NMCRIS activity no.: 138815

Museum of New Mexico Office of Archaeological Studies

AN 493

2018

Monitoring of the Replacement of Water Mains and Residential Water Meters on Gomez Road, Rael Road, and Anita Place, Santa Fe, New Mexico

Karen L. Wening

and

Eric Blinman

NMCRIS Activity No. 138815

MUSEUM OF NEW MEXICO
OFFICE OF ARCHAEOLOGICAL STUDIES

MONITORING OF THE REPLACEMENT OF WATER MAINS AND RESIDENTIAL WATER METERS ON GOMEZ ROAD, RAEL ROAD, AND ANITA PLACE, SANTA FE, NEW MEXICO

KAREN L. WENING AND ERIC BLINMAN

WITH CONTRIBUTIONS BY
SUSAN M. MOGA AND C. DEAN WILSON

ARC REVIEW COPY
June 7, 2018

PRINCIPAL INVESTIGATOR
ERIC BLINMAN

ARCHAEOLOGY NOTES 493
2018

NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

1. NMCRIS Activity No.: 138815	2a. Lead (Sponsoring) Agency: City of Santa Fe Water Division	2b. Other Permitting Agency(ies):	3. Lead Agency Report No.:

4. Title of Report: Report for the Replacement of Water Mains and Residential Water Meters on Gomez Road, Rael Road, Sena Street, and Anita Place, Santa Fe, New Mexico

Author(s): Karen L. Wening and Eric Blinman

5. Type of Report

☒ **Negative** ☐ **Positive**

6. Investigation Type

☐ Research Design ☐ Survey/Inventory ☐ Test Excavation ☐ Excavation

☐ Collections/Non-Field Study ☐ Overview/Lit Review ☒ Monitoring ☐ Ethnographic study

☐ Site specific visit ☐ Other

7. Description of Undertaking (what does the project entail?): Monitoring of installation of new water mains on Sena Street, Anita Place, and Rael Road, and installation of new residential water meters on Gomez Road, Sena Street, and Rael Road for the City of Santa Fe Water Division.

8. Dates of Investigation:
from: 20 March 2017 to: 22 June 2017

9. Report Date:

10. Performing Agency/Consultant:
Office of Archaeological Studies MNM/DCA
Principal Investigator: Eric Blinman
Field Supervisor: James L. Moore
Field Personnel Names:
Karen L. Wening and Susan M. Moga

11. Performing Agency/Consultant Report No.:

12. Applicable Cultural Resource Permit No.:

13. Client/Customer (project proponent):
City of Santa Fe Water Division
Contact: Bill Huey
Address: 801 W. San Mateo, Santa Fe, NM
Phone: 505-955-4333

14. Client/Customer Project No.:

15. Land Ownership Status ***(Must be indicated on project map):***

Land Owner	Acres Surveyed	Acres in APE
TOTALS		

16 Records Search(es):

Date(s) of ARMS File Review: 3 March 2017	**Name of Reviewer(s):** Karen Wening	
Date(s) of NR/SR File Review	**Name of Reviewer(s)**	
Date(s) of Other Agency File Review	**Name of Reviewer(s)**	**Agency**

17. Survey Data:

a. Source Graphics

☐ **NAD 27** ☒ **NAD 83** **Note: NAD 83 is the NMCRIS standard**

☐ **USGS 7.5' (1:24,000) topo map** ☐ **Other topo map, Scale:**

☒ **GPS Unit** **Accuracy** ☒ **<1.0m** ☐ **1-10m** ☐ **10-100m** ☐ **>100m**

b. USGS 7.5' Topographic Map Name **USGS Quad Code**

Santa Fe	35105-F8

c. County(ies): Santa Fe

17. Survey Data (continued):

d. Nearest City or Town:

e. Legal Description:

Township (N/S)	Range (E/W)	Section	¼ ¼ ¼
17N	9E	25	NW, NW, NW.
			, , .
			, , .
			, , .
			, , .
			, , .
			, , .
			, , .
			, , .

Projected legal description? ☐ **Yes** ☐ **No** ☒ **Unplatted**

f. Other Description (e.g., well pad footages, mile markers, plats, land grant name, etc.):

18. Survey Field Methods:

Intensity: ☒ 100% coverage ☐ <100% coverage

Configuration: ☐ block survey units ☐ linear survey units (l x w):

☒ other survey units (specify): Monitoring

Scope: ☐ non-selective (all sites recorded) ☐ selective/thematic (selected sites recorded)

Coverage Method: ☐ systematic pedestrian coverage ☒ other method (describe): monitoring

Survey Interval (m): **Crew Size:** 1 **Fieldwork Dates:** from: 20 March 2017 to: 22 June 2017

Survey Person Hours: **Recording Person Hours:** 320.00 **Total Hours:** 320.00

Additional Narrative:

19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.): Santa Fe is in a fault zone within a subdivision of the Southern Rocky Mountain physiographic zone known as the Espanola Basin, one in a chain of basins comprising the Rio Grande rift, which extends from southern Colorado to southern New Mexico. Local topography in the Gomez Road area is hilly with lowest elevations along Arroyo Tenorio in the northern project area and higher elevations to the south. Elevation is 2,131 m. Soils are formed in reworked, mixed alluvial material of the Tertiary/Quaternary-period Santa Fe formation. The major soil association is Bluewing gravelly sandy loam. This soil occurs on 0 to 5 percent slopes and may coexist with Pojoaque and Fivemile soils. Santa Fe has a semi-arid climate in which precipitation can fluctuate widely. Historical local flora and fauna are typical of Upper Sonoran grasslands. The characteristic vegetation includes piñon, juniper, prickly pear, cholla, yucca, and several species of muhly and grama grass. Fauna included coyote, badger, porcupine, black-tailed jackrabbit, desert cottontail, spotted ground squirrel and many species of birds. Mule deer and black bear are known to occur, but in low numbers.

20. **a. Percent Ground Visibility:** residential development; ca. 20 percent visibility
b. Condition of Survey Area (grazed, bladed, undisturbed, etc.): residential development from the late 1920s to current day

21. CULTURAL RESOURCE FINDINGS ☐ **Yes, see next report section**
☒ **No, Discuss Why:** Project consisted of monitoring mechanical excavation of utility trenches and removal of residential water meters. The majority of the sediments encountered were non-cultural. All cultural strata and isolates were encountered in deeply reworked contexts.

22. Required Attachments (check all appropriate boxes): All of the information below is included in the attached report.
☒ **USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn**
☒ **Copy of NMCRIS Mapserver Map Check**
☐ **LA Site Forms - new sites (*with sketch map & topographic map)***
☐ **LA Site Forms (update) - previously recorded & un-relocated sites (*first 2 pages minimum)***
☐ **Historic Cultural Property Inventory Forms**
☐ **List and Description of isolates, if applicable**
☐ **List and Description of Collections, if applicable**

23. Other Attachments:
☐ **Photographs and Log**
☐ **Other Attachments**
***(Describe)*:**

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator/Responsible Archaeologist:

Signature _____ **Date** 5/22/2018 **Title (if not PI):**

25. Reviewing Agency:

Reviewer's Name/Date
Accepted ( ) Rejected ( )
Tribal Consultation (if applicable):
☐ **Yes** ☐ **No**

26. SHPO
Reviewer's Name/Date:
HPD Log #:
SHPO File Location:
Date sent to ARMS:

CULTURAL RESOURCE FINDINGS

[fill in appropriate section(s)]

1. NMCRIS Activity No.: 138815	2. Lead (Sponsoring) Agency: City of Santa Fe Water Division	3. Lead Agency Report No.:

SURVEY RESULTS:
Sites discovered and registered: 0
Sites discovered and NOT registered:
Previously recorded sites revisited (*site update form required*): 0
Previously recorded sites not relocated *(site update form required):*
TOTAL SITES VISITED: 0
Total isolates recorded: 33 **Non-selective isolate recording?** ☐
HCPI properties discovered and registered: 0
HCPI properties discovered and NOT registered:
Previously recorded HCPI properties revisited: 0
Previously recorded HCPI properties not relocated
TOTAL HCPI PROPERTIES (visited & recorded, including acequias): 0
MANAGEMENT SUMMARY: Isolates consisted of 22 Euroamerican artifacts, 7 cow fauna, 2 historic Native American ceramics, and 2 chipped stone. The Euroamerican artifacts, fauna, and ceramics date from the late nineteenth to the early and mid-twentieth centuries.

IF REPORT IS NEGATIVE YOU ARE DONE AT THIS POINT.

SURVEY LA NUMBER LOG
Sites Discovered:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

Previously recorded revisited sites:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

MONITORING LA NUMBER LOG *(site form required)*

Sites Discovered (*site form required*) **:** **Previously recorded sites *(Site update form required):***

LA No.	Field/Agency No.	LA No.	Field/Agency No.

Areas outside known nearby site boundaries monitored? Yes ☐, No ☐ If no explain why:

TESTING & EXCAVATION LA NUMBER LOG (*site form required)*

Tested LA number(s)	Excavated LA number(s)

Administrative Summary

The City of Santa Fe Water Division replaced three fire hydrants and installed approximately 812 feet of main and service water lines along residential portions of Gomez Road, Sena Street, Anita Place, and Rael Road in the City of Santa Fe, New Mexico. As stipulated in the City of Santa Fe Ordinance 14-3.13B(4), archaeological clearance is required for new construction of utility mains longer than 18.3 m (60 ft) in the Historic Downtown Archaeological Review District.

Given the total length of the trenching (247 m), and the project's location within the Historic Downtown Archaeological Review District, the Santa Fe Water Department requested that the Office of Archaeological Studies (OAS) monitor construction activities. NMAC 4.10.17 Standards for Monitoring applied to the project, and OAS requested that the monitoring provision of our New Mexico General Archaeological Investigation Permit NM-17-027-M be activated once the monitoring plan was approved by the New Mexico Historic Preservation Division (NMHPD). The City of Santa Fe Archaeological Review Committee (ARC), in their meeting of March 2, 2017, concurred with Santa Fe City Historic Preservation Division (SFCHPD) staff that monitoring could proceed with staff rather than ARC approval.

A total of 559 sq m was excavated during these installations. Based on a search of the NMCRIS map server and the examination of historic maps of the area as part of the monitoring plan, no cultural resources were expected to be found in this area beyond field structures or irrigation ditches potentially dating to the Spanish Colonial period. The presence of Native American cultural resources also was not anticipated in this area. These expectations were realized, as no sites or features were encountered during the project. No evidence of early agricultural use was found in the area, unless the absence of features can be viewed as partial corroboration. One unexpected find was the discovery of a sporadically occurring 4 inch steel water line along Gomez Road that may represent the earliest municipal water supply for the area. This water line likely predates the 1944 water main retired during this project. Thirty-one artifacts were collected. Most of these were found on private land inside old residential water meter cans.

NMCRIS Activity No. 138815

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Chapter 1: Introduction

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Chapter 9: Monitoring Results

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1 ⇓ Introduction

Between March 29 and June 22, 2017, the City of Santa Fe Water Division, under contract with Sub Surface, Inc., replaced approximately 812 feet of main and service water lines along residential portions of Gomez Road, Sena Street, Anita Place, and Rael Road in Santa Fe, New Mexico (Figs. 1.1–1.4). The project was within the Historic Downtown Archaeological Review District of the City of Santa Fe on a street right-of-way that is a subdivision of the State of New Mexico. As stipulated in the City of Santa Fe Ordinance 14-3.13B(4), archaeological clearance is required for new construction of utility mains longer than 18.3 m (60 ft) in the Historic Downtown Archaeological Review District.

Given the total length of the trenching (247 m), and the project's location within the Historic Downtown Archaeological Review District, the Santa Fe Water Department requested that the Office of Archaeological Studies (OAS) monitor construction activities. NMAC 4.10.17 Standards for Monitoring applied to the project, and OAS requested that the monitoring provision of our New Mexico General Archaeological Investigation Permit NM-17-027-M be activated once the monitoring plan was approved by the New Mexico Historic Preservation Division (NMHPD). The City of Santa Fe Archaeological Review Committee (ARC), in their meeting of March 2, 2017, concurred with Santa Fe City Historic Preservation Division (SFCHPD) staff that monitoring could proceed with staff rather than ARC approval.

Three types of subsurface excavations took place as part of this project: three fire hydrants were replaced, 34 service lines were replaced, and 812 feet of main line were replaced. Contractors working for the city water division excavated within or immediately adjacent to existing trenches (the trenches associated with early to mid-twentieth century installation of the water infrastructure). Depth did not exceed that of the existing infrastructure (limited by OSHA to a depth of 5 feet, or 1.52 m, unless shored). Replacement trenches primarily contained sediments redeposited from the 1944 water main installation and other utilities. Areas of intact deposits were encountered.

From south to north, work along Sena Street (Fig. 1.5) included an east–west mainline replacement and connections to the Gomez Road mainline and the Allendale Street mainline. Two fire hydrants were replaced and re-piped, and 12 residential service lines were replaced. The existing mainline was abandoned without removal.

Work along Gomez Road did not involve mainline replacement (Fig. 1.6) though short segments of mainline replacements were connected from the Gomez Road existing line. A short connecting replacement mainline (roughly east–west) was installed at the west end of Anita Place, and a longer mainline replacement was extended up the full length of the Rael Road to its dead end (roughly east–west). One fire hydrant replacement was carried out on Gomez Road at its intersection with Anita Place along with 22 residential service lines. Five service line replacements took place along Rael Road, attaching to the new mainline.

Figure 1.1. Project vicinity map.

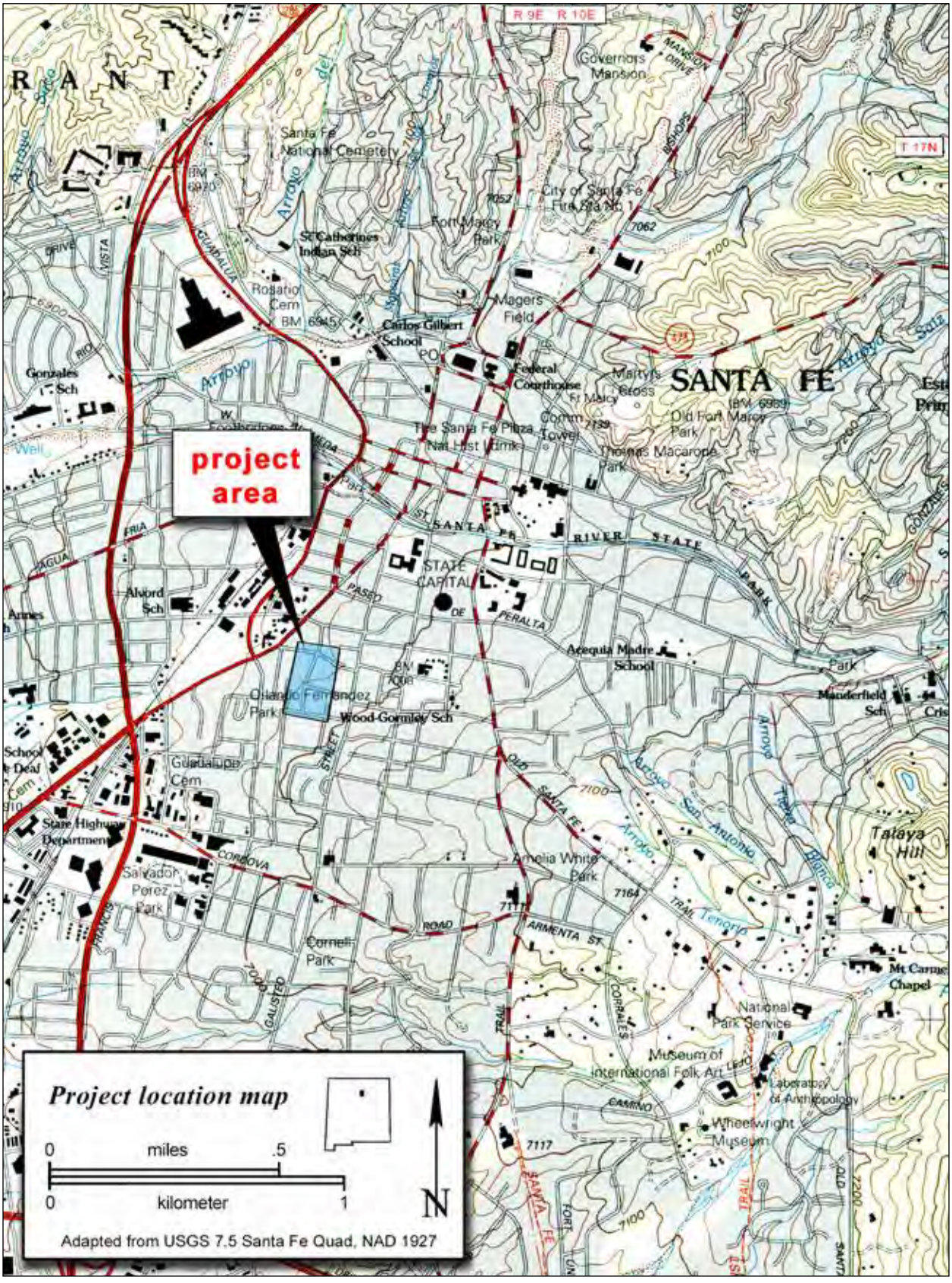

Figure 1.2. Project location map.

Figure 1.3. Aerial perspective on project location.

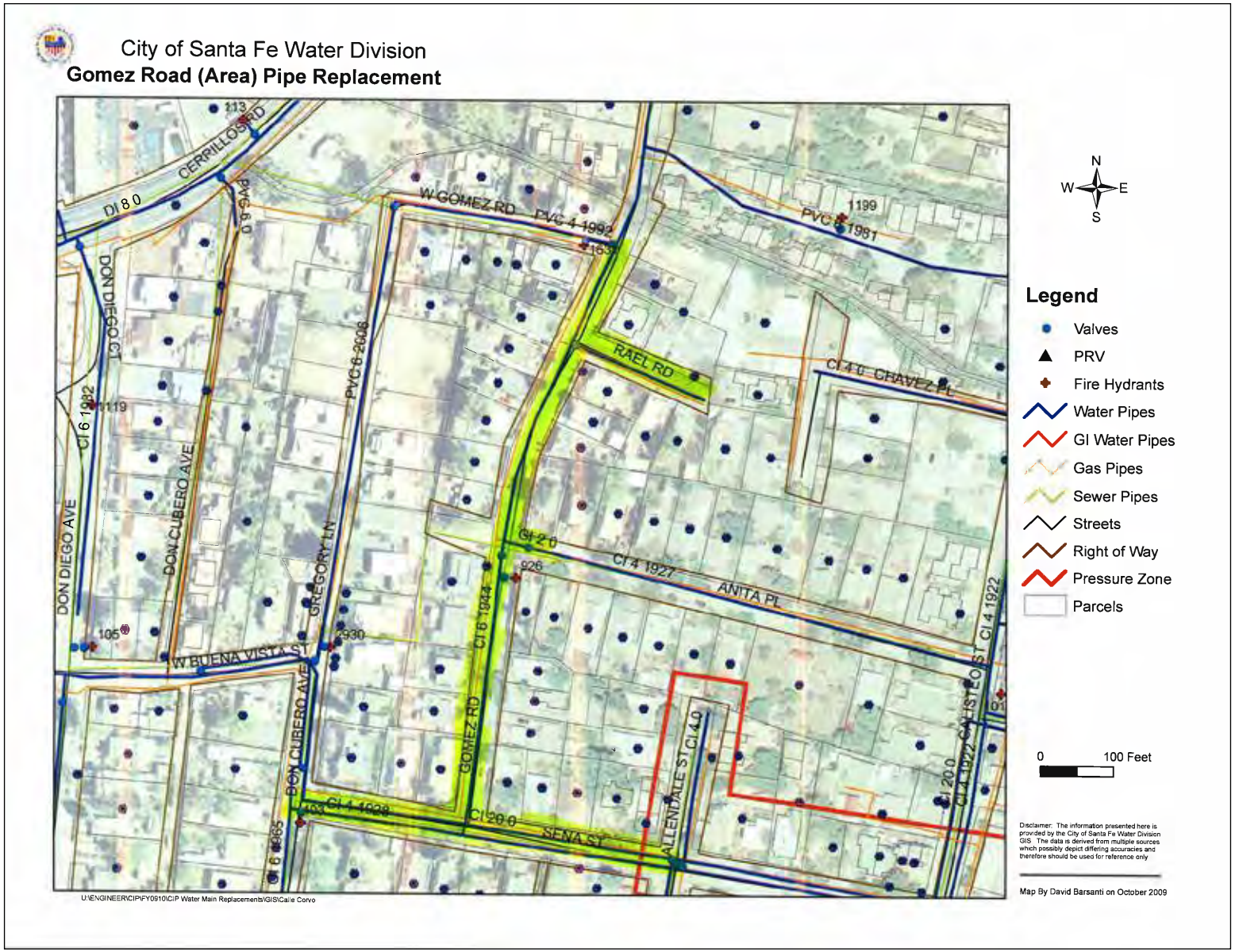

Figure 1.4. Area of City of Santa Fe Water Division water line replacements.

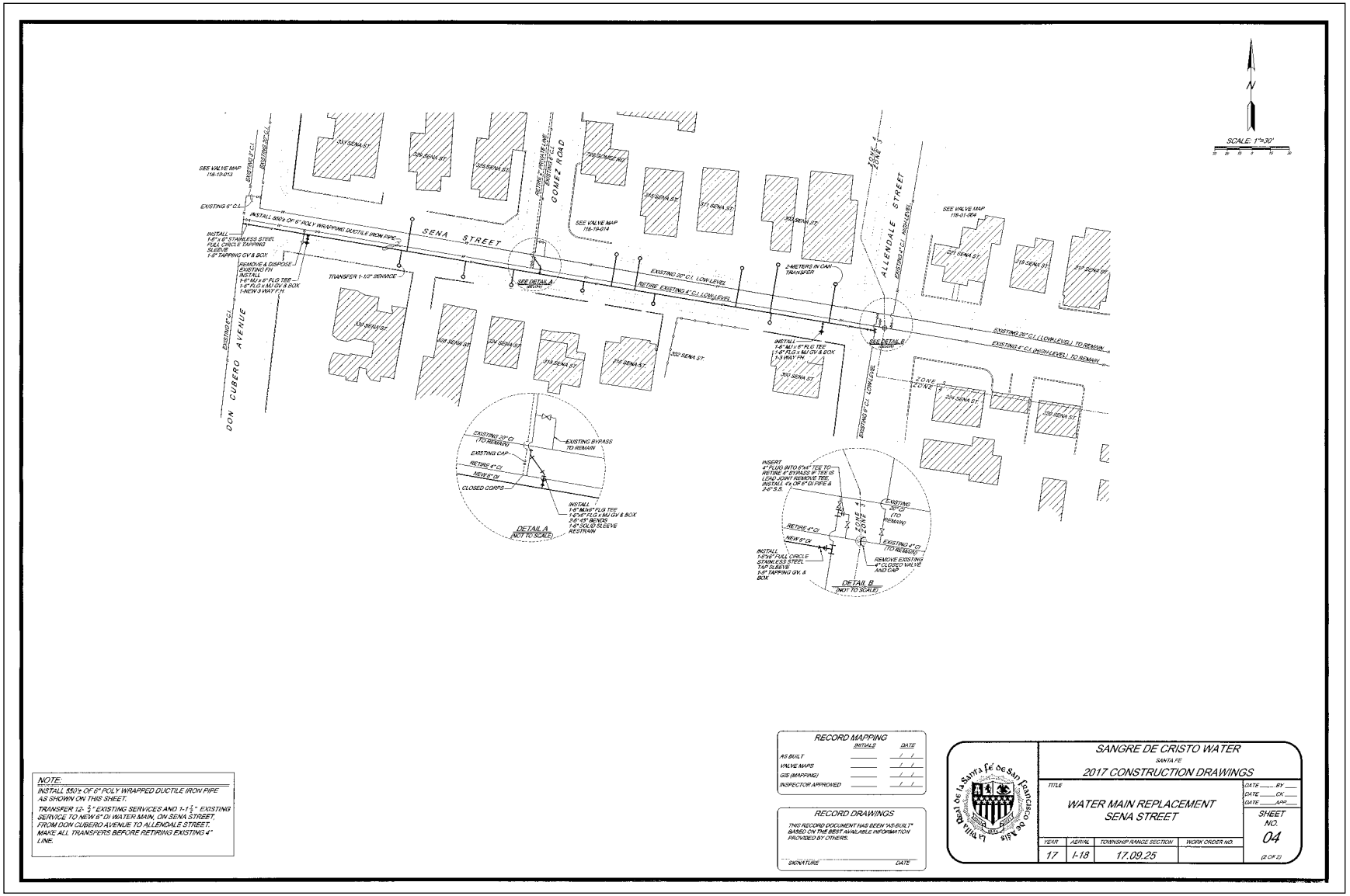

Figure 1.5. Detail of Sena Street water line replacement activity.

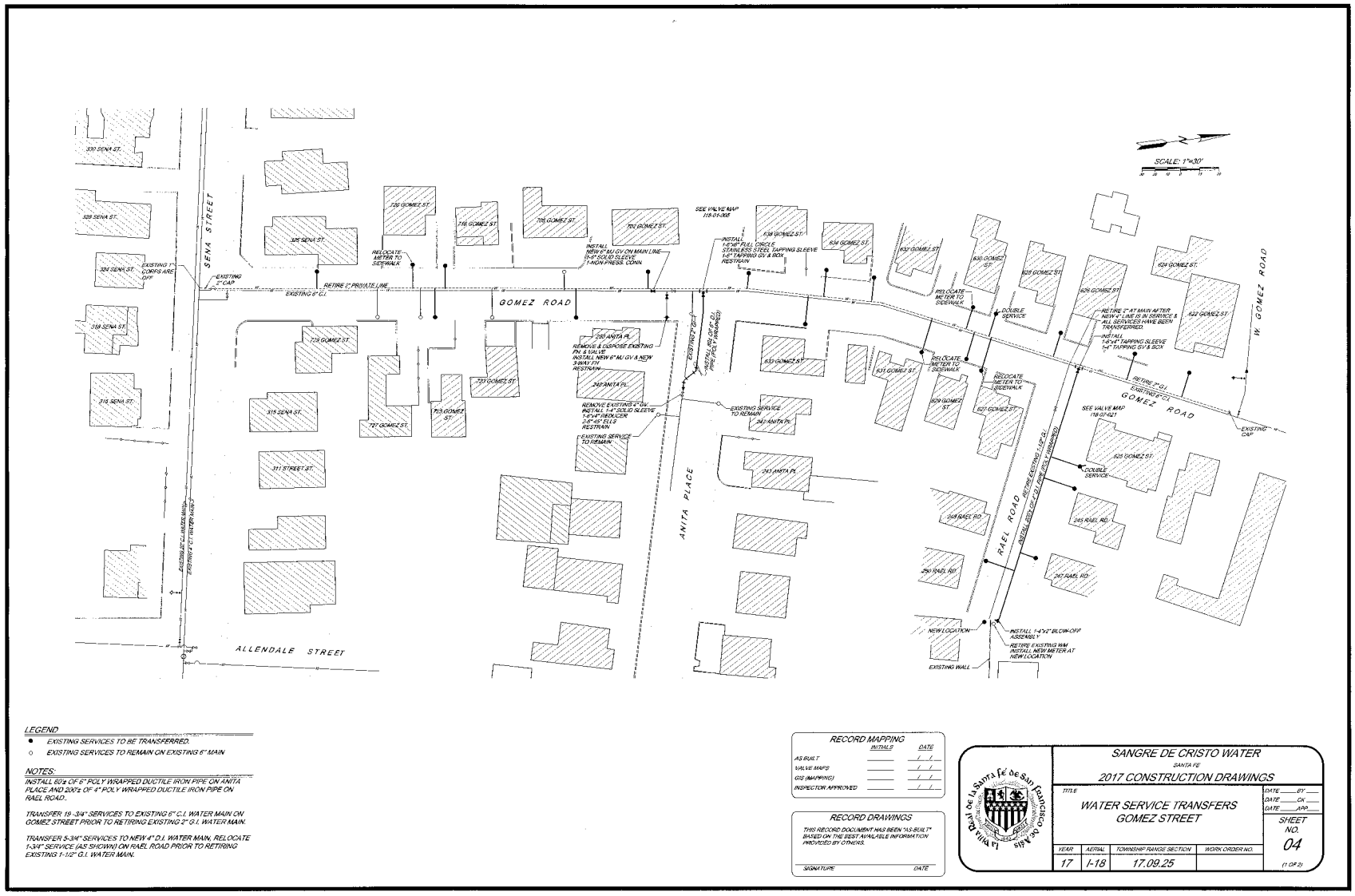

Figure 1.6. Detail of Gomez Road area water line replacement activity.

2 ⸸ Physical Environment

Numerous recent archaeological projects in the Santa Fe area have provided information on the physical environment of the area. The physical environment and cultural history for this report are adapted from Maxwell and Post 1992; Lentz 2005; Wenker 2005; Hannaford 2007; Barbour 2011; and Lakatos 2011.

Environment

Local topography in the Santa Fe Area alternates among nearly level plains, rolling terraces, and steep, rocky slopes. The main tributary drainage is the Santa Fe River. Other major tributary drainages include Arroyo de la Piedra, Arroyo Ranchito, and Arroyo Barrancas, among others. These tributaries have wide, level floodplains, while smaller tributary arroyos have cut deeply into the alluvial plain. Much of the riparian zone adjacent to the Santa Fe River contains deposited rich soils ideal for agriculture.

Geology

Santa Fe is located in a fault-zone feature within the structural subdivision of the Southern Rocky Mountain physiographic zone known as the Española Basin. The Española Basin is one of a chain of six or seven basins comprising the Rio Grande rift, which extends from southern Colorado to southern New Mexico (Kelley 1979:281). This basin, considered an extension of the Southern Rocky Mountain Province (Fenneman 1931), is surrounded by uplands of alternating mountain ranges and uplifted plateaus. The Rio Grande flows along the long axis of the feature (Kelley 1979:281).

The northern boundary of the Española Basin is composed of the eroded edge of the Taos Plateau. The Sangre de Cristo Mountains form the eastern edge, and the southern boundary is marked by the Cerrillos Hills and the northern edge of the Galisteo Basin. The La Bajada fault escarpment and the Cerros del Rio volcanic hills denote the basin's southwestern periphery. The Española Basin is bounded to the west by the Jemez volcanic field. The Brazos and Tusas Mountains form the northwestern boundary. Elevations along the Rio Grande through the basin vary from 1,845 m (6,053 ft) in the north to 1,616 m (5,301 ft) in the south. Altitudes in the surrounding mountains reach 3,994 m (13,103 ft) in the Sangre de Cristo Mountains, 3,522 m (11,555 ft) in the Jemez Mountains and 2,623 m (8,605 ft) in the Brazos and Tusas Mountains (Kelley 1979: 281).

The Rio Grande rift was established during the late Oligocene epoch (ca. 30 million years BP) when a cycle of down-warping and extensional faulting succeeded a period of regional uplift (Kelley 1979:281). As the subsidence of the Española Basin proceeded through the Miocene and Pliocene epochs (ca. 3 million to 25 million years ago), erosion from the Nacimiento, Jemez, and Brazos uplifts to the north and northwest, and from the Laramide Sangre de Cristo uplift to the east and northeast, provided most of the sediments for what is known as the Santa Fe group, the prominent geologic unit within the Española Basin (Folks 1975). Formations within the Santa Fe group, such as the Tesuque formation, consist of deep deposits (more than 1 km thick) of poorly consolidated sands, gravels and conglomerates, mudstones, siltstones, and volcanic ash beds (Folks 1975; Lucas 1984).

Alluvial deposits of ancient and modern gravels are found in arroyos and on adjacent terraces. Tertiary volcanic deposits, Cenozoic sediments, and Precambrian rock are exposed in surrounding areas. When combined with these alluvial deposits, they provide most of the materials needed for flaked stone artifact production. In particular, chert is available in the Ancha formation (Kelley 1979:11–12). Sandstone, siltstone, andesite, basalt, and silicified wood occur in other nearby formations. The most commonly used chert in the study area outcrops in the Madera limestone formation and occurs in local gravel deposits. Small amounts of obsidian can be found scattered along the basalt-capped mesas to

the west of Santa Fe (Kelley 1979:12). A detailed soil map shows that the project area is dominated by the Bluewing Series (Folks 1975:15–16), which consists mostly of level to gently sloping terrace soils of gravelly sandy loam. The project area is located at an elevation of 2,130.5 m (6,990 ft).

The soils are of the Pojoaque Rough-Broken Land association on the ridgetops, which are well drained and formed in the mixed alluvium of the Santa Fe Formation sourced in upland areas. They are sandy clay loam with moderate permeability and below average water-holding capacity (Folks 1975:4). This soil association is suitable for wildlife and range management, but not well suited to agriculture. In the floodplains of major and tributary arroyos, Fivemile soils occur; these are made of well mixed alluvium. The association is characterized by a deep silty loam deposit that increases in calcium carbonate content with depth (Folks 1975:25). In the Gomez project, this silty loam is represented by Stratum 1. The calcified layer of Stratum 1 is Stratum 2.

Climate

Santa Fe has a semi-arid climate. While latitude and altitude are the two basic determinants of temperature, altitude is the more powerful variable in New Mexico. In general, mean temperatures decline faster with increased elevation than with increased latitude. Cold air drainage is a common and well known feature of New Mexico valleys. Narrow valleys create their own temperature regimes by channeling air flow: the usual patterns are warm up-valley winds during the day and cool down-valley winds at night. In contrast, shifts in temperature over broad valley floors are influenced by the local relief (Tuan et al. 1973).

The Santa Fe weather station is at an elevation of 2,195 m (7,201 ft). The mean annual temperature reported by the station is between 48.6° and 49.3° C (Gabin and Lesperance 1977). Climatological data further indicate that the study area conforms to the general temperature regime of New Mexico; that is, hot summers and relatively cool winters.

The average frost-free period (growing season) at Santa Fe lasts 164 days. The earliest and latest recorded frosts occurred on Sept. 12, 1898, and May 31, 1877, respectively (Reynolds 1956:251). Although a frost-free season of 130 days is sufficiently long to allow for the growing of most indigenous varieties of maize through dry farming (Schoenwetter and Dittert 1968; Hack 1942), the unpredictability of late spring and early fall frosts creates agricultural risk.

Precipitation in the Santa Fe area can fluctuate widely. A maximum of 630 mm of precipitation was recorded in Santa Fe in 1855, compared to a minimum of 128 mm in 1917 (Reynolds 1956). The amount of precipitation is even more variable for any given month in successive years. Late summer is the wettest season in the annual cycle of the Santa Fe area, whereas June is one of the driest months. Precipitation records from Santa Fe indicate that more than 45 percent of the mean annual precipitation falls between July and September (Gabin and Lesperance 1977). Although October is drier than September, it is the fourth wettest month of the annual cycle. Significant precipitation (7.6 percent of the annual total) also falls in Santa Fe in October. Late summer and early fall moisture is derived from the Gulf of Mexico, when air masses from the region push inland, bringing economically important monsoons (Tuan et al. 1973:20). Summer rains tend to be violent and localized, saturating the ground surface during the beginning of a storm and resulting in the loss of much moisture through runoff.

Flora

Local flora and fauna are typical of Upper Sonoran grasslands. Piñon-juniper grasslands, which support a variety of plant and animal species, are the most common habitat in this area. Characteristic vegetation includes piñon, juniper, prickly pear, cholla, yucca, and several species of muhly and grama grass (Pilz 1984). The piñon-juniper community thins as it descends from the Sangre de Cristo foothills and grades into shortgrass plains midway between the foothills and the Santa Fe River (Kelley 1979:12). The open valleys contain grama grass, muhly, Indian ricegrass, galleta grass, soapweed yucca, one-seed juniper, Colorado piñon, occasional Gambel oaks, and small stands of mountain mahogany. Arroyo bottoms contain various shrubs, including four-wing saltbush, Apache plume, rabbitbrush, big sagebrush, and wolfberry. The Riparian/Wetlands habitat is found only along perennial streams, such as the Rio Pojoaque and Rio Tesuque. Modern vegetation includes willow, cottonwood, salt cedar, rushes, and sedges (Pilz 1984). In the wider valley bottoms,

ditch irrigation is practiced. This includes the area north of the present study area.

Fauna

Fauna that has been found to be native to the Santa Fe project area includes coyote, badger, porcupine, the blacktailed jackrabbit, the desert cottontail, the spotted ground squirrel, prairie dogs, and several species of birds. Mule deer and black bear have been known to occur in low numbers (Pilz 1984). The use of the area by elk and black and grizzly bears may have been more common prior to the turn of the century (Carroll 1984:2). Plains animals—including buffalo and pronghorn antelope—may have also been present in the area or could have been located within a few days walking distance.

3 ⇓ Cultural Overview

Human occupation of New Mexico begins at least with the Paleoindian period and is continuous through the arrival of European colonists, marking the transition between the prehistoric to historic periods.

Prehistoric Period

The record of prehistoric occupation begins with the Paleoindian period, transitioning to the Archaic period as the glacial environment transitions to post-glacial. No Paleoindian sites are defined for the immediate Santa Fe area, but ice age fauna, radiocarbon dates appropriate for Paleoindian landscape surfaces, and discoveries of Clovis points in the greater region suggest that early components eventually will be found in the area. The record of Archaic occupation is relatively better known from the Santa Fe area (e.g., Post 2010), but sites are sparse and were not expected within the project area. Population density and archaeological evidence increase with the adoption of agriculture and a Formative way of life, and the archaeological record falls within the framework defined by Wendorf and Reed (1955).

Developmental Period

Sites from the Developmental period in the northern Rio Grande are comparable to the late Basketmaker III and Pueblo I periods of the Pecos Classification. A growing number of Developmental sites are being recorded in the Rio Grande valley. These tend to be small with a ceramic assemblage composed primarily of Lino Gray, San Marcial Black-on-white, and various plain brown and red-slipped wares. The majority of the documented early Developmental sites are in the Albuquerque and Santa Fe districts (Frisbie 1967; Reinhart 1967; Peckham 1984). The settlement of the Rio Grande drainage has typically been attributed to immigration from either the southern areas (Bullard 1962; Jenkins and Schroeder 1974), or from the Four Corners/San Juan area (Judge 1991; Stuart and Gauthier 1988: 49; Lekson and Cameron 1995: 185) and—although direct evidence is meager—from the Mesa Verde area (Ortman 2009).

Archaeological sites in the Santa Fe area with Developmental components include:

(1) Pindi Pueblo (LA 1) is located in the Agua Fria area of south Santa Fe. Although primarily a Coalition period site, the site has an ephemeral Developmental period component represented by a single jacal room and a pithouse (Stubbs and Stallings 1953: 225). Kwahe'e Black-on-white ceramics were recovered, here and a tree-ring date of 1218+vv was recovered below the jacal structure (Robinson et al. 1972:38).

(2) LA 618, a pithouse site with extramural features, is located on East Palace Avenue, behind the old Fischer brewery, and dates to the late Developmental period (Elliott 1988:17). Other Developmental sites near downtown Santa Fe include the KP Site (LA 46300). This site is near the project area on top of a ridge along the north side of the Santa Fe River valley near Fort Marcy. Here, a single trash-filled burned structure was tested (Wiseman 1989). The pottery types recovered during testing included Red Mesa Black-on-white, Kwahe'e Black-on-white, "Chaco II" Black-on-white (Red Mesa, Rio Grande variety?), Escavada Black-on-white, Gallup Black-on-white, Chaco Black-on-white, Puerco Black-on-red, Cebolleta Black-on-white, Socorro Black-on-white, and Los Lunas Smudged. Obsidian chipped stone predominated, although local chert types, particularly red jasper, were also used. Eleven tree-ring and two radiocarbon dates indicate that the occupation of the structure occurred in the mid- to late 1000s and the accumulation of fill in the early 1100s. Tree-ring cutting dates of AD 1116, 1117, and 1120 are associated with the Kwahe'e Black-on-white pottery. A wide variety of plant remains were recovered, including corn, squash, and beeweed. The fauna consisted of deer, antelope, and cottontail (Wiseman 1989: 139). Not far from the KP Site, Mariah Associates recorded evidence of a Pueblo II (middle Developmental) village near Fort Marcy Hill (Acklen et al. 1994).

(3) At Ogapogeh, Pueblo de Santa Fe (LA 1051), in downtown Santa Fe, several pits from the early Developmental period were exposed. These contained cultigens radiocarbon date to between AD 350 and 650, possibly some of the earliest domesticated *Zea mays* and squash in the northern Rio Grande (Lentz 2011:35–39).

Coalition Period

The Coalition period in the northern Rio Grande is marked by substantial increases in the number and size of habitation sites coincident with population coalescence and expansion into previously unoccupied areas. This includes a shift from mineral pigment to organic paint in decorated pottery (primarily Santa Fe Black-on-white). In the beginning, the period was distinguished by an increase in the number of village sites, suggesting an overall increase in population, and the replacement of semi-subterranean structures with surface dwellings consisting of rectangular rooms arranged in small roomblocks. Although above-ground pueblos were built, pit structure architecture continued into the early phases of this period. Rectangular kivas, which are incorporated into roomblocks, co-existed with subterranean circular structures (Cordell 1979:44). Frisbie (1967) notes the shift away from less optimal upland settings and a return to the permanent water and arable land adjacent to major drainages.

In the northern Rio Grande, the Coalition period is characterized by two interdependent trends in population and settlement reflected in population growth. Whether this growth was due to immigration or indigenous population expansion is not fully understood. The Chama, Gallina, Pajarito Plateau, Taos, and Galisteo Basin districts, which had been the focus of little Anasazi use prior to AD 1100–1200, were settled during the Coalition period (Cordell 1979). In excess of 500 Santa Fe Black-on-white sites are listed for the Pajarito Plateau, although many of these sites are poorly documented (New Mexico Cultural Records Information System, Archaeological Management Section, Historic Preservation Division). Representative sites of the Coalition period include LA 4632, LA 12700, and Otowi, or Potsuwii (LA 169). Artifacts used to identify early Coalition sites include slab metates, side-notched projectile points, Santa Fe Black-on-white ceramics, and a variety of indented corrugated gray wares (Lang and Scheick 1989:5). Anschuetz and Scheick (1999) identified four significant Coalition habitation settlement clusters in the Santa Fe Basin: (1) the Santa Fe downtown area at the contact between the Sangre de Cristo foothills and the lower piedmont; (2) the Rio Santa Fe Valley near present day Agua Fria; (3) the Arroyo Hondo locale at the southern limits of the contact between the mountain foothills and the lower piedmont; and (4) the lower Rio Santa Fe Canyon in the Bocas de Centau locale upstream of La Bajada Mesa escarpment. Each of these clusters is near a sizable spring. A Coalition pit structure, LA 143460, was recorded in downtown Santa Fe at the Federal Courthouse building. This structure, probably contemporaneous with the Coalition component at nearby LA 1051, yielded problematic chronometric dates (Scheick 2005:238). Overall, though, this site appears to have been occupied around the eleventh century and is probably part of Ogapogeh village.

Coalition populations made extensive use of an extremely broad range of environmental settings, including a wide variety of resource extraction and processing activity loci, agricultural fields and features, and small dwellings in the environs of large villages close to major drainages. A Coalition component, LA 608–609, was investigated under Fort Marcy Hill and the Cross of the Martyrs (Acklen et al. 1994). Near Pindi Pueblo, the Agua Fria Schoolhouse site holds a significant Coalition period component dating to between AD 1175 and 1325 (Lang and Scheick 1989). A significant Coalition component dating to between AD 1175 and 1275 was investigated at Ogapogeh, or Pueblo de Santa Fe (LA 1051), at the current Santa Fe Convention Center location (Lentz 2011). Substantial evidence was documented regarding ceremonial closures and ritual activities for the structures and features dating to between AD 1175 and 1275. In the late thirteenth century, LA 1051 was abandoned by Coalition populations (Lentz 2011:39–110).

Classic Period

The Classic period postdates the abandonment of the San Juan Basin by sedentary agriculturalists. It is characterized as a time when regional populations may have reached their maximum size, and large communities with multiple plaza and roomblock complexes were established (Wendorf and Reed

1955:13). The Classic period in the northern Rio Grande coincides with the appearance of locally manufactured red-slipped and glaze-decorated ceramics in the vicinity of Santa Fe, Albuquerque, Galisteo, and the Salinas area after AD 1315, and Biscuit wares on the Pajarito Plateau, the Tewa Basin, and the Chama areas slightly later (Mera 1935; Warren 1979).

Sites of the Classic period are characterized by a bimodal distribution—large communities associated with agriculturally focused smaller structures (e.g., fieldhouses) on the one hand, and seasonally occupied farmsteads on the other. This is in contrast to the preceding Coalition period, during which a greater range of site types characterized the settlement pattern, and the population had not yet aggregated into large communities.

The first glaze-painted pottery, called White Mountain Redware, was made in the Acoma and Zuni areas; types included are: Wingate Black-on-red (AD 1050–1200), Puerco Black-on-red (AD 1000–1200), and St. John's Polychrome (AD 1175–1300). Rio Grande copies of the Zuni area Nutria-phase polychromes began with the introduction of Los Padillas around AD 1300. Investigations of the large biscuit ware pueblo sites on the Pajarito Plateau include initial studies by Adolph Bandelier (1882), Hewett (1953), and Steen (1977).

In the Santa Fe area, the Galisteo Basin saw the evolution of some of the Southwest's most spectacular ruins. Many of these large pueblos were tested or excavated by N. C. Nelson in the early twentieth century (Nelson 1914, 1916). Possibly the first stratigraphic excavation in the United States was executed by Nelson on the roomblocks and middens of San Cristobal Pueblo (LA 80). Large sites in the Galisteo Basin, such as Galisteo Pueblo, San Lazaro Pueblo, San Cristobal Pueblo, San Marcos Pueblo, and Pueblo Blanco, were summarized by Smiley et al. (1953). The School of American Research conducted extensive research at Arroyo Hondo (Lang 1977). Most Classic period sites in the Galisteo Basin were established in the early 1300s and were of short duration. By the late 1400s, this area appears to have experienced a substantial decline in population. This has been attributed to environmental instability.

The late phase of the Classic period is bracketed by Coronado's explorations of 1540 and the founding of Santa Fe in 1605 or 1610 (Chavez 1979; C. T. Snow 1999) and is characterized by population decline. Many farmsteads and fields were abandoned following droughts in the AD 1400s and early 1500s. Population centers shifted to areas along major river valleys. In the Santa Fe area, few pueblos remained occupied even into the 1500s. Pindi had been abandoned relatively early (AD 1349; Stubbs and Stallings 1953), and Arroyo Hondo (Schwartz and Lang 1973) and Agua Fria Schoolhouse had both been abandoned by AD 1425 (Lang and Scheick 1989). Cieneguilla was abandoned in the late 1400s or early 1500s, although some researchers believe it was re-occupied, possibly until 1680 (Schroeder 1979; Elliott 1988). At approximately 500 rooms, the pueblo was the largest in the area at the time.

Classic phase pit structures and features dating to between AD 1365 and 1435 were encountered at Ogapogeh, Pueblo de Santa Fe (LA 1051), in downtown Santa Fe. This site appears to have functioned as a centrally located integrative center for surrounding Classic period villages (Lentz 2011). Abandoned in AD 1435, its Classic period population may have relocated to the Tano Basin. After the first Spanish explorations (*entradas*) of the mid- to late sixteenth century, Native American groups underwent numerous changes in lifestyle, social organization, and religion. The introduction of new crops and livestock contributed to major changes in subsistence, as did mission programs, which introduced unfamiliar ideologies and new European-styled industries. Incursions by Plains groups led to the abandonment of many pueblos and a constriction of the region occupied by the Pueblo Indians (Chavez 1979; Schroeder 1979). Exposure to new diseases, to which the Pueblo groups had no natural defenses, intermarriage, numerous casualties during and after the 1680 Pueblo Revolt, and the abandonment of traditional lifestyles all contributed to a significant decrease in Pueblo populations over the next few centuries (Dozier 1970; Eggan 1979; Simmons 1979).

The first European contact with the northern Rio Grande valley occurred in the late winter or early spring of 1541 when a foraging party made up of Francisco Vázquez de Coronado and his men set up camp near Ohkay Owingeh (San Juan Pueblo). Having heard of Coronado's earlier plundering further south, the pueblo occupants hastily abandoned their homes, and the Spaniards looted the deserted villages. After scouting and ransacking

several more pueblos—including Zuni, Hopi, and Acoma—in a futile attempt to find gold, Coronado returned to New Spain. Two friars left behind were promptly martyred. In another instance, several unfortunate clergymen left behind by the 1581 Chamuscado expedition at Puaray, near Bernalillo, suffered similar fates (Hammond and Rey 1953:244, 259; Eggan 1979; Simmons 1979:178).

In 1591, San Juan Pueblo was visited again, this time by the Gaspar Castaño de Sosa expedition. Castaño de Sosa erected a cross at the pueblo, received obedience to the King of Spain, and appointed a Tewa governor, a mayor, and other administrators (Schroeder and Matson 1965:121, 129).

With the goals of missionization, territorial expansion, and the acquisition of mineral wealth—i.e., gold and silver—the colonizing expedition of Don Juan de Oñate arrived at Ohkay Owingeh (San Juan Pueblo) on July 11, 1598, and proclaimed it the capital of the province. During the winter of 1600 and 1601, the Spaniards moved across the river to a partly abandoned 400 room pueblo roomblock that they renamed San Gabriel de los Caballeros (Ellis 1989).

The first Catholic mission church, called San Miguel, was built at the southern end of the village (Stubbs and Ellis 1955; Ellis 1989). Soon, New Mexico was divided into seven missionary districts. A Spanish magistrate was appointed for each pueblo, and all the pueblos were subsumed under Oñate's leadership (Spicer 1962:156; Ellis 1989; Lentz and Goodman 1992). In December of 1598, Juan de Zaldivar, a nephew of Oñate, rode to Acoma Pueblo for the purpose of trading for food and other goods. Threatened by reports of the Spaniards' potentially warlike intentions, and antagonized by the soldiers' attitudes toward the Pueblo women, the Acomas attacked the group, killing 12, including Juan de Zaldivar.

In January 1599, under Oñate's orders, a Spanish expedition led by Juan's brother, Vicente, retaliated against Acoma by siege and cannonade. Most of the village was burned. More than 600 people were killed, and approximately 500 others were imprisoned. Prisoners of war were forced into slavery and the right feet of 20 men over the age of 25 were amputated. Zaldivar transported eight women to Mexico, where they were to work as servants or prostitutes. Others were dispersed as slaves to other colonizers. By 1620, the survivors of the Acoma massacre had rebuilt their community (Garcia-Matson 1979:456–457; Goodman 2010:19–20).

The Spanish colony at San Gabriel did not survive the first decade of the seventeenth century. Oñate returned to Mexico in disgrace and, in 1610, the capital was moved from San Gabriel to the current site of Santa Fe by Oñate's successor, Don Pedro de Peralta (Ellis 1989; C. T. Snow 1999; Lentz and Goodman 1992).

Over the next 20 years, churches were built in all of the area's pueblos. Native American secular and church officers were established in each village. These officers included governors (*gobernadores*), magistrates or mayors (*alcaldes*), tax collectors (*fiscales*), and other pueblo officials. During the 1620s the villages were peaceful, and the number of conversions to the Catholic Church increased. By 1630, 50 Franciscan missionaries were working in 25 missions, and a Catholic school was operating in each (Spicer 1962:158; Noble 1989; Hordes 1990; Lentz 2004:8–9).

Historic Period

Although the impacts of European colonization of the Americas were probably felt in New Mexico in advance of the presence of Europeans, and although sixteenth century exploration resulted in the first historic records of the region, the start of the historic period is most conveniently placed at the initiation of permanent settlements at the beginning of the seventeenth century.

Spanish Colonial Period in Santa Fe

In 1609, Oñate's successor, Don Pedro de Peralta, received orders from the Viceroy of New Spain to relocate the capital of New Mexico to a location near the Santa Fe River at the foothills of the Sangre de Cristo Mountains. It was intended that the town be planned along the lines of the Reales Ordenanzas of 1573: a compilation of royal laws issued by King Philip II of Spain containing precise guidelines on how a Spanish colonial town should be laid out in the New World. Peralta may not have scrupulously adhered to these specifications. The founding of La Villa Real de Santa Fe included the construction of irrigation ditches (acequias), fields, and domestic

and administrative buildings. The small plaza-focused, fortified town had at its center the Casas Reales: a constellation of government offices, a military post, and governor's quarters. The final configuration is known today as the Palace of the Governors. East of the Plaza, facing west, was a solid adobe church named Our Lady of the Assumption. South of the Plaza, across the river, was the Barrio de Analco, which was comprised of the residences of Mexican Indians who accompanied Oñate on his colonizing mission and of other Indians of mixed tribal derivations (*genizaros*). Serving this community's spiritual needs was the Chapel of San Miguel (Stubbs and Ellis 1955; Hordes 1990; C. T. Snow 1999).

In the seventeenth century, Santa Fe likely resembled a typical Mexican town on the northern frontier of the vast Spanish empire. Despite its isolation, the town was provisioned once or twice a year with merchandise hauled 1600 miles along the Camino Real from Mexico City. What could not be obtained from Spanish sources was grown or built. Farming and ranching were the main industries, and Pueblo craftsmen were recruited to build churches and residences; supply vegetables, meat and firewood; and provide local imitations of European ceramics for storage and dinner ware. Until 1680, Santa Fe grew at a fairly steady pace (Noble 2008: vii; Lentz 2011). However, throughout the 1600s and as late as 1715, the town and its surrounding settlements were frequently attacked by marauding native groups. During this period, settlers built defensive towers (*torreones*) and guard posts (e.g., La Garita, in northeastern Santa Fe), and sought refuge in fortified communities like Agua Fria, La Cienega and Chimayó (Lentz 2011:31).

Pueblo Revolt of 1680

The year 1676 marked the start of a series of events that led to the Pueblo Revolt of 1680. Forty-seven Pueblo religious leaders were jailed and flogged in Santa Fe for their adherence to traditional Pueblo beliefs. Among them was the San Juan moiety chief Popé, under whose leadership the Pueblo Revolt was subsequently planned and carried out by nearly all of the pueblos, including Hopi, Zuni, and Pecos. Only the southern Tiwa pueblos and the Piros did not participate. Twenty-one of the 33 Franciscan friars in the territory were killed, along with 400 Spaniards. In August of 1680, Santa Fe became the site of a well-planned siege by an alliance of Pueblo forces. On Aug. 18, 1680, a fierce battle raged on the plaza on either side of a critical irrigation ditch (the Acequia Madre) directly in front of the Palace of the Governors (Lentz 2004:70). Once the water supply to the Palace was cut off by the insurgents, Governor Antonio de Otermín surrendered. On Aug. 21, 1680, the Spaniards were allowed to evacuate the city without any further resistance (Hackett and Shelby 1942:11, 56–57; Noble 1989; Hordes 1990).

The Pueblos held firm to their independence for 12 years. In the winter of 1681–1682, an attempted reconquest by Otermín was turned back. Otermín managed to sack and burn most of the pueblos south of Cochiti before returning to Mexico. Taking advantage of inter-Pueblo factionalism, the definitive *reconquista* was initiated in 1692 by Don Diego de Vargas. Far from "bloodless," as many accounts suggest, a coalition of Pueblo fighters was besieged, starved, and eventually slaughtered on Black Mesa. Seventy Pueblo leaders were executed (Twitchell 1925; Hackett and Shelby 1942; Dozier 1970; Simmons 1979:186).

Reconquest

After de Vargas regained control of the province in 1692, the Spanish government granted free title to tracts of land to encourage the resettlement of the New Mexico province. By 1696, northern New Mexico had been re-occupied, and a number of Hispanic colonists lived on approximately 140 land grants. The pueblos were granted their own "Pueblo Leagues." These were frequently intruded upon by Spanish colonists, and later, by Anglo-American settlers (Noble 1989; Hordes 1990).

Soon after 1698, Hispanic pioneers, such as Sebastian Martín and his family, settled north of Santa Fe along the upper Rio Grande, or the Rio Arriba. In the 1700s, this large area, which stretched to Taos, was the northern frontier of all Spanish settlement. Life there was difficult and dangerous, with frequent Navajo, Ute, Apache, and Comanche raids, in addition to droughts, storms, and epidemics. In 1747, many of the northern frontier settlements were abandoned due to frequent attacks by Utes. Settlements such as Los Luceros were not re-occupied until 1750, and even then, guards had to be assigned to the residents (Lentz 2011).

One of many Spanish settlers to occupy the northern Rio Grande was Don Ignacio Roybal, who, in 1793, settled on the Pojoaque Pueblo land grant at Jacona. Roybal began building an irrigation ditch, the Acequia Larga de Jacona, which encroached on the San Ildefonso Pueblo League to the west. This flagrant Spanish intrusion on Native American lands remains one of the longest standing water-rights cases in U.S. history (Hall 1987).

In 1695, the second villa decreed in New Mexico by the Spanish government was established 2 miles east of present day Española. Founded by Don Diego de Vargas, the villa was named La Villa Nueva de Santa Cruz de la Cañada. Thus, Santa Fe became the first official villa in 1610, Santa Cruz the second in 1695, and Albuquerque the third in 1706 (Twitchell 1925; Pearce 1965; Hordes 1990; C. T. Snow 1999).

Mexican Period (1821–1846)

With the signing of the Treaty of Cordova on Aug. 24, 1821, Mexico secured its independence from Spain, and New Mexico became part of the Mexican nation. New Mexico remained one of the "internal provinces" attached to the *comandancia* of Chihuahua, where the area joined Chihuahua and Durango to form the Internal State of the North. Jan. 31, 1824, the Internal State was dissolved and New Mexico reverted back to Mexican territory. The Treaty of Cordova decreed that all Indians residing in New Mexico be granted full Mexican citizenship. The *encomienda* system, a program of indentured servitude, was abolished. The concept of genizaros—displaced Native Americans who had lost their tribal identity through capture—was suspended. Perhaps more importantly, the brief Mexican Period saw the opening of the Santa Fe Trail, and expanded trade networks brought new settlers and goods into the area for industrial manufacture. Josiah Gregg brought the first printing press to New Mexico in 1834. The Santa Fe Trail was the first American trans-Mississippi pathway to the West and the only route that entered into another country (Simmons 1988; National Park Service 1990; Lentz 2004).

In the early fall of 1821, William Becknell set out from Franklin, Missouri, carrying a small load of goods to trade with the Native Americans of the Rocky Mountains. He made his way across Raton Pass where he was met by Mexican troops. Instead of being taken prisoner for entering the territory illegally, he was escorted to Santa Fe to dispose of his goods. Trade became centered in Santa Fe, and goods overflowed into the Mexican provinces, where many merchants found lucrative markets for their wares. Trade with Santa Fe in turn brought Mexican silver coins, furs, wool, and raw materials to the north. Despite the increase in trade, conflicts with local Native Americans and a lack of adequate finances continued to plague New Mexico.

It is not known if conditions in Santa Fe improved under Mexican rule. However, the opening of free trade routes with U.S. industrial centers provided an economic boost to the area. Several civic projects were undertaken to beautify the town. The Mexican Period ended abruptly with the annexation of New Mexico by the United States, an event that went largely unnoticed by most of the population outside of Santa Fe (Simmons 1988; Elliott 1988:34–35; Hordes 1990; C. T. Snow 1999; Lentz 2004, 2011).

Territorial Period (1846–1912)

The short-lived Mexican period ended when General Stephen Kearny accepted the surrender of Acting Governor Juan Bautista Vigil y Alaríd. The U.S. flag was run up over the Palace of the Governors on Aug. 18, 1846. Through the Treaty of Guadalupe Hidalgo, enacted Feb. 2, 1848, the Mexican War ended, and U.S. dominion in New Mexico was established.

In 1850, New Mexico was officially made a territory of the United States. Under Territorial U.S. laws, Pueblo Indians were afforded the same rights as all U.S. citizens. In Santa Fe, the American government made plans for Fort Marcy, erecting earthen embankments on top of what is now known as Fort Marcy Hill. Constructed in preparation for any local resistance to the American presence, the fort was never occupied, although it appears to have been placed at that location to enforce U.S. hegemony over the former Mexican province.

Instead, the complex of barracks, buildings, and corrals constructed just north of the plaza became known as Fort Marcy. The fort was officially decommissioned in 1895 but was used intermittently by the military until 1906, when the Fort Marcy Hospital became Santa Fe High School (Barbour 2011:73–145; Lentz and Barbour 2011:63–145).

During the American Civil War, the Army of the Confederacy fought to gain control of the Santa Fe

Trail in northern New Mexico. The Confederacy's strategy was to take over the proposed Southern Pacific Railroad route near the Mexican border. Uniting the Confederacy with transportation routes to the ports and gold fields of California would have bolstered the economy of the southern states and given the Confederate Army military and political power over most of the country. The Confederates also planned to annex a portion of Mexico. According to its architects, the vast territory would add to the South's slave-based economy, which would then stretch from the Pacific to the Atlantic (Barbour 2011; Lentz and Barbour 2011).

In February and early March of 1862, the Confederate Army, under the command of Brigadier General Henry Sibley, successfully defeated Union troops at Valverde, New Mexico. The Confederate Army briefly controlled a portion of New Mexico along the Rio Grande from El Paso to Santa Fe and occupied Fort Marcy in March 1862. Sibley planned to capture Fort Union, east of Santa Fe. In its role as the protector of the Santa Fe Trail, Fort Union served as the headquarters and supply depot of the Department of New Mexico and played a key role in maintaining control over the entire territory.

The Battle of Glorieta, which took place along the Santa Fe Trail in Glorieta Pass, resulted in the Union Army taking control of New Mexico (Swanson 1988). During the decisive battle, both armies formed at opposite ends of Glorieta Pass. On the morning of March 28, 1862, both sides advanced simultaneously and a pitched battle was fought in the woods at Pigeon's Ranch, near Pecos. Although the battle itself was a Confederate victory, Sibley conceded defeat after receiving word that a Union detachment had diverged, crested Glorieta Mesa, and destroyed the Confederate supply train at Johnson's Ranch. The Confederate forces retreated from New Mexico, returning to Texas with one-third of Sibley's original troops. The Battle of Glorieta forced the Confederacy to abandon their plans to conquer the West, and the Union Army retained control of a main military supply route: the Santa Fe Trail (Swanson 1988; National Park Service 1990).

Following the Civil War, livestock became the dominant industry in the western valleys and in the Llano Estacado, east of the Pecos River. Undaunted by Comanche, Navajo, Ute, and Apache raids, New Mexico cattle and sheep industries thrived as new markets opened in the eastern United States. In the 1870s, conflicts between cattlemen, sheep ranchers, and homesteaders resulted in the Lincoln County range wars, which ended only after the intervention of federal troops during the administration of Gov. Lew Wallace. Opportunities in land speculation led to the formation of the Santa Fe Ring, a group of attorneys, businessmen, ranchers, and promoters who controlled both economic and political life in the territory. Many prominent New Mexican citizens played a role at this time; these included Lawrence Murphy, John Chisum, John Tunstall, and Thomas B. Catron. Gunmen like Frank McNab and Billy the Kid were employed as "enforcers" (Mullin 1968).

Opened at the beginning of the Mexican Period, the Santa Fe Trail had brought a minor economic boom to Santa Fe. The arrival of the railroad signaled the demise of the famous trade route. The first train of the Atchison, Topeka and Santa Fe Railway arrived in Las Vegas, New Mexico, on April 4, 1879. Though Santa Fe citizens prepared themselves for a boom, bad planning meant the main line of the railroad bypassed the city. The train stopped instead at a depot at Lamy, more than 20 miles from Santa Fe. The lack of accessibility gradually brought about a general business decline, and, after 1880, Santa Fe lost its prominence as a social and economic center. In 1883, in an effort to revitalize the economy, the town council created a fictitious celebration, the Tertio-Millennial. Although not nearly as successful as its sponsors had hoped, the Tertio-Millennial made Santa Fe a tourist destination (Hannaford 1997:5; Barbour 2011:414).

In 1869, a French Franciscan priest, Jean Baptiste Lamy, began construction of the St. Francis Cathedral on the adobe remains of the previous 1806 "fifth" Parish church (Chavez 1947). Archbishop Lamy brought a strong stabilizing presence to Santa Fe society, previously known for its unruly "Wild West" atmosphere. Lamy died in 1884, two years before the cathedral was completed.

New Mexico failed to obtain statehood in 1850, 1867, 1870, and again in 1889. Finally, President William Howard Taft signed a bill making New Mexico the 47th state of the Union on Jan. 6, 1912.

4 ⸸ Archaeological and Cultural Properties in the Project Area

Locations of known archaeological sites within 500 m of the project area are shown in the Appendix (Fig. A.1) (NMCRIS Map Server accessed March 3, 2017). Archaeological sites within 500 m are also summarized in the Appendix (Table A.1). No registered cultural properties are located within the 100 m vicinity or the 500 m buffer zone of the project area. One archaeological site sits within the 100 m project vicinity buffer around the proposed project area, but the location of this site appears to have been entered in error.

Archaeological Sites

Of the sites within the buffer area, only one is in the vicinity and is relevant to this monitoring project: LA 132265. This site is identified in the NMCRIS database only as "Ditch 25" and was attributed to Cross Cultural Systems when the NMCRIS record was created. Its NMCRIS location is just to the north of the project area, but the site does not correspond to any relevant feature of the current built environment.

A segment of the Arroyo Tenorio acequia is present as a masonry lined ditch just north of the project area but not at the NMCRIS location for LA 132265. As part of the research for this plan, OAS tried to reconcile these apparent conflicts by contacting Nicole Ramirez-Thomas of the City of Santa Fe Historic Preservation Division, Cordelia Snow of the Archaeological Records Management Section (ARMS) of New Mexico Historic Preservation Division, and David Snow of Cross Cultural Research Systems.

The NMCRIS record was created by Anna LeBauve, but without further research, OAS cannot determine the context of the record creation. There are no paper records at ARMS to support the NMCRIS record. The "Ditch 25" designation and the attribution of initial activity to Cross Cultural Research Systems imply that LA 132265 is associated with the work of David Snow. David Snow used only numbered irrigation ditch designations in the context of his 1988 study of the Santa Fe acequia systems, and the only numbers used were those defined the 1914–1919 State Engineer's map of Santa Fe acequias. In that context, any use by David Snow of "Ditch 25" would apply exclusively to the Acequia de Las Joyas (D. Snow 1988:41–42). The Acequia de Las Joyas lies between Agua Fria Street and the Santa Fe River, traceable intermittently downstream from the vicinity of Nazario Street. The Nazario Street location is ca 1700 meters to the west of the NMCRIS map location for LA 132265.

OAS determined that circumstantial evidence points to a miscalculated or incorrectly entered UTM for LA 132265 that had been intended to apply to Ditch 25, and that this site was not relevant to the monitoring project.

5 ⇓ Historic Map Information

In the absence of previously acquired archaeological information from within or immediately adjacent to the project area, the best predictors of what cultural resources might have been found within the project area were historic maps of Santa Fe. The discrepancy concerning LA 132265 suggests that historic review should take into consideration both the built environment and the acequias.

Jose de Urrutia's Map, 1766

No available records detail what might have been located within the project area during the Spanish Colonial period until the 1766 Jose de Urrutia's map of Santa Fe (Fig. 5.1).

Linking modern and eighteenth century features can be problematic, but based on the relatively stable locations of the Camino de Galisteo and the Acequia Regadio, Matt Barbour et al., in a 2014 report, placed excavations for the Capitol Parking Structure and the proposed Executive Office Building at the approximate location marked in blue in Figure 5.1. This places the Gomez Road monitoring project south and east of the Capitol Complex. It is likely that the Cienga Street monitoring project included areas that do not appear on the Urrutia map but are further south.

Most of the buildings documented by Urrutia are located between the Acequia Regadio and the Santa Fe River, with a slight tendency for buildings to be concentrated in the area of the two Caminos de Pecos. Although no buildings are noted along the Camino de Galisteo south of the Acequia Regadio, several buildings are indicated to the west of the project area. The project area itself is characterized with the symbol for field locations. This does not preclude the existence of structures in the area at other times within the Spanish Colonial period and suggests that OAS might have found evidence of ditch irrigation features during this project. However, OAS encountered no evidence of Spanish Colonial period habitation structures.

Gilmer's Plan of Santa Fe, 1846–1847

The project area also appears to have been vacant in the mid-nineteenth century as indicated by Lt. Jeremy F. Gilmer's Plan of Santa Fe, 1846–1847 (Fig. 5.2). Barbour again used the irrigation canal and Galisteo Road to establish the approximate location of the Capitol Complex neighborhood investigations (Barbour et al. 2014). The relative position of the Gomez Road monitoring project was to the south and west between Galisteo and Cerrillos Roads. Gilmer does not use his symbol for cultivated fields at this location, and without any indications of buildings, the project area appears to be vacant.

King's Map of the City of Santa Fe, 1912

The modern residential landscape of the project area begins to take shape in the early twentieth century and can be seen in King's Official Map of the City of Santa Fe, 1912 (Fig. 5.3). Lots within the project area are defined, and the first official subdivision is taking shape at the southeastern corner of the project area. Lots in the project area are attributed to "Mauricio Gomez." No structures are yet indicated inside the project boundary, but two structures on the Gomez lot front Hickox Street (Paseo de Peralta). The Arroyo Tenorio acequia bisects the Gomez property near its north end.

Sanborn Fire Insurance Maps, 1886–1948

Sanborn Fire Insurance Maps provide snapshots through time of historic structures within Santa Fe. The usefulness of the earlier (1886–1921) Sanborn maps of the project area is poor. Residential development within the project area is either non-existent or there were too few buildings to warrant the mapping of the neighborhood. The 1930 Sanborn map reflects the sporadic nature of subdivision development within the project

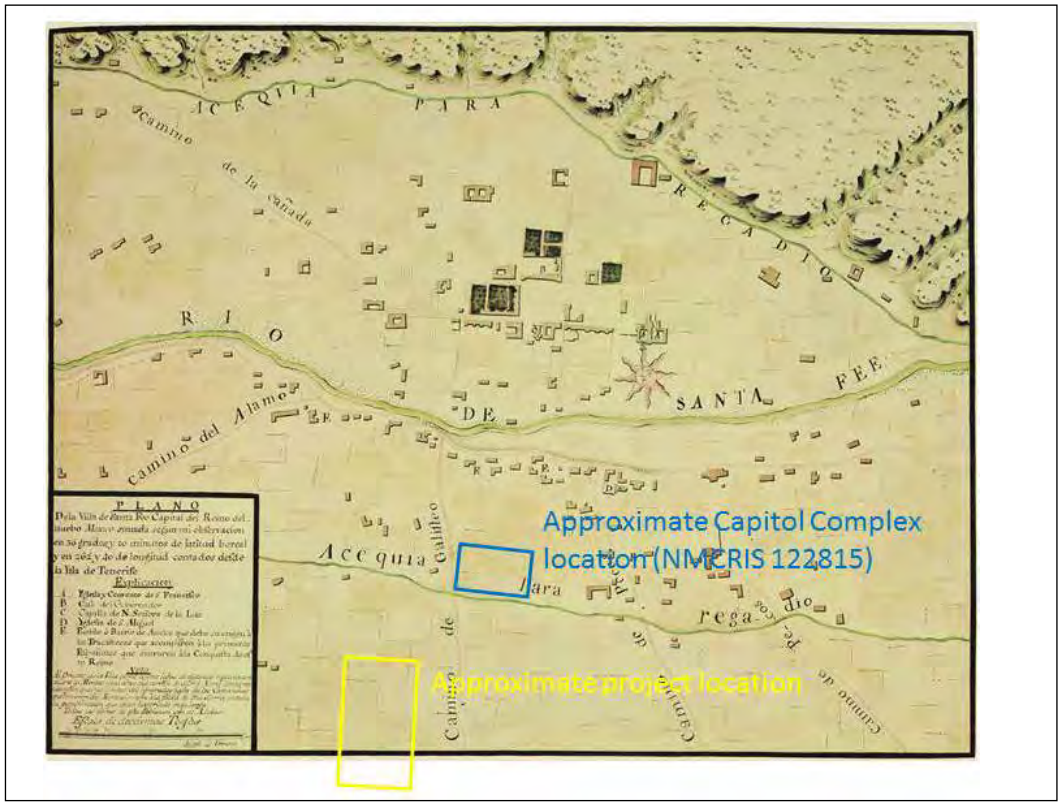

Figure 5.1. Jose de Urrutia's map of Santa Fe (1766).

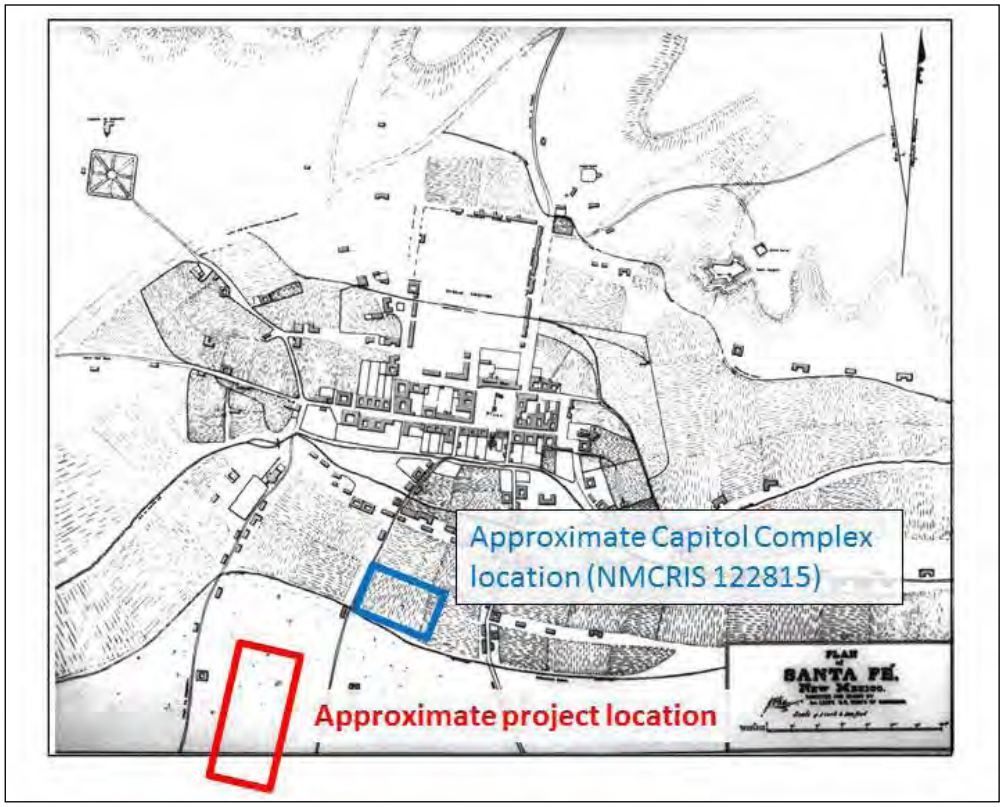

Figure 5.2. Lt. Jeremy F. Gilmer's Plan of Santa Fe (1846–1847), with project location.

Figure 5.3. King's Official Map of the City of Santa Fe (1912), with project location.

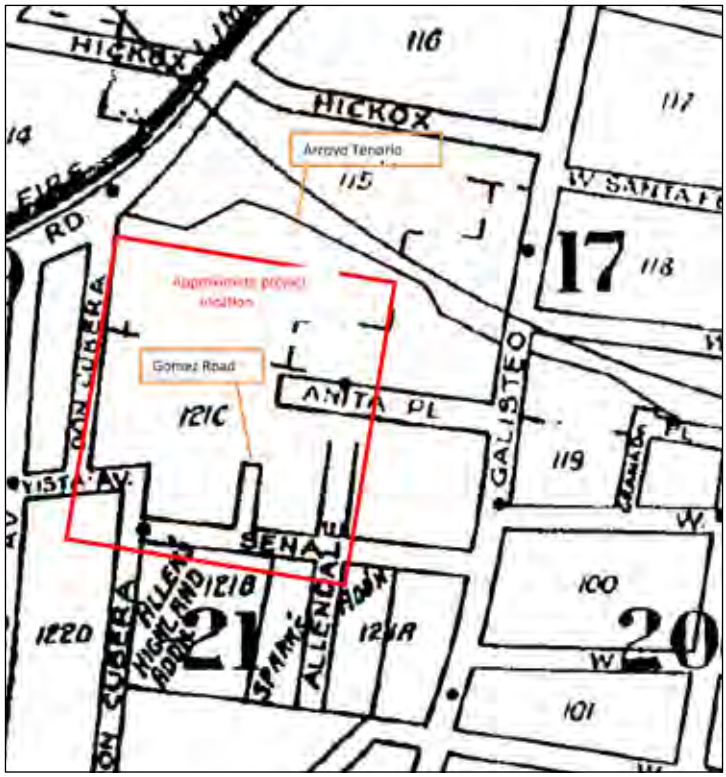

Figure 5.4a. Detail of Sanborn Fire Insurance Map, Santa Fe, Sheet 1, (1930), with project location.

Figure 5.4b. Detail of Sanborn Fire Insurance Map, Santa Fe, Sheet 1, (1930), with project location

area and does not cover the area as a whole. The neighborhood may have been considerably more populated than is indicated by the Sanborn maps of 1930 and 1930/1948, since T*he Santa Fe New Mexican* references specific addresses, including houses, that are not mapped (Chapter 14). On the street layout overview of the 1930 Sanborn map, Gomez Road appears as a dead-end stub extending north from Sena Street; Rael Road is nonexistent (Figs. 5.4a, and 5.4b). A few homes appear on Anita Place; one home is located on Sena Street, but otherwise the area is vacant. By 1948, many more homes appear at the southern end of the project area, but the northern portion up to Hickox Street and including Arroyo Tenorio is informally depicted as "Gomez" (Fig. 5.5a). The current day route of Anita Place is shown, but only the western portion of Rael Road existed at that time. Rael Road is not included on the detailed 1930/1948 street map, and only homes were depicted on Anita and Gomez. Just north of the project, the Arroyo Tenorio acequia alignment is indicated, coinciding with the representation on King's 1912 map (Fig. 5.5b)

Acequias

David Snow (1988) synthesized the available evidence for acequia systems in the Santa Fe area, building on work compiled by the Hydrographic Survey of 1914 and the New Mexico State Engineers Office survey of 1977. The approximate project area location is overlain on Snow's map of major acequias in Figure 5.6. The project area is bracketed by the Arroyo Tenorio acequia on the north and a branch of the Acequia Madre to the south. The southern boundary acequia is not reflected in historic maps cited earlier in this plan, but its existence is consistent with the areas of fields indicated on the 1766 Urrutia map.

Snow's research (1988) and OAS' experience in the Santa Fe Railyard (Badner et al. 2013) and other Santa Fe projects demonstrate that acequia alignments are extremely variable through time. Given the scarcity of a built environment and the long history of agricultural use, OAS anticipated that water distribution systems such as ditches and acequias would have been present within the project area. No such features were encountered.

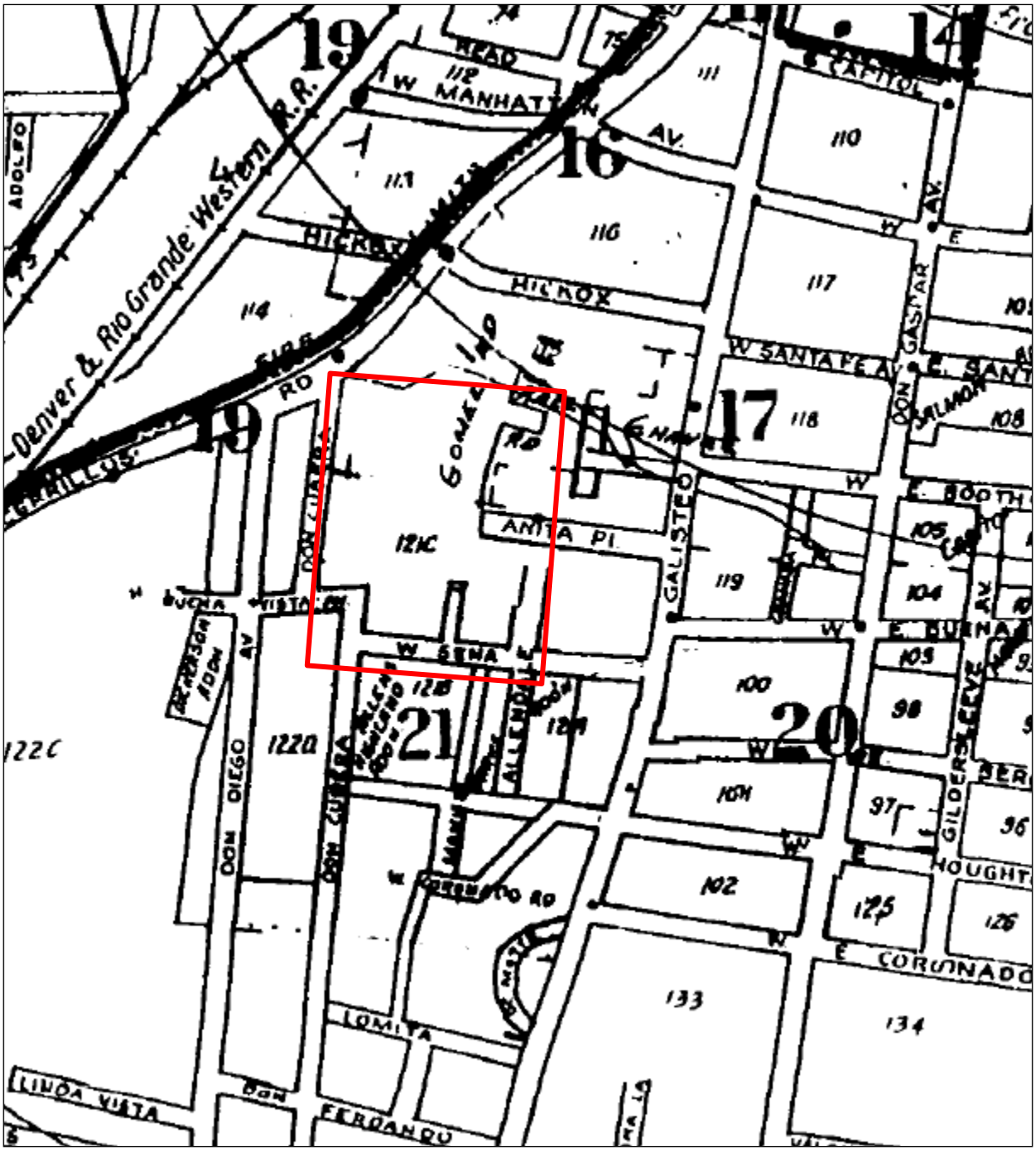

Figure 5.5a. Sanborn Fire Insurance Map, Santa Fe, Sheet 1 (1930/1948) with project location.

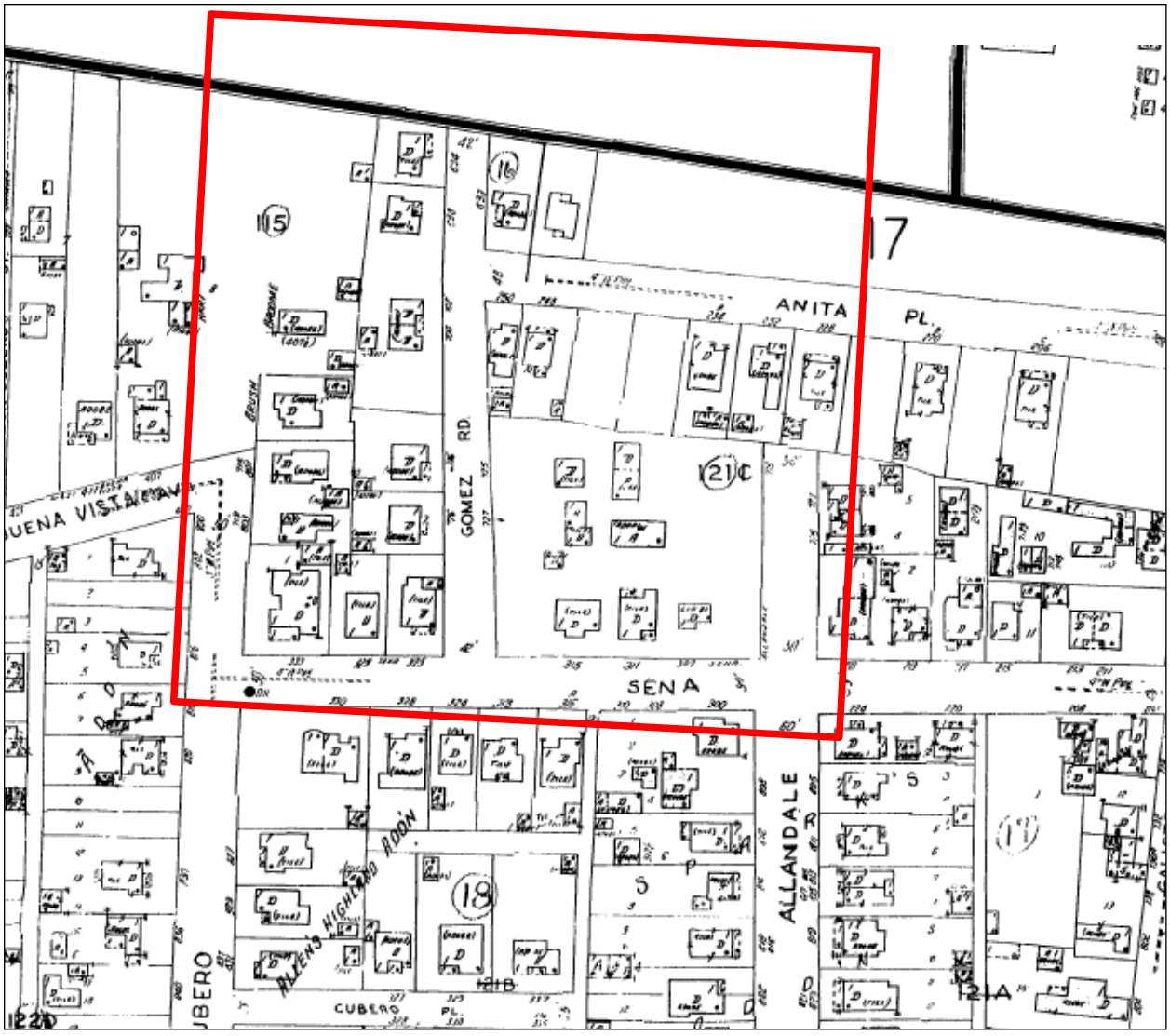

Figure 5.5b. Sanborn Fire Insurance Map, Sheets 17 and 21 (1930/1948) with project location.

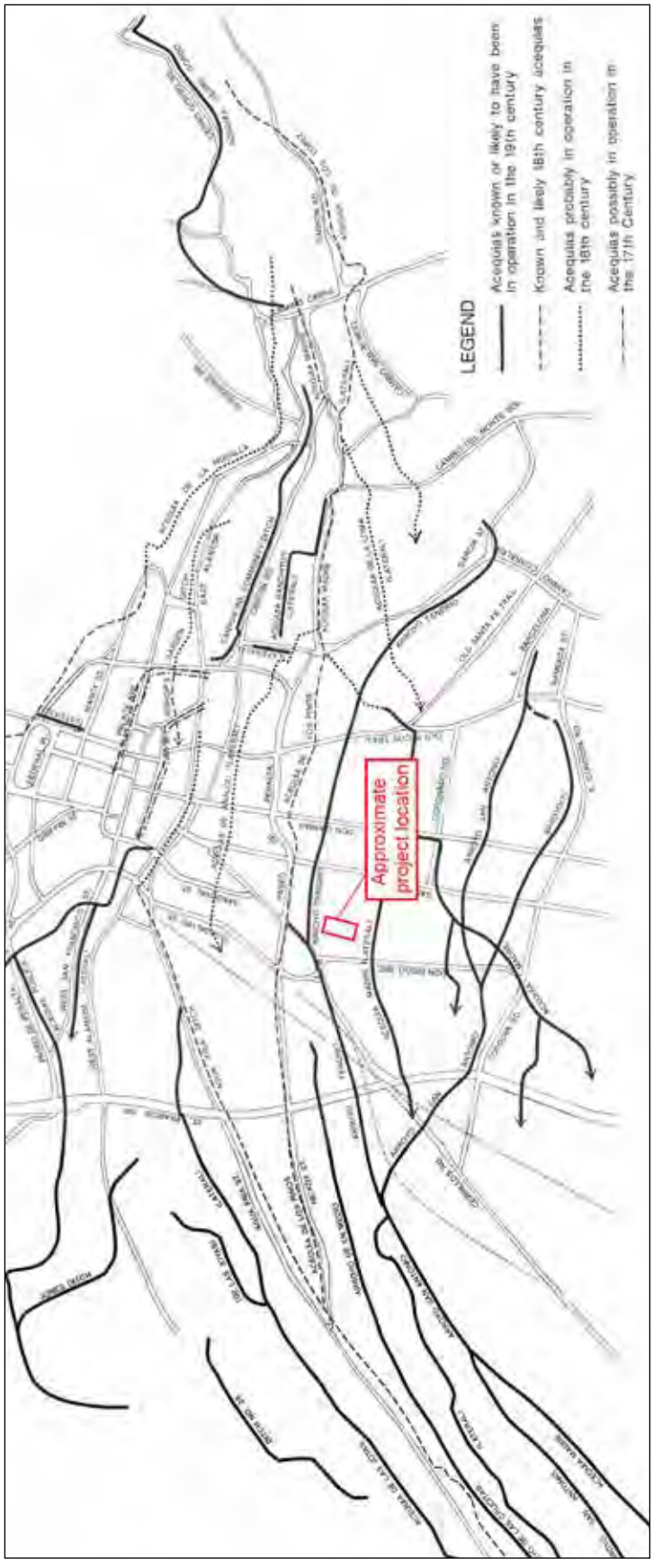

Figure 5.6. Major historic acequia systems of Santa Fe.

6 ⇓ Field Methods, Personnel, and Reporting Schedule

Eric Blinman served as principal investigator for the project. Monitoring was conducted by Karen Wening and Susan M. Moga under the supervision of James L. Moore, as needed. This document serves as the preliminary report on the monitoring project. Per NMAC 4.10.17 Standards for Monitoring, this report includes a brief description of the project, a project map, an account of monitoring activities, and a final report schedule.

All field recording was conducted on standard OAS feature and excavation forms under the provisions of General Permit NM-14-027-M. Field notes include sediment descriptions using a Munsell soil-color chart and standard geomorphological descriptors, notes on artifact variety and frequency, evidence of disturbance, horizontal and vertical locations and associations, excavation technique, and temporal associations. Written descriptions were recorded on standardized forms. All profile or elevation drawings include a scale, north arrow, and key to abbreviations and symbols. Trench and other locations were plotted using Global Position System coordinates and are shown on an aerial photograph, topographic map, and other graphics related to the project.

Had features been identified during excavations, they would have been mapped and recorded, requiring temporary suspension of hand or mechanical trenching to allow archaeologists to manually expose and recover artifacts as well as sample and document cultural deposits and features within the trench using standard OAS feature forms. Further documentation would have included detailed profiles, photography, artifact sample collection from the excavated wall, and test excavation. Chronometric and flotation samples would have been collected from burned or charred deposits to help date and characterize the nature of the deposits. No acequia deposits were encountered, but luminescence samples would have been collected from these based on the age and condition.

No human remains were encountered. If remains had been encountered, the monitoring plan stipulated a cessation of mechanical excavation within a 50 foot buffer as well as OAS notification to PNM and PNM consultation with the City of Santa Fe Police, OMI, HPD, and ARC. Finally, if avoidance of the remains was not feasible, the OAS Annual Unmarked Human Burial Permit would be activated and the remains excavated by OAS in accordance with 4.10.11 NMAC following methods on file with HPD.

Standard OAS data recording applied to this project and included sediment descriptions using a Munsell soil-color chart and standard geomorphological descriptors, notes on artifact variety and frequency, evidence of disturbance, horizontal and vertical locations and associations, and notes on excavation techniques and temporal associations. Written descriptions were recorded on standardized forms. All profile drawings include a scale, north arrow, and key to abbreviations and symbols. Excavated areas were plotted using Global Position Systems coordinates and are indicated on an aerial photograph, a topographic map, and other graphics related to the project.

Trench walls were examined for exposed cultural deposits and features and for evidence of undisturbed natural strata. Swaths of exposed trench walls that included undisturbed deposits and types of natural strata were faced with hand tools for detailed examination and documentation. Functionally or temporally diagnostic artifacts were opportunistically collected from the back dirt.

Excavation records include photographs of the excavated areas and exposed cross sections of deposits. Photographs include a metric scale, north arrow, and label board with the project number and date. Most profiles were documented with a series of overlapping photographs to encompass longer swaths of trench walls. These overlapped shots are used in several Chapter 9 figures. In some cases, the edges of individual photos are visible due to changes in light between shots. All field recording was conducted on standard OAS feature and excavation forms under

the provisions of General Permit NM-17-027-M. Recovered artifacts and samples were assigned a field specimen (FS) number that was recorded on related excavation forms and bags and listed in an FS catalogue. Artifacts and samples collected during the investigation were cataloged, processed, and analyzed by OAS personnel or qualified subcontractors.

The final report will include a brief cultural, historical, and interpretive context; a brief description of the project location and purpose; field methods employed; a description of the subsurface stratigraphy consisting of natural and cultural layers; any artifact analysis that has been conducted; and characterizations of recovered artifacts and samples. The report will provide interpretations, any necessary significance recommendations, and management recommendations for any cultural resources encountered.

A draft copy of the final report will be submitted to the City of Santa Fe Water Department for review and comment within 6 months of the field work completion, depending on the findings. Once the report has been reviewed by the City of Santa Fe Water Department (the process is expected to take two to four weeks, depending on findings) it will be submitted to both SFCHPD (ARC) and NMHPD with all required NMCRIS forms and files.

Once any comments have been addressed, a final report will be produced by OAS within six months of the receipt of review comments. Artifacts will be submitted for permanent curation with the Archaeological Research Collections of the Museum of Indian Arts and Culture in Santa Fe upon acceptance of the final report. Sufficient copies of the final report will be produced to fulfill the client's distribution needs and statutory requirements.

7 ⇓ Waterline Excavation Methods

In most locations, asphalt or concrete road surfacing had to be removed prior to excavation. Gomez Road, Anita Place, and Rael Roads are surfaced with asphalt, and Sena Street is surfaced with concrete. In all road areas, trenches were resurfaced with identical materials after archaeological documentation and utility installation. Utility trench excavation was conducted with a backhoe with a 32 inch wide bucket. Mechanical trenching was employed when trench alignments did not intersect other utilities. Hand trenching was conducted when care was needed to avoid damage to existing utilities. A combination of mechanical and hand-excavation techniques was used in residential service trenches between the street edge and water meters. This was also true of areas that required tunneling. The process was often expedited by loosening the sediments with the backhoe prior to and during hand excavation. Hand excavation was always used to extricate old water meter cans on private property. The size and depth of excavations required for each of these types of excavations varied considerably. Backhoe trenches varied from 1.22–22.50 m long, from 0.76–3.17 m wide, and from 0.30–1.80 m in depth.

All trenches overlapped pre-existing trenches related to the earliest infrastructure in the area from the late 1920s to recent decades. As a result, most of the fill removed from the trenches was reworked. Some trench walls provided profiles of previously undisturbed sediments, though these were almost invariably non-cultural. This was most in evidence on Sena Street where extensive swaths of intact non-cultural sediments were observed, particularly in the higher-numbered segments uphill to the east and on Rael Road where densely concentrated alluvial rock deposits occupied the entire trench profile in some areas. Deeply reworked sediments dominated on Gomez Road and Anita Place in most trenches. In fact, cultural strata were identified in only three locations in the entire project. All of these were reworked as well. Two were found inside two old water meter cans on private residences. Another was found inside the trench dug to install the 1944 water main on Sena Street.

After the new waterlines were installed and archaeological documentation was completed, the trenches were backfilled and the road surfaces restored. In trenches containing high rock content, particularly at the north end of Gomez Road and along most of Rael Road, imported fill was used to backfill trenches. This occurred to a lesser extent on Sena Street and Anita Place. Up to two trenching/plumbing crews worked simultaneously, but work was generally conducted within the same vicinity to minimize impacts to residents and traffic patterns.

The average rate of excavation varied greatly depending on the type of installation, existing utilities, and weather. Generally, trenches dug for the main water line were the most expeditious, while hydrants, meter replacements, and tie-in connections required additional time. The most involved excavations were those that required the removal and replacement of old water meter cans within private property boundaries. These almost invariably necessitated tunneling under walls, sidewalks, and landscaping, often within cramped quarters.

Though virtually all installations involved trench excavation, the depth and dimensions of each type varied depending on the nature of the work required. Generally, main line trenches were the longest and narrowest, and tie-ins, hydrants, and residential services were shorter and wider. Depths were fairly comparable among all excavation types, though the removal of old meter cans often required slightly deeper excavation.

Trenches for Main Water Lines

Main water lines were installed on Gomez Road, Sena Street, and Anita Place (Figs. 7.1–7.8). Trenches ranged greatly in length from 3.48–22.50 m, though most were between 6–9 m. The shortest main line trenches were on Anita Place and Rael Road, and

Figure 7.1. Overview of all main lines and residential connections.

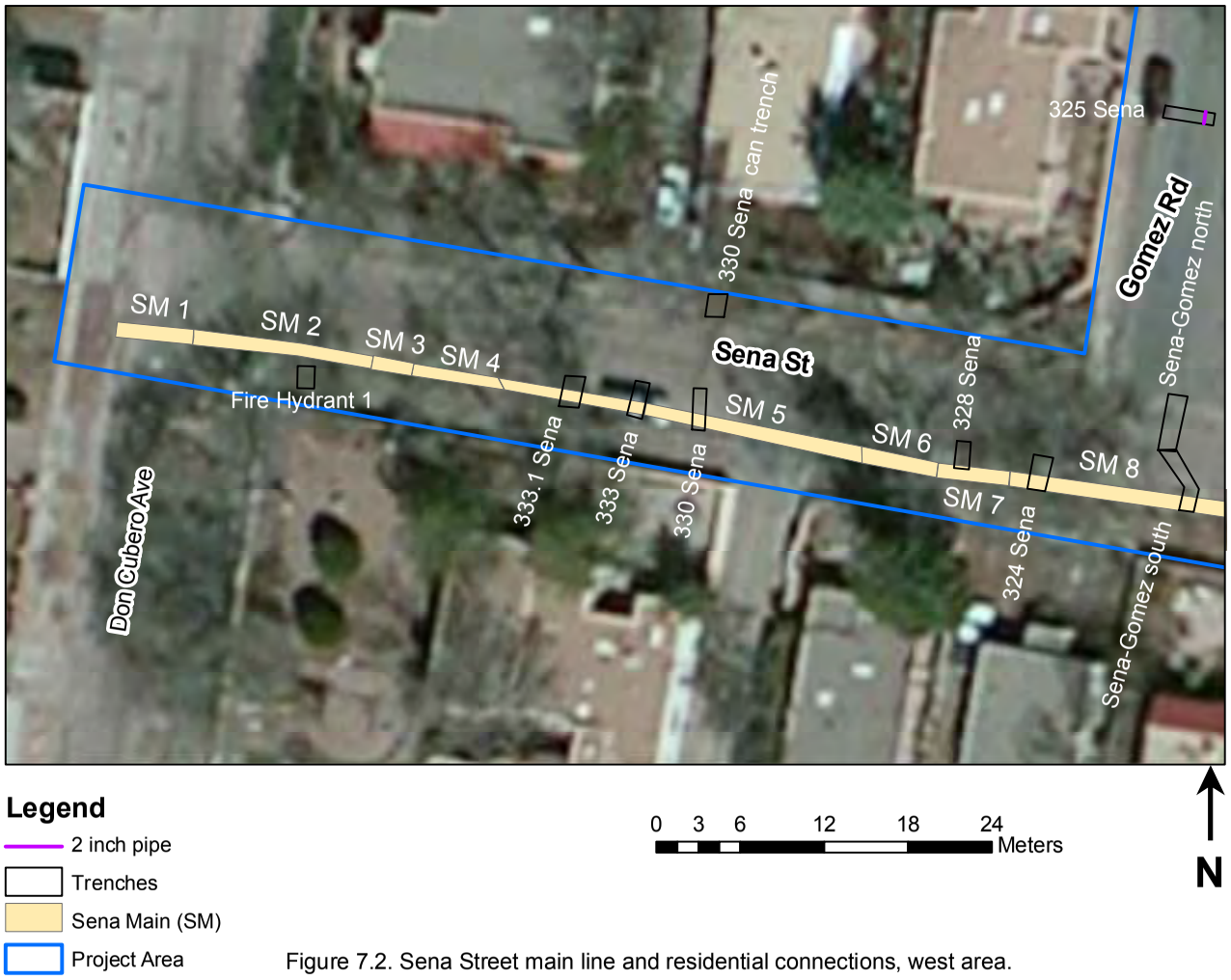

Figure 7.2. Sena Street main line and residential connections, west area.

Figure 7.2. Sena Street main line and residential connections, west area.

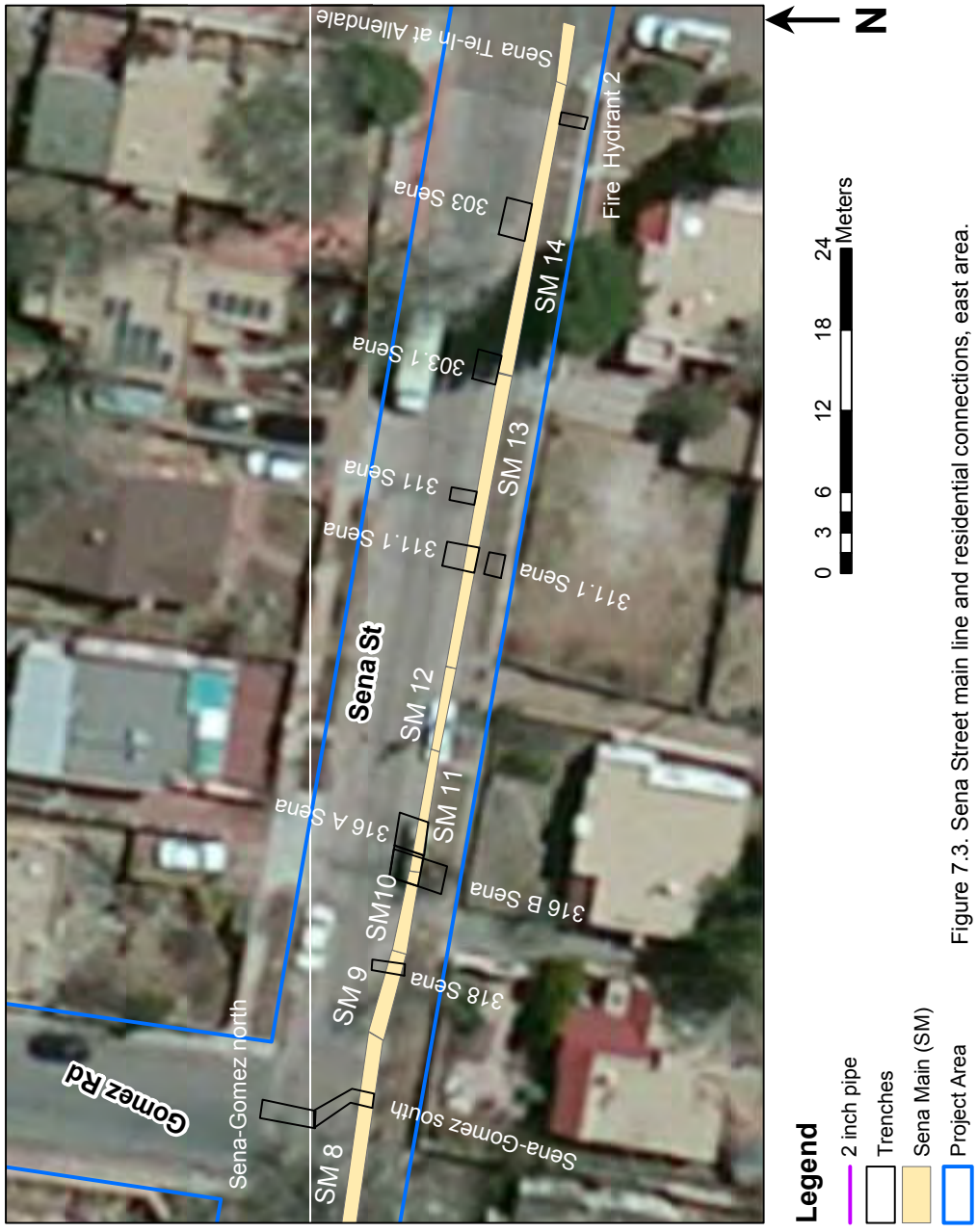

Figure 7.3. Sena Street main line and residential connections, east area.

Figure 7.3. Sena Street main line and residential connections, east area.

Figure 7.4. Gomez Road main line and residential connections, north area.

Figure 7.4. Gomez Road main line and residential connections, north area.

Figure 7.5. Gomez Road main line and residential connections, central area.

Figure 7.5. Gomez Road main line and residential connections, central area.

Figure 7.6.Gomez Road main line and residential connections, south area

Figure 7.6. Gomez Road main line and residential connections, south area.

Figure 7.7. Rael Road main line and residential connections.

Figure 7.7. Rael Road main line and residential connections.

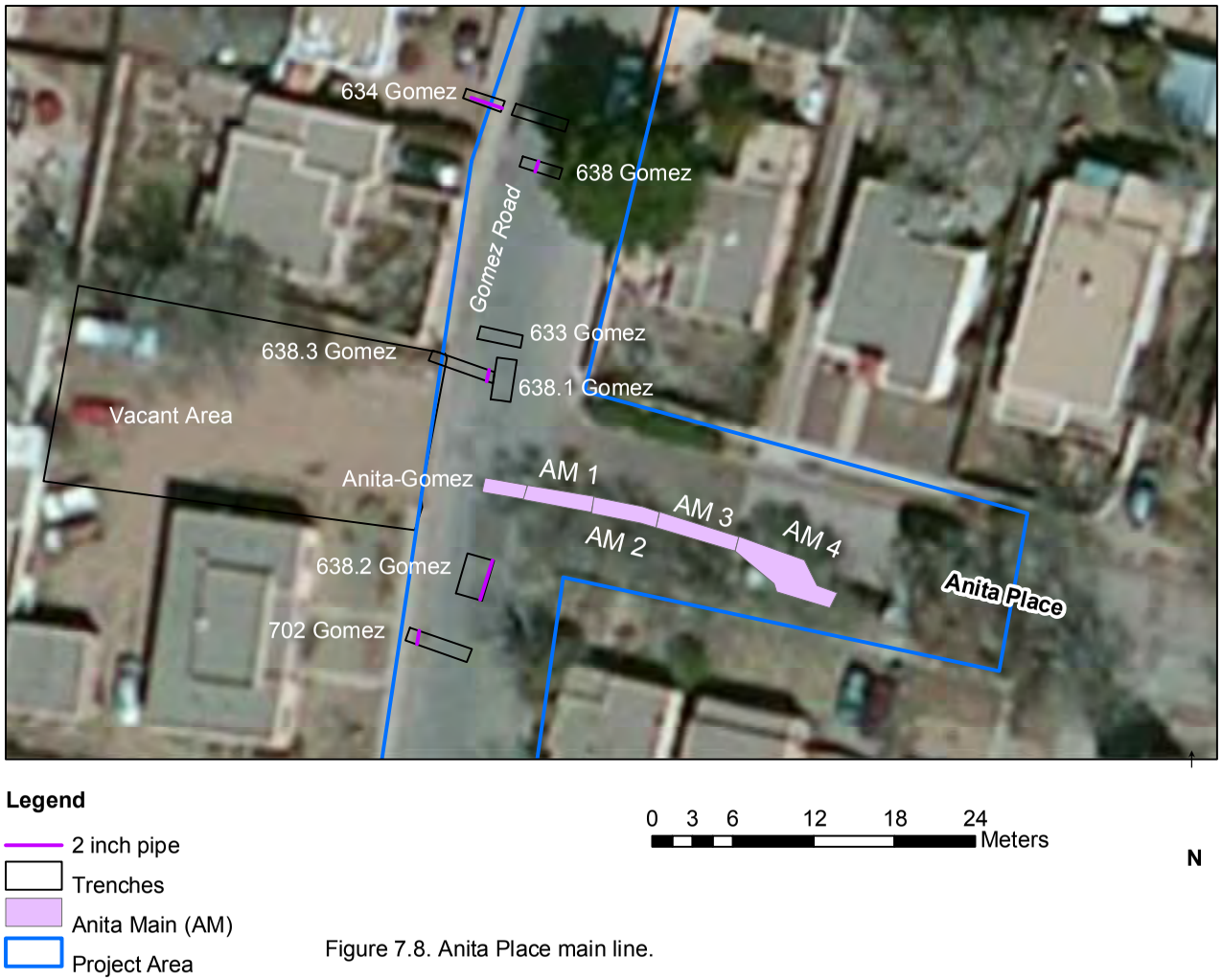

Figure 7.8. Anita Place main line.

Figure 7.8. Anita Place main line.

the longest were on Sena Street. Most trenches were dug to accommodate a single 18 ft segment of main line, but wherever possible, multiple segments were dug. Main line trench width ranged from 76–95 cm with only one exception on Anita Place where a wider excavation was required for the installation of a 6 by 4 inch reducer. Depth ranged from 1.08–1.73 m bgs, though most were between 1.58 and 1.63 m deep. After archaeological documentation was complete and the pipe segment was attached, backfilling began for that segment as excavation for the adjacent trench was initiated.

Following the excavation of each trench, a representative segment was chosen for profiling and was hand-faced with a trowel. Profiles were photographed with a photo board and horizontal and vertical scales, and were mapped on scaled graph paper. Multiple or extended profiles were completed only where significant variations in stratigraphy were observed. On Rael Road, eight main line segments (Rael Main 1–8) were excavated and ranged between 5.50 and 14.70 m long. A 2 m profile was drawn for each segment. Where existing utilities were complex, scaled plan maps were drawn showing locations. On Anita Place, four main line segments were excavated (Anita Main 1–4), ranging from 3.48–9.10 m long. A representative 2 m segment of each trench was chosen for profiling. On Sena Street, 14 main line trenches were excavated that ranged from 5–22.50 m long (Sena Main 1–14). Thirteen profiles ranging from 1.5–2.0 m long were drawn for the Sena Street main line.

Trenches for Residential Connections, Tie-Ins and Hydrants

Trenches for these installations were generally shorter, wider, and deeper than those for the main line. New residential connections were installed on Gomez Road, Rael Road, and Sena Street. On Sena and Rael, the replacement of existing water meters was greatly expedited by the fact that all were on public property and were far more accessible than those on Gomez. This allowed the crew to avoid tunneling under walls and excavating on private property. On Gomez Road, most of the old meters were located inside walled gardens or porches, requiring difficult hand-digging by the crew. No residential services were installed on Anita Place.

Residential connections required a three-step excavation. First, the main line was mechanically exposed in a trench beneath the street. This was followed by the removal of the old meter can, which involved hand-excavating to its base, lifting the old can out with the backhoe, and then clearing the area around the supporting platform around the meter. The order of these excavations varied, particularly on Gomez Road where coordination with residents was more complex due to their location on private property. Frequently, the street trench and the can trench for a single residential service were not open simultaneously. As a result, these were often documented individually but were recorded as a single unit whenever possible. Trenches for these varied greatly in depth and dimension depending on the location of the old meter and on whether they were combined or separated as described above. Length ranged from 1.22–8.08 m, width ranged from 0.80–1.66 m, and depth from 0.50–1.50 m bgs.

Hydrant Installation

Hydrant installation required the excavation of a contiguous trench from the main line to the appointed location for the new hydrant. The intervening area beneath the sidewalk was hand-tunneled. Since stratigraphy in the area of the new hydrant was usually far more intact than the trench to the main line, this area was profiled. Valve trenches were generally considerably broader than any other type in the project. Hydrant and valve trenches ranged from 1.40–4.46 m long, 0.87–1.88 m wide, and 1.26–1.82 m deep. Tie in trenches were similar in dimension to residential service trenches.

8 ⸸ Stratigraphy of the Project Area

To an overwhelming extent the excavations conducted during the Gomez Road monitoring project encountered non-cultural strata. This was true of all four streets where excavations took place, but despite the ubiquity of natural strata, each street possessed characteristics unique to that location. The numerous and lengthy trench excavations across these four streets provided an opportunity to observe stratigraphy over a very broad area, which in turn revealed several strong trends in the depositional environment in this neighborhood. One of the most notable of these was the presence of a deep, thick, rock-infused alluvial deposit at the bottom of Gomez Road not far from its intersection with Arroyo Tenorio (Stratum 3). Another was the almost universal occurrence of a deep silty clay layer that may represent ancestral Santa Fe River alluvium across nearly the entire project area. Also characteristic of many areas was the calcification of sediments. This varied considerably in intensity and morphology and attested to the stability and longevity of deep alluvial soils in this area.

Gomez Road excavations were characterized almost exclusively by sediments reworked during the installation of numerous utilities including the 1944 water main, gas lines, sewer lines, and a 4 inch water line that appeared sporadically running north–south parallel with the street. The latter was probably the first water main on Gomez Road. Occasionally, narrow segments of trench profiles retained intact strata, but by and large, sediments were redeposited. There was one primary exception to this pattern of redeposition on Gomez Road. At the extreme north end, a thick, deep alluvial deposit of large cobbles and coarse sand occupied the entire trench profile in some areas. Strata on Anita Place were almost invariably reworked, though the easternmost segment of the main line displayed an intact area. Rael Road displayed a fairly equal mix of the two, as some trench profiles were largely intact and others were completely reworked. Sena Street differed considerably from these other roads in that lengthy swaths of intact natural strata were exposed, offering the opportunity to document the soil calcification process characteristic of this area.

Stratum 1

Stratum 1 was the most ubiquitous layer of the project and was observed in all but three excavations at the lowest point of Gomez Road proximate to Arroyo Tenorio. This layer likely represents alluvial sediments deposited by ancestral flows of the Santa Fe River. The project area fell well within mapped ancestral routes of the river and alluvial slope deposits originating from the southwestern flank of the Sangre de Cristo Mountains (Johnson and Koning 2012:2). These alluvial deposits are constituents of the Ancha formation, part of the Santa Fe Group (Johnson and Koning 2012:3).

Generally, Stratum 1 blanketed the project area with increasing thickness with the rise of the land to the south and east. It was thin or absent at the north end of Gomez Road and at the west end of Rael Road, the lowest elevation in the project area. The color and texture of Stratum 1 were remarkably uniform in all excavations except where modern reworking with underlying strata increased rock content. Sediment consisted of silty clay (7.5YR 5/6, strong brown) with tiny caliche bits measuring less than 1 mm long and isolated small rounded gravel less than 3 cm long. Gravel and caliche content was minimal to absent, comprising fractional percentages only. Variations in the color and texture of Stratum 1 occurred only at its boundary with underlying Stratum 2, a heavily calcified layer. In most trenches, Stratum 1 occurred directly below the road surface and extended to the top boundary of Stratum 2.

Stratum 1 was virtually devoid of organic material. The primary exceptions to this were recent root intrusions from urban landscaping such as elm, fir, and locust trees. Bioturbation in the form of krotovina was observed only on Sena Street, where the burrows typically lay at the bottom boundary

of Stratum 1 and rarely intruded below this into Stratum 2.

Along Gomez Road, Stratum 1 was almost invariably reworked with Stratum 2 and, occasionally, Stratum 3. Where Stratum 1 was intact, it was consecutively underlain by Strata 2 and 3 with one exception: the trench at the intersection with Rael Road, where Stratum 3 was directly beneath Stratum 1. In some trenches along Gomez Road near Nos. 628 and 630, it occupied the entire profile down to 155 cm bgs. In at least one trench, it appeared to have been filtered prior to backfilling. A member of the Sub Surface crew stated that rocky fill was sometimes filtered at the yard and returned to the site to serve as backfill. However, in intact areas, the character of Stratum 1 did not vary from those in reworked contexts, and since rock content was minimal at best, there would presumably be no need to filter this layer.

Along Anita Place, Stratum 1 was reworked in every trench except Anita Main 4, at the far eastern end. In this trench, three discrete segments of Stratum 1 could be seen: a layer of the typically occurring silty clay, a layer of Stratum 1 that had been heavily mixed by worms, and a layer of lightly calcified Stratum 1. This was the only occurrence of discrete layering within Stratum 1 on the project. This was also an area of considerably broader excavation that encompassed intact stratigraphy

Along Rael Road, Stratum 1 did not occur at all in the westernmost 16 m of main line trench. East of this, it first appeared as a fairly thin layer below the asphalt, about 30 cm thick. It did not increase incrementally to the east, but rather thinned and thickened inconsistently from 7–52 cm. In most trenches on Rael, it directly overlay the dense rock of Stratum 3, the only area in the project where it did so. In the main line trenches in the eastern portion of Rael Road, sediments were so heavily reworked from utility installation that any intact occurrence of Stratum 1 was impossible to define. Also, much of the stratigraphy in this area had been completely replaced by gravel bedding for utility lines. This also applied to residential service trenches on Rael Road with one exception, at No. 249, where Stratum 1 was consecutively underlain by Strata 2 and 3, as on Sena Street. This was the only occurrence of Stratum 1–2–3 on Rael Road.

Along Sena Street, Stratum 1 consistently appeared directly below the concrete road surface. The lower boundary ranged from 80–150 cm bgs, and no clear trend existed in its depth from west to east. In fact, its two lowest points were near the extreme eastern and western ends of the street, interspersed by an undulating lower boundary. Its variable thickness was directly related to the degree to which it had become calcified. Stratum 1 was consistently underlain by Stratum 2, a densely calcified layer, in virtually every trench. The Stratum 1–2 boundary along Sena Street displayed some unusual variations that are discussed below.

Despite the reworked nature of Stratum 1 in most areas, some clear overall patterns were evident in the occurrence of this layer in the project area. Generally, Stratum 1 was thinnest or nonexistent in the lowest elevations and thickest in the upper elevations. At the bottom of Gomez Road, where it intersected with Rael Road, Stratum 1 was not present at all. Moving uphill to the south and east, Stratum 1 first appeared in comparatively thin layers and gradually increased to its deepest and thickest point on Sena Street, the high elevation point of the project.

Stratum 2

Stratum 2 was the most frequently observed layer in the project after Stratum 1. In most locations, Stratum 2 represented the calcification of Stratum 1, but Stratum 3 was also calcified in some areas. The silty clay texture of Stratum 2 was identical to Stratum 1, and its gravel content differed only in a comparatively high percentage of caliche bits, which ranged from 5–15 percent. Gravels other than caliche bits were rare, consisting of isolated, small rounded igneous rocks. Stratum 2 displayed a range of color depending on the degree to which it had calcified. The extent of this process varied among the four streets in the project. The less calcified range of Stratum 2 occurred along Gomez Road, where it was commonly reworked with Stratum 2 (7.5YR 6/4, light brown). On Sena Street and Anita Place, the calcification process was far more advanced, where color graded to nearly pure white (7.5YR 8/1, white).

In most locations, Stratum 2 was not strongly cemented, even where it was thickest. Generally, the weakest cementation occurred along Gomez Road. This is not an objective assessment since Stratum 2 was universally reworked in trenches on that street. Also, excavations on Gomez were generally shallower than those on Sena, where the

lengthiest stretches of intact Stratum 2 were exposed. Cementation was considerably stronger on Anita Place and, in particular, on Sena Street where it was thickest, but even in these areas clumps of Stratum 2 could be easily broken by hand.

Stratum 2 was almost invariably located beneath Stratum 1, where it represented the calcification of that layer. This was most evident on Sena Street and Anita Place. On Gomez Road, it was never intact since it was reworked with upper sediments. On Rael Road, Stratum 2 was considerably different. Rather than representing the gradual calcification of Stratum 1, here it was the result of calcification of Stratum 3, the dense alluvial rock layer. Interestingly, the strongest calcification of Stratum 3 occurred in the higher elevations in the eastern portion of Rael Road rather than in the lowest elevations at its intersection with Gomez Road. This is perhaps the opposite of what would be expected as water would be more likely to pool in the lower elevations, creating greater potential for calcification; but since elevated slopes would presumably dry faster, evaporative conditions would be more favorable for calcification. In Stratum 3, calcification was represented by caliche-coated rocks and coarse sand mixed with fine grained calcium carbonate. Its presence in Stratum 3 is detailed below.

One of the most interesting aspects of Stratum 2 was its unusual upper boundary on Sena Street, where varying patterns of calcification were visible in profile. In some areas, it was represented only by long, thin vertical columns stretching from the bottom of Stratum 1 down to the top of Stratum 3. In other locations, these vertical strips only extended partway down to Stratum 3, creating a stalactite-like profile. In still other areas, caliche occurred only as large globular lenses that rested on the lower boundary of Stratum 1. Clearly, the rate of calcification along Sena Street varied considerably and appeared to have no relation to elevation. The thickest, densest deposits were randomly dispersed along the entire length of the street where work took place. Interestingly, krotovina were more likely to occur on the upslope trenches along Sena Street. The westernmost krotovina were observed about 75 m east of the intersection of Sena and Don Cubero streets and continued to appear east to the intersection with Allendale.

The thickness and density of calcium carbonate on Sena Street suggests that this is an old, intact soil except in areas with obvious modern intrusions. Sediments and gravels within this layer were completely calcified, and gravels were entirely coated, one of the earmarks of long term calcification (McAuliffe 2017).

Stratum 3

This was the most distinctive natural layer in the project. Stratum 3 consisted entirely of large rounded cobbles mixed with coarse feldspathic granite sand. Rock size ranged greatly from small cobbles less than 5 cm long to large boulders up to 90 cm long. Material types were almost exclusively limited to feldspathic granite and micaceous schist, representing igneous and metamorphic processes associated with the Sangre de Cristo Mountains. An occasional black basalt cobble was noted, but these were quite rare. Quartzite, common in alluvial drainages in downtown Santa Fe, was completely absent in this deposit. Most of the micaceous schist rocks were decomposed, as is typical of this material in local deposits in Santa Fe. All rocks were heavily rounded.

One of the most striking characteristics of Stratum 3 aside from the presence of very large boulders was the completely unsorted nature of the deposit. Rocks of all sizes were thoroughly mixed in thick layers that occupied the entire trench profile in some areas. The absence of sorting, the extreme range in rock size, and the thickness of the deposit suggests a series of high energy alluvial episodes. Stratum 3 likely represents the subsurface deposits of the Ancha formation. The Ancha formation consists of granite-dominated gravel, arkosic sand (detrital sand rich in feldspar), and silt clay derived from the southwestern flank of the Sangre de Cristo Mountains (Johnson and Koning 2012:7). The lower alluvial deposits of the Ancha formation contain large amounts of cobbles and boulders and coarse-grained sediments. In the Santa Fe area, these cobble-infused deposits can reach a thickness of up to 120 ft, where they contain granite rocks and "coarse granite sand" (Johnson and Koning 2012). The high feldspar content of the granite creates the deep orange-red color of the sand of this layer, which ranges from 5YR 4/4 to 5YR 4/6, reddish brown to yellowish red.

In the project area, Stratum 3 was highest and thickest at the Gomez-Rael intersection. In all locations south and east of this, the top boundary

of Stratum 3 gradually occurred at increasingly lower depths, reaching a maximum of 1.64 m bgs on Sena Street. Interestingly, this drop in the upper boundary concurred with the rise of the land, indicating that Stratum 3 was relatively flat beneath the rising landscape of the project area. Along most of Sena Street, only the extreme upper extent of Stratum 3 was contacted during excavation where it typically consisted of coarse-grained arkosic sand.

The densest rock deposits were at the Gomez-Rael intersection, which is about 65 m north of Arroyo Tenorio, a stone-walled acequia dating to the mid-nineteenth century (D. Snow 1988:16). This drainage—along with Arroyo San Antonio, a short distance to the north—provides two major routes for alluvial deposition into the project area. At the Gomez-Rael intersection, thick rock deposits occupied entire trench profiles, a pattern that continued for 12 m east of this point. From 12–30 m, Stratum 3 continued to dominate trench profiles, but its upper boundary dropped to 30–50 cm bgs where a thin overlying layer of Stratum 1 began to appear. Beyond this, on Rael Road, the upper portion of Stratum 3 could not be characterized in trench profiles since all sediments were heavily reworked by a network of utility lines. In the easternmost main line trenches (Rael Mains 7 and 8), Stratum 3 had been completely removed down to about 1.10 m bgs to install gas, water, and sewer lines and had often been replaced with imported gravel bedding.

As was the case with Stratum 1, Stratum 3 was also heavily calcified in some areas, though the pattern varied somewhat. The heaviest calcification of Stratum 3 occurred on upslope locations rather than in lower areas more conducive to pooling. This was particularly true along Sena Street, where even coarse sand deposits were completely coated with caliche. This obscured the boundary between Strata 2 and 3 in some areas. On Rael, calcified layers of Stratum 3 were patchy, though they existed only on upslope areas rather than swales. For instance, the downslope segments were completely caliche-free, but upslope of these, a heavily calcified layer appeared, thinned out dramatically, and then disappeared entirely at the top of the street.

The dense concentration of rocks, boulders, and coarse sand made for difficult digging even by mechanical means. As such, the fill was unsuitable for backfill for the new water main and was removed from the site and replaced by imported infill.

Cultural Strata

Three cultural strata were identified during the project: Strata 4, 5, and 6. The first two were encountered in meter can replacement trenches on private property. The third was inside the 1944 water line trench at the intersection of Sena-Gomez. All three cultural strata had been reworked by twentieth century utility installation.

Stratum 4

This layer was found inside the 1930s meter can on private property at 634 Gomez Road. The cultural fill was confined entirely to the interior of the 25 cm high platform that supported the meter can and was not observed in any location beyond it. The fill consisted of dark brown sandy clay (7.5YR 3/3) and contained leather (n = 1), a miniature porcelain figurine (n = 1), bone (n = 1), and glass (n = 1). A small number of tiny coal fragments were dispersed throughout the fill. No charcoal was observed. Stratum 4 extended from 95–120 cm bgs. Modern trash was mixed with cultural fill throughout. This remixing indicated that Stratum 4 may have been reworked during the initial installation of the meter can in the 1930s and possibly again when new meters were installed inside the old can in the 1970s. Artifacts from Stratum 4 consisted of a miniature porcelain caterpillar, a nailed rubber heel fragment, and a piece of light green window glass, all of which were given broad date ranges (Chapter 10). Stratum 4 was not observed in any other location.

Stratum 5

Stratum 5 comprised the topsoil in unpaved areas, extending from the surface to a maximum of 30 cm bgs. In most locations, it was 10–15 cm thick. Stratum 5 consisted of dark brown sandy clay (7.5YR 3/4). Sediments were dark and unconsolidated and, in some residential locations, may have represented imported garden soil. Artifacts were found in this layer in only one location, 627 Gomez Road. Stratum 5 was observed on Gomez, Rael, and Sena.

Stratum 6

This layer was observed in one location—at the intersection of Gomez and Sena streets. It extended from 40–161 cm bgs inside the mid-twentieth century water line trench exposed in the west profile of the

Gomez-Sena trench. Stratum 6 was confined to the interior of the old trench and was heavily redeposited with Stratum 1 down to 135 cm bgs. From 135–161 cm bgs, it was far more concentrated, though it was also found in redeposited contexts at this depth as well. Sediments consisted of brown sandy clay (7.5YR 4/4) mixed with tiny coal bits, small concrete fragments, large charcoal chunks, and short pieces of wire. The total thickness of Stratum 6 was 119 cm, but there was far less remixing with Stratum 1 in the lower 26 cm at the bottom of the old water line trench. No artifacts other than the wire were observed in this stratum.

9 ⇓ Monitoring Results

Seventy-five individual excavation units were documented during the course of the project (Table 9.1). These were distributed between Gomez Road (n = 27), Rael Road (n = 13), Anita Place (n = 4), and Sena Street (n = 31). The greatest lengthwise proportion of these trenches occurred during excavations for the installation of 8 inch water mains on Sena Street, Anita Place, and Rael Road. No water mains were installed on Gomez Road. Trenches dug for residential connections to the main line comprised a smaller proportion of total trench length. These typically ran perpendicular to the main line and were located on Gomez Street, Rael Road, and Sena Street. No residential connections were performed on Anita Place.

The excavations for residential connections varied depending on whether the older meter cans required replacing and whether these connections were on private land. The most complex residential connections were on Gomez Road, where water meter cans dating to the earliest years of the neighborhood not only required replacing but were usually located inside private walled gardens and porches, necessitating removal of existing landscaping and digging in cramped conditions for the crew. Coordination with residents sometimes necessitated delaying digging on private property and focusing on the street trench dug to expose the main line in preparation for connection to individual homes. As a result, though these two trenches were ultimately contiguous, they were not always open contemporaneously and required separate documentation.

Wherever the can and water line trenches were exposed together, they are reported here as a single unit. "Stand-alone" street trenches on Gomez Road will be described as a unit. This treatment has merits beyond the order of excavation. Street trenches on Gomez were massively disturbed from the installation of multiple utilities, including the 1944 water main. Also, the old meter can trenches warrant individual description since they were more likely to retain intact strata and were almost invariably the source of the recovered artifacts.

On Rael Road, though meters were also located on private land, they were not within walled enclosures. This greatly expedited their removal and replacement. In all cases on Rael Road, trenches for meter removal and main line exposure were open together and are described as single units below. On Sena Street, most meter cans did not need to be replaced and required only connection to the new water main. In the two locations where cans did need replacing, two trenches were dug as a unit and thus described in this manner below. Trench lines for water main installation are described by street. Since water main trenches were contiguous, they are discussed as a unit for lines on Sena Street, Rael Road, and Anita Place.

Sena Street

The Sena Street main line excavations consist of 14 contiguous segments of main line trench, two tie-in trenches at the intersections with Allendale and Gomez, and two fire hydrant excavations at the east and west ends of the main line (see Fig. 7.1). Together, these excavations permitted a comprehensive overview of stratigraphic deposition on Sena Street. This street, to a greater extent than others in the project, was dominated by deep, intact alluvial deposits derived from ancestral routes of the Santa Fe River (Stratum 1). These were underlain by alluvial slope sediments deposited by smaller streams originating from the southwestern flank of the Sangre de Cristo Mountains (Stratum 3) (Johnson and Koning 2012:7). Sena Street excavations were overwhelmingly devoid of cultural remains, which were encountered in only two locations: one at the far west end and one at the intersection with Gomez Road.

The Sena Main line extended from the west edge of Don Cubero east to the intersection with Allendale Street for a total length of 153.2 m. The

Table 9.1. Gomez Road trench inventory.

Location	Line Type	Excavation Type	Trench Orientation	Length (m)	Width (m)	Depth (m bgs)	Northing	Easting	Strata	Artifact Counts	Artifact or Sample Types	Artifact Context
Gomez Road												
325 Sena	residential	trench	E-W	3.54	0.80	1.00	3948681.5	414381.8	1, 2 redeposited	–	–	n/a
622 Gomez	residential	trench	E-W	3.45	0.91	.54-1.22	3948880.7	414434.2	1 redeposited, 3 intact	–	–	n/a
624 Gomez	residential	trench	E-W	3.17	0.97	1.11	3948875.8	414431.3	base course, 1	1	metal can fragment	redeposited
626 Gomez	residential	trench	E-W	2.19	0.87	.50-1.08	3948858.2	414422.1	1, 3 redeposited	1	2" steel coupling	redeposited
627 Gomez	residential	can and trench	E-W	2.40	.94-1.66	.94-1.50	3948839.5	414420.3	1 and 3 redeposited; lower Strata 3 intact	3	saw bead, rubber ball, historic glazeware	redeposited
628a Gomez	residential	trench	E-W	2.89	1.66	.64-1.13	3948843.5	414415.2	1, 3 redeposited	1	2" steel coupling	redeposited
628b Gomez	residential	trench	E-W	2.57	1.21	.86-1.13	3948840.9	414414.2	1, 3 redeposited	–	–	n/a
630 Gomez	residential	trench (630A)	E-W	2.62	0.85	1.22	3948840.0	414413.6	1, 3 redeposited	–	–	n/a
		can (630B)	N-S	1.22	0.96	1.50	3948839.4	414406.9	1 redeposited, 3 intact	2	bottle, sewer cap	Strata 1 redeposited
631 Gomez (Luceros)	residential	can	E-W	2.97	1.13	1.40	3948827.3	414415.5	topsoil, 1	–	–	n/a
		trench	E-W	1.70	1	1.40	3948827.3	414416.3	1, 2, 3 redeposited	–	–	n/a
632 Gomez	residential	can	E-W	3.93	1.02	.86-1.33	3948814.7	414403.1	1, 2, 3 redeposited	5	metal, Pedernal chert flake, whole bottle, Territorial Pen bricks, PenTile	Stratum 1 and 2 redeposited fill next to old can
		trench	E-W	2.78	0.84	1.02-1.27			1, 3 redeposited in upper fill; 3 intact below	1	Madera chert core	3 (backdirt)
633 Gomez	residential	trench	E-W	3.40	0.80	.60-1.24	3948785.3	414396.3	1 redeposited	–	–	n/a
634 Gomez	residential	can and trench	E-W	8.09	1.02	.71-1.27	3948801.3	414399.6	1, 3 redeposited; lens of Strata 3 intact; Strata 4 in can	5	bone, porcelain figurine, rubber heel, glass	Strata 1 redeposited; Strata 4 inside old meter can
638 Gomez	residential	trench	E-W	2.70	0.88	1.00-1.30	3948797.7	414399.5	1 redeposited	–	–	n/a
638.1 Gomez	hydrant	trench	N-S	3.13	1.45	1.60	3948784.0	414394.5	1, 2 redeposited; 3 intact	–	–	n/a

Location	Line Type	Excavation Type	Trench Orientation	Length (m)	Width (m)	Depth (m bgs)	Northing	Easting	Strata	Artifact Counts	Artifact or Sample Types	Artifact Context
638.2 Gomez	hydrant	trench	N-S	3.05	1.88	1.09-1.33	3948766.4	414393.4	1, 2 redeposited in upper 1.3 m; intact below	–	–	n/a
638.3 Gomez	residential	trench	E-W	4.46	0.87	1.20	3948783.5	414394.4	1, 2, and 3 redeposited	1	bone	Stratum 1, 2 redeposited
702-704 Gomez	residential	trench	E-W	2.80	0.88	1.00-1.20	3948762.8	414392.6	1 redeposited	–	–	n/a
	residential	can	E-W	2.60	1.42	1.50	3948764.4	414388.1	1 redeposited	–	–	n/a
704 Gomez	residential	trench	E-W	2.63	1.23	.64-1.00	3948745.4	414390.0	1, 2 redeposited	–	–	n/a
706 Gomez	residential	trench	E-W	2.44	0.92	1.13-1.50	3948739.0	414388.8	1, 2 redeposited	–	–	n/a
716 Gomez	residential	trench	–	2.70	0.88	.70-.84	3948726.6	414387.6	1	–	–	n/a
716-726 Gomez	residential	trench	E-W	2.35	1.04	0.96	3948714.7	414385.3	1, 2 redeposited	–	–	n/a
726 Gomez	residential	can and trench	E-W	6.74	.87-1.60	.96-1.43	3948701.9	414383.9	1, 2 redeposited; 5 inside can	5	bone, Native ceramic, can, Euroam ceramic, eye glasses	Stratum 1, 2 redeposited
Gomez-Anita	hydrant	removal	N-S	1.70	1.23	0.30	3948766.5	414398.0	1 redeposited	–	–	n/a
Gomez-Anita intersection	line tap	trench	E-W	3.12	1.05	1.00-1.25	3948774.0	414396.5	1, 2 redeposited	–	–	n/a
Gomez-Rael intersection	line tap	trench	E-W	3.00	0.89	.95-1.10	3948862.7	414427.1	1, 3 intact	–	–	n/a
Rael main line												
Rael main 1	main line	trench	E-W	5.50	0.87	1.11	3948860.2	414431.9	3 intact	–	–	n/a
Rael main 2	main line	trench	E-W	6.80	0.87	1.30	3948857.8	414436.9	3 intact	–	–	n/a
Rael main 3	main line	trench	E-W	6.80	0.87	1.37	3948854.8	414441.3	1, 3 intact	–	–	n/a
Rael main 4	main line	trench	E-W	6.80	0.77	1.28	3948853.0	414447.4	1, 3 intact	–	–	n/a
Rael main 5	main line	trench	E-W	10.13	0.76	1.35	3948847.4	414457.5	1, 3 intact	–	–	n/a
Rael main 6	main line	trench	E-W	5.85	0.8	1.26-1.31	3948845.3	414461.8	1, 3 intact	–	–	n/a
Rael main 7	main line	trench	E-W	7.00	0.76	1.52-1.67	3948842.0	414468.6	1, 3 redeposited to 110 cm	1	glass	Strata 1 redeposited
Rael main 8	main line	trench	E-W	14.70	0.78	1.24-1.62	3948837.3	414479.6	1 redeposited; 3 intact	–	–	n/a
Rael residential												
625a-b Gomez	residential	trench	N-S	3.60	1.14	1.10	3948855.3	414445.96	1, 3 redeposited	–	–	na
		can	E-W	3.46	1.36	1.17	3948856.2	414448.33	1, 3 redeposited	1	can fragment	redeposited
245 Rael	residential	can	N-S	2.60	2.15	163	3948844.5	414460.0	1 and topsoil redeposited; Strata 3 truncated	–	–	n/a

Location	Line Type	Excavation Type	Trench Orientation	Length (m)	Width (m)	Depth (m bgs)	Northing	Easting	Strata	Artifact Counts	Artifact or Sample Types	Artifact Context
245 Rael	residential	trench	N-S	4.00	1.18	1.30-1.62	3948850.5	414462.9	1 and topsoil redeposited; Strata 3 truncated	–	–	n/a
247 Rael	residential	can	N-S	3.10	1.10	1.48	3948834.7	414463.3	1, 3 redeposited	–	–	n/a
		trench	N-S	3.02	0.80	1.48	3948841.3	414472.0	Import or filtered Strata 1	–	–	n/a
247.1 Rael	residential	trench	N-S	4.05	0.94	1.60	3948846.4	414464.5	base course, 3	–	–	n/a
247.2 Rael	residential	trench	N-S	2.52	0.84	1.10-1.18	3948843.2	414468.0	1 redeposited; 3 intact below copper	–	–	n/a
249 Rael	residential	trench	N-S	6.15	0.90	1.22	3948834.2	414479.3	1, 2, 3 intact	1	Dickey Clay Manufacturers sewer line fragment	3 redeposited
		can	N-S	2,65	1.90	1.45	3948834.6	414479.8	1 and import fill redeposited	–	–	n/a
Anita Place												
Anita main 1	main line	trench	E-W	3.48	0.90	1.08	3948774.2	414401.5	1 redeposited; 2	–	–	n/a
Anita main 2	main line	trench	E-W	5.00	0.78	1.32	3948772.9	414405.3	1, 2 redeposited	–	–	n/a
Anita main 3	main line	trench	E-W	6.80	0.87	1.60	3948770.9	414409.0	1, 2 redeposited; 3 truncated	–	–	n/a
Anita main 4	main line	trench	E-W	9.10	.87-3.17	1.35-1.60	3948767.0	414419.8	1, 2, 3 intact	1	bone	Strata 2 intact; 156 cm bgs
Sena main line												
Sena main 1	main line	trench	E-W	5.60	0.95	1.53	3948666.0	414308.7	1, 2 redeposited	2	bone	Stratun 1, 2 redeposited, 50 cm bgs
Sena main 2	main line	trench	E-W	17.20	0.82	1.41-1.68	3948663.5	414324.4	1, 2 redeposited; 3 intact	–	–	n/a
Sena main 3	main line	trench	E-W	6.40	0.82	1.50	3948662.6	414330.4	1, 2 redeposited; 3 intact	–	–	n/a
Sena main 4	main line	trench	E-W	10.30	0.82	1.50	3948660.8	414340.7	1, 2 redeposited; 3 intact	–	–	n/a
Sena main 5	main line	trench	E-W	16.80	0.85	0.15	3948657.7	414356.5	1, 2, 3 intact	–	–	n/a
Sena main 6	main line	trench	E-W	5.20	0.82	1.52	3948655.7	414362.8	1, 2, 3 intact	–	–	n/a
Sena main 7	main line	trench	E-W	5.00	0.83	1.73	3948655.8	414367.1	1 , 2 redeposited	–	–	n/a
Sena main 8	main line	trench	E-W	17.00	0.87	1.58	3948652.4	414384.2	1, 2 intact	–	–	n/a
Sena main 9	main line	trench	E-W	6.10	0.9	1.44	3948651.4	414390.0	1, 2 intact	–	–	n/a
Sena main 10	main line	trench	E-W	6.10	0.91	1.45	3948650.4	414396.7	1, 2 intact	–	–	n/a
Sena main 11	main line	trench	E-W	9.90	0.86	1.63	3948648.8	414405.8	1, 2, 3 intact	–	–	n/a
Sena main 12	main line	trench	E-W	6.10	0.82	1.54	3948645.9	414410.1	1, 2, 3 intact	–	–	n/a

Location	Line Type	Excavation Type	Trench Orientation	Length (m)	Width (m)	Depth (m bgs)	Northing	Easting	Strata	Artifact Counts	Artifact or Sample Types	Artifact Context
Sena main 13	main line	trench	E-W	22.50	0.81	1.57	3948643.8	414433.7	1, 2, and 3 intact and redeposited	–	–	n/a
Sena main 14	main line	trench	E-W	21.80	0.84	1.45	3948639.5	414455.2	1, 2 intact	–	–	n/a
Sena-Gomez	main line	trench	various; mostly N-S	5.80	0.89	1.40-1.50	3948654.6	414380.62	1, 2 intact and redeposited	1	pipe segment; flotation sample	–
Sena-Gomez North	main line	trench	N-S	3.50	1.22	1.13-1.50	3948661.2	414380.04	1, 2 intact and redeposited	–	–	n/a
Sena tie-in at Allendale	main line	trench	E-W	5.00	0.98	1.55	3948639.0	414459.6	1, 2 redeposited	–	–	n/a
Sena residential and hydrants												
Hydrant 1	hydrant	trench	N-S	1.57	1.28	1.82	3948663.4	414317.3	1, 2 redeposited and intact	–	–	n/a
Hydrant 2	hydrant	trench	N-S	1.40	1.23	1.48	3948638.5	414452.8	1, 2 intact	–	–	n/a
303 Sena	residential	trench	E-W	2.13	1.40	1.30	3948643.0	414446.6	gravel import fill	–	–	n/a
303.1 Sena	residential	trench	E-W	2.20	1.9	1.55	3948645.2	414435.1	1 redeposited	–	–	n/a
311 Sena	residential	trench	N-S	1.92	0.91	1.37	3948647.1	414425.1	1 redeposited	–	–	n/a
311.1 Sena	residential	trench	N-S	1.73	1.68	1.20	3948647.6	414420.9	1, 2 intact	–	–	n/a
		can	E-W	1.60	1.30	1.20	3948644.5	414419.7	1, 2 redeposited	–	–	n/a
316a Sena	residential	trench	N-S	2.19	1.42	.65-1.55	3948651.2	414400.7	1, gravel import fill redeposited	–	–	n/a
316b Sena	residential	trench	N-S	2.18	1.53	1.23-1.60	3948651.5	414397.6	1, 2 redeposited and intact (335 cm wide intact area)	–	–	n/a
318 Sena	residential	trench	N-S	2.50	0.86	.70-1.60	3948653.1	414390.2	1, 2 redeposited and intact (80 cm wide intact area)	–	–	n/a
324 Sena	residential	trench	N-S	2.60	1.09	.78-1.23	3948656.8	414370.2	10	–	–	n/a
328 Sena	residential	trench	N-S	2.70	0.88	.50-1.40	3948657.9	414364.3	1,2 redeposited with gravel import (30 cm wide intact area, W face only)	1	metal button	surface
330 Sena	residential	can	N-S	1.65	1.65	1.20-1.44	3948668.7	414346.8	topsoil, 1, 2, intact and redeposited	–	–	n/a
		trench	N-S	2.65	1.11	.80-1.52	3948661.2	414345.0	1, 2, gravel import fill (30 cm wide intact area)	–	–	n/a
333 Sena	residential	trench	N-S	2.90	1.06	.85-1.32	3948661.6	414340.6	1, 2 redeposited	–	–	n/a
333.1 Sena	residential	trench	N-S	2.34	1.46	.16-1.80	3948662.6	414336.1	1, 2 redeposited; 1.34 m long strip of Strata 1 intact	–	–	n/a

14 segments of the main line were numbered consecutively as Sena Main 1–14 from west to east in order of excavation. Trench segments varied in length from 5.0–22.5 m. Width ranged from 0.81–1.22 m, the upper range occurring only at the tie-in location at Gomez Road; depth ranged from 1.13–1.70 m bgs, though most trenches were excavated to about 1.58 m bgs.

A total of 31 m of the Sena Main line were profiled. These profiles were dispersed along the full length of the 158 m main line, in addition to the two tie-in trenches at Gomez and Allendale and the two fire hydrant excavations. Two main line segments, Sena Mains 2 and 4, were entirely reworked from previous utility installation, resulting in a top-to-bottom, end-to-end redeposition of Strata 1 and 2, so profiles were not drawn for these two trenches. All other excavations were represented by at least one 2 m profile.

Sources of Disturbance

Sena Street is paved with a thick layer of extremely dense concrete measuring up to 17 cm in some areas. The roadway is heavily scored and patched with a network of cuts related to modern gas, sewer, electric, and water utility installation. The disturbance with the greatest impact was the 1944 water main trench that ran down the center of Sena Street.

New main line trench segments were first defined by cutting the concrete, then breaking it into manageable chunks using an excavator-jackhammer. Once the chunks were removed, a pre-excavation photo was taken of the exposed ground surface. The entire main line was installed, backfilled, and resurfaced without completing any of the residential connections. Trenches for residential connections were dug after the main line was completed. This involved digging short trenches perpendicular to the recently completed water main trench. These short trenches cut across the 1944 and the 2017 water mains at the point of the residential connections to enable transfer from the old line to the new line.

This process is described here to clarify that in many cases, only a narrow strip of intact stratigraphy remained between the old and new water main trenches. In others, all intact strata were completely obliterated between the two trenches.

Though it was only contacted in one location at the intersection of Sena and Gomez, one of the more massive disturbances in this area occurred during the installation of a 20 inch storm drain running close to the north side of Sena Street. Maps obtained from the City of Santa Fe Water Division indicate that this line was installed in 1976. The 1976 map also depicts a "4" C.I." (cast iron) line running down the center of the street.

Other disturbances were comparably minor in scale, such as gas and sewer lines. Krotovina were increasingly evident in Sena Mains 11, 12, and 14 near the east end of the street.

Sena Street Main Line and Hydrants

Generally, the stratigraphy in main line excavations on Sena Street became more intact from west to east, though areas of reworking certainly existed along the full length of the main line, particularly in the upper extent of Stratum 1. Where reworking did occur, it was a mix of Strata 1 and 2 or simply reworked Stratum 1. Of note on Sena Street was that Stratum 3 was never part of this redeposited mix, indicating that reworking was largely restricted to the uppermost 1.0–1.3 m of sediment and that the upper boundary of Stratum 3 remained intact. During the current project, only the extreme upper boundary of Stratum 3 was contacted by the backhoe.

Intact stratigraphy began about 26 m east of Don Cubero and extended largely uninterrupted to the end of Sena Main 14 about 158 m from Don Cubero. Significant disturbance from utilities occurred at Gomez, but otherwise, profiles were largely undisturbed. Stratum 1 consistently accounted for the bulk of every trench profile along Sena Street. In most locations, it extended from the concrete road to an undulating lower boundary that ranged from 0.80–1.64 m bgs. This depth range was owed exclusively to an extremely variable pattern of calcification defined as Stratum 2. Unusual calcification patterns occurred along the full length of the main line but were most evident in the higher elevations at the east end of Sena Street. Several calcification patterns were observed. The simplest was a clear, nearly level line delineating Strata 1 and 2. This was restricted to the west end of the street and exemplified in Hydrants 1 and 2, and Sena Main 6 (Figs. 9.1 and 9.2). Elsewhere, calcification increasingly took globular or columnar

Figure 9.1.Sena Street Hydrant 1, view east.

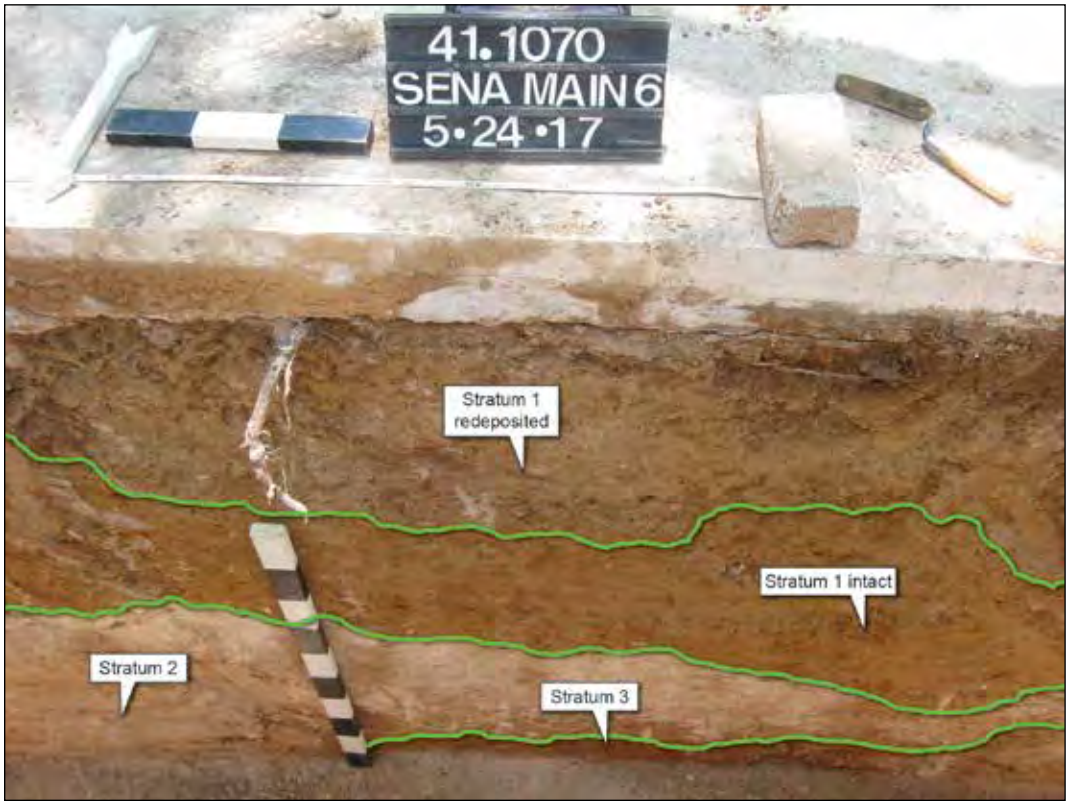

Figure 9.2. Sena Main 6, view south.

Figure 9.3. Sena Main 5, view south.

forms. Sometimes, these forms were bounded on all sides by Stratum 1, suggesting that the rate of soil permeability and evaporation varied considerably along Sena Street.

Long U-shaped extensions of Stratum 1 extended down through Stratum 2 in Sena Main 5 (Fig. 9.3). Flattened, globular lenses coupled with thin vertical columns appeared in Sena Main 10 (Fig. 9.4). In Sena Main 12, calcification was densest in the upper portion of Stratum 2 and lighter in the lower portion (Fig. 9.5). This denser upper layer also occurred in Sena Main 13, but beneath the white caliche was a thoroughly mottled mix of Strata 1 and 2, which in turn was underlain by densely calcified Stratum 3 sand (Fig. 9.6). Perhaps the most unusual calcification pattern was in Sena Main 11, where long, thin, vertical columns of calcification were overlain by large krotovina (Fig. 9.7). These columnar formations occurred almost exclusively in the midsection of the main line in Segments 9–12. Interestingly, the two hydrant excavations located between the road and the sidewalk displayed overlain horizontal beds of Stratum 1 and 2, which were devoid of globular or columnar formations.

Stratum 3 was exposed in minor portions of trench profiles only. Elsewhere, the backhoe barely skimmed the upper boundary, dislodging a few calcified rocks in the process. Sena Main 9 was a notable exception, where intact, calcified lenses of Stratum 3 sand occurred within Stratum 2 at 0.98 m bgs, the only location where these two layers were interbedded (Fig. 9.8). Elsewhere, it was represented by coarse, dark orange or red granitic sand lenses, especially in the higher elevations at the east end. The top boundary ranged from 1.26–1.64 m bgs (except in Sena Main 9). Generally, Stratum 3 was more likely to occur in the easternmost segments of the main line. Also, it was less subject to calcification than Stratum 1 since about half of its exposed length in trenches was uncalcified.

Krotovina were observed only on Sena Street. Almost without exception, they occurred along the boundary of Strata 1 and 2. Sediment within the burrows was similar in texture to Stratum 1, but differed in color (7.5YR 6/1, gray). At the far eastern end of the main line, krotovina were present within Stratum 1 and on the boundary with Stratum 2.

Two artifacts were recovered from Sena Street

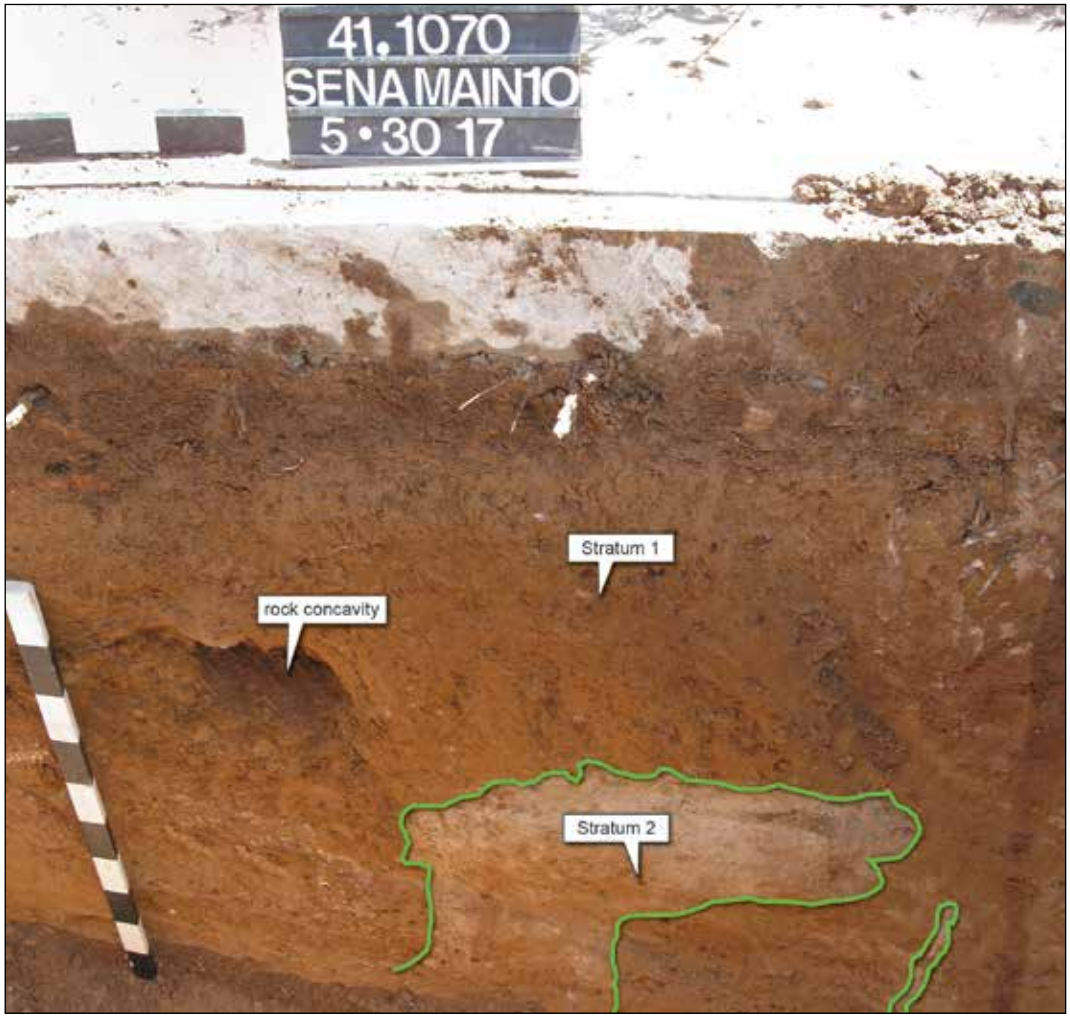

Figure 9.4. Sena Main 10, view south.

excavations: a metal shank button from the surface at 328 Sena and a hand-chopped, proximal femur head from a mature cow from redeposited contexts in Segment 1.

Sena-Gomez and Sena-Gomez North Tie-In Trenches

Two contiguous trenches located at the intersection of Gomez and Sena Streets were dug to connect the new water main to the existing line on Gomez Road (see Fig. 7.1). The combined trenches doglegged between the main lines on Sena and Gomez Road (Fig. 9.9). Numerous utilities bisected these trenches, two of which were the 1944 water mains running parallel to Sena and Gomez. A massive 20 inch storm drain and its associated trench bisected the north end. A substantial portion of the 2 inch water line observed in numerous locations on Gomez was exposed here as well. Near the lengthwise center was a wide, east–west trench that aligned with a street-level sewer cap but did not contain a pipeline. The top depths of these lines were between 1.12 and 1.35 m bgs.

Despite the network of utilities crisscrossing these trenches, areas of intact stratigraphy existed. Narrow columns of undisturbed sediment were observed on either side of the sewer trench and at the extreme southwest corner adjacent to the 1944 water line trench (Fig. 9.10). Strata 1 and 2 were well delineated in these narrow strips, where they resembled the stratigraphy at the east and west ends of Sena Street.

What distinguished these trenches from others on the main line was the presence of Stratum 6. This charcoal infused layer was entirely restricted

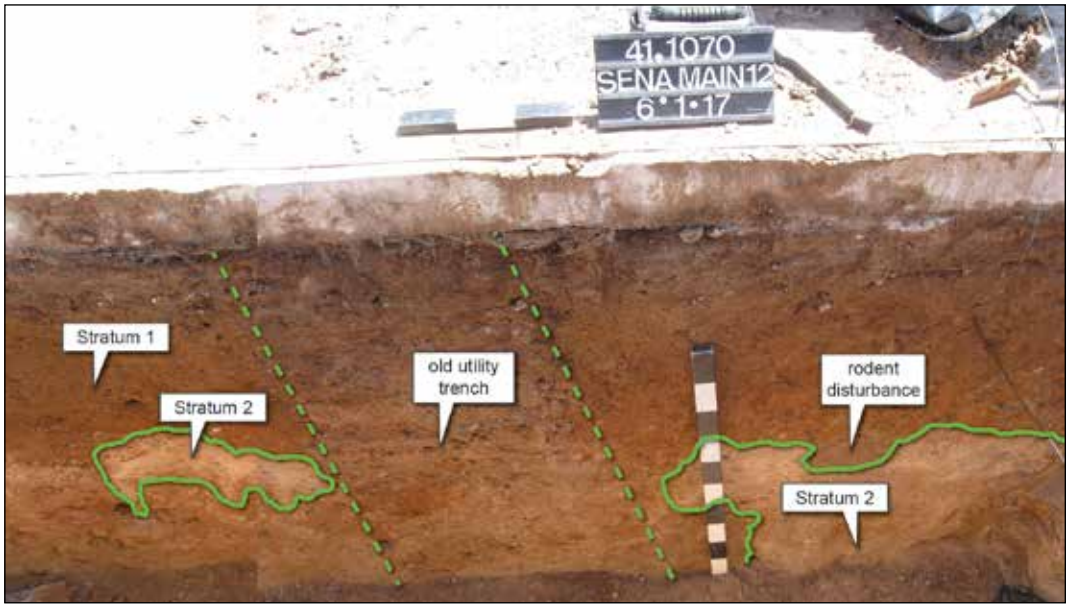

Figure 9.5. Sena Main 12, view south.

Figure 9.6. Sena Main 13, view south.

to the interior of the 1944 water line trench, where it had been mostly redeposited with Strata 1 and 2 (Fig. 9.11). Charcoal and coal inclusions were concentrated in the lower 26 cm of the trench. The lower portion of the 1944 trench was exposed only after the crew hand-excavated a small area beneath the main line to create a larger working space; this revealed the bottom edge of the 1944 trench and the charcoal concentration of Stratum 6.

Interestingly, the charcoal and coal inside the trench did not occur at any other location in the Sena-Gomez trenches, indicating it was dug

from another location and used as backfill for the old trench. Since it was not redeposited in any other context in the Sena-Gomez excavations, it presumably originated from a slightly more distant location. The only artifact within Stratum 6 was a short piece of baling wire. Tiny coal flecks were mixed in with large chunks of charcoal, which were identified as cottonwood/willow and cf. Douglas fir wood (Pamela McBride, personal communication, 2017). Cottonwood is not a quality fuel wood, but was often used for vigas in early Santa Fe homes (Pamela McBride, personal communication, 2017). Since this charcoal infused sediment was at the bottom of the 1944 trench, it obviously predated that installation and was possibly dug from a nearby domestic refuse area. The 1944 trench was closer to private property in this location, which could increase the chance of impacting residential debris during installation activity.

Also in this trench was a lengthy north–south segment of the 2 inch water line at 1.12 m bgs observed in numerous locations on Gomez Road. It ran parallel to the 1944 water main and overlay the east–west 20 inch storm drain encountered at 1.35 m bgs.

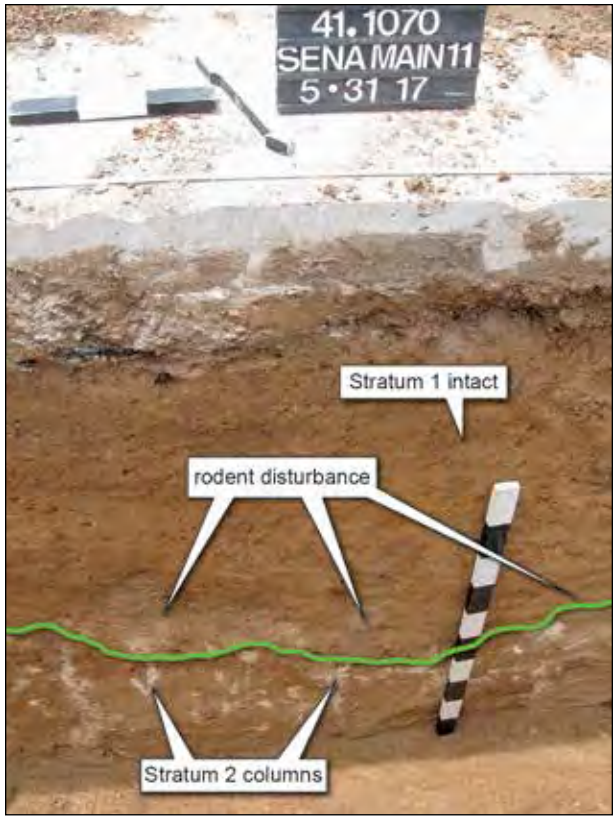

Figure 9.7. Sena Main 11.

Sena Street Residential Connections

Twelve residential connections were performed on Sena Street between Don Cubero on the west and Allendale on the east (see Fig. 7.1). Only two of these involved replacing old meter cans (330 and 311.1). In all other instances, the only requirement was to switch the 1 inch residential copper line from the old water main to the new. Six of these are described below (two excavation units at 330 are described as a unit). Six trenches—303, 303.1, 311, 316a, 324, and 333.1 Sena—have been omitted from the descriptions as they were devoid of intact stratigraphy at the time of excavation. All fill was reworked from a combination of the 2017 and 1944 water main installations—the latter often bedded with crushed angular basalt gravels. This gravel bedding was observed in trenches at 303 and 316a Sena. However, all these residential trenches contained intact stratigraphy at the far south end where they had been exposed during excavation of the main line. These intact sediments were documented in Segments 13 and 14 of the main line.

Most of the homes on the north side of Sena Street between Allendale and Gomez Road do not appear on the 1930/1948 Sanborn map. In fact, the only homes on the 1930 map are 318, 330, and 333 Sena. All other Sena Street homes make their first appearance on the 1930/1948 Sanborn map. The development of this street is addressed further in Chapter 14.

311.1 Sena Street can and trench: This trench was located near the west edge of a large cultivated garden that is part of the property at 300 Sena, one of two homes that required meter can replacement on Sena. The bulk of this trench was on the street. The old meter can was inside a dirt strip between the sidewalk and the road. This is also where the new can was installed. The street side of the trench was mechanically dug to expose the 2017 water main and then hand-tunneled beneath the curb and street to connect to the meter can. The meter can was removed using a combination of hand and machine digging.

The meter can was entirely surrounded with redeposited Strata 1 and 2. The can itself was a concrete cylinder measuring 77 cm tall and 58 cm in diameter, which is standard for all concrete cans in

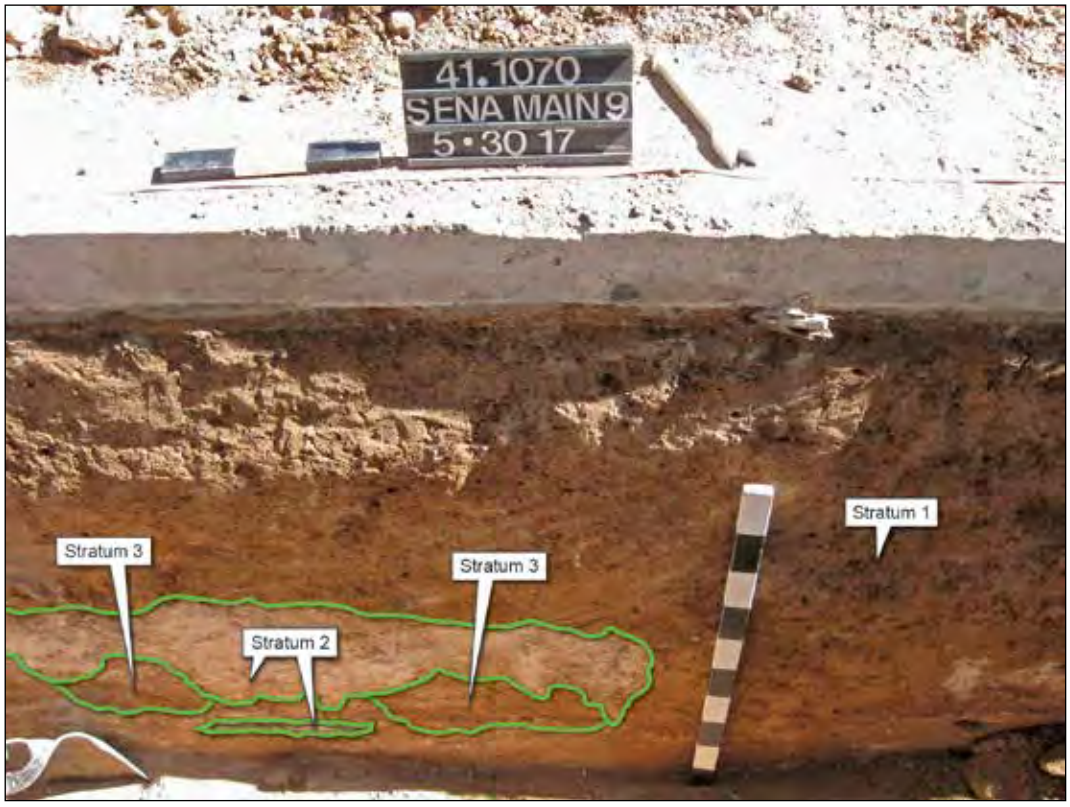

Figure 9.8. Sena Main 9, view south.

the project. The top of the can was lined with pumice brick fragments set on the long edge to support the cone-shaped metal top. Whole and broken pumice and bluish salt-fired bricks, both twentieth century products, were mixed with redeposited fill around the can. Whole and broken bricks and concrete road fragments were used to level the bottom of the can. This was the only occurrence of this type of stabilization in the project, since most cans were set on a 2 foot high platform. The use of road concrete chunks for support indicated that the meter can postdates the construction of Sena Street. This road has witnessed numerous utility installations between 1928 and 1991, after which it was consistently repaved with concrete (Chapter 14).

The most reliable date for this meter may be based on the presence of an iron yoke bar at the top of the meter. The bar was embossed with "FORD M. B. CO. WABASH IND," which refers to the Ford Meter Box Company founded in 1898 and still in operation today (Fig. 9.12). The bar may date to 1930, when water metering first began in Santa Fe (Plewa 2009:250). Iron yoke bars made today by Ford are strikingly similar.

Most of the sediments within the trench were redeposited, but a segment of intact Strata 1 and 2 existed at the northwest corner (Fig. 9.13). Stratum 2 was encountered at about 1.10 m bgs and extended to the base of the trench. About one-third of the street portion of the trench was occupied by the 2017 water main trench, which was documented in Segment 13 of the main line. North of this, stratigraphy was identical to that of Segment 13, which consisted of a layer of redeposited Stratum 1 underlain consecutively by intact Strata 1 and 2. Stratum 3 was not contacted in the 311.1 trench. The 1944 water main was not exposed, but the gravel bedding used as infill accounted for most of the northern third of the street trench. An interesting side note to this address was the piece of manganese glass found lodged in the sidewalk adjacent to the trench.

The 311 Sena property appears only on the 1930/1948 Sanborn map, which does not conflict with the earliest reference to this address in *The Santa Fe New Mexican* ("Society in Santa Fe," Oct. 17, 1936).

316b Sena Street trench: This excavation consisted of a street trench dug to switch the

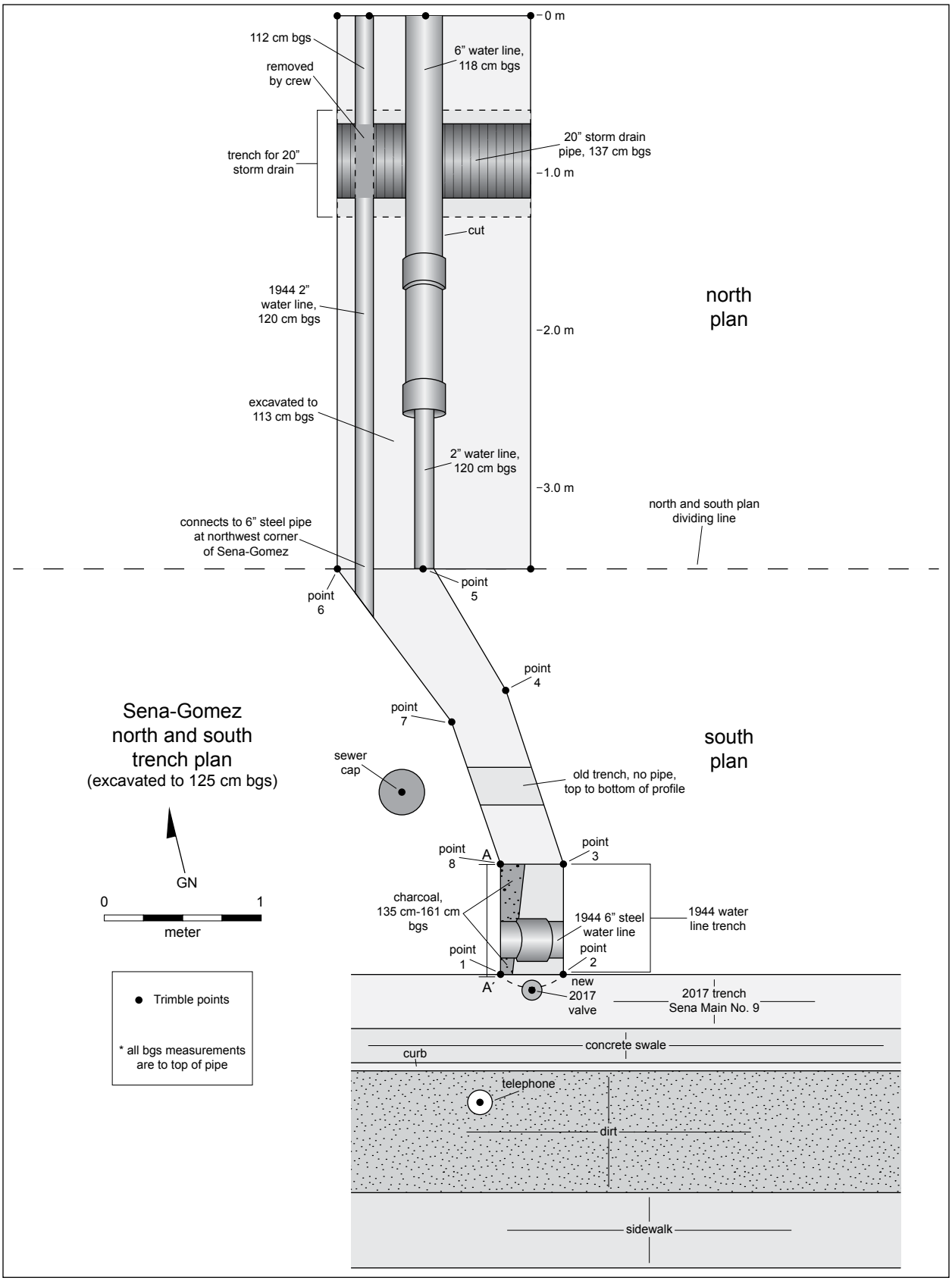

Figure 9.9. Sena-Gomez and Sena-Gomez north, plan.

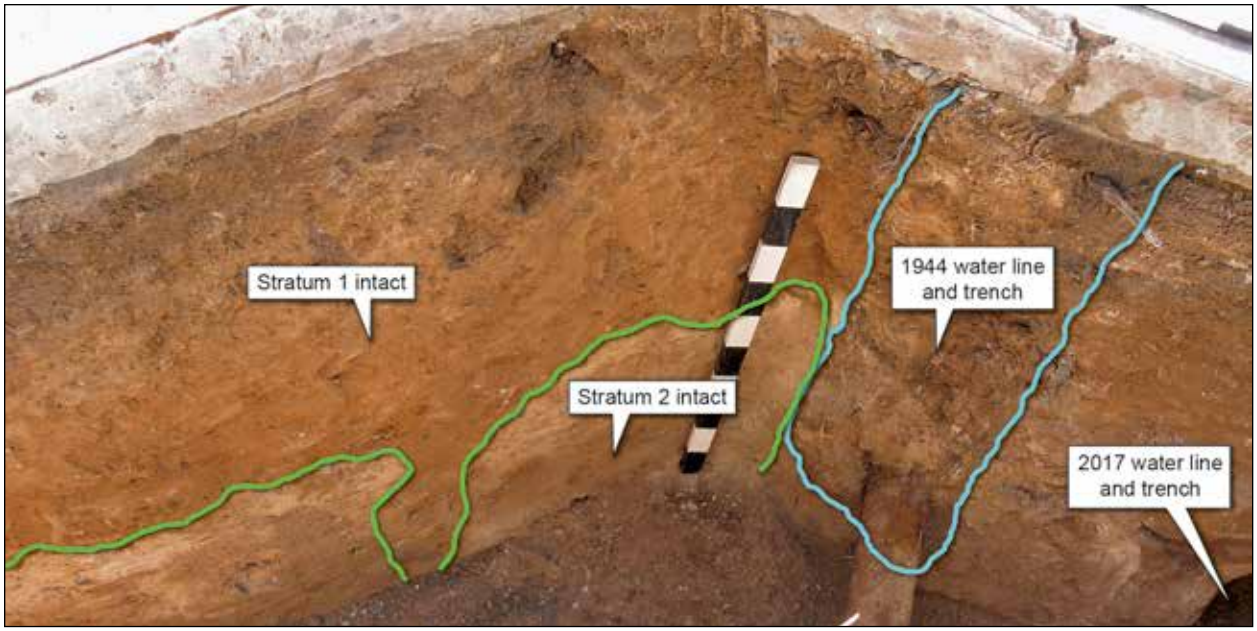

Figure 9.10. Sena-Gomez trench, view east–northeast.

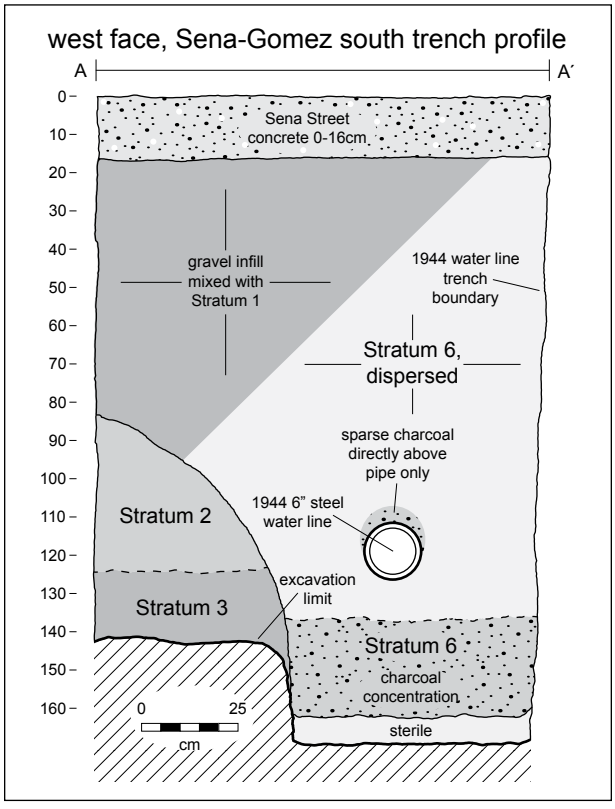

Figure 9.11. Sena-Gomez trench, west face profile map.

residential copper from the 1944 water main to the 2017 water main. The can was not replaced, so the bulk of the fill was removed by mechanical means. The west edge of the trench was near the west edge of a red lava and stone wall bordering the home at 316 Sena. Most of the profile consisted of the 2017 and 1944 water main trenches. The 1944 water main ran east–west near the north end, and the 2017 trench occupied most of the southern third. The trench was also bisected north–south by two directly overlain gas lines at 42 and 58 cm bgs. Other disturbances included residential copper lines in the northwest and southeast corners at 0.90 and 1.13 m bgs.

Given these disturbances, the presence of any intact sediment was fortuitous. This was represented by a 50 cm strip between the water line trenches on the east and west faces (Fig. 9.14). In this area, the calcification of Stratum 1 was similar to that observed in main line trenches on Sena Street where the densest caliche occurred at the top of Stratum 2 and diminished in the lower portion. Stratum 3 was not exposed here. Residents in the Sena Street area informed OAS that the house at 316 Sena was built in 1928. This date falls within the range indicated by the Sanborn maps, as the house does not appear on the 1921 map but does appear on the 1930 map. The earliest reference in *The Santa Fe New Mexican* to this home is decades later.

318 Sena Street trench: The east edge of this trench was near the west edge of the adobe wall

Figure 9.12. Iron yoke bar from 311.1 Sena Street meter.

bordering 318 Sena Street—about 2.45 m west of the 318 Sena driveway. No can replacement was necessary, and only a street trench was required to switch the connection from the old to the new water main. As with 316b, most of the digging was accomplished by backhoe.

Roughly two-thirds of the trench was redeposited from the 1944 and 2017 water main installations and the residential copper line that bisected the trench from north to south at 1.17 m bgs. Two areas of intact sediments were preserved: an 80 cm strip between the two water mains and the extreme southern 32 cm. In these areas, Strata 1 and 2 were very well defined, the latter consisting of nearly pure white caliche. Minor mottling of Strata 1 and 2 existed at the contact zone, but otherwise the two layers were quite uniform in color and texture. The new copper connection was driven through Stratum 2, leaving the surrounding sediment intact (Fig. 9.15).

The 1930 and 1930/1948 Sanborn maps do not include this house, but a church meeting here was announced July 1, 1936 in *The Santa Fe New Mexican* ("Guild Meets on Second Friday"), indicating that the house cannot postdate that year.

328 Sena Street trench: Though virtually all sediments in this trench consisted of a reworked mix of Strata 1 and 2 and gravel bedding, it is included here to illustrate this commonly used method of utility line backfill on Sena Street.

The new residential connection here required only a street trench. The existing can was not replaced. Installation of the 1944 and 2017 water line trenches and the north–south residential copper line resulted in massive reworking of stratigraphy in this trench. The only intact area was a 30 cm wide strip on the west face of the trench between the two main lines. This strip did not extend to the east face. In this intact area, Stratum 1 and 2 were well defined, the boundary between them falling at 93 cm bgs, comparable to the depth in adjacent Sena Main 8. Elsewhere, the gravel bedding from the 1944 line and the reworked sediments of the 2017 line intersected (Fig. 9.16). The northern 1.6 m of the trench was surfaced with 20 cm of asphalt, presumably the patch for the 1944 water main.

The trench dug for the old residential copper line was fairly well defined in the southeast corner. Inside the trench was a cluster of brick fragments

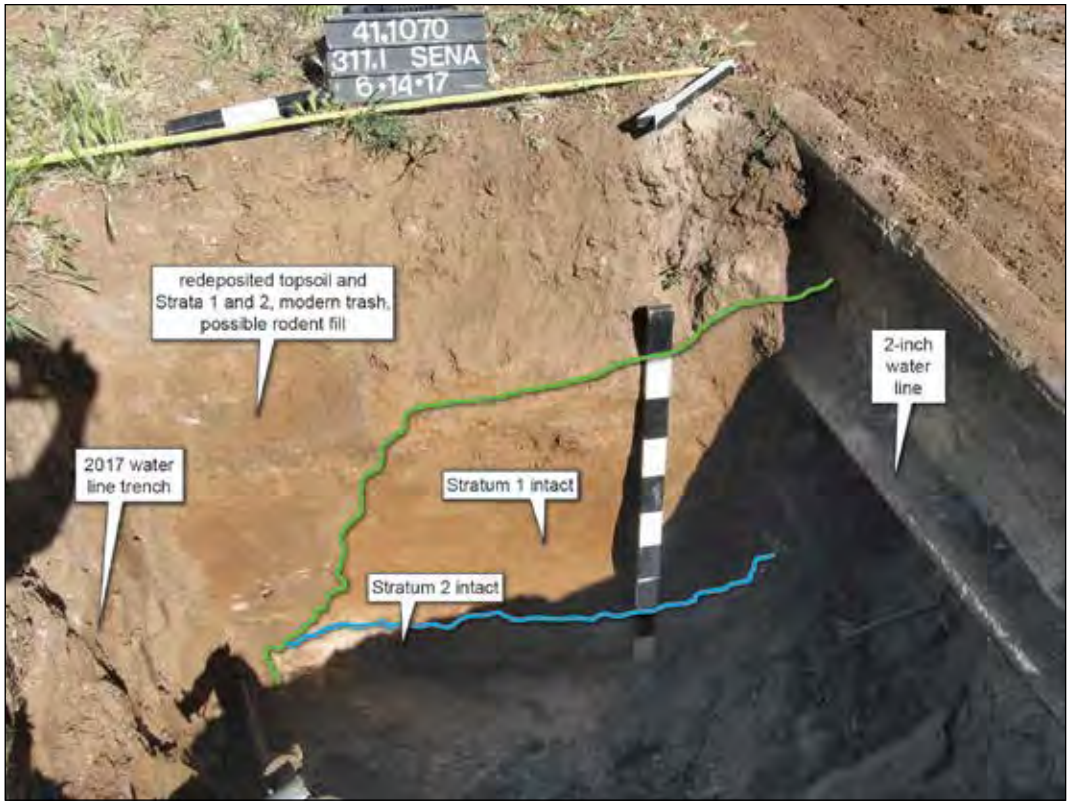

Figure 9.13. 311.1 Sena Street can replacement trench, view west.

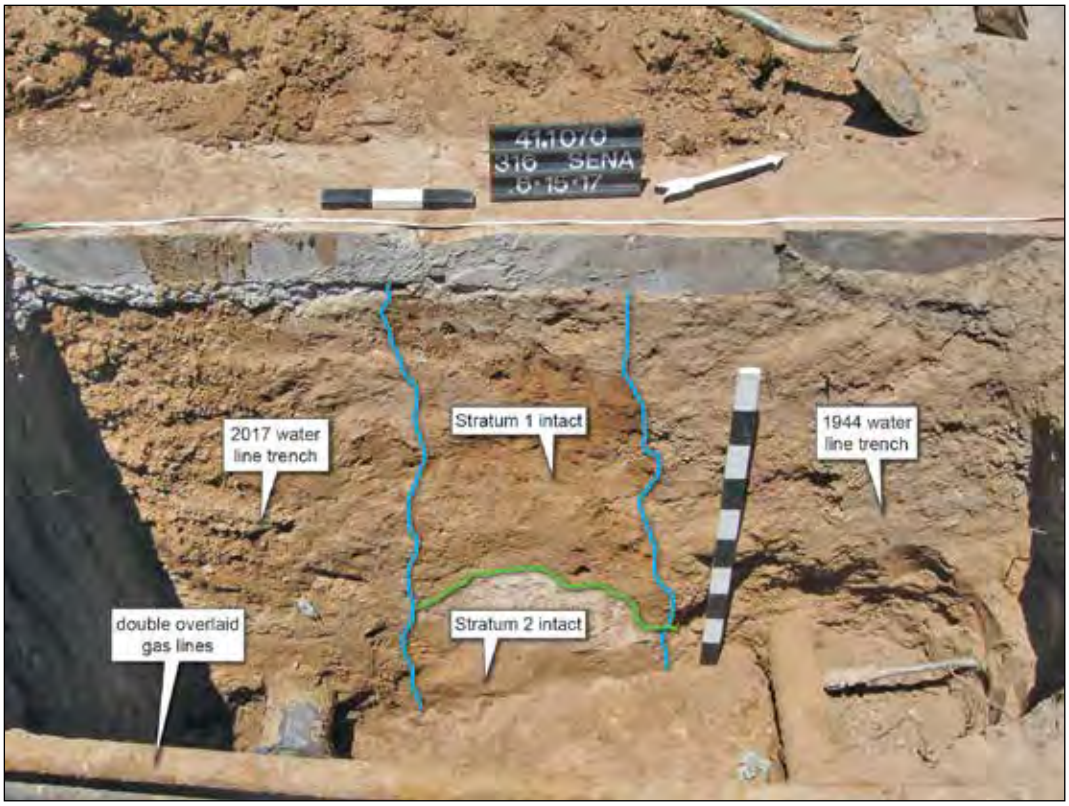

Figure 9.14. 316 Sena Street, west face profile.

at 1.10 m bgs. These were hard-fired and regular in form, suggesting a twentieth century date. They bore no resemblance to bricks made at the Territorial Penitentiary or to the purplish-blue salt-fired bricks commonly found at nineteenth century sites in Santa Fe, i.e. LA 144329 (Moore in prep/a) and LA 161535 (Moore in prep/b).

Between the road and the sidewalk, the ground surface was loosely covered with flagstone slabs. In this area, near a large elm tree, a white-painted metal alloy button shank lay on the surface. Shank buttons have a broad date range spanning nearly 200 years. This plus its surface context precludes a specific date association.

The 1930 and 1930/1948 Sanborn maps do not include this house, but a 1938 society page announcement in *The Santa Fe New Mexican* lists this address ("Lulac Women's Council to Elect," Dec. 5, 1938).

330 Sena Street can and trench: The house at 330 Sena is one of only three homes on Sena Street that appear on the 1930 Sanborn map, and the address is listed in the classified ads of *The Santa Fe New Mexican* on April 28, 1932 ("Furniture for Sale").

The connection for this home involved replacing the old meter can and excavating a street trench. The can was located in an unpaved area between the sidewalk and street near the west edge of the driveway near 329 Sena Street.

Stratigraphy in this trench had been reworked by a number of utilities. The meter can was installed in the center and the copper connection extended north for a short distance then turned east. Two major east–west utilities crossed the trench at the north end: a gas line at 70 cm bgs and the 2 inch water line found mostly on Gomez Road at 0.51 m bgs. These were only slightly offset from one another inside the southernmost 0.26 m of the south wall of the trench. The trench border for the gas line was visible in the east profile. Thick elm tree roots were present down to the level of the 2 inch water line. Large chunks of concrete with curved surfaces were mixed in with the fill around the can, possibly poured to stabilize the can or the platform. This type of stabilization occurred on Gomez Road as well.

The old meter can was a concrete cylinder set on a 12 inch high cylindrical platform. The metal cap was set directly on the can. The only intact stratigraphy was a 75 cm wide strip between the trenches dug for the copper line and the gas line.

Figure 9.15. 318 Sena Street, south face.

Intact stratigraphy consisted of clearly delineated layers of topsoil, Strata 1 and 2 (Figs. 9.17 and 9.18). This intact strip was visible on the east, west, and north walls of the trench. Stratum 3 was not exposed. Well-defined layers of Strata 1 and 2 were typical of excavations along Sena Street, particularly at the west end and in excavations adjacent to the road. Topsoil extended from 0–32 cm bgs. Stratum 1 extended from 32–82 cm bgs, and Stratum 2 extended from 82–126 cm bgs, the latter being the excavation limit.

The trench for the 330 connection was near the south edge of Sena Street and was not contiguous to the can trench. Trenches dug for the 1944 and 2017 water mains accounted for all but 0.30 m of the profile. This intact strip was located between the two trenches. Stratum 1 extended from the concrete to 0.80 m bgs, and was underlain by Stratum 2 to the bottom of the trench at 1.52 m bgs. The boundary between the two was irregular, a pattern more common further east in the Sena main line segments (Fig. 9.19). The 1944 water main and copper line were deeply bedded with gravel and reworked Strata 1 and 2.

Figure 9.16. 328 Sena Street, east face.

Figure 9.17. 330 Sena Street can replacement trench, view southeast.

333 Sena Street trench: This house is at the northeast corner of Sena Street and Don Cubero. It is one of three homes on Sena Street that appear on the 1930 Sanborn map and may be one of the first built on that road. The home is referred to in the June 13, 1931 issue of *The Santa Fe New Mexican* (Thursday Club meeting, Santa Fe).

The connection here required a street trench directly north of a large city water meter cap in a cobbled strip of land between the road and sidewalk. The can was not replaced. Three major disturbances in this trench resulted in a nearly complete reworking of sediments: the 1944 water trench, the 2017 water trench, and the large meter can from which a forked copper connection extended north. All of these trenches contained a reworked mix of Strata 1 and 2 except the 1944 water main, which was thickly bedded with gravel infill mixed with Stratum 1 in the northern 2.9 m of trench length. The old water pipeline itself was not exposed. The depth of excavation ranged from 0.85–1.32 m bgs since the entire copper line did not require exposure.

The only intact stratigraphy was observed in the extreme southeast corner of the trench directly adjacent to the trench dug for the copper line. This consisted of Stratum 1 and 2, which were divided at 0.90 m bgs. Stratum 3 was not contacted.

Figure 9.18. 330 Sena Street replacement trench, view southeast.

Gomez Road

Work on Gomez Road consisted of residential connections and several trenches related to the removal and replacement of a fire hydrant and adjacent valve connections. By far, the bulk of the work on Gomez Road involved residential connections, many of which required the removal and replacement of old meter cans. The goals for residential connections were twofold: to update old meter equipment and to relocate meters from private property to the sidewalk where they could be more conveniently accessed during future work. All residential connections required a contiguous trench that extended from the old meter on private property to the main water line along Gomez Road. As addressed in more detail above, can removal and main line exposure did not always occur at the same time. When they did, the two are discussed as a unit.

Twenty-two residential connections were completed on Gomez Road between Sena Street and West Gomez Road, requiring a total of 26 trenches (see Figs. 7.4–7.6). Nearly half of these trenches fell between Anita Place and Rael Road. Based on the Sanborn maps, only six of the 26 homes currently on Gomez were built by 1948: those at 634, 638, 702–704, 716, 726, and 325 Sena (which fronts Gomez). The road itself is depicted only as a stub extending a short distance north from Sena Street in 1930; no homes had been built. By 1948, it was extended to the north edge of the 634 Gomez lot, just past Anita Place. Rael Road at this time was a disconnected stub floating in the middle of the Gomez family property and was also empty of homes. However, a cursory search of *The Santa Fe New Mexican* from the 1930s and 1940s lists addresses along Gomez Road that do not appear on the 1930/1948 Sanborn map, suggesting the area may have been more populated than the fire insurance maps indicate.

Sources of Disturbance

The primary disturbance along Gomez Road was the installation of the main water line that runs north–south west of the center of the road. Maps provided to OAS by Paul Duran of the City of Santa Fe Water

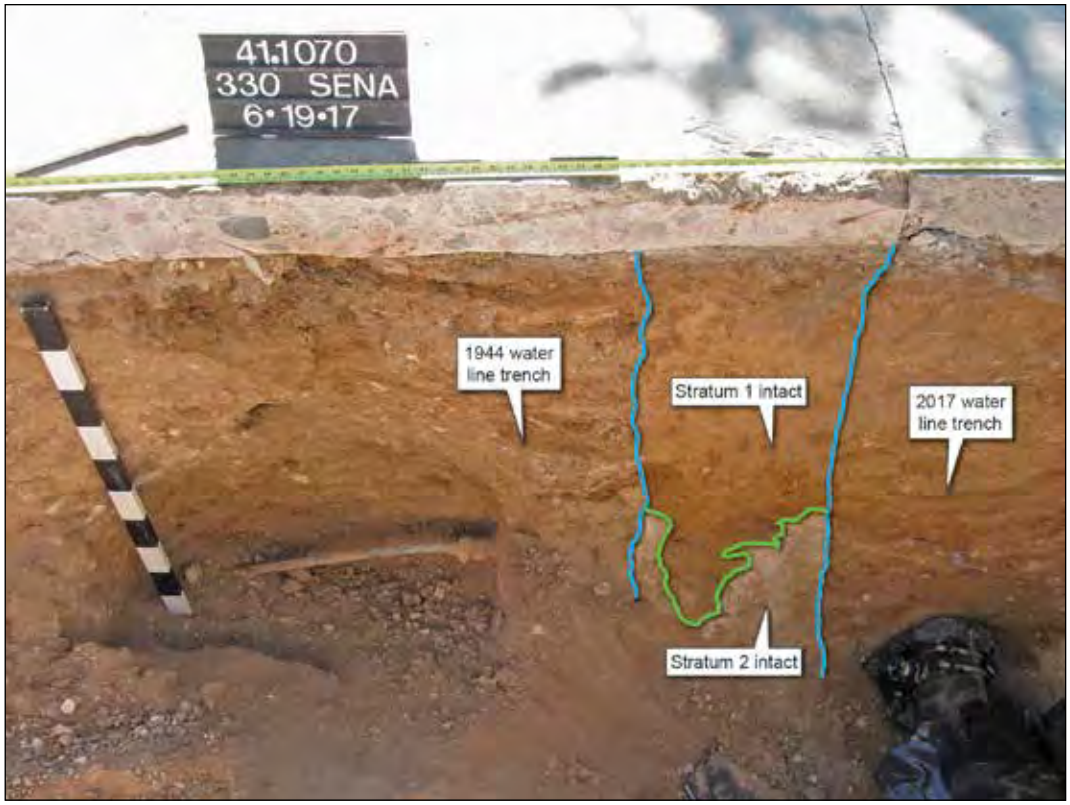

Figure 9.19. 330 Sena Street trench, view east.

Division include plans for the installation of a "6" C.I.," (cast iron) line in 1944. This main line was encountered on Gomez and was invariably heavily rusted, requiring cleaning by the Sub Surface crew to enable the connection of new copper lines.

A second significant disturbance on Gomez was a 2 inch cast iron water line encountered in 15 street trenches. All but two of these were oriented north–south, parallel to the 1944 main water line. This small pipe was originally thought to represent irrigation, but several factors suggest it is the first water main on Gomez and may date to the late 1920s or early 1930s. Identical pipe line is depicted on the 1944 map on Anita and Sena and was observed connecting to the 1944 6 inch main in two locations. This suggests the two could be contemporaneous on Sena and Anita streets. However, this is probably not the case with Gomez Road, where the 2 inch line almost certainly precedes the 6 inch line, possibly by a decade or more.

Oddly, the one street where the 2 inch line never appears on any map between 1944 and 1981 is Gomez. This is unusual given the line's ubiquitous presence in trenches there. Couplings and pipe segments of the 2 inch line were encountered in some trenches, suggesting portions of it were removed during later utility installations. The two east–west segments were at 628 and 634 Gomez and may represent locations where the main line was stubbed out in anticipation of future development. The home at 634 Gomez Road may have been the northernmost on this street in 1948 according to the Sanborn map of that year, but the trench at 628 is south of the intersection with Anita and does not appear to be an appropriate location for a stub. A more detailed history of the utility installation in this neighborhood will be discussed in Chapter 14.

Gomez Road excavations are discussed in two groups. The first group consists of addresses where excavations were confined to the street. These 17 trenches are discussed as a unit as they provide an overview of stratigraphy along Gomez Road where intact sediments occurred. Many street trenches yielded only reworked strata from the existing water main installation. No cultural strata were encountered in street trenches, though a few isolated artifacts were recovered. Street trenches were located at 622, 624, 626, 628a, 628b, 633, 638, 638.1,

638.2, 638.3, 704, 716, and 716-726. Two additional trenches for hydrant and valve installation were located at the intersection of Gomez and Anita Place. A third was located at the Gomez-Rael intersection. Included in this group is 325 Sena because the water meter was located on Gomez Road.

The second group consists of the eight addresses at which can removal and relocation was required: 627, 630, 631, 632, 634, 702–704 duplex, 706, and 726 Gomez Road (the 625 Gomez connection is on Rael and is described in that section). New connections for these homes were accomplished through contiguous excavations: a trench in the street to expose the main line, sidewalk removal to provide for the new meter can, and a trench around the old can to allow for its removal. As with other can removals, these were dug using a combination of mechanical and hand digging, the latter mainly applying to can removal, meter exposure, and tunneling beneath roadside curbs to connect the two trenches. This group was far more likely to yield artifacts, and two of the three cultural strata identified in the entire project were found in old meter cans.

Gomez Road Street Trenches

The 17 trenches excavated within the confines of Gomez Road consisted mainly of reworked sediments. The installation of the 1944 water main and the smaller 2 inch water line accounted for the majority of the disturbances, along with less frequent gas lines that paralleled the water lines. Most trench profiles displayed a reworked mixture of Strata 1 and 2. Stratum 3 rock was rarely included in this mix, and where it was, it typically involved minor truncation of the top boundary of this layer, especially in trenches near the lengthwise center of Gomez. At the north end, reworked sediments contained much higher percentages of rock since Stratum 3 occurred directly below the asphalt at this end of the street.

Narrow patches of intact Strata 1 and 2 occurred in only three excavations on Gomez: 325 Sena, 706 and 716–726. These consisted of thin vertical strips that fell outside old utility trench boundaries. In these intact areas, Stratum 1 overlay Stratum 2 as in most excavations on Sena Street. The top of Stratum 2 ranged from 0.28–0.38 m bgs and extended partially or completely to the bottom of the trench, which occurred considerably higher here than on Sena Street. The most notable variation from this churned mix of Strata 1 and 2 was the presence of a thick layer of Stratum 3 rock at the intersection with Rael Road (Fig. 9.20). In this trench, the upper portion of Stratum 3 consisted of coarse, red, granitic sand and uncalcified rock in the upper 0.44 m. The lower portion to 1.10 m bgs was calcified cobbles and sand. This pattern was repeated moving up Rael Road to the east.

The 1944 water main was exposed in every street trench except 638.3. The trench dug for the 1944 line was not always well defined, but where boundaries could be seen, it was nearly V-shaped, opening broadly at the top and narrowing greatly at the bottom just a few centimeters above the pipeline. In several locations, the trench was backfilled with crushed angular gravels, a commonly used method of pipeline bedding in the mid-twentieth century. Usually, bedding was mixed with Stratum 1. During the current project, considerable effort was expended by the Sub Surface crew to remove rock during trench excavation and then backfill using imported or filtered fill, so future excavations in those areas will encounter very little rock associated with bedding or Stratum 3.

Previously installed utilities had a marked effect on a number of trenches, sometimes sparing only a thin vertical strip of intact sediments. This was most apparent on Anita Place and Rael Road where a web of interlaced utilities, including the 1944 water main, resulted in the complete reworking of all sediments (Figs. 9.21 and 9.22). This was also the case for most Sena Street residential connections where the trenches for the 1944 water line and the new line installed for this project accounted for virtually the entire profile. In some cases, the intact area between these two trenches was only 30 cm wide; of course, the new 2017 trench had been excavated and documented the previous week.

The exact date of the 2 inch Gomez Road water line could not be determined, but it seems very likely that it represents the original water main, based on dates of the first infrastructure and home construction on Gomez and Sena (Chapter 14). Though it is probably the earliest line on Gomez, it almost certainly postdates the first water main on Sena in 1928, though it too was a 2 inch cast iron line. This 2 inch cast iron pipe may have been used for a few decades in this neighborhood between the 1920s and 1940s. This is evident on the 1944 pipeline map that shows 2 inch pipes on Sena and

Figure 9.20. 626 Gomez Road, view north.

Anita that both intersect with the 6 inch main on Gomez. Clearly, these two pipelines can potentially be contemporaneous in some locations.

The trench dug for the 2 inch line on Gomez differed considerably from the trench of the 1944 main line. The 2 inch line was set a few centimeters above the bottom of a square trench that was much shallower than that of the 6 inch main line. The trenches were well defined in some areas, particularly at 706 Gomez (26 cm high, 35 cm wide). These small trenches were also unusual in that all four sides were sometimes clearly visible in the profile, floating within reworked sediments (Figs. 9.23 and 9.24). This suggests that fill was deposited on Gomez at a later time, possibly during road surfacing.

The top of the 2 inch pipe ranged greatly from 37–103 cm bgs from West Gomez to Sena Street, and there was no apparent trend in its depth along this route (Table 9.2). Rather, it rose and fell along the full length of the street at unpredictable depths. This was most apparent between 632 and 634 Gomez, where it rose 63 cm within a 12 m span, possibly having been aligned with the upward slope of the land in this area. Presumably, given its small size and varying depth, the line represents the earliest line on Gomez Road. This contrasts greatly with the 1944 line, which had a much more consistent depth. It paralleled the latter in all but two locations where it ran east–west at 634 and 628 Gomez. The reason for the directional change at these addresses is unclear since these homes do not fall at the intersection with Anita or Rael. Stubs may have been installed for future extensions. The history of utility infrastructure in the neighborhood will be discussed in more detail in Chapter 14.

Six artifacts were recovered from Gomez street trenches: a Madera chert core from Stratum 3 backdirt; two 2 inch steel couplings from trenches near the intersection of Anita and Gomez; a metal can fragment from 624 Gomez; a machine-cut cow vertebra representing a T-bone cut; and a ShurFine aluminum soda can from 625 Gomez.

Gomez Road Residential Connections

627 Gomez Road can and trench: The meter can for this address was inside a walled garden populated with thick rose bushes on the south side of the driveway leading to 627 Gomez, at the southeast

Figure 9.21. 628 Gomez Road, view north.

Figure 9.22. 638.2 Gomez Road valve replacement trench, view south.

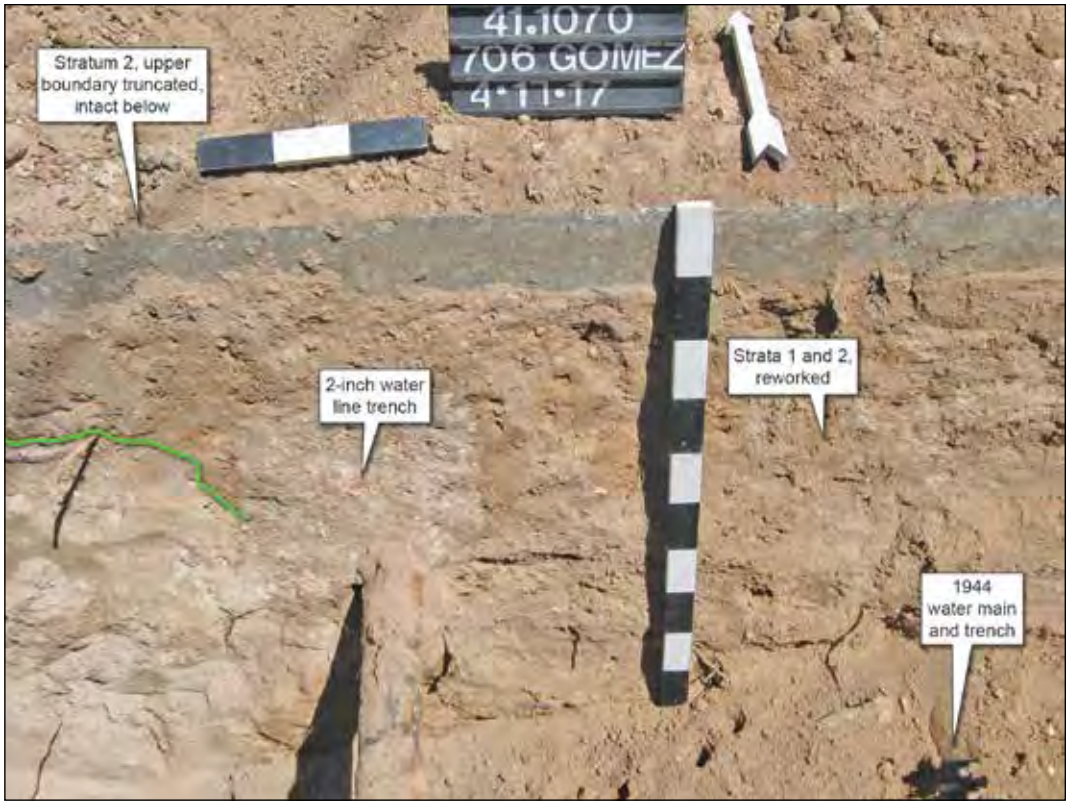

Figure 9.23. 706 Gomez Road 2 inch water line trench, view north.

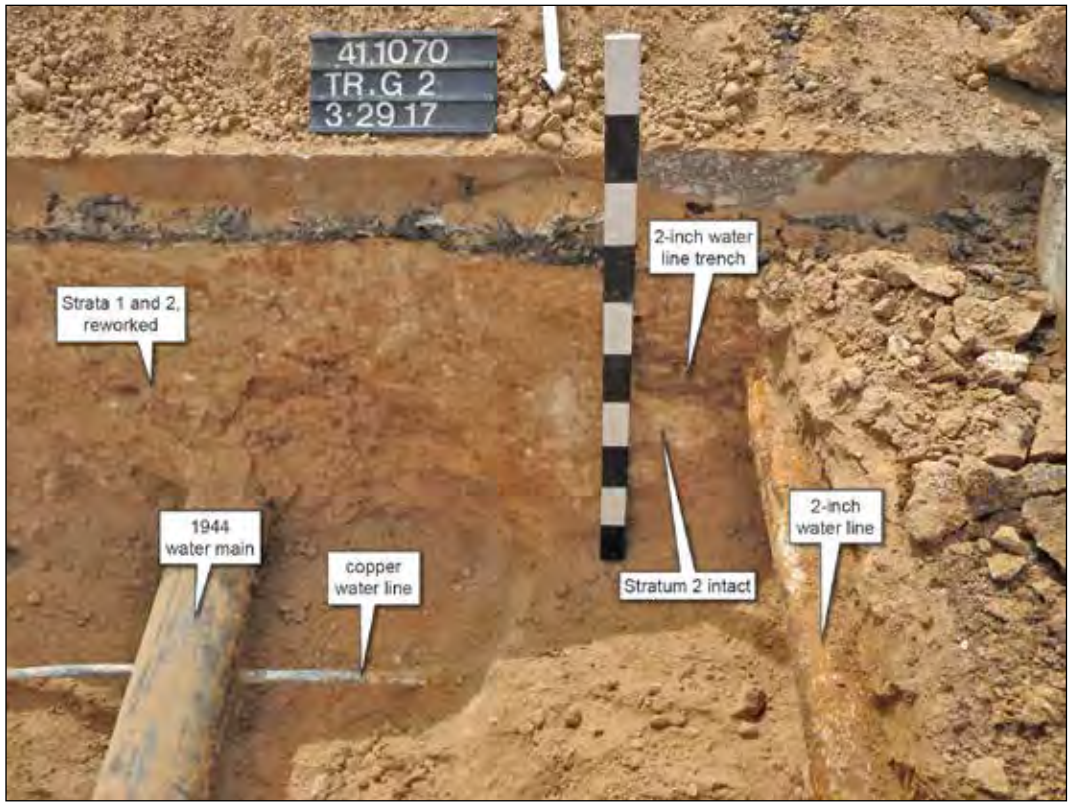

Figure 9.24. 716–726 Gomez Road, view south.

corner of the intersection with Rael Road. This may be one of the later homes in the neighborhood, since it postdates the 1948 Sanborn map, but the address is referred to in the Feb. 24, 1945, issue of *The Santa Fe New Mexican*. The trench dug to remove the old meter was confined to this walled garden. Access to the copper connection from the old meter to the main line was hand-tunneled beneath the wall to the street trench that housed the main line. The sidewalk was removed to install the new meter. In addition to the meter installation, disturbances in this trench included an east–west ceramic sewer line and two clean-out valves.

In the can trench, surface sediment consisted of a thin layer of garden topsoil underlain by geocloth. Three artifacts were recovered from the topsoil, a small rubber ball, an architectural tile disk, and a historic indeterminate glaze ware sherd that cannot be confidently assigned to Native American manufacture. Beneath this was a reworked mix of Strata 1 and 2, to the bottom of the trench at 1.50 m bgs (Fig. 9.25). Fill around the can was mixed with small brick bits and concrete chunks. Concrete and brick were used to stabilize the can against the wall foundation. This stabilization structure was formidable and did not occur in any other can area in the project. Whole, mortared bricks were stacked four high against the can and concrete was poured in around them, filling the gap between the can and the cinder block wall foundation. The bricks appear to be mid-twentieth century products based on their hard-fired texture. The stabilization structure was clearly installed after the can and the wall were in place.

The can was a concrete cylinder topped with double layers of brick fragments mortared in place on the north side and un-mortared elsewhere. The metal top was set directly on the bricks. The platform supporting the can was set entirely in a heavily calcified layer of Stratum 3. On the surface next to the can was a "cross cap" (Fig. 9.26). Cross caps are normally found inside cans and atop the meter for insulation.

Fill inside the sidewalk trench consisted of reworked Strata 1 and 3. Large, uncalcified cobbles up to 60 cm long were dispersed throughout the fill up to 1.0 m bgs. Below this, Stratum 3 was calcified as in the can trench (Fig. 9.27).

The house is not depicted on either the 1930 or 1930/1948 Sanborn maps, but a Sociedad Folklorica meeting was advertised at this address in 1945 ("Lentin Season Observed," *The Santa Fe New Mexican*, Feb. 24, 1945).

Table 9.2.Gomez Road 2 inch water main locations.

2 inch Water Main Location*	Orientation	Depth (cm bgs)	1944 water main
South			
622 Gomez	N-S	63	+
624 Gomez	–	–	+
625 A-B	–	–	–
626 Gomez	N-S	53	+
Gomez-Rael intersection	–	–	–
627 Gomez	–	–	
628A Gomez	E-W	58	+
628B Gomez	–	–	+
630A-B Gomez	–	–	+
631 Gomez (Luceros)	–	–	–
632 Gomez	N-S	103	+
633 Gomez	–	–	+
634 Gomez	E-W	40	+
638 Gomez	N-S	54	+
638.1 Gomez	–	–	–
638.2 Gomez	N-S	100	+
638.3 Gomez	N-S	61	–
702-704 Gomez	N-S	74	+
Gomez-Anita SE corner	–	–	–
Gomez-Anita intersection	N-S	96	–
704 Gomez	N-S	37	+
706 Gomez	N-S	58	+
716 Gomez	–	–	+
716-726 Gomez	N-S	38	+
726 Gomez	N-S	43	+
North			
325 Sena	N-S	54	+

*One additional occurrence in project at 330 Sena (E-W, 51 cm bgs).

630 Gomez Road: The can removal trench for 630 Gomez was inside a walled garden near the northeast corner of the property. The adjacent sidewalk outside the wall was removed and excavated to house the new meter. A street trench enabled connection to the main line. Aside from the meter installation, disturbances in the can trench area included home construction and garden landscaping work. A cobble walkway covered the surface, beneath which was a layer of garden topsoil mixed with brick fragments, concrete fragments, and isolated small cobbles. A large fir tree grows directly north of the can. Beneath the topsoil from 52–78 cm bgs was a reworked layer of Stratum 1 mixed with caliche bits and pea gravel (Fig. 9.28).

From 78–156 cm bgs, a layer of Stratum 1 appeared intact, but proved to have been reworked given the presence of plastic pen parts.

Two artifacts were collected from the can trench: a whole light green soda bottle with a crown cap with a beginning manufacturing date of 1904 and a meter box cover embossed around the perimeter with "FORD METER BOX CO. WABASH, INDIANA". The center was embossed with "WABASH BOX", "WATER METER" and six stars. This is probably the original cover for this meter as all cans in the Gomez Road area now sport plastic lids.

The Ford Meter Box Company is perhaps best known for the ornate "crescent covers" produced for the city of New Orleans. These were patented in 1921 and are still manufactured today (The Meter Setter, Nov. 2009; http://tinyurl.com/y7rck4oy). According to The Meter Setter, a rash of crescent lid thefts has occurred in recent years in New Orleans. The stolen lids can be sold for up to $100 apiece. The meter box cover from Gomez Road displays a far simpler design that does not include the crescent and radiating lines. This lid may have capped one of the first meters on Gomez Road that may date to the early to mid-1930s based on home construction dates and the beginning of metering in Santa Fe in 1930 (Plewa 2009:250). Rebecca Haynes of the Ford Meter Box Company said that two characteristics of the meter cover suggest it dates between 1911 and 1939 (personal communication, 2017). The first of these is the "Wabash Box" embossment, which was not used after 1940. The second is the locking mechanism on the lid, referred to as a "worm lock," which does not predate 1910. The lid is one of two embossed Ford meter box parts from the project; the other is an iron yoke bar from 311.1 Sena Street.

A small "Penn 4" tennis ball with a diameter of 2.5 inches and a black-painted pencil fragment embossed with "OL WOODS #2 1/2…43–7891" were recovered from Stratum 1 but not collected. Small balls measuring 2½ inches in diameter allowed for a slower game pace suitable for beginners and were patented in 1986 (US Patent No. 4,596,389, June 24, 1986; google.com/patents/US4596389). All artifacts were found between 1.40–1.50 m bgs in reworked Stratum 1 except the bottle, which was at 1.02 m bgs. The presence of recent artifacts in deep fill indicates the extent of sediment churning during the installation of the original meter box as well as during the later replacement of meters in the 1970s.

Figure 9.25. 627 Gomez Road following removal of old meter can, view northwest.

Adjacent sidewalk and street trenches were deeply reworked to the base where the copper lines ran beneath the 1944 water main at 114 cm bgs. In the upper 82 cm, Stratum 1 was mixed with a small amount of Stratum 3 rock. Beneath this, the reverse was true, as Stratum 3 was the primary constituent and Stratum 1, the lesser. Stratum 3 was probably much nearer to the surface before the water line was built.

Neighborhood residents stated that this home was one of the oldest in the neighborhood, having been built in 1928. The 1930 and 1930/1948 Sanborn maps do not include this house, but newspaper archives indicate that some extant homes may have been excluded from the Sanborn maps. The earliest reference to this house does not occur until 1947, but this does not preclude an earlier construction date. A resident at this address is referred to in that year ("National Guard Pushes Recruiting Drive to Expand Forces for Security of Nation," *The Santa Fe New Mexican*, Sept. 25, 1947).

631 Gomez Road: One contiguous trench was dug here to remove and relocate the old meter can. The old meter can was located inside a private

Figure 9.26. Cross cap from 627 Gomez Road meter.

garden bordered by a chain-link and wood lattice fence at the northwest corner of the property. In the old can trench, the surface layer consisted of topsoil mixed with Stratum 1 from 0.0–35 cm bgs. Beneath this was an extremely uniform layer of Stratum 1 down to 150 cm bgs (Fig. 9.29). The old meter can was a concrete cylinder set on a 2 ft tall cylindrical concrete platform (Fig. 9.30). Whole and fragmentary clay and pumice bricks around the perimeter supported the metal can top. The bricks were laid on edge, and portions of the bricks were mortared on the top. The shut-off valve was directly against the can, unlike others where it was slightly offset.

The sidewalk trench displayed a reworked mix of Strata 1, 2, and 3. The upper 60–80 cm of fill consisted mostly of calcified rock churned with Stratum 1. Below this was reworked Stratum 1 with very little rock. No artifacts were recovered from either trench. This home does not appear on either the 1930 or 1930/1948 Sanborn maps, but a classified ad in the June 8, 1938 issue of *The Santa Fe New Mexican* lists two bassinet cribs for sale at 631 Gomez.

632 Gomez Road: This contiguous trench measured 6.71 m long and straddled a portion of the gravel driveway and the sidewalk at the far south edge of the property. In the can trench area, the profile displayed a well churned mix of Strata 1, 2, and 3 in the upper 60–110 cm of fill (Fig. 9.31). Below this, from 110–133 cm bgs, Stratum 3 was also mixed with Stratum 1 but to a lesser degree, as evidenced by the denser rock content. At 133 cm bgs, an intact layer of highly calcified Stratum 3 was contacted.

The old meter can was a concrete cylinder lined around the perimeter with sporadically placed, unmortared, Territorial Penitentiary bricks. The cylinder was set on a standard 2 ft high platform. A few PenTile fragments were encountered in the reworked deposits close to the can, along with sheet metal fragments with a mean date of 1922 and a whole amber glass bottle with a maker's mark ranging from 1929–1954 (Chapter 10). A Styrofoam cup and plastic cup lid were inside the old can, and a Sub Surface employee noted that the meter in this can was recent. This trench yielded the only two chipped stone artifacts from the project, both of which originated from the

Figure 9.27. 627 Gomez Road sidewalk trench, view east.

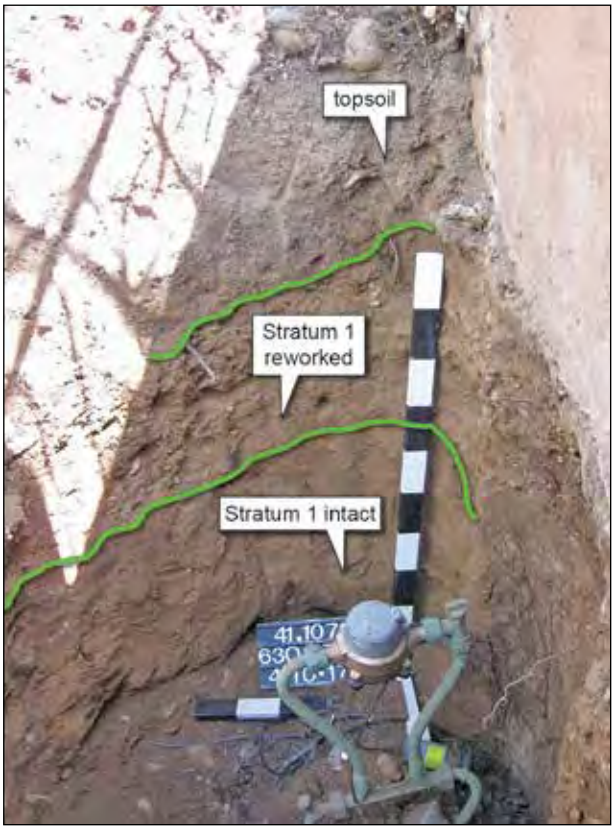

Figure 9.28. 630 Gomez Road can removal trench, view north.

Figure 9.29. 631 Gomez Road can trench, view east.

Figure 9.30. Old meter can at 631 Gomez Road, view northeast.

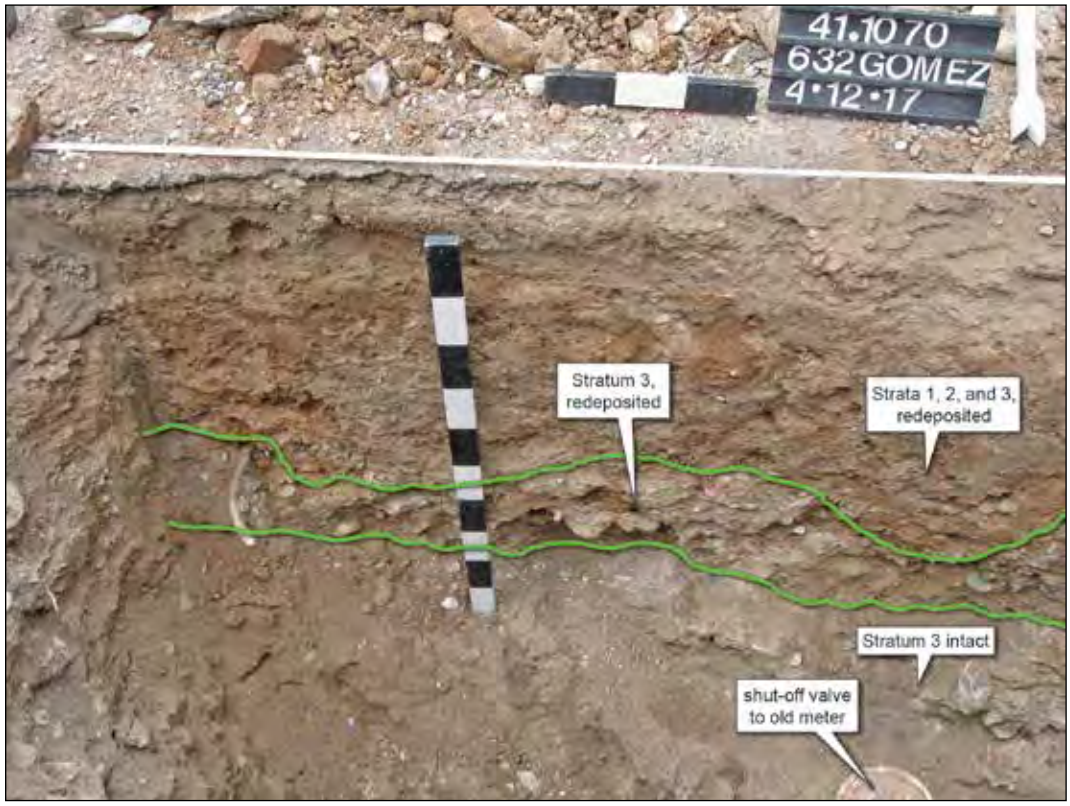

Figure 9.31. 632 Gomez Road, view north.

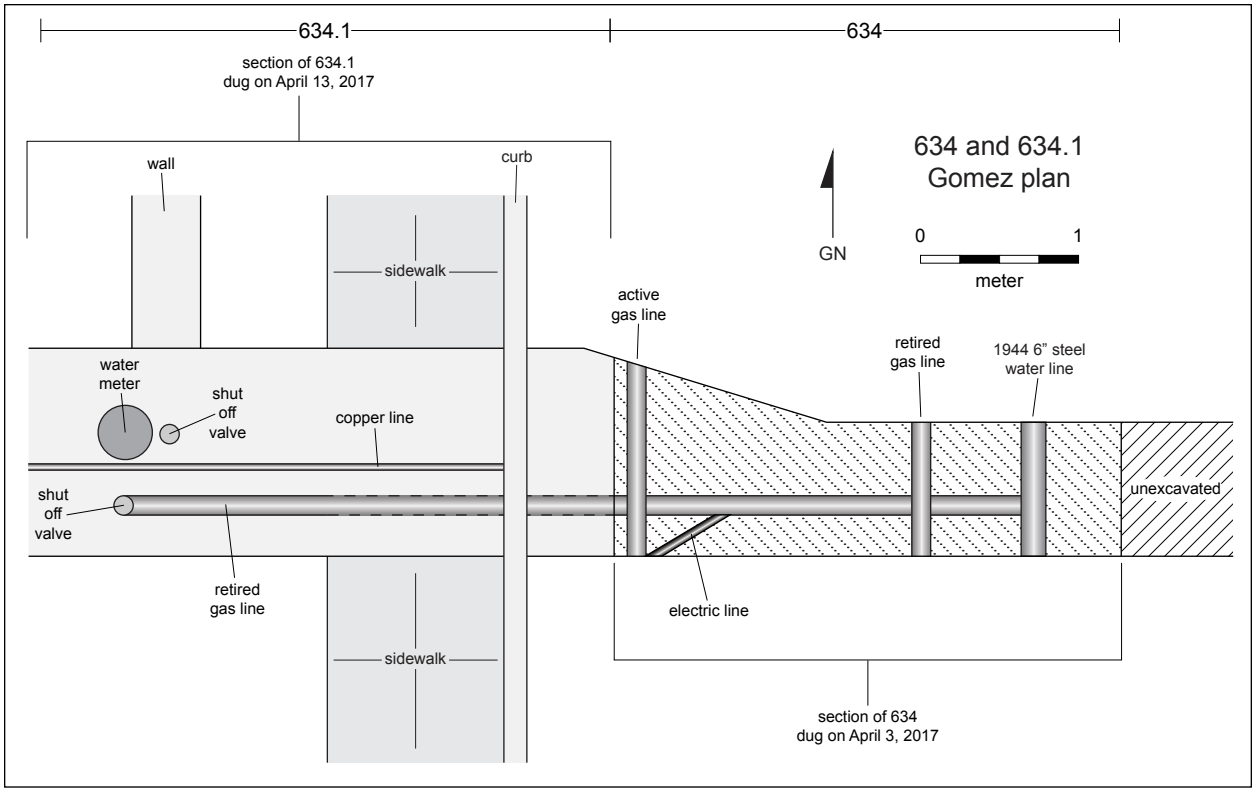

Figure 9.32. 634 Gomez Road, plan map.

intact portion of Stratum 3. The first was a large multi-platform Madera chert core. The second was a small piece of Pedernal chert angular debris. Both were recovered from the backdirt during the excavation of Stratum 3. Four sheet metal fragments were found in reworked fill surrounding the old meter. These potentially date from 1875–1968 (Chapter 10).

Stratigraphy in the sidewalk trench was nearly identical to that in the old can trench. The upper 60 cm or so was redeposited Strata 1 and 3, which was underlain by a less reworked layer of Stratum 3. No intact deposits were encountered in the sidewalk trench. The eastern 55 cm of the trench was truncated down to the bottom by the installation of the 1944 water line. The position of the 2 inch water line differed here than in other trenches in that it was quite close to the 1944 water main, only a few centimeters west, with its top nearly level with the bottom of the line. These lines were almost invariably spaced more distantly in other trenches on Gomez. Also atypical were asphalt chunks found in the water main trench down to its base at 125 cm bgs. Asphalt chunks were very rarely encountered in trench fill, and their presence here may indicate more recent reworking on this line.

The home at 632 Gomez was not mapped by Sanborn in 1930 or 1930/1948, but it is listed in 1938, as a "NEW home, modern. Come see 632 Gomez, anytime. Walk in," (*The Santa Fe New Mexican*, March 19, 1938).

634 Gomez Road: The can replacement and main line connection for this address were dug in a single contiguous trench that measured 8.09 m long, including the tunneled portion. It was located at the north edge of the driveway to 634 Gomez. Other disturbances were the 1944 water main, the 2 inch water line that ran east–west here, a deeply set fence post in the north wall of the trench, two north–south gas lines, one east–west gas line, and an electric line (Fig. 9.32). The abandoned east–west gas line had a vertical access pipe that extended nearly to the surface proximate to the old meter can. A pocket of lime and a heavily corroded diode semiconductor lay beneath the abandoned gas line. Diodes are associated with electric lines. Though an electric line was exposed in this trench, the diode was about 35 vertical centimeters and about 2 horizontal meters east of the power line. This does not preclude their association and may be a better indicator of disturbance.

Sediments in the can removal and street trenches were entirely remixed. In the can area, Strata 1 and 3 were reworked with bits of concrete and clay and pumice bricks to the base of the trench at 127 cm bgs (Fig. 9.33). A sand lens occurred near the surface and was probably related to the construction of the fence post or adobe wall that intersected the trench along its north face. Below the reworked mix of Strata 1 and 3 was a lens of reworked Stratum 3 near the intersection with the curb that consisted mostly of calcified rock and minor amounts of Stratum 1 (80–128 cm bgs).

The old meter was housed inside a concrete cylinder set on a platform. The metal cap was set directly onto the cylinder. Inside the meter platform was Stratum 4, one of the few cultural strata encountered in the project. This layer was entirely restricted to the interior of the platform, which extended from 95–125 cm bgs. All artifacts from Stratum 4 were retrieved from backdirt produced during hand excavation to expose the base of the meter. Stratum 4 yielded four artifacts: a porcelain hand-painted miniature caterpillar figurine, a nailed rubber shoe heel with an end manufacturing date of 1926, a piece of light green window glass, and a chopped cow rib. The rib had been gnawed by a carnivore. Modern trash was mixed with Stratum 4 down to the base of the platform at 1.25 m bgs.

In addition to the above fauna, a chopped cow rib was recovered from the can trench backdirt after Stratum 1 had been excavated to about 50 cm bgs. Other artifacts from this trench from the fill around the 2 inch water line included several fragments of Territorial Penitentiary brick, which did not occur elsewhere in this excavation. Bricks were produced by the Territorial Penitentiary in Santa Fe from 1886–1956. The knife-cut bone suggests home butchering activity, a practice that has been documented in other contemporaneous Santa Fe neighborhoods (Barbour et al. 2014:240–244). The shoe heel and window glass are likely discarded domestic items. The porcelain miniature is whole and undamaged with the exception of faded and eroded paint and may date to the 1940s. Though an exact replica of the porcelain caterpillar from Stratum 4 could not be located, some with similar stylistic elements were produced by two American pottery companies: Hagen-Renaker (1945–present) and Wade Whimsies (1954–1959). Wade Whimsies were originally produced for children but have since become collectors' items. The Gomez Road figurine does not have a maker's mark, so its manufacturer cannot be confirmed. Taken together, the artifacts from 634 could be assigned to the early to mid-twentieth century, possibly ranging from the 1920s to 1940s. The homeowner of 634 Gomez stated that the original water line was installed in 1928. This home does not appear on a Sanborn map until 1930/1948, but this is true of many homes on Gomez. Clearly the neighborhood was more populous than is indicated by the fire insurance maps.

In the street trench area, sediments were similar to those in the can area, though no artifacts were recovered. In this trench, Strata 1 and 3 were heavily reworked, but the rock content was slightly higher, more calcified, and mixed with discrete caliche nodules. The 2 inch and 1944 main water lines bisected the trench north–south, and the copper line extended nearly the full length of the contiguous can and street trench creating a thoroughly reworked profile.

A "Special bargain price" is advertised for the home at 634 Gomez in the spring of 1939 (*The Santa Fe New Mexican*, April 12, 1939). The earliest appearance of this house on a Sanborn map is 1930/1948. This correlates with the 1930 newspaper reference.

702–704 Gomez Road: A single contiguous trench was dug to replace the old meter and connect the new one to the main line. The trench was slightly south of the sidewalk leading to the duplex residence at this address. Disturbances in this trench consisted of the 1944 main line, the 2 inch line in the street section, and shallow plastic tubing that likely represents irrigation. All of these utilities bisected the trench on a north–south axis at 0.93 m, 0.74 m, and 0.25 m, respectively. Additionally, the residential copper line ran east–west at 1.48 m bgs. A large ceramic sewer pipe segment was found at 0.93 m bgs, also the depth of the top of the 1944 main line. Modern refuse including asphalt, red brick fragments, plastic sheeting, and other plastic was mixed with the fill down to 1.20 m bgs, the excavation limit. No artifacts were recovered from this trench.

The old meter was housed in a concrete cylinder set into the ground without the support of a platform. The metal cap had been set directly on the cylinder, without a brick lining. Sediments in the can area were deeply reworked to the base

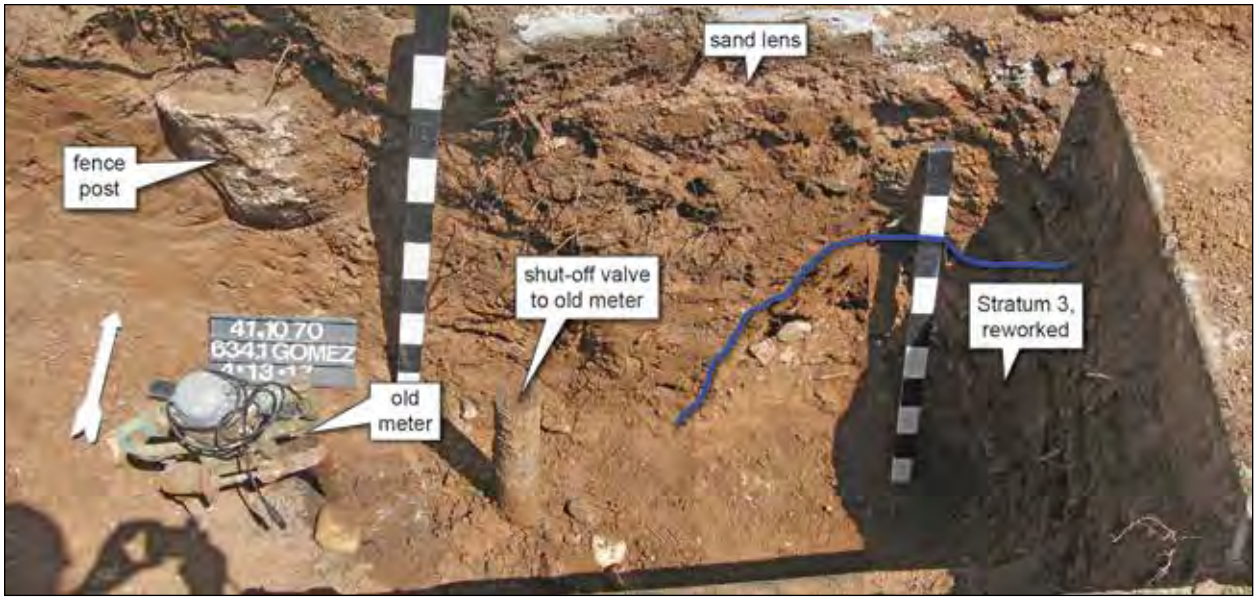

Figure 9.33. 634 Gomez Road, view north.

and consisted of Stratum 1 mixed with modern trash. Under the sidewalk, in the eastern third of the profile outside of the trench dug to install the copper line, stratigraphy was less mixed. Stratum 2 was not as intensively reworked with Stratum 1. Krotovina was observed in the upper 40 cm of Stratum 1.

The house at 704 Gomez was first mapped on the 1930/1948 Sanborn map. The earliest reference to the home in *The Santa Fe New Mexican* appears on Oct. 23, 1939, and celebrates the winners of the Santa Fe Merchants-New Mexican Football Dopster (*sic*) Contest.

706 Gomez Road: The excavation at this address consisted of a contiguous trench that encompassed the old meter can, the sidewalk location for the new meter, and the street trench connection to the main line. The short distance between the can and the street trench was hand-tunneled. The trench was slightly north of the wooden gate at the front of 706 Gomez. Disturbances in this area consisted of the 1944 main line (84 cm bgs), the 2 inch water line (58 cm bgs), a gas main (71 cm bgs) and the old meter can. Strata 1 and 2 were completely redeposited in this trench down to 1.50 m bgs. Stratum 3 was not contacted in this trench.

The old can was a concrete cylinder set directly on the ground without an underlying platform. Unmortared whole and broken bricks lined the perimeter of the cylinder, over which the metal cap was set. Red, hard-fired, machine-cut bricks were scattered in the fill around the old meter can (Figs. 9.34 and 9.35). Asphalt chunks were scattered in the fill beneath the gas line. No artifacts were found in this excavation.

This may be one of the later homes to be constructed in the neighborhood. The house does not appear on any Sanborn map, and the earliest reference in *The Santa Fe New Mexican* does not appear until 1953 ("Niños de Hoy," *The Santa Fe New Mexican*, Feb. 25, 1953).

726 Gomez Road: This is one of nine homes that appear on the 1930/1948 Sanborn map. The new connection at this address involved the excavation of one contiguous trench from a private, walled-in porch area to the street trench. As with other can replacements on Gomez, the portion of trench beneath the street curb was hand-tunneled. The trench was located close to the midpoint of the adobe wall bordering the property. Disturbances to this area consisted of the 1944 water main (75 cm bgs), the 2 inch water line (43 cm bgs), and a gas main (70 cm bgs). All of these utilities were oriented north–south.

Excavation began with the removal of the old can from the porch area. This was paved with unmortared bricks (0.0–6 cm bgs) underlain by landscaping sand (6–15 cm bgs). Beneath the sand was Stratum 5, a layer of topsoil that extended from 15–30 cm bgs. Under the topsoil, Strata 1 and 2 were completely reworked into a uniform color as a result

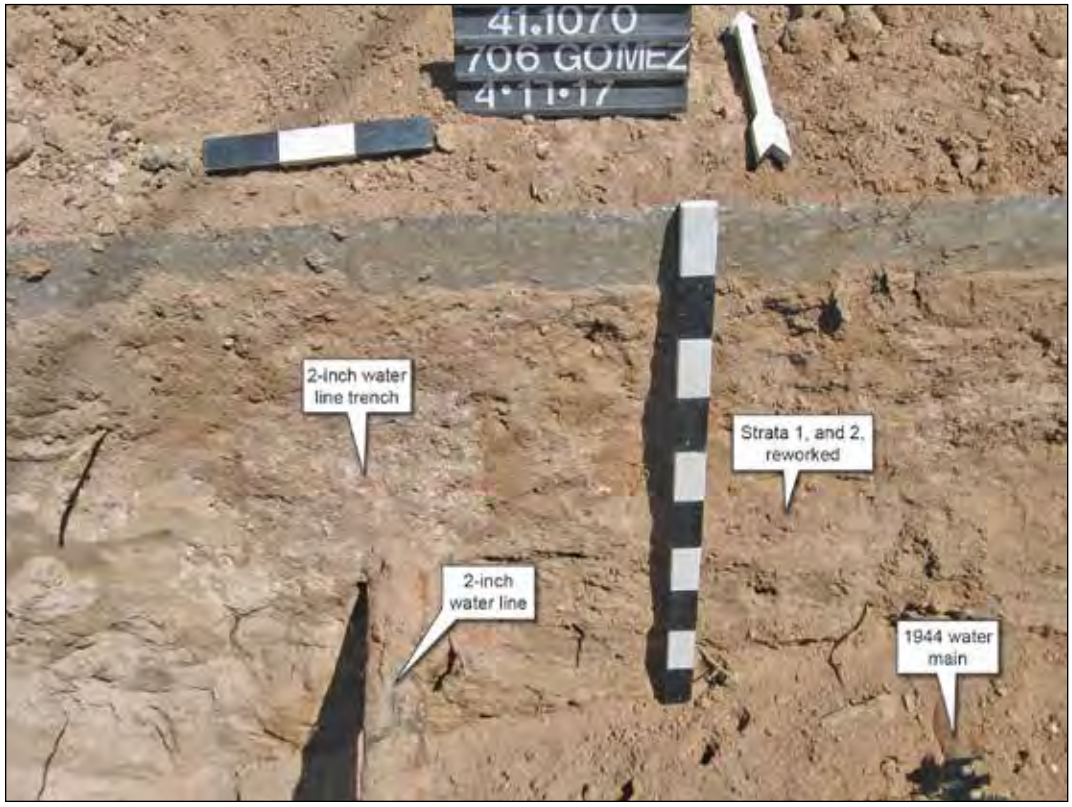

Figure 9.34. 706 Gomez Road, view north.

of heavy worm bioturbation from 30–60 cm bgs. Worm disturbances were encountered in only two locations during this project, the other location being Anita Place. From 60–143 cm bgs was a silty layer of Stratum 2, which was very uniformly calcified. This layer was mixed with modern refuse down to 143 cm bgs. Stratum 1 was not present in the can trench, possibly because it had been removed during home construction and landscaping. Even where Stratum 1 was intact in the street trench, it was quite thin compared to other excavation units on Gomez Road. Stratum 3 was not contacted in any part of this trench.

In the street trench, stratigraphy differed. Stratum 2 was higher, its upper boundary ranging from 25–35 cm bgs. Stratum 2 was overlain by an unusually thin layer of Stratum 1 that extended from the asphalt to 35 cm bgs at its deepest point. Stratum 2 was not intact in the street area either. Down to 1.12 m bgs, it was reworked with Stratum 1, and a 1 m long lens of Stratum 3 rock occurred near the bottom at 86–110 cm bgs.

Six artifacts were recovered from this excavation, four of which were found in reworked fill surrounding the old meter can at about 1.15 m bgs. These four

Figure 9.35. Detail of 4 inch water line at 706 Gomez Road, view north.

consisted of a pair of corrective glasses dating to the 1920s and 1930s, a white ware saucer or plate base with a beginning manufacturing date of 1830, a 2 inch diameter sanitary can lid that could fall within a broad date range from 1904 to present, and a machine-cut cow rib. The remaining two artifacts were from the upper 60 cm of reworked fill around the old meter can. These two items were an unmodified cow femur head from an immature animal, found in the lower boundary of the topsoil at 30 cm bgs, and an unslipped, Tewa Polished gray sherd dating from the late nineteenth to early twentieth century, found at 60 cm bgs.

The 2 inch water line trench was well-defined on the north and south faces. The dimensions and shape of the water line trench were nearly identical to others on Gomez Road. The old meter can was a concrete cylinder set directly into the dirt. The metal top was applied to the cylinder without a brick lining.

This house first appears on the 1930/1948 Sanborn map, which correlates with the earliest reference to this address in *The Santa Fe New Mexican* in 1943 ("Jo Ann McCurdy Has Birthday Party," T*he Santa Fe New Mexican*, Dec. 17, 1943).

Rael Road

The Rael Road main line excavations include eight contiguous segments of main line trench for a total length of 65.38 m. The main line was installed close to the north edge of the street. The most striking aspect of the trenches on Rael was the thick, broad deposits of Stratum 3 that extended from Gomez east up the full length of the main line. Stratum 3 represents alluvial slope sediments deposited by smaller streams originating from the southwestern flank of the Sangre de Cristo Mountains (Johnson and Koning 2012:7). These sediments are part of the Ancha formation, a primary aquifer of the Santa Fe area. As with Sena and Anita, very little cultural material was encountered. No cultural strata were identified and only two artifacts were found.

The Rael Main line extended from the west edge of Gomez Road east up to the end of Rael at No. 249. The eight segments of the main line were numbered consecutively as Rael Main 1–8, from west–east, in order of excavation. Trench segments varied in length from 5.0–14.70 m. Width ranged from 0.76–0.87 m, and depth ranged from 1.11–1.67 m bgs. A total of 16 m of the Rael Main line were profiled, a representative 2 m length for each segment.

Sources of Disturbance

The original water main on Rael Road was installed in 1944 and consists of a 1½ inch galvanized pipe, the only main line of this type in the project. It is identified on the 1944 map as "1.1/2" G.I." and runs slightly north of the centerline. The 2 inch pipeline installed in 2017 replaced the old line. In the main line trenches, utilities were overwhelmingly concentrated in the easternmost portions of Segments 6, 7, and 8, where gas and sewer lines crossed the trench. Elsewhere, north–south residential copper lines bisected nearly every trench segment.

Rael Road was surfaced with asphalt that was cut and removed in slabs. Once the chunks were removed, a pre-excavation photo was taken of the exposed ground surface. As with Sena Street, the entire main line was installed, backfilled, and resurfaced without completing any of the residential connections. Trenches for residential connections were dug after the main line was completed. This involved digging short trenches perpendicular to the recently completed water main trench. These short trenches cut across the 1944 and 2017 water mains at the point of the residential connections to enable transfer from the old line to the new. Similar to Sena Street, fairly long stretches of intact stratigraphy were exposed along the main line. Unlike Sena, some intact stratigraphy did occur in residential connections on Rael Road.

Rael Road Main Line Trenches

The main line on Rael Road displayed an extensive swath of intact stratigraphy beneath the asphalt. This applied to the westernmost 36 m of trench where Stratum 3 constituted the bulk of the profile in every segment. In Segments 1 and 2, the entire profile under the road surface was intact Stratum 3. In this area, cobble sizes ranged from small gravel to boulders up to 90 cm long, though most rocks fell within the 30–60 cm range (Fig. 9.36). The larger rocks were densest in Segments 3, 4, and 5 (19–36 m from the west end). Granite and micaceous schist accounted for virtually all of the represented rock

Figure 9.36. Rael Main 1, view north.

types, with the rare exception of occasional basalt. Rocks were mixed with coarse red granitic sand.

Though the exposed thickness of Stratum 3 was largely intact along Rael, the general slope of its upper boundary was difficult to determine since it was probably truncated at its west end by road construction and had been almost entirely redeposited at the far eastern end. However, where the upper boundary seems to have been least impacted in the westernmost 42 m of the main line (Segments 1–6) Stratum 3 rock extended nearly the full height of every profile. It is not the only layer within this stretch, as Stratum 2 overlies it from 23–42 m, where it ranges from 25–42 cm thick (Fig. 9.37). East of this point, Stratum 1 thins to only 6 cm with a corresponding rise in Stratum 3.

Unfortunately, a continuation of this trend cannot be determined since Segments 7 and 8 were disrupted down to 102 cm bgs. Utilities were concentrated in the latter two segments, many of which were bedded with gravel or filtered fill. This was also the practice of the Sub Surface crew, who backfilled virtually all trenches on Rael with filtered fill. Thus, it is very possible that Stratum 3 represented the thickest stratum in this area at the far eastern end of the street.

Exposures of Stratum 3 were variably calcified depending on the location. Generally, calcification was densest in the lower elevations at the west end and nearly nonexistent in higher elevations to the east. The most intensively calcified area was the westernmost 26 m of the main line, where rocks were thoroughly encased in thick coats of caliche. The stretch between 26–42 m was a transition zone where rocks were less calcified and small, discrete carbonate bits were lightly dispersed through the sand, though the sand grains themselves were not coated (Fig. 9.38). About 42 m from the west end calcium carbonate levels dropped abruptly. Rock surfaces were clean, and the embedding coarse sand continued to be uncalcified. The only carbonate elements in this area were tiny isolated nodules. However, caliche levels rose again east of this point where the terrain levels out. In Segments 7 and 8 (42–63 m), the calcification of Stratum 3 was comparable to the westernmost segments of the main line. However, in these segments, the upper meter or so of Stratum 3 was completely removed

and replaced by filtered Stratum 1 and/or gravel bedding during utility installation.

One artifact was recovered from the main line trenches, a hand-blown, aqua glass bottle neck fragment from Stratum 1 backdirt in Rael Main 7 (Chapter 10). Hand blown glass bottles have a beginning manufacture date of 1880. The glass represents one of the earliest artifacts from the project and, unfortunately, it was recovered from the deeply reworked strata of Segment 7. One other find of note were two Territorial Penitentiary brick fragments found 3 cm beneath the asphalt in a reworked mix of Strata 1 and 3 in Rael Main 8. These bricks were produced by the penitentiary until 1956, which would encompass the most active construction years in this neighborhood, particularly along Rael Road, which was the last street in the project to be developed.

Rael Road Residential Connections

Six residential connections were completed on Rael Road. Four connections required the replacement of old meter cans and the digging of adjacent street trenched; two required only a street trench.

625 Gomez Road can and trench: The water line connection for the home at 625 Gomez is located on Rael Road. The north–south trench was aligned with the west edge of the driveway to this home. This home required a double connection that involved digging two perpendicularly oriented adjacent trenches: an east–west trench to replace the water meter and a north–south trench to connect the new meter to the main line (Fig. 9.39). The connection needed to expose the copper line between them was hand-tunneled.

Several utilities bisected this excavation. The 1944 water main cut across the center of the street portion of the trench. The 1944 copper line was installed in a trench bedded entirely with imported gravel mixed with asphalt chunks, displacing all intact stratigraphy (117 cm bgs). Also, a ceramic sewer line ran north–south near the old meter (100 cm bgs) and a phone line ran east–west near the south edge at 86 cm bgs. Together, the installation of these utilities resulted in the complete reworking of all strata. Strata 1 and 3 were well mixed in both trenches from below the asphalt to the base of the trench at 1.17 m bgs (Fig. 9.40). All of the existing utilities were backfilled with this rocky mix,

Figure 9.37. Rael Main 3, view south.

Figure 9.38. Rael Main 6, view south.

Figure 9.39. 625a–b Gomez Road, excavation in progress, view south.

including the phone line, the sewer line, the copper line, and the meter can.

A 77 cm length of corrugated culvert pipe served as the meter can for the meter at this location. A short vertical flap was cut and turned up to allow the copper line to exit the can. The pipe was placed directly into the dirt without the support of a platform, and the conical metal cap was set directly on top (Fig. 9.41). One artifact was retrieved from reworked sediment in the can trench, an orange and yellow ShurFine Foods, Inc., aluminum soda can with a date range of 1962–1999.

The house is not mapped on the 1930 or 1930/1948 Sanborn maps; no earlier references to the address were located.

245 Rael Road can and trench: This trench was aligned with the west edge of the driveway to 245 Rael and extended from the old water main beneath Rael to the old meter can in the driveway. The space for the copper line between the can and street trenches was hand-tunneled. The 1944 water main (116 cm bgs) and connecting copper line (112 cm bgs) accounted for most of the stratigraphic reworking in the street portion of the trench. Other utilities include along a north–south gas line (45 cm bgs), an Internet line (52 cm bgs), a phone line (67 cm bgs), and a sewer line (123 cm bgs).

As with most can replacements, a combination of hand and machine digging was used to remove the old can, and the main line in the street was primarily exposed by the backhoe. On the east face of the can trench, the uppermost layer, from 0.0–15 cm bgs, consisted of driveway gravel and topsoil (Fig. 9.42). Directly below this, Strata 1 and 3 were redeposited from the installation of the gas, Internet, and phone lines down to about 62 cm bgs. Stratum 3 was intact below this to the bottom of the trench at 1.62 m bgs. The upper portion of Stratum 3 was not calcified, but from about 80 cm bgs to the bottom of the trench about a third of the rocks were caliche covered. White patches of calcium carbonate were scattered randomly throughout the profile.

Most of the west face of the can trench was completely reworked during the installation of the copper and sewer lines. The old meter was housed in a concrete cylinder and the metal cap had been set directly on top. No platform was present.

In the street portion of the trench, the southern

Figure 9.40. 625 Gomez Road, view northwest.

Figure 9.41. Old meter can at 625 Gomez road, view southwest.

half was redeposited from installation of the 1944 and 2017 water lines. In the northern half, stratigraphy reflected that of the Rael main line in Segments 3 and 4, where Stratum 1 extended from beneath the asphalt to 50–60 cm bgs and Stratum 3 accounted for the remainder of the profile to the base of the trench.

No homes on Rael Road appear on any Sanborn map, though some homes had clearly been built before 1948, as the address is referred to in 1944 ("Miss Naoma Hollis Enlists in WAVES," *The Santa Fe New Mexican*, Sept. 14, 1944).

247 Rael Road can and trench: The can trench portion of this excavation ran along the west edge of the driveway to 248 Rael Road. The south edge of the street portion was 5 m north. Installation of the water meter and connecting copper line constituted the primary disturbances in the can trench. In the street trench, the entire profile consisted of reworked sediments or imported fill from the installation of the 1944 and 2017 water mains. The copper connection (128 cm bgs) and a gas line (67 cm bgs) bisected the can trench on a north–south axis.

The trench dug to remove the old can was

Figure 9.42. 245 Gomez Road can trench, view east.

adjacent to a stepped concrete sidewalk that extended along the east side of the home at 248 Rael. The concrete walk varied in thickness from 10–16 cm. It was underlain by a reworked layer of Stratum 1 and large concrete chunks that varied in size from 14–28 cm thick. A Territorial Penitentiary brick fragment was mixed in with the concrete chunks, and a more recent dark red brick was set into the edge of the sidewalk. Penitentiary brick fragments were also mixed in the reworked fill around the shut-off valve. Below the concrete chunk layer to 1.35 m bgs was a redeposited mix of Strata 1 and 3 (Fig. 9.43). From 1.35–1.48 m bgs, Stratum 3 was intact, but consisted only of coarse red granitic sand.

In the street portion of the trench, the fill appeared to be a filtered mix of Strata 1 and 3, since rock sizes were quite uniform and never exceeded 10 cm in length. This is uncharacteristic of Stratum 3, where rock sizes ranged from pea gravel to 90 cm long boulders. No artifacts were recovered from this excavation.

This home had been built by 1945 ("Obituary," *The Santa Fe New Mexican*, Nov. 8, 1945), though it does not appear on the Sanborn map of 1930/1948.

247.1 Rael Road trench: This trench was located in the road south of the driveway to 247 Rael. The old meter can was situated in the driveway but did not require replacing. Virtually all fill within this trench consisted of imported gravel bedding from below the asphalt to the trench base where the copper connection was located at 1.12 m bgs. The bedding was associated with the 1944 water main and residential connection. The only intact stratigraphy was below the copper line, where the upper boundary of Stratum 3 lay at 1.20 m bgs. The rocks in Stratum 3 were completely encased in caliche, but the embedding coarse sand was uncalcified. Trenches in this area connected to both 248 and 250 Rael.

As with other homes on Rael, neither of these appear on the last Sanborn map of 1930/1948, but the house at 248 Rael had been constructed by 1940 ("Names and Registration Numbers of All Men in Santa Fe County Who Are Eligible for Selective Service," *The Santa Fe New Mexican*, Oct. 27, 1940:18). The home at 250 Rael is referred to in 1939 ("Obituary Notices," *The Santa Fe New Mexican*, April 20, 1939).

247.2 Rael Road trench: This excavation

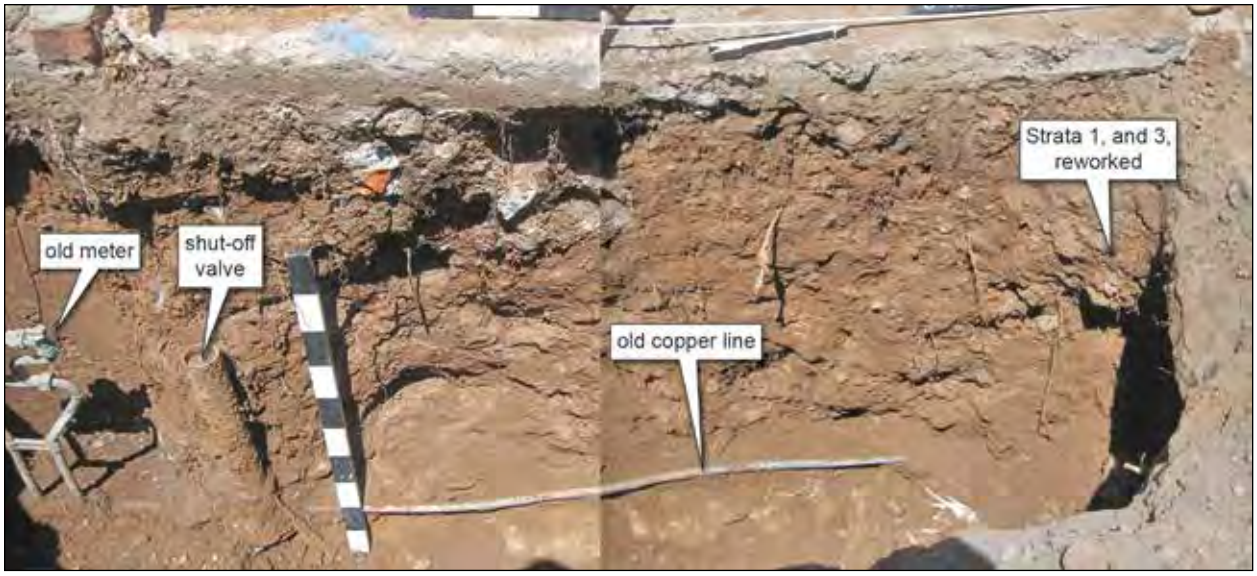

Figure 9.43. 247 Rael Road, view west. Image color shift is due to the combinination of two images.

consisted of a trench in the roadway situated near the southwest corner of the 247 Rael lot. The 1944 water main bisected the south end of the trench. Sediments in this trench consisted almost exclusively of filtered import fill down to the bottom of the copper line at 1.18 m bgs. Below the copper, the intact upper boundary of Stratum 3 was exposed.

249 Rael Road can and trench: A broad, irregularly shaped area was opened up to remove the old meter can at this location and connect it to the new water main. This area was located at the dead end of Rael Road adjacent to a faux adobe wall separating the 246 and 249 lots (Fig. 9.44). Disturbances in this trench were extensive, the meter can and connecting copper lines being the most significant. The can consisted of a length of corrugated culvert pipe set directly into the ground without a platform. Two copper lines (124 cm bgs) extended southwest and southeast from the can, these being the primary reason for the broad excavation in this area. Also, a 6 inch diameter ceramic sewer line stamped with "DICKEY A UNION MADE PITTSBURGH" cut roughly east–west across the south end and was also exposed in the adjacent street trench to the west at 1.10 m bgs. The maker's mark is linked with a broad date span ranging from 1889–1961 (Chapter 10).

The can trench area was surfaced with asphalt and concrete, the latter forming the street curb and driveway to 249. The adobe wall adjacent to this excavation had a formidable foundation of large concrete chunks that extended 67 cm bgs in some areas along the east face. Below the concrete was a deep layer of Stratum 1 reworked with imported gray sand and minor amounts of Stratum 3 rock down to 1.28 m bgs. The gray sand clearly represented imported construction material used as bedding for the copper lines and extended all the way to the top of these lines.

The fill around the can contained modern refuse including a red plastic auto light fragment, an aluminum Tecate beer can with an attached pull tab, a brown glass crown cap beer bottle with a Spanish language label, pumice brick fragments, and a broken Territorial Penitentiary brick.

Remarkably, in the adjacent street trench, sediments were intact, offering the only opportunity to view intact stratigraphy at the far eastern end of the road (Fig. 9.45). The profile here indicated that Stratum 3 trends down to the east, a pattern that could not be confirmed in the Rael main line due to disruption from previous utilities in the easternmost segments.

The top layer consisted of Stratum 1—from the asphalt to a maximum depth of 48 cm bgs (Fig. 9.46). Stratum 2 extended 48–100 cm bgs. Below Stratum 2, Stratum 3 extended from 100–128 cm bgs. The upper boundary of Stratum 3 varied between 100–120 cm bgs. Stratum 3 was heavily calcified and contained not only less rock than locations to the west, but smaller rocks. The house at 249 Rael does not appear on any Sanborn map and no twentieth century references were located.

Figure 9.44. 249 Rael Road, view southeast.

Figure 9.45. 249 Rael Road street trench, pre-excavation, view east.

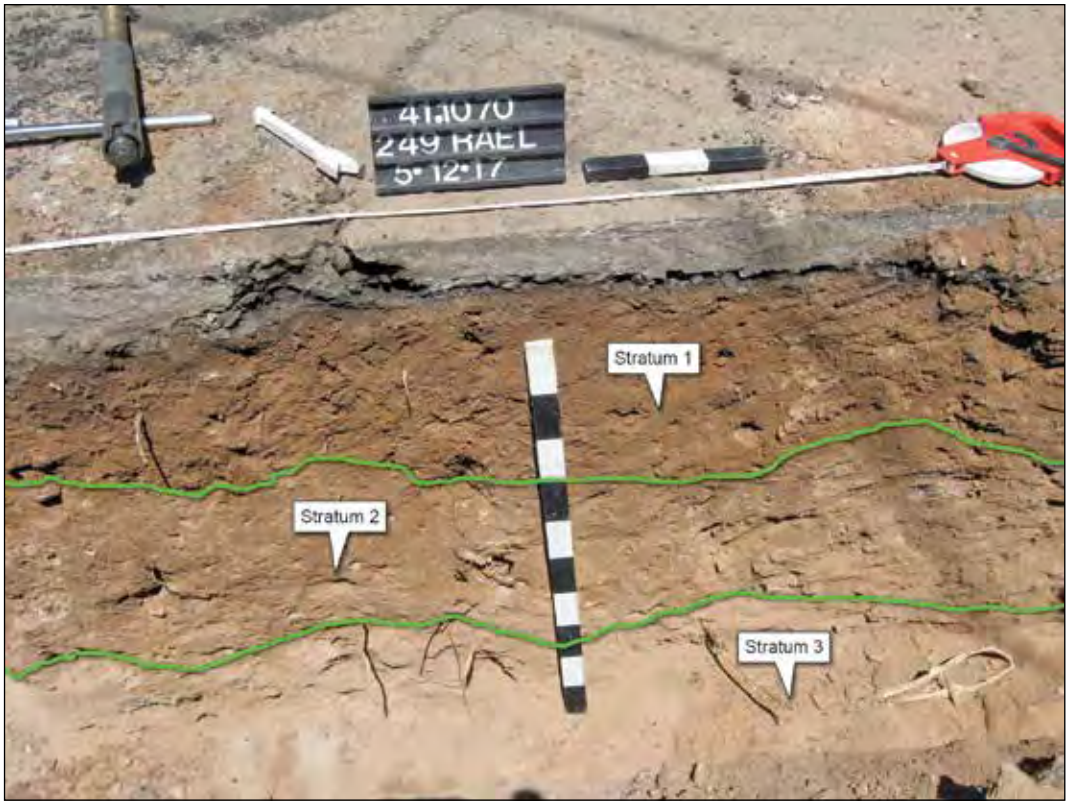

Figure 9.46. 249 Rael Road, view north.

Anita Place

Excavations on Anita Place consisted of four contiguous main line trenches that extended from the main line on Gomez Road east for 28.50 m. The far east end of the main line terminated at the house at 248, one of two homes on Anita Place that appear on the 1930/1948 Sanborn map. Trench length varied from 3.48–9.10 m. Width ranged greatly from 0.78–3.17 m due to a broad excavation required to angle the new line to the south side of the road and connect with the existing main line. Depth ranged from 1.08–1.60 m bgs. Segments were consecutively numbered from west to east.

Sources of Disturbance

The primary disturbance in the area was the 1944 water main and connecting valve, which disrupted a large area in Segment 4. Also in the Segment 4 area: a vertical access pipe from the main line to the surface and a large north-south sewer line. No copper connections were exposed on Anita Place. As with Sena Street, Anita Place was surfaced with a 17 cm thick layer of concrete that required removal with the aid of an excavator-jackhammer and backhoe.

Anita Place Main Line

The main line trenches on Anita Place displayed discontiguous swaths of intact and reworked deposits. Segment 1 had areas of intact stratigraphy. Segments 2–4 were completely or almost completely redeposited. This is similar to Rael Road where stratigraphy became increasingly disrupted to the east and contrasts with Sena Street where intact layers tended to cluster in the lengthy midsection of the main line. The main line on Anita Place was considerably shorter than those of other streets, about 28 m compared to the 153 m along Sena Street and the 65 m along Rael Road.

Segment 1 was largely intact, consisting of a thick layer of Stratum 1 from 0–83 cm bgs and Stratum 2 to the bottom of the trench from 83–108 cm bgs. The boundary between Strata 1 and 2 was well defined and did not reflect the incremental gradation

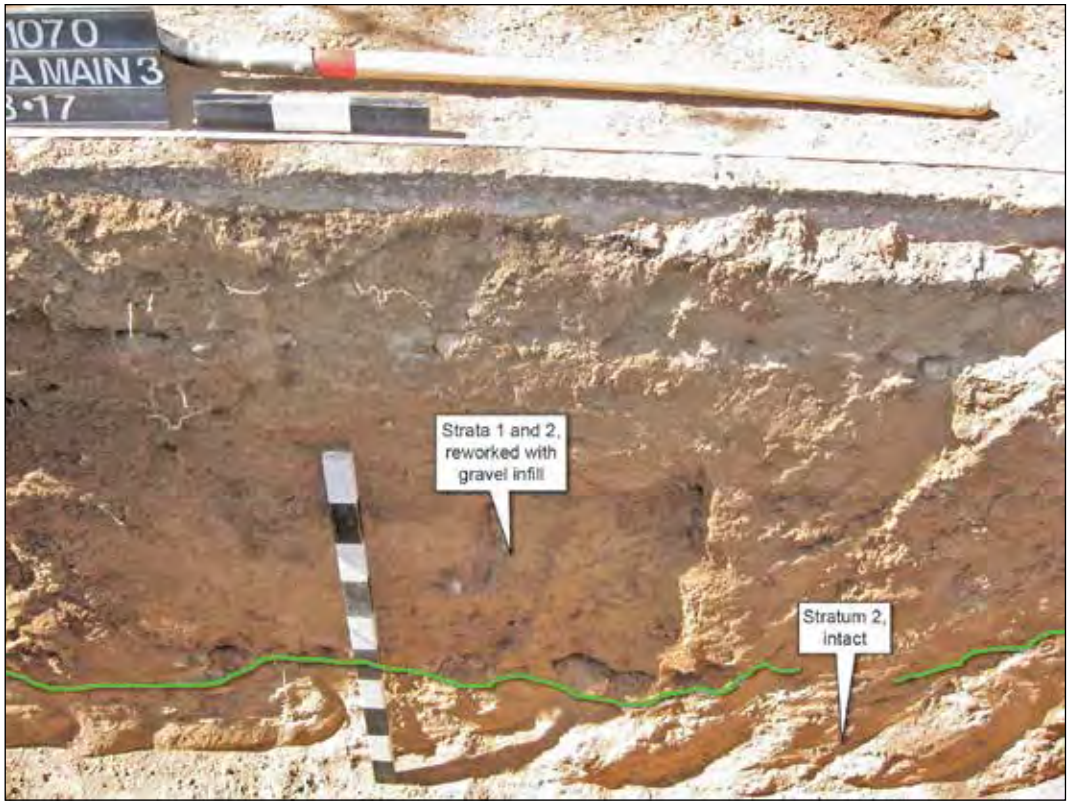

Figure 9.47. Rael Main 3, view south.

of calcification that occurred in some locations on Rael and Sena. Stratum 2 trended slightly down and east in this segment. Stratigraphy was thoroughly disrupted in Segment 2 from beneath the asphalt to the bottom of the trench at 1.32 m bgs as evidenced by random discrete deposits of Strata 1 and 2.

Segment 3 displayed yet another variation. Sediments were reworked from 0–128 cm bgs. This involved partially leveling the upper boundary of Stratum 2 (Fig. 9.47). Below the level of disturbance, Stratum 2 was intact to the bottom of the trench at 1.60 m bgs. The re-deposition mix included minor amounts of Stratum 3, which must have been obtained from a deeper nearby excavation since an intact layer was not contacted in Segments 1, 2, or 3. Also in the reworked mix was a light scatter of gravel bedding obviously relocated from the far western end of the trench.

Segment 4 was nearly identical to Segment 3. The area excavated for Segment 3 was quite broad, measuring 9.10 m long, 3.17 m wide in some areas, and 1.60 m deep (Fig. 9.48). Strata 1 and 2 were thoroughly remixed down to 1.56 m bgs. The extreme upper boundary of Stratum 3 was contacted below (Fig. 9.49). Inside the trench dug for the vertical access pipe for the 1944 main a broken, proximal cow ulna was found near the base of the pipe at 1.56 m bgs.

The overall trend of Strata 1, 2, and 3 on Anita most resembled that of Sena Street. The thickness of Stratum 1, comparable to the thinnest deposits on Sena, accounted for the uppermost 80 cm of sediment. Stratum 2 was comparable in some regards but not in others, owed mainly to the short length of the Anita main line. Stratum 2 is clearly delineated from Stratum 1, where it is intact, but never displays the unusual vertical calcification formations so ubiquitous on Sena Street. Stratum 2 extends to the trench bottom and is underlain by the extreme upper boundary of the Stratum 3 rock. The extensive disturbances in the easternmost segments preclude any trend in slope for Strata 1 and 2, but the upper extent of Stratum 3 appears comparable to that on Sena Street, about 1.60 m bgs.

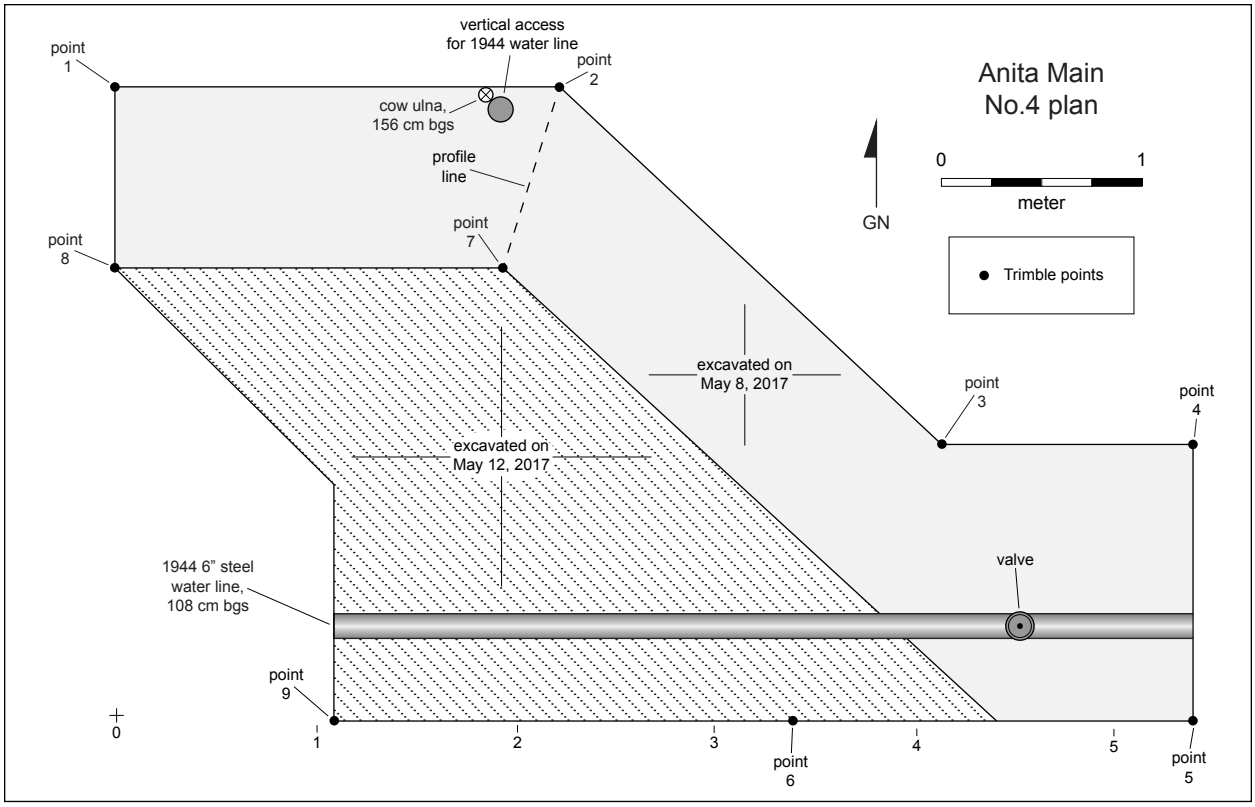

Figure 9.48. Anita Place Main 4, plan map.

Figure 9.49. Anita Place Main 4, view north.

10 ⇓ Euroamerican Artifact Analysis

Susan M. Moga

Twenty two Euroamerican artifacts were recovered during the archaeological monitoring of residential sections of Gomez Road, Sena Street, Anita Place and Rael Road (Table 10.1) The OAS Historic Artifact Standardized Code format (Boyer et al. 1994) was implemented during analysis. This detailed format consists of descriptive attributes including: category, type, function, fragment, material type, aging, dates, manufacturing techniques, brand names, color, type of bottle finishes, ceramic paste and ware, and decorative motifs. These were recorded for each artifact. These attributes were then entered into an electronic data base (SPSS). These artifacts will be described according to the cultural context in which they were found. Only one artifact was located on the surface. The remaining artifacts were assigned to Strata 1, 2, 3, and 4. The artifacts and their frequencies will be addressed according to the stratum from which they were retrieved.

Figure 10.1. Metal shank button from 328 Sena Street.

Surface

Surface artifacts consisted of a metal shank button (¾ inch diameter) made from an unknown metal alloy (Fig. 10.1). The button surface was mechanically stamped with a floral pattern. A metal eye on the reverse side is used to attach the button to fabric. Shank buttons were initially made in the early 1700s for military uniforms (Luscomb 1967) and are still in use today as functional decorative attachments. Without a brand name or manufacturer stamped on the button, it is impossible to date. The button was recovered from the surface in an unpaved strip of land between the sidewalk and street at 328 Sena.

Landscaping Gravels

Landscaping gravels contained a rubber ball, an oval disk cut from architectural tile, and one unidentifiable object. All of these objects were recovered from surface gravels around the old meter can at 627 Gomez Road.

The vulcanized rubber ball (¾ inch diameter) is in a desiccated condition and is brown in color with green, red, and black hand-painted stripes. Charles Goodyear invented the process of vulcanization and patented it in 1844 (U.S. Patent Office). Thus began the flow of rubber objects—combs, buttons, toys, tires—to the market. The ball found on site could only date after 1928, when the first homes were constructed in the area.

The oval disk has been cut from a piece of white-glazed terracotta architectural tile for the purpose of mounting a pipe fixture to a bathroom or kitchen wall (Fig. 10.2). The edges exhibit concentric rings probably produced by a plug cutter or similar tool, and the center hole has been perforated with a drill bit (1 inch diameter, ¼ inch thick). The white glaze is crazed and the underside is lightly coated with cement mortar. Though the disk is not perfectly circular, there is no evidence of hand-shaping on any surface.

The unidentifiable object is a machined tinned-steel can fragment dating from 1901. The crushed

Table 10.1. Euroamerican artifacts located during Gomez Road monitoring.

Category	Type	Function	Material	N	Begin Date	End Date	Manu.	Technique	Finish	Paste	Ware	Color	Decor.	Design
Stratum 0														
Personal Effects	Clothing	Button, Shank	Metal Alloy	1	–	–	–	Stamped	–	–	–	Gray	Stamped	Floral
Construction & Maintenance	Building Materials	Disc	Ceramic	1	–	–	–	Mold	–	Red	Terracotta	White & terra-cotta	Glazed	Geometric
Entertainment	Toys	Ball	Rubber	1	1844	–	–	Vulcanized	–	–	–	Brown & Multiple	Hand-painted	Geometric
Unassignable	Unidentifiable	Can, Indet.	Tinned Steel	1	1901	–	–	Flat, Sheet Machined	–	–	–	–	–	–
Stratum 1														
Domestic	Dishes	Plate/ Saucer	Ceramic	1	1830	–	–	Mold	–	Refined earthenware	Whiteware	White	–	–
Indulgences	Soda/ Carbonated Beverage	Soda Bottle	Glass	1	1904	–	–	Automatic Bottle Machine	Crown Top	–	–	Green	Embossed	Alphabetic
Unassignable	Unidentifiable	Bottle, Indet.	Glass	1	1880	–	–	Hand Blown	–	–	–	Aqua	–	–
Unassignable	Unidentifiable	Can Lid	Iron	1	–	–	–	Stamped	–	–	–	Brown	–	–
Personal Effects	Medicine & Health	Eye-glasses	Celluloid, metal, glass	1	1920	1930	–	Assembled (from parts)	–	–	–	Brown & Yellow	–	–
Construction & Maintenance	Plumbing	Coupling	Iron	1	–	–	–	Mold	–	–	–	Brown	Threaded	Curvilinear
Construction & Maintenance	Plumbing	Coupling	Iron	1	–	–	–	Mold	–	–	–	Brown	–	–
Construction & Maintenance	Plumbing	Manhole Cover	Iron	1	1899	–	Ford Meter Box Company	Mold	–	–	–	Brown	–	–
Stratum 2														
Construction & Maintenance	Unidentifiable	Metal sheet fragments	Iron	4	1875	1968	–	Flat, Sheet Machined	–	–	–	Brown	–	–
Stratum 3														
Unassignable	Unidentifiable	Bottle, Indet.	Glass	1	1929	1954	Owen's-Illinois	Hand Blown	Patent	–	–	Amber	Embossed	Numerical

Table 10.1 (continued)

Category	Type	Function	Material	N	Begin Date	End Date	Manu.	Technique	Finish	Paste	Ware	Color	Decor.	Design
Indulgences	Soda	Soda Can	Aluminum	1	1962	1999	–	Impact Extrusion	–	–	–	Orange & Yellow	Stenciled	Geometric
Construction & Maintenance	Plumbing	Sewer Pipe	Ceramic	1	1889	1961	W.S. Dickey Clay Manuf. Co.	Mold	–	Refined earthenware	Glazed coarse earthenware	Brown	Salt glaze	Alphabetic
Stratum 4														
Entertainment	Toys	Animal	Ceramic	1	–	–	–	Mold	–	Porcelain	Porcelain	White & Multiple	Hand-painted	Novelty
Construction & Maintenance	Building Materials	Window Glass	Glass	1	1800	–	–	Flat, Sheet Machined	–	–	–	Green	–	–
Personal Effects	Boots & Shoes	Shoe or Boot	Metal & Rubber	1	1862	1926	–	Nailed	–	–	–	Brown	–	–
Table Total				**22**										

N = Count; Manu. = Manufacturer; Decor. = Decoration.

can may have been used to hold food, bulk tobacco, or possibly oil or lubricants.

Stratum 1

Stratum 1 (n = 8) had the largest frequency of Euroamerican artifacts from the project area. There was one domestic item, a white ware plate or saucer base (1830+), and an intact light green glass soda bottle with a crown cap (9¼ inches high, 2¾ inches diameter).

The bottle is factory made, with side seams, and dates from 1904. It is embossed with a few factory numbers but lacks a date, brand, or manufacturer. The bottle was found in the reworked sediments of the old meter can at 630 Gomez. A fragment of an unidentifiable aqua glass bottle is hand-blown and dates from 1880. This item originated from reworked fill in the old meter can pit at 726 Gomez. An unknown type of can lid from the Rael main line backdirt cannot be identified. The white ware was recovered from redeposited fill surrounding the old meter can at 726 Gomez Road.

An intact pair of corrective eyeglasses was found in redeposited Strata 1 and 2 in the old meter can pit at 726 Gomez Road. The eyeglasses have celluloid shafts, a decorative metal nose bridge, and a metal frame supporting the glass lenses (Fig. 10.3). Metal frames became popular during the Art Deco period (1920s–1930s) (Mate 2017). The eyeglasses' celluloid shafts are made of a synthetic plastic material, an affordable substitute for tortoise, ivory, or horn. Hair brushes and combs were also made of celluloid during this time period.

The remaining three artifacts were associated with plumbing activities. Two artifacts are metal couplings (1½ inches high by 2½ inches diameter). Both are heavily rusted but threading on the central interior and exterior is still visible. A date could not be assigned to these items because they have been continuously manufactured for many decades. They are probably associated with the 4 inch water main on Gomez Road that likely predates the 1944 6 inch main line. The couplings were recovered from two proximate street trenches at 626 and 628 Gomez (110 and 120 cm bgs) near the intersection with Anita Place. The old 4 inch water line was also encountered in both of these trenches running east–west and north–south. This suggests that these couplings connected intersecting pipe segments in this area. The only time frame available would be after 1928 when houses in the vicinity were constructed.

The last plumbing artifact, a water meter box cover (12 inches diameter by ½ inch thick), is extremely rusted and broken into four pieces (Figs. 10.4a and 10.4b). It was found at 1.50 m bgs in deep, redeposited fill surrounding the old meter can at 630 Gomez and likely represents the original cover, since all metal tops were replaced with plastic in the 1970s. The cover is embossed and the writing on it difficult to translate due to heavy corrosion. Eventually, it was translated as "Ford Meter Box Co. Water Meter, The Wabash Box, Wabash, Indiana" surrounded by six embossed stars. An X-ray image of the meter cover also revealed the letters "W...A" pressed into the center. The letters could be a foundry mark or denote a specific type of lid (Rebecca Haynes, Ford Meter Box Company, personal communication, 2017). Edwin H. Ford invented the meter box (with a metal cover) and received his patent on Sept. 19, 1899. Customers wasted water by constantly running cold water to preserve butter and milk. To encourage water conservation, Ford's meter box accurately measured individual water usage and meter boxes were eventually installed in homes in the surrounding community. Ford's initiative made him a prominent manufacturer for the waterworks industry. A similar Ford Meter Company cover, in excellent condition, was located in downtown Santa Fe on Camino Don Miguel and has been provided here for comparison, though that box is embossed with eight stars and excludes the word "the" from "Wabash Box" (Fig. 10.5). Ford's headquarters were based in Wabash, Indiana, with another manufacturing plant in Pell City, Alabama where other types of pipe products are still made and distributed worldwide. Today, after 128 years, the company is still privately owned by some of Edwin's descendants (Ford Meter Box Story). The midrange date for Stratum 1 Euroamerican artifacts is 1888.

Stratum 2

Stratum 2 contained four fragments of unidentified sheet metal. Between 1875 and 1968, flat sheets of metal were factory produced using the Bessemer process. Sir Henry Bessemer, an English engineer, invented an inexpensive process to manufacture sheet metal (Saville 2017). The fragments were

Figure 10.2. Cut architectural tile disk from 627 Gomez Road can trench.

Figure 10.3. Art Deco style eyeglasses from 726 Gomez Road can trench.

Figure 10.4a. Ford Meter Box Company meter cover from 630 Gomez Road can trench.

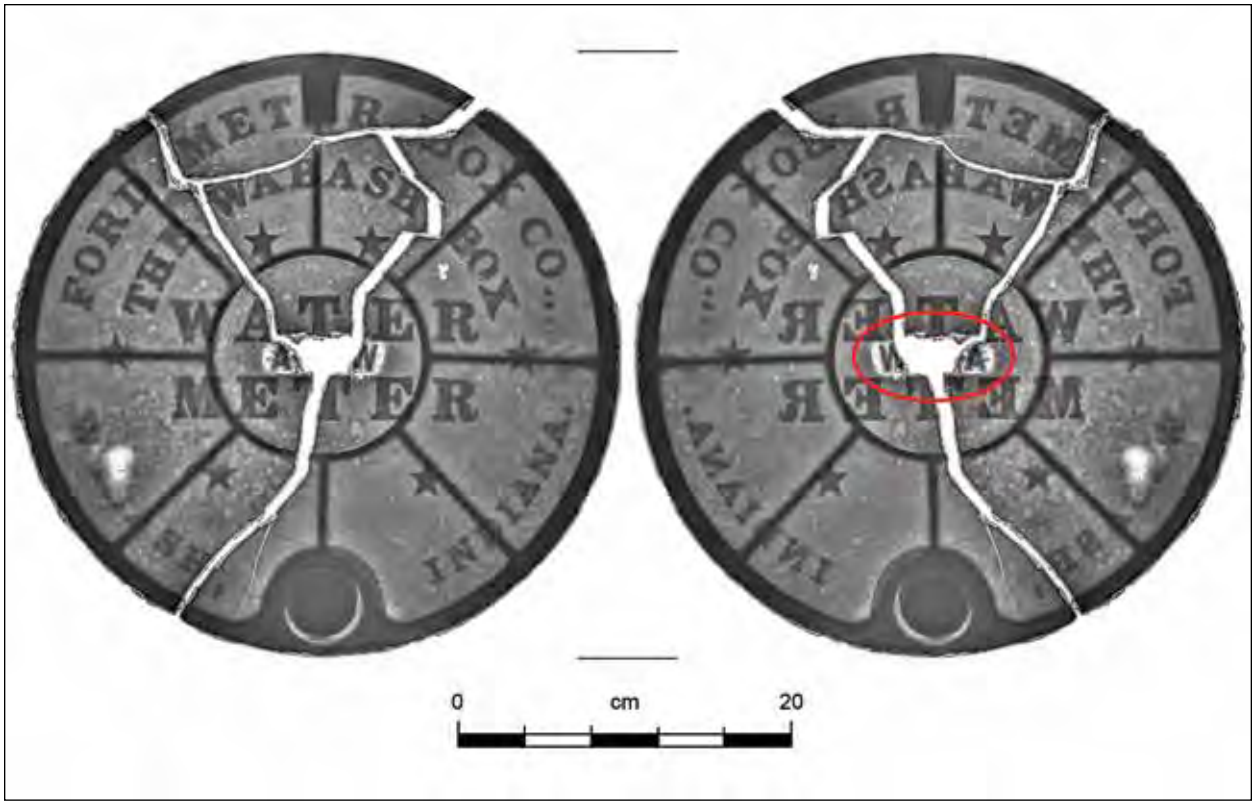

Figure 10.4b. X-ray images of Ford Meter Box Company meter cover from 630 Gomez Road can trench.

recovered from reworked fill at 632 Gomez Road proximate to the old meter can. The midrange date for Stratum 2 Euroamerican artifacts is 1922.

Stratum 3

Stratum 3 yielded three unique items. An intact, unidentifiable amber glass bottle (3¾ inches high, 1¾ inches wide, 1 inch depth) with a patent finish and is embossed on the base with an Owens-Illinois maker's mark (Fig. 10.6). The mark dates the bottle between 1929 and 1954. The bottle could have been used for toiletries, medicine, or even culinary items. Therefore, its specific function is not known.

An orange and yellow, 9 ounce aluminum soda can with a pull-top opening was found and is crushed and corroded. It was manufactured by ShurFine Foods Company, based in Portland, Oregon between 1962 and 1999. It was recovered from fill reworked from the installation of a sewer line on Rael Road at 625 Gomez Road, the connection to which is on Rael. A section from a ceramic sewer pipe with a brown salt glaze was manufactured by the W. S. Dickey Clay Manufacturing Company in Pittsburg, Kansas (Fig. 10.7). The maker's mark is double-stamped on the pipe exterior. The date range of the pipe is between 1889 when the company began production and 1961 when the Dickey plants closed (Jolley 2011). The midrange date for the sewer pipe would be 1925. It was found in reworked fill at the far eastern end of the Rael Road main line near 249. All of these items were recovered from reworked fill around the old meter can at 632 Gomez Road. The midrange date for Stratum 3 Euroamerican artifacts is 1949.

Stratum 4

Stratum 4 artifacts were assigned to three different categories. A porcelain hand-painted caterpillar figurine (2½ inches high, 1 inch diameter) is molded and probably belonged to a child who crudely repainted the toy in multiple colors (Fig. 10.8). There is no way to date this object without a maker's mark. It could have been made in America, Japan, China, Europe, or elsewhere. The most appropriate time period for the figurine would be from 1928–1940, when the neighborhood was established.

One fragment of light green window glass/glazing is associated with the construction and maintenance category. Window glass in New

Figure 10.5. Ford Meter Box Company meter cover from Camino Don Miguel.

Mexico dates from 1800 to present. A rubber heel fragment from a boot or shoe can be classified as a personal item. The rubber is desiccated and the nail embedded in the heel has rusted. Nailed footwear dates from 1862–1926 (Anderson 1968:61–64), with a midrange date of 1894. The caterpillar figurine, heel, and window glass were recovered from fill inside the platform of the old meter box at 634 Gomez Road. The midrange date for Stratum 4 Euroamerican artifacts is 1847.

Conclusions

The Euroamerican artifacts recovered during the Gomez Road monitoring project represent a variety of daily human activities. Personal items included clothing, footwear, and eye accessories. Only one fragment of dinnerware represented the Domestic category. A few tin cans may have been for food, but lacking information, could only be classified as unidentifiable. The two soda bottles are considered indulgences because they are a luxury and not a necessity. Toys always represent the presence of children even if artifact frequencies are low in number.

Figure 10.6. Amber glass bottle from 632 Gomez Road can trench.

Figure 10.7. Stamped sewer pipe fragment from 249 Rael Road.

Figure 10.8. Porcelain hand-painted caterpillar figurine from 634 Gomez Road.

The Construction and Maintenance Category represented the highest frequency of Euroamerican artifacts in the Gomez assemblage. Most of these artifacts were associated with plumbing activities, with the exception of the solitary piece of window glass and the architectural tile disk.

Products from two major companies—the Ford Meter Box Company and Dickey Clay—were identified as contributors to the construction of the neighborhood. The only problem with dating these items is their expansive histories. To date objects from the beginning to end date of the companies' existence is unrealistic. These dates are often "out of the ballpark" when trying to date a stratum or site. The midrange date for the analyzed Euroamerican artifacts from Gomez Road is 1891. A more realistic date is after 1928, when the houses were constructed in the vicinity (Chapter 14). Historic documentation of the neighborhood is represented on the 1930 and 1930/1948 Sanborn maps. Beginning in 1927 on Sena Street, it is known that water mains and sewers were installed, houses were built, children eventually appeared, and dishes got broken.

11 ⇓ Ceramic Analysis

C. Dean Wilson and Karen L. Wening

Two historic sherds were recovered from the Gomez Road project, one is Tewa Polished gray ware and one is indeterminate glaze ware (Fig. 11.1). The glaze ware sherd originated from surface landscape gravel inside a walled garden at 627 Gomez Road. It was produced from micaceous clay and exhibits rather haphazardly painted red, black, and yellow pigments. This decorative style is not typical of Native American glaze ware polychromes, but it could conceivably fall within the stylistic range of this type had it originated from a seventeenth or eighteenth century context. However, given its context in the top 5 cm of garden gravel in the same shovelful of sediment with a rubber ball and the architectural tile disk, it more likely represents a late nineteenth or early twentieth century vessel fragment and cannot be confirmed as Native American.

The Tewa Polished gray ware sherd was recovered from the old meter can trench located inside a walled-in porch at 726 Gomez Road in reworked sediments surrounding the old meter can (60 cm bgs). The sherd is unslipped and dates from the late nineteenth to the early twentieth century.

Figure 11.1. Indeterminate glaze ware sherd from 627 Gomez.

Its context is one indication of its disturbed context; the other is the presence of a pair of corrective eyeglasses, a metal food can, and indeterminate Euroamerican white ware at a greater depth in the same trench.

12 ⇓ Faunal Analysis

Karen L. Wening

Faunal remains were rarely encountered during Gomez Road monitoring project (Table 12.1). The entire faunal assemblage consists of seven cattle bones. Six of these were butchered either by hand (n = 4) or by electric saw (n = 2). The single unaltered bone is a femur head from an immature animal. A variety of meat cuts are represented among the seven cow bones including chops, rounds, short ribs, and T-bones. Faunal remains were analyzed by Susan M. Moga.

Interestingly, most faunal items (n = 5) were recovered from fill surrounding the old meter cans on private property on Gomez Road. It is particularly intriguing to note that all fauna from these contexts was proximate to the earliest homes on Gomez—634, 638, and 726, three of six houses on the street by 1948, according to the Sanborn maps.

The two examples of fauna from 634 are hand-butchered. The example from 638 is sawn, and the two examples from 726 are the immature femur and T-bone cut. The two remaining pieces were found in the main line trenches on Sena Street (n = 1) and Anita Place (n = 1). Beef bones from private property on Gomez are equally likely to have been hand-butchered or commercially cut (n = 2, for both). Both bones from Anita and Sena streets show signs of hand-butchering.

Though this is a small assemblage for such an expansive excavation, it exhibits some unusual characteristics. Chief among them is the high proportion of hand-butchering, which is atypical of a mid-twentieth century neighborhood. Hand-butchering had been on the wane in Santa Fe since the turn of the century, decades before this area was built. At this time, an increase in the consumption of retail beef cuts was well underway. This trend continued into the twentieth century and was well established by the 1930s and 1940s (Craw 2012:275).

The growing preference for commercially cut beef was observed in the faunal assemblage from two excavation projects in the Capitol Complex neighborhood of downtown Santa Fe, in which most cow bones had been mechanically processed (Craw 2012:271, 278; Akins 2014:253). The earliest structures in the Capitol Complex neighborhood, where the first homes were built following the arrival of the railroad in 1880, predate Gomez Road by nearly three decades. Construction in the Capitol Complex neighborhood continued through the post-World War II era (Barbour et al. 2014:355). This span of years saw significant changes in the dietary habits of residents. One of these changes was an overall decline in hand-butchering accompanied by an increase in the purchase of retail beef. This was evidenced by relatively high percentages of bone cut with electric saws (Craw 2012:271–272). Electric saws first became available in Santa Fe during the 1880s but were usually restricted to professional butchers. Hand-butchering involved knives, cleavers, and hacksaws. It is important to note that hand-butchering methods were not restricted to home processing, since professional butchers also used these techniques. Also, customers may have purchased large retail cuts of meat and completed further processing at home.

Around the turn of the nineteenth century, home butchering was largely confined to Hispanic households in the neighborhood, while Anglos tended to rely more heavily on retail beef (Craw 2012:275, 282–283; Akins 2014:243). Differences between the two groups faded over time, as both became more dependent on purchased beef cuts in the proceeding decades of the twentieth century.

Though the earliest structures in the Capitol Complex neighborhood predate those of the Gomez Road by about three decades, the two areas overlap in later years, particularly during the late 1930s and 1940s. Based on the changing consumption trends observed in the Capitol neighborhood, it seems reasonable to expect that most of the Gomez faunal assemblage would consist of cattle remains and that virtually all faunal remains would be retail cuts. The first is true of Gomez, since all fauna were cattle, but

Table 12.1. Fauna from the Gomez Road monitoring project.

Location	Common Name	Element	Age	Processing	Count	Cut	Animal Alteration	Context
634 Gomez can trench	cow	(L) proximal radius	mature	chopped	1	round	–	backdirt
634 Gomez can trench	cow	(L) proximal rib	mature	chopped	1	short rib	gnawed	redeposited
726 Gomez can trench	cow	(L) femur head	immature	n/a	1	chops	–	redeposited
726 Gomez can trench	cow	(R) proximal rib	mature	sawn ends	1	short rib	–	redeposited
638 Gomez street trench	cow	lumbar vertebrae	mature	sawn	1	T-bone or chop cut	–	redeposited
Anita Main 4	cow	(R) proximal ulna	mature	broken	1	round	–	redeposited
Sena Main 1	cow	(R) proximal femur head	mature	chopped	1	chops	–	redeposited

the second is not, since only two of the seven bones had been sawn. Since all fauna was recovered from redeposited contexts in areas subjected to significant disturbances, the relative context of retail versus home butchered bones cannot be determined. Possibly, the home butchered bones were originally in the lower fill and the sawn bones were in the upper fill prior to utility installation in the area. However, as mentioned above, some beef may have been hand-processed at home following purchase at a butcher shop—a practice that may have increased during the Depression as a cost-saving measure.

The prevalence of saw-cut bone is interesting in light of the agricultural use of this area prior to its development as a neighborhood. Possibly, the area was used occasionally as a butchering site or a small number of livestock were grazed in the area. This of course assumes that the bone is associated with the rural status of the area, which may not be the case. Since all fauna was recovered from reworked contexts, it is difficult to assign these pieces to the agricultural or residential periods of the area. In fact, both could be represented. The proximity of five bones to a few older homes in the neighborhood would seem to increase the likelihood of the bones' status as domestic refuse. In the Capitol Complex neighborhood excavations, Barbour et al. (2014:104) noted that though there was little evidence of significant change in consumption patterns during Prohibition and the Great Depression. However, the response to economic stress varied among families, with each developing personalized methods of maximizing resources. Though this assemblage is too small to gauge the behavior of an entire neighborhood in the 1930s and 1940s it is tempting to suggest that the mix of home and commercial butchering reflects different responses to economic stresses in the Depression era.

13 ⇓ Chipped Stone Analysis

Two chipped stone artifacts were recovered from the Gomez project, both from excavations at 632 Gomez. The first is a large Madera chert core found in the street trench at 632 Gomez; the second is a piece of angular debris of Pedernal chert.

The large Madera chert core was retrieved from the backdirt during the excavation of Stratum 3 when the backhoe reached a depth of about 100 cm bgs. At this depth, Stratum 3 appeared intact, though its upper boundary was truncated during the redeposition of the upper strata. The core is flaked into a roughly discoid shape. Most flake scars originate from one of three platforms—two of which are opposing and one that parallels the flat surfaces of the disk. Approximately half of the perimeter is very heavily battered where the platform angle exceeds 90 degrees and most flake scars are hinged. Both of these factors likely caused this core to be discarded despite its fairly large size (12.8 by 11 by 6.4 cm; 1391 grams). No cortex remains on the core, but one flattened surface has retained a small amount of caliche. Deeper flake scars display a glossy sheen, indicating that the core has been heat-treated.

Madera chert is locally available in the Santa Fe area. It outcrops in the Madera limestone formation of the Magdalena group and is available in local gravel deposits and outcrops. Madera chert nodules are commonly found in the fossiliferous limestone deposits that outcrop in the Old Stone Dam area at the far eastern end of Canyon Road. This area was clearly a prehistoric source of this material as evidenced by discrete chipping areas and downslope washes of redeposited debitage.

The piece of angular debris made of Pedernal chert was recovered from an old meter can trench in an intact context at the boundary of Strata 2 and 3 at 60 cm bgs. The material is translucent Pedernal chert with black, mossy inclusions and displays the high gloss characteristic of thermal alteration. This piece of debris measures 3.5 by 1.9 by 1.0 cm and weighs 6.8 grams.

One primary source of this chert is the Pedernal Peak, where large boulders of the material are ubiquitous in higher elevations. It also commonly occurs in gravel deposits along the Rio Chama and the Rio Grande, downstream from the confluence of those rivers (Moore in prep/a).

These are the only two artifacts from the project likely linked with prehistoric activity in the area, though a historic association cannot be excluded as chipped stone tools were produced by Hispanics as well. It is remarkable that both Gomez project lithics were found proximate to one another given the numerous trenches excavated during the project. Since Stratum 3 is an alluvial deposit, its rocky constituents were likely transported from upslope locations. Also, chert was never observed in Stratum 3 during the project, so raw material for the core was procured elsewhere and brought to this location, or the Stratum 3 alluvium scoured the older, chert-bearing Madera limestone deposits and transported it to the project area, where it could have been selected for flake production.

14 ⇓ Summary and Discussion

This project involved the monitoring of municipal water line work on four intersecting streets southwest of the State Capitol building: Gomez Road, Rael Road, Anita Place, and Sena Street. Monitoring took place between March and June 2017 and included a total of 75 individual excavations. Monitoring was required prior to the installation of new water mains on Sena, Rael, and Anita and to the establishment of new residential connections on Gomez, Rael, and Sena. No sites or features were encountered during this monitoring project, but 33 artifacts were collected. These artifacts consisted of Euroamerican materials (n = 22), historic ceramics (n = 2), fauna (n = 7), and chipped stone (n = 2). Three cultural strata were identified, all of which appeared to have been derived from early to mid-twentieth century residential occupations in this area.

Artifacts from the Gomez Road excavations do not coalesce around a narrow date range. They are more accurately assigned to a broader, 50-plus year span from 1900 to 1950. Most artifacts represent domestic refuse or hardware related to the early utility lines in the neighborhood. Domestic items include toys, food and drink containers, and personal items, like eyeglasses and a shoe heel. These items roughly reflect the first half of the twentieth century. Artifacts connected to utility use include an old meter cover, an iron meter yoke bar, ceramic sewer pipe fragments, steel pipe couplings (2 inch diameter), pipe segments from the 2 inch water main, and corroded metal bits, probably from old water mains. The majority of the plumbing materials probably date back to the earliest meter installation in 1930 or to the installation of a new water main in 1944. Other utility related items included recent trash—soda cans and beer bottles dating to the 1960s and 1970s—likely left behind by plumbing crews.

An assortment of construction related materials was recorded but not collected. These include items produced by the Territorial Penitentiary: pen tile and bricks. Pen tile was used in the construction of at least one home in the neighborhood, according to the present day owners of the Lucero home at 631 Gomez. The bricks were of the soft, dark orange variety produced at the Territorial Penitentiary. These bricks were used to set old meter caps onto their platforms or were mixed with concrete to further stabilize old meter cans. Occasionally, the bricks were used to construct the walls bordering several front yards.

Other cultural materials, like charcoal and coal, were rarely observed. Coal in particular was noticeably absent. Only two locations yielded tiny flecks of coal: one at the Sena-Gomez intersection in Stratum 6; the other at 634 Gomez, where coal had been mixed with dark cultural fill inside an old meter can platform. Charcoal was only slightly more apparent. The only charcoal concentration occurred in Stratum 6 where cottonwood, willow, and Douglas fir charcoal chunks were found inside the trench dug for the installation the 1944 water main on Sena Street.

Early Land Ownership in the Gomez Road Area

Based on historic city maps, the land in the project area was first used for agricultural purposes during the Spanish Colonial period. Such use continued until the years just prior to the Great Depression, as with Sena Street, or through several proceeding years, as with Gomez, Rael, and Anita. Historic maps of Santa Fe depict agricultural fields or open land in the vicinity of Gomez Road starting with the earliest, Jose de Urrutia's map of Santa Fe (1776), to the later H. Hartmann Map of the City of Santa Fe (1882). Names associated with specific lot ownership did not appear until King's Official Map of the City of Santa Fe was drafted in 1912. King's map attributed two large tracts of land to Mauricio Gomez (Fig. 14.1). These tracts are contiguous and run roughly north–south from Hickox Street (present day Paseo de Peralta) across Arroyo Tenorio and south to the approximate boundary of present day Sena

Table 14.1. Unmapped houses in the Gomez Road area, 1930–1948.

Address	Appears on 1930 Sanborn	Appears on 1930/1948 Sanborn	Earliest reference in *The Santa Fe New Mexican* *	Status
300 Sena	no	no	1933	unmapped house, 1948
311 Sena	no	yes	1936	–
315 Sena	no	yes	1937	–
316 Sena	yes	yes	1952	–
318 Sena	no	no	1936	unmapped house, 1948
325 Sena	no	yes	1942	–
328 Sena	no	no	1938	unmapped house, 1948
330 Sena	yes	yes	1932	–
333 Sena	yes	yes	1931	–
625 Gomez	no	no	none found	–
626 Gomez	no	no	1946	unmapped house, 1948
627 Gomez	no	no	1945	unmapped house, 1948
628 Gomez	no	no	1938	unmapped house, 1948
630 Gomez	no	no	1947	unmapped house, 1948
631 Gomez	no	no	1938	unmapped house, 1948
632 Gomez	no	no	1938	unmapped house, 1948
634 Gomez	no	yes	1939	–
704 Gomez	no	yes	1939	–
706 Gomez	no	yes	1953	–
725 Gomez	no	no	1947	unmapped house, 1948
726 Gomez	no	no	1943	unmapped house, 1948
245 Rael	no	no	1944	unmapped house, 1948
248 Rael	no	no	1948	–
249 Rael	no	no	none found	–
250 Rael	no	no	1939	unmapped house, 1948

* Based on address searches of *The Santa Fe New Mexican* , https://access.newspaperarchive.com.

Street. According to King's map, two structures fronted Hickox Street on the northernmost tract of the Gomez land. The ownership of at least part of the westernmost portion of these lands appeared to have been in dispute following the death of Mauricio Gomez. This is indicated in a legal notice in *The Santa Fe New Mexican* published on three dates—June 18, July 2, and July 9, 1936. In the notice, Mauricio Gomez was referred to as "deceased" in a lawsuit concerning his land. His daughter Maria de la Luz Gomez is listed as one of several defendants in the case. The land in question was described as bordering Don Cubero Street and matches up with the 1930/1948 Sanborn Fire Insurance Map, which shows the same boundary. It is possible that the 1936 lawsuit predated construction of the first home on Gomez, which was clearly underway by at least 1938.

The 1930/1948 Sanborn map describes land in the project area as "Gomez" but does not specify a first initial or name. The Sanborn map also includes what appears to be a partially legible reference to a single structure (Fig. 14.2).

The Gomez property was bounded on the west by Don Cubero; this also matches the description in the 1936 lawsuit announcement in *The Santa Fe New Mexican*. The full route of Anita Place and portions of Rael and Allendale are shown as well. The Gomez attribution is not present on the preceding Sanborn Fire Insurance Map (Sheets 1 and 21) from 1930. Since two maps flanking the year 1930 assign the land to the Gomez family this lack of reference may simply indicate an omission by the draftsman.

Several neighborhood residents stated that land in the vicinity of this road had been an orchard owned by the Gomez family prior to residential development. One resident speculated that the area must have been a cherry orchard, based on the presence of a nearly 4 ft diameter cherry tree stump in his backyard. However, the agricultural use of the area could not be confirmed through field observations. This owes much to the fact that excavations were concentrated in areas of previous utility installations. Also, the project area did not extend to Arroyo Tenorio, where agricultural features might have been more concentrated. However, in

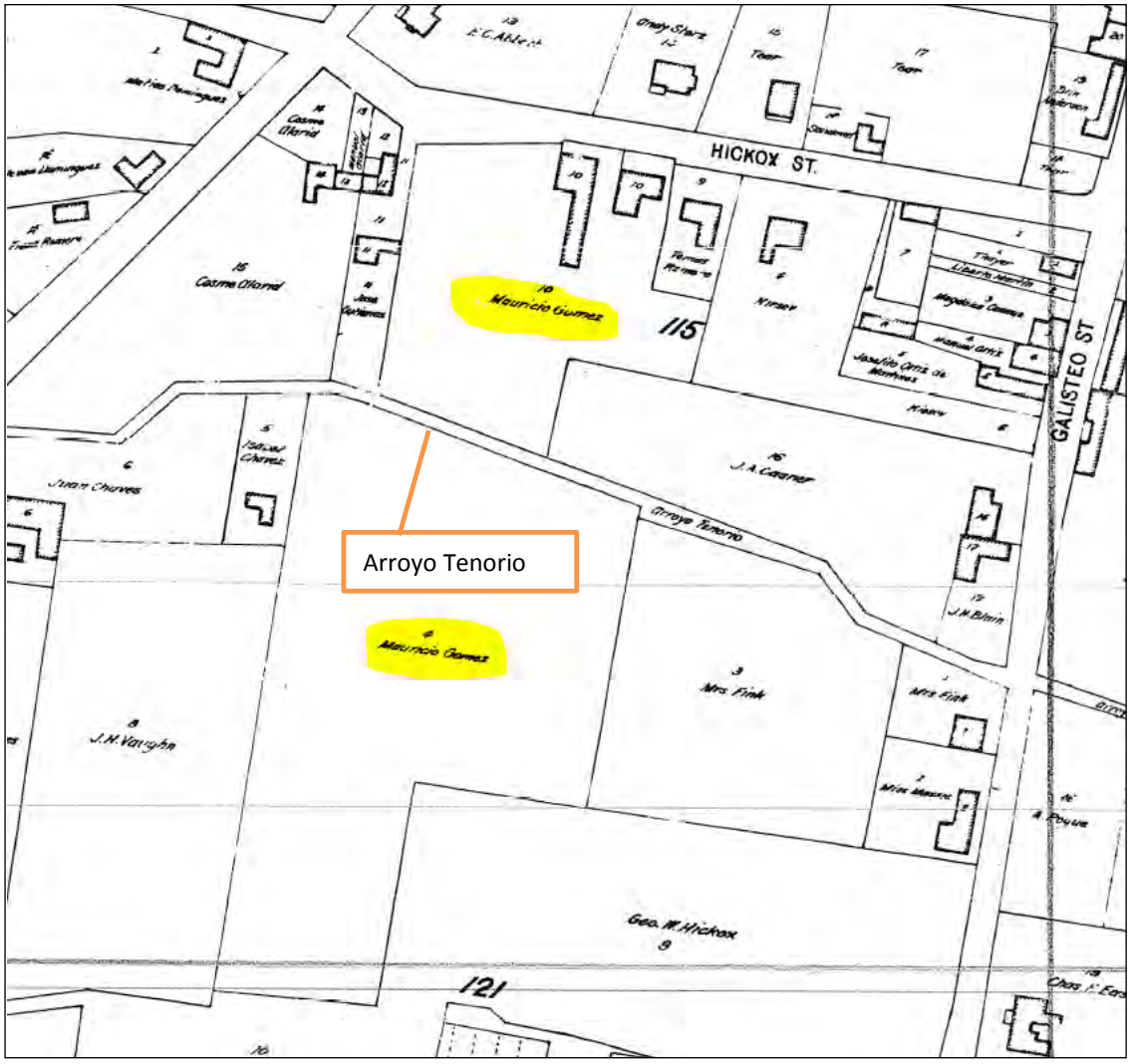

Figure 14.1. King's Official Map of the City of Santa Fe (1912) showing area owned by Mauricio Gomez.

almost every location where intact sediments were found, they were devoid of structural features. This may indicate some portion of the area was open land.

Neighborhood Development from the 1920s to the 1940s

According to the Sanborn maps, streets in the Gomez Road area were vacant in 1921, sparsely populated by 1930, and built only to fill one-quarter of its current size by 1948. At the time the 1930 Sanborn Fire Insurance Map was drafted, only three homes were depicted on Sena Street (330, 333, and 318). No homes were present on Gomez, Anita, or Rael. However, a cursory search of *Santa Fe New Mexican* articles published between 1925 and 1948 confirms that Gomez Road was far from vacant.

At least 10 houses existed on Gomez by 1947 according to address-specific references in *The Santa Fe New Mexican*, but only six of these appear on the 1930/1948 Sanborn map (Table 14.1). Another unnumbered home at the corner of West Gomez and Gomez was referenced in the newspaper as well. Newspaper announcements range from July 16, 1938 to May 24, 1947, and refer to a variety of neighborhood events including rabbit hutch sales, the winner of a trout fishing contest, a visit from a furloughed World War II soldier, and the imminent return of a newly wedded couple.

The newspaper also publicized events at two homes that do appear on the 1948 map, those at 634 Gomez and 726 Gomez. Overall, this smattering of news items suggests that Gomez Road was more populated than implied by the Sanborn maps,

Figure 14.2. Sanborn Fire Insurance Map, Sheet 1 (1930/1948) showing area owned by Mauricio Gomez.

possibly by threefold. At least 10 houses are referred to in newspaper articles and announcements prior to 1948, while only three houses appear on the 1948 Sanborn map. Additionally, the dates of these various news items indicate that home building on Gomez postdated that on Sena, possibly by about five years or so.

It is clear from *The Santa Fe New Mexican* that major utilities and paved roads were present on Sena Street by late 1928 or early 1929 and that a flurry of infrastructure activities was underway by late 1927. This continued into the late 1920s, as reported in the paper. One of the more expansive projects was the installation of sanitary sewers in 1927 ("Notice to property owners of construction of sanitary sewers of the city of Santa Fe, N.M.," *The Santa Fe New Mexican*, May 14, 1927 and June 4, 1927). About a year later, the city of Santa Fe announced that the entire length of Sena Street would be paved. Two months after that a "special notice" stated that new water mains were to be installed "immediately" on Sena Street by the New Mexico Power Company (Fig. 14.3) ("Improvement Section No. 1," *The Santa Fe New Mexican*, Aug. 9, 1928). Shortly afterward, in 1930, the water company began metering the supply to individual homes (Plewa 2009:250). Together, these various projects portray an almost constant stream of activity on Sena Street in the late 1920s.

Home construction followed shortly after. At least six houses appeared after sewer, water, and pavement projects were completed (see Table 14.1). Newspaper announcements between 1931 and 1933

SPECIAL NOTICE!

To Property Owners on Streets to be Paved

In order to avoid the tearing up of pavement it is urgently suggested that provision be made for tapping water mains and running services to property lines. This not only protects pavement against damage in the future, but minimizes cost of service installation.

New Mexico Power Company is to lay new water mains immediately on the following streets:

HILLSIDE AVENUE, Castillo Street to Washington Ave
VIRGINIA STREET, Don Gaspar Avenue to Galisteo St.
SANTA FE AVENUE, Don Gaspar Avenue to GalisteoSt.
SENA STREET, Galisteo Street to Don Cubero St.
GILDERSLEEVE STREET, Buena Vista Street to Berger St.

Please make prompt application for tap connections, so that water main installations may be completed expeditiously and with the least amount of inconvenience to yourself and other consumers.

New Mexico Power Co

PHONE 444 "AT YOURSERVICE" WM. W. NIELSEN, MGR.

Figure 14.3. Notice of water main installation on Sena Street (1928).

refer to homes at 300, 330, and 333 Sena. Over the next several years, various ads and home sale or rental offers were linked to homes at 311, 315, and 328 Sena. Overall, it appears that the development of Sena Street preceded that of Gomez, beginning almost immediately after the utilities and roadway were completed in 1928 or 1929.

Infrastructure work and home building was much less evident on Gomez at this time, according to the local newspaper, which refers to addresses on that street beginning in 1937. Construction activity appears to have begun in the late 1930s and peaked in the mid- to late 1940s. The earliest building permit issued for Gomez Road was dated July 1, 1937 (house number unspecified) and a prayer meeting at 628 Gomez was publicized on July 16, 1938. All other references to the homes on Gomez occur in the early 1940s, when home construction likely increased, based on the number of building permits and neighborhood events in the local paper. Only three houses were depicted on the 1930/1948 Sanborn map, but *The Santa Fe New Mexican* references 11 addresses on Gomez Road (see Table 14.1).

This chronology fits with the extent of the Gomez roadway depicted in the 1930 Sanborn maps as a stub extending a short distance north from Sena Street. By 1948, Gomez Road had reached the north edge of the lot at 634, just past Anita Place. The northernmost house on the road at this time would probably have been 638. Rael Road appears to be a disconnected stub floating in the middle of Gomez family property. Anita Place was already populated with several homes. The pattern of building and development in this neighborhood fits that of the city of Santa Fe in general, which quadrupled in size between 1910 and the end of the 1930s, when the population swelled from 5,072 to more than 20,000 (Plewa 2009:250).

An interesting side note to early water utilities in Santa Fe concerns the response of the New Mexico Water and Power Company to frozen lines in 1933. The company announced that all service lines that were freezing from the main to the curb line were in the process of being lowered and that property owners were responsible for lowering their own portions of the line before the onset of winter weather ("Notice to Water Consumers in Santa Fe," *The Santa Fe New Mexican*, Nov. 11, 1933). It is not clear if this

Figure 14.4. Locations of 2 inch cast iron water line in the project area, GIS map.

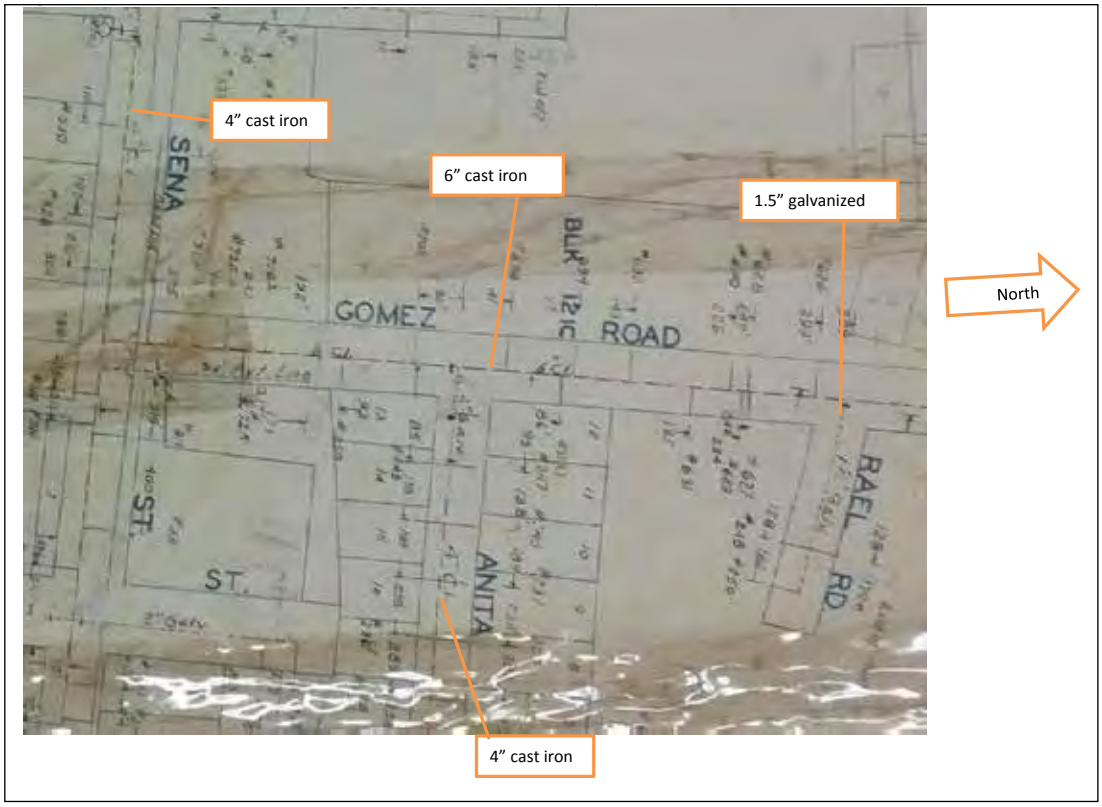

Figure 14.5. Detail of 1944 water main plans, courtesy of the City of Santa Fe Water Division.

pipe-lowering project occurred in the project area, but it is interesting to consider after viewing the widely ranging depth of the 2 inch water main on Gomez. It is possible that portions of the 2 inch main line were lowered at the same time that residential connections were modified. This may explain the line's undulating depths along the road.

The exact date of the Gomez 2 inch water line installation is unknown, but the line is almost certainly the original water main for the earliest homes built in the 1930s (Fig. 14.4). This seems to be inferred by the 1944 City of Santa Fe Water Division map of new utility mains slated for Gomez, Sena, Anita, and Rael (Fig. 14.5). The map specifies new lines for all four streets and every one of them can be corroborated by the 2017 field work project, with one exception—Gomez Road. There is no mention of an existing 2 inch pipe on Gomez in 1944, though the route for a new 6 inch pipe is clearly drawn. The 2 inch line was also observed on Anita Place, though it does not appear on the 1944 map. The 1½ inch galvanized line encountered on Rael matches the line on the 1944 map. However, the contemporaneity of both lines, at least in some areas, is indicated by their connections at two intersections: Gomez-Sena and Gomez-Anita. This does not appear to be the case on Gomez, where the 2 inch line is presumed to predate the 6 inch line. Possibly, by the mid-1940s, the neighborhood had outgrown the old line, leading to its replacement in 1944 with the 6 inch steel main that runs the length of Gomez.

Later water utility work in the neighborhood occurred in the 1960s, when the 20 inch storm drain on Sena was installed along with most of the fire hydrants in the area. Smaller scale projects were completed between 1976 and 2009. These combined projects reflect the constant updating of water utilities in this old neighborhood and provide a clear source of the intensive reworking of the stratigraphy in the project area.

15 ⇓ Conclusions and Recommendations

The monitoring project area included four residential streets—Gomez Road, Rael Road, Sena Street, and Anita Place—located in a historic neighborhood southwest of the Capitol Complex in Santa Fe. Historic maps suggest that this area may have been used for agriculture for an extended period of time possibly ranging from Spanish Colonial times to the first decade or so of New Mexico statehood.

Fields or orchards may have been watered from Arroyo Tenorio, a short distance to the north. Land in this area is sporadically attributed to the Gomez family until at least 1912. Beginning in the late 1920s, water main, sewer line, and road surfacing projects paved the way for new home construction, which continued into the 1940s.

No evidence of the agricultural history of the area was encountered during this monitoring project. Cultural remains derived from the early neighborhood were minimal and were invariably discovered in reworked contexts.

As most trenches were located contexts, most of which occurred inside old meter cans. In areas of previous utility installations, intact deposits related to the early history of the area may exist beyond the excavation limits of this project. Future monitoring is recommended in the areas beyond the 2017 water mains, particularly along Gomez Road and Anita Place, where the greatest potential for intact deposits is likely to exist.

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