Espada Aqueduct.

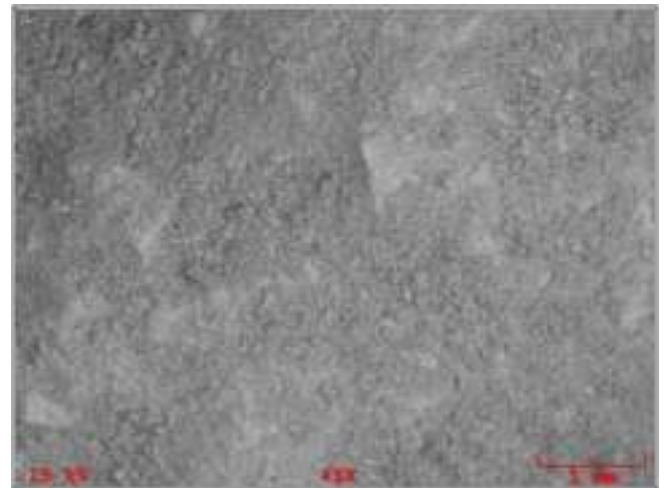


Figure 16. Scanning electron micrograph of mortar from Trueheart Arch.

### Summary of Findings

The investigations of the arch feature and the rock alignments nearby indicate that the arch represents a massive investment in labor potentially suggesting that it served other functions besides the channeling of flood-waters. Excavations of the units and trenches revealed that the archway, though massive, consists of a single arch. In addition, though the arch appears

to have been delineated by a line of upright stones, these stones would not be adequate to act as the sides of an aqueduct. The highly compact soils deposited both on top of and on both sides of the arch appear to be the only evidence present that may indicate the purpose of the archway. The compactness of the deposits may suggest either that these deposits were artificially compacted to reduce erosion or compacted by foot-traffic across the area, or both. A spring was located southeast of the archway which may have created a marshy area that needed a way to cross. The archway may have provided the crossing.

The rock alignments on both sides of the arch suggest that they may have served to line a path leading to and from the arch, or potentially to channel slope wash from higher ground into the basin behind the arch. The stones lining the path differ from one side of the feature to the next. The southern rock alignment appears to have flat tabular limestone rocks placed on edge. Along the northern side of the archway, the alignment consists of stacked cobbles. Also, the stones on this side of the archway consist of both limestone and sandstone. Potentially, the stones may have acted as a way to retard the erosion process during flooding episodes.

The retaining wall adjoining the southern edge of the arch was constructed at the same time as the arch and is structurally integrated into it. Its base is buried much shallower than the bases of the arch and the wall may have served to reduce erosion from running water that could have potentially destabilized the arch. No evidence of a retaining wall was noted on the northern side of the archway, or on the western façade of the arch facing the San Antonio River.

Finally, no direct evidence that allows us to identify the age of the feature has been obtained during the investigations. The artifact density at the site is extremely low. Those encountered do not indicate a Spanish Colonial affiliation; rather appear to represent prehistoric materials and modern trash. Reviews of historic maps and deed records conducted by SAMNHP personnel do not give an indication of the construction date of the feature. HABS documentation recorded in the 1930s by Charles Bertrand reports that the archway is contemporaneous to the construction of the Trueheart house, referred to as "*Casa Vieja*."

The stone archway meets the criteria for designation as an archaeological site. The archway appears to have been constructed during the late 1840s or early 1850s, and exhibits characteristics similar to other German construction. The Schneider Vault, located in Austin, Texas, has an arched entrance that resembles the archway found at the Trueheart Ranch (ACC 2009). The vault was constructed in the later 1800s as a cold storage place and possibly for fermenting beer (ACC 2009). German construction in and around San Antonio share many of the same characteristics that the archway exhibited, including rough-cut limestone and limestone rubble fitted together with a lime mortar. Contemporaneous architecture can be seen at sites such as the Menger Soap Works located on North Santa Rosa Street (Carson and McDonald 1986) and was built in 1850; the Balscheidt House (41BX1003), located in northwest San Antonio and constructed circa 1850 (Thompson et al 2008); and the Aue House, located near Leon Springs and constructed circa 1855 (Thompson et al 2008). Each of these examples features the use of rough-cut and limestone rubble in the construction of the structures commonly associated with the middle class German community at the time. Though it appears to be a mid-1800s construction, the Trueheart archway may be located along a roadway that was used during colonial times, though its construction appears to be later.

## **Conclusion**

The excavation of the units and trenches has revealed that the stone archway feature is not an aqueduct. The feature also lacks specific evidence that would indicate that it was part of a path or roadway. Lime kilns were not relocated that would have confirmed the HABS documentation that the archway was used as a way for transporting lime across the marshy ravine for the plastering the Trueheart house. Compacted soil was present in the units, but the profiles did not reveal signs of that would indicate use as a road. Artifacts encountered during the course of the project appear to be in a secondary context. The SEM-EDS comparison of mortar samples from the arch and the Espada Aqueduct indicate that the construction of the archway is not contemporaneous with the Espada Aqueduct. The archway has been designated site 41BX1816, and should be protected because it appears to be an example of early German stone masonry.

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