Volume 2015 Article 105

2015

Inadvertent Discovery of an Underground Culvert, City of Seguin, Guadalupe County, Texas

Paul M. Matchen

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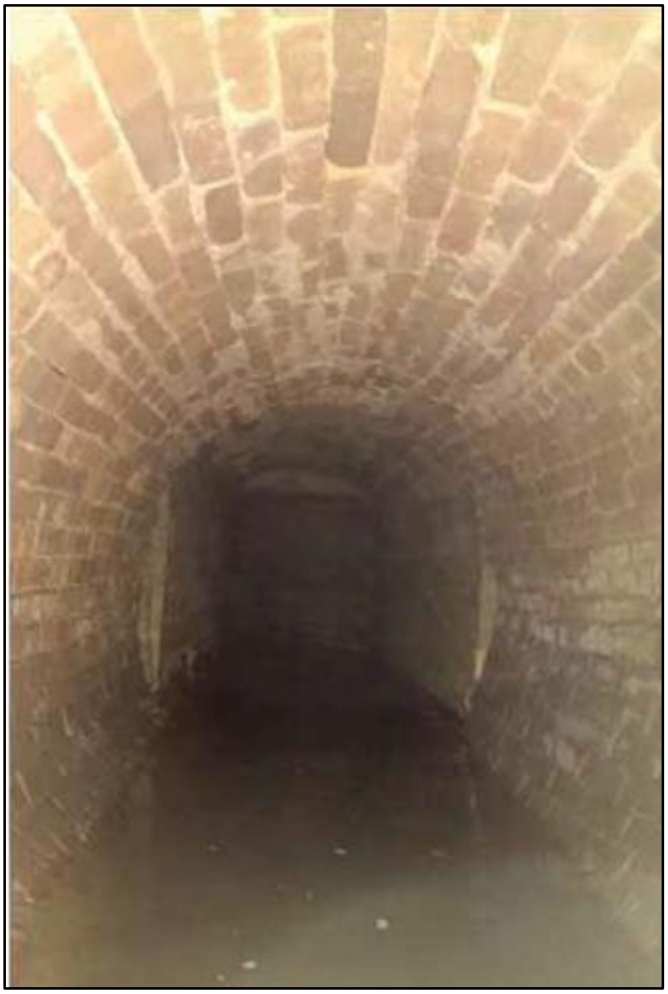

By:

Paul M. Matchen

with contributions by:

S. Elizabeth Valenzuela

Prepared for:

City of Seguin
205 North River Street
Seguin, Texas 78155

Prepared by:

TRC Environmental Corporation
505 East Huntland Drive, Suite 250
Austin, Texas 78752

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Paul M. Matchen, Principal Investigator
TRC Technical Report No. 180854.3
Antiquities Permit #7251

August 2015

EXECUTIVE SUMMARY

In May 2012, the City of Seguin (City) proposed to undertake street improvements, which included the replacement of water, sewer, and storm sewer lines including installation of four discharge structures replacing existing structures. This project was to be funded entirely by the City. In order to meet its legal responsibilities under existing state guidelines, including the Antiquities Code of Texas 1977 [revised 1987], Title 9, Chapter 191, VACS, Art. 6145-9, the City conducted a cultural resources file search for the proposed APE. This project was also permitted under a United States Army Corps of Engineers (USACE) Nationwide Permit (#12—Utility Installation). As such, any cultural resource efforts fall under Section 106 guidelines of the National Historic Preservation Act. A cultural resources site file search was performed by TRC for the project APE in 2012. A THC consultation letter was submitted on May 18, 2012. TRC received a response from THC (No Survey Required. Project May Proceed.) on June 15, 2012.

On February 10, 2015, City of Seguin (City) encountered a previously unknown underground drainage structure within this project area during the construction a new 6x6 ft. box culvert under Court Street/U.S. Highway 90 Alternate approximately 250 ft. east of the intersection of Bauer St. and E. Court St. in Seguin, TX. The structure was made of limestone conglomerate rubble and transitioned to hand-made brick on both ends. The location is approximately 300 ft. west of the recorded site 41GU30 – Grafenstein Site (a prehistoric lithic scatter) – which is plotted on the west bank of King's Branch. Upon discovery, the City stopped work immediately and contacted TRC cultural resources staff to contact Texas Historical Commission (THC) on what steps should be taken in regards to this inadvertent discovery.

Jeff Durst and Bill Martin (THC) were contacted on February 11, 2015 to discuss how this resource should be handled. It was unclear whether this would be treated as a historic structure (THC History Programs) or an archeological resource (because it was discovered below surface). Skipper Scott (archeologist, United USACE Fort Worth District) was also contacted as this effort was permitted under USACE jurisdiction. As the information was being reviewed, news came from the project engineer on February 12, 2015 that there was potential health and safety hazard as water was seeping into the underground culvert from the natural springs that fed the drainage. At that time, pumps were able to handle the water seepage but the future success of this effort was uncertain. We were advised by the engineer that we should visit the project location within the next day or two to ensure access. After some deliberation, it was decided by both THC and USACE that the culvert would be considered an archeological issue but would also be reviewed by THC History Programs.

TRC's environmental staff visited the project location on February 13, 2015 to examine the structure and assess the potential impacts as a result of box culvert construction efforts. Given the materials used in its construction, it was estimated that the structure had been built sometime around late 19th to early 20th century timeframe. Archival research was performed to investigate structure function and historical significance. TRC concludes that this structure is most likely a drainage culvert that served to drain local spring water and collected storm water away from the existing transportation corridor (E. Court street and the adjacent neighborhood streets). No connections were found to aspects of historical significance (i.e., persons, setting, architecture, or historic research value), hence, this structure was deemed not eligible for nomination to the National Register of Historic Places. Due to safety concerns, the City, upon approval by the USACE and THC, filled the void with a reversible, flowable fill (i.e., grout) before continuing the box culvert installation.

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1.0 INTRODUCTION

This report serves as a summary of events, conversations, and views surrounding the discovery of a subterranean drainage structure (41GU175) by the City of Seguin during box culvert construction along E. Court Street in Seguin, Texas. Also included is a brief discussion regarding structure age, function, and our thoughts on the historical information provided by Waldo Troell. Figures referenced within the report are presented in Appendix A. In addition, TRC Environmental Corporation (TRC) asked S. Elizabeth Valenzuela (Valenzuela Preservation Studio, LLC) to conduct a field visit and compose a brief synopsis of the architectural aspects and supporting information based on her observations (Appendix B).

On February 10, 2015, City of Seguin (City) encountered a previously unknown underground drainage structure while building a new 6x6 ft. box culvert under Court Street/U.S. Highway 90 Alternate approximately 100 ft. east of the intersection of Bauer St. and E. Court St. in Seguin, TX (Figures 1 and 2). The tunnel is constructed of limestone conglomerate rubble and transitions to hand-made brick on both ends. The location is approximately 300 ft. west of the recorded site 41GU30 – the Grafenstein Site (a prehistoric lithic scatter) – which is plotted on the west bank of King's Branch. Upon discovery, the City stopped work immediately and contacted TRC Planning, Permitting, and Licensing staff to contact Texas Historical Commission (THC) on what steps should be taken in regards to this inadvertent discovery.

This project is permitted under a United States Army Corps of Engineers (USACE) Nationwide Permit (#12—Utility Installation). As such, any cultural resource efforts fall under Section 106 guidelines of the National Historic Preservation Act in addition to those under the Antiquities Code of Texas (Section 191.0525). A cultural resources site file search was performed by TRC for the project APE in 2012. A THC consultation letter was submitted on May 18, 2012. On June 15, 2012,TRC received a response from THC (No Survey Required. Project May Proceed.).

Jeff Durst and Bill Martin (THC) were contacted on February 11, 2015 to discuss how this resource (41GU175) should be investigated. It was unclear whether this would be treated as a historic structure (THC History Programs) or an archeological resource (because it was discovered below surface). Skipper Scott (archeologist, United USACE Fort Worth District) was also contacted as this effort was permitted under USACE jurisdiction. As the information was being reviewed, news came from the project engineer on February 12, 2015 that there was potential health and safety hazard as water was seeping into the underground culvert from the natural springs that fed the drainage. At that time, pumps were able to handle the water seepage but the future success of this effort was uncertain. We were advised by the engineer that we should visit the project location within the next day or two to ensure access. After some deliberation, it was decided by both THC and USACE that the culvert would be considered an archeological issue but would also be reviewed by THC History Programs.

2.0 GENERAL STRUCTURE DESCRIPTION

TRC staff, led by Paul M. Matchen, visited the project location on February 13, 2015 to examine the structure and assess the potential impacts as a result of box culvert construction efforts (Figures 3 through 8). The structure is oriented with overhead arch construction measuring approximately 60 ft. to 70ft in length and 48 inches in diameter. Each end of the structure is curved at a 30 to 45 degree angle (curving west on the north end; east on the south end). Each end of the culvert is capped using modern machine-made brick (Figure 9). The structure was built with a combination of hand-made brick (soft mortar) and

conglomerate rubble (dry stacked). Specifically, sections of the north and south ends of the tunnel (20 ft. spans) were constructed with hand-made brick, while the central span (approximately 25 ft. in length) is constructed of conglomerate rubble (dry stacked). In addition, the south end of the tunnel (approximately 10-15 ft.) was cleaved at some point in the past to accommodate a 4-x-4 ft. concrete box culvert (Figure 10). Given the materials used in its construction we estimated that this structure had been built sometime around late 19th to early 20th century timeframe.

3.0 IMPACTS

The new box culvert is being installed semi-parallel to the underground culvert. After close examination, the old culvert (41GU175) appears to be situated between the new culvert footprint and the current drainage structure, a 48-inch diameter reinforced concrete pipe (RCP), also oriented parallel (Figure 11). Any impacts to the structure will likely occur on the western wall of the culvert as the close proximity of the culvert may undermine its structural stability. At the north end of the old culvert, the RCP can be seen through a hole in the brickwork on the upper arch of east wall the structure (Figure12). Due to safety concerns, TxDOT has recommended that the City fill the void with "flowable fill" before continuing the box culvert installation.

Most of this information was communicated to the THC staff as well as to Skipper Scott (archeologist, United USACE Fort Worth District).

4.0 DISCUSSION OF THE FUNCTION OF THE UNDERGROUND STRUCTURE

After the structure had been examined, there were several discussions over the next week between TRC, USACE, and THC regarding the function and significance of this structure. Its general appearance and setting (a transportation corridor that spans a natural drainage) was similar in design/construction to other bridge culverts observed all over the United States (especially in the Eastern United States) during this period (later 19thC –early 20th--see references section below). Given this, our initial interpretation was that it is a historic culvert (most likely built by the City) to direct spring water and storm water from the City.

Information provided via email from Waldo Troell, a TxDOT archeologist and descendent of Seguin resident, Henry Troell (mill owner, operator, and prominent business man) to other TxDOT staff and later distributed to City employees suggested that this structure may in fact be part of a mill race that channeled water to milling locations where water turbines/wheels powered various machinery (e.g., gins, milling stones, power generators). An excerpt of email communication from Waldo Troell, February 10, 2015, reads:

> "… (I)t is not a culvert, but a mill race (it channeled the water into the water wheel). US 90 Business/ Court Street use to be called Mill Street due to the mills located on this road. A check of the site atlas shows the recorded site 41GU30, Grafenstein mill located adjacent to this tunnel. This is interesting to me as my Great-Great-Grandfather Heinrich (Henry) Troell built this mill around 1874 (140 years ago).
>
> He sold this mill around 1878 or 1879 to build larger mills elsewhere in Seguin. Eventual(ly) Grafenstein purchased this mill in the 1880's and it became known as the Grafenstein Mill. Some information is known about Henry's later lager (sic) industrial mills (equipment used and barrels produced per day) but little is known about this first one which

> was the type of small grist mills built from1850-1880. When he sold the corn and wheat mill it also consisted of a cotton gin and a press saw mill that I assume all were powered by the water wheel.
>
> While historical accounts seldom mention the wife's role, it is recorded that during the harvest season that Henry's wife Johanna Woehler Troell would take a shift to run the mill operation so it could function 24 hours a day.
>
> The tunnel construction is interesting as one could probably determine the Seguin brick maker (I think there were three operating at different times (several hand-made brick makers 1850'-1880s, and one manufactured brickmaker-1890's to 20th century). The rock construction does not appear to be German mason work, but it is recorded that Henry sometimes employed African Americans for mason construction, so if may be a southern mason type of work."

Waldo Troell also provided THC with excerpts from a family history publication focusing on the Henry Troell Family that outlined the construction and general location of at least four milling operations from the 1870s through the early 1900s (Hardy 1995) in Seguin. TRC reviewed this information and used it as the basis for corroborating the Troell Mill locations and investigating any direct linkage of the old culvert to these milling operations.

In general, TRC was able to find supporting documentation through historical research (Sanborn Maps, GLO maps, and historical photographs) of the location and operation of four milling operations.

Henry Troell's 1st mill was situated on River lots 2 and 3 located in block 60 in the Seguin. These lots were purchased in 1873 and 1870 respectively). Troell also built his residence, a concrete house at the south end of Cherry Street overlooking the River and his grist mill operation (Seguin Map 1839). Although TRC was unable to locate any maps showing the location of this grist mill, Hardy states that the mill was located on the Guadalupe River at the foot (southern end) of Cherry Street (3:1995). When his interests were partially sold in 1878, it they included a cotton gin and press saw mill, corn and wheat mill. This mill was eventually sold to the Grafenstein family, and referred to as Grafenstein Mill thereafter.

Cherry Street ends short of the Guadalupe River approximately 3 city blocks or 2000 ft. (a little over a 1/3 mile) southeast from the discovered culvert. Because this mill was situated on the Guadalupe River, there was little need for additional water to be channeled to turbine/wheels from higher elevations thousands of feet away.

Henry Troell's 2nd mill was originally built and operated by the Saffold Family, but was purchased by Troell from Thad B. Miller in 1879. This property (4 2/3 acres) located next to the Miller Bridge, an iron truss bridge, included a grist mill and cotton gin (Figure 13; Hardy 7:1995). Over the years, Troell added electric power generating components to the operation through the early 1900s (Hardy 9:1995). He eventually sold it to the City in 1907. TRC was able to locate this mill/power plant on multiple Sanborn Maps. Figure 14 shows the mill, Seguin Electric Light and Water Company's Power Plant, drawn on the 1916 Seguin Sanborn Map. It notes the location as 1 ½ miles south of the courthouse, which is near the southern end of Guadalupe Street. This mill powering two water wheels was situated on the River and had water diverted to it with help of a dam that Troell engineered at that location. As above, there is little need supplementary water source in the form of a mill race given its proximity to the Guadalupe River.

Henry Troell's 3rd mill, a cotton gin, was built between 1897 and 1898 at the corner of Guadalupe and Court Streets, approximately ¼ mile west of the courthouse (i.e., 3/4 mile west of the discovered culvert). Hardy's publication (7:1995) includes a map (41:1995) plotting the mill on the northeast corner of this intersection, but the 1902 Seguin Sanborn map (Sheet 3) shows Troell's Cotton Gin on the northwest lot and the Seguin Baptist Association College on the northeast corner (Figure 15). This mill was powered by steam engine (as noted in the 1902 Sanborn Map), which was common by the early 20th century. Thus, there was little need for a mill race.

Henry Troell's 4th mill was situated 3.5 miles west of Seguin in the area of Erskine's Ferry on the Guadalupe River. This mill was established in 1902 with business partner, Edgar Nolte, and called Seguin Milling and Power Company (Hardy 9:1995). It prospered for many years after Troell's retirement in 1907 and death in 1921 (Figure 16).

TRC found no historic maps that show either the location of a mill at Bauer and E. Court St. or the existence of this drainage structure. However, on both the 1930 and 1945 Seguin Sanborn Maps, a concrete bridge is shown in the location of the tunnel (See Valenzuela attachment). This bridge does not show up on the 1924 Sanborn map. It is likely that the box culvert modification observed at the southern end of the old culvert during the TRC field visit is associated with the construction of this concrete bridge between 1924 and 1930.

5.0 CONCLUSION

These cultural resources investigations were being conducted in fulfillment of requirements under existing state guidelines (Antiquities Code of Texas of 1977 [revised 1987], Title 9, Chapter 191, VACS, Art. 6145-9) for Antiquities Code permit #7251. Archeologists were tasked to determine if cultural resources were present inside the APE and secondly to determine if these cultural resources constitute historic properties as defined by the National Historic Preservation Act of 1966, and the Antiquities Code of Texas.

The investigator must attempt to assess resource eligibility for nomination to the NRHP. According to the National Historic Preservation Act of 1966 (Section 106), a Federal agency must assess any potentially harmful action upon resources that are or could be listed on the NRHP. Federal Regulations (36 CFR 60.4) lists four criteria to be used when evaluating properties for nomination to the NRHP. Those eligible should include properties:

a. That are associated with events that have made a significant contribution to the broad patterns of our history; or
b. That are associated with the lives of persons significant in our past; or
c. That embody the distinctive characteristics of a type, period or method of construction, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
d. That has yielded, or may be likely to yield, information important in prehistory or history.

The criteria for determining the eligibility of a prehistoric or historic cultural property for designation as an SAL are presented in Chapter 191, Subchapter D, Section 191.092 of the Texas Antiquities Code. These criteria are similar to the criteria used in assessing the eligibility of a property for inclusion in the NRHP:

Sites, objects, buildings, artifacts, implements, and locations of historical, archeological, scientific, or educational interest including those pertaining to prehistoric and historical American Indians or aboriginal campsites, dwellings, and habitation sites, their artifacts and implements of culture, as well as archeological sites of every character that are located in, on, or under the surface of any land belonging to the State of Texas or to any county, city, or political subdivision of the state are state archeological landmarks and are eligible for designation (Section 191.092(a)).

For the purposes of assessing the eligibility of a historic property for designation as an SAL, a historic site, structure, or building has historical interest if the site, structure, or building:

- [W]as the site of an event that has significance in the history of the United States or the State of Texas;
- [W]as significantly associated with the life of a famous person;
- [W]as significantly associated with an event that symbolizes an important principle or ideal;
- [R]epresents a distinctive architectural type and has value as an example of a period, style, or construction technique; or,
- [I]s important as part of the heritage of a religious organization, ethic group, or local society (Section 191.092(b)).

Given all of this information, TRC concludes that this resource (site 41GU175) is most likely a drainage culvert that served to drain local spring water and collected storm water away from the existing transportation corridor (E. Court street and the adjacent neighborhood streets). Furthermore, we have found no evidence that the culvert functioned as a millrace as the settings for these historically documented milling operations did not seem to necessitate their need.

No connections were found to aspects of historical significance (i.e., persons, setting, architecture, or historic research value), hence, this structure was deemed not eligible for nomination to the National Register of Historic Places. Due to safety concerns, the City, upon approval by the USACE and THC, filled the void with a reversible, flowable fill (i.e., grout) before continuing the box culvert installation.

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APPENDIX A:

Figures

Figure 1. Confidental Information.

Figure 2. Confidental Information.

Figure 3. Exterior view of existing RCP and box culvert construction on north side of E. Court Street (looking south).

Figure 4. View of culvert installation under E. Court St, looking southeast.

Figure 5. Exterior view of existing RCP on south side of E. Court Street (looking north).

Figure 6. View of conglomerate rubble course in central portion of culvert, looking north.

Figure 7. View of Rubble brick course transition in culvert, looking south.

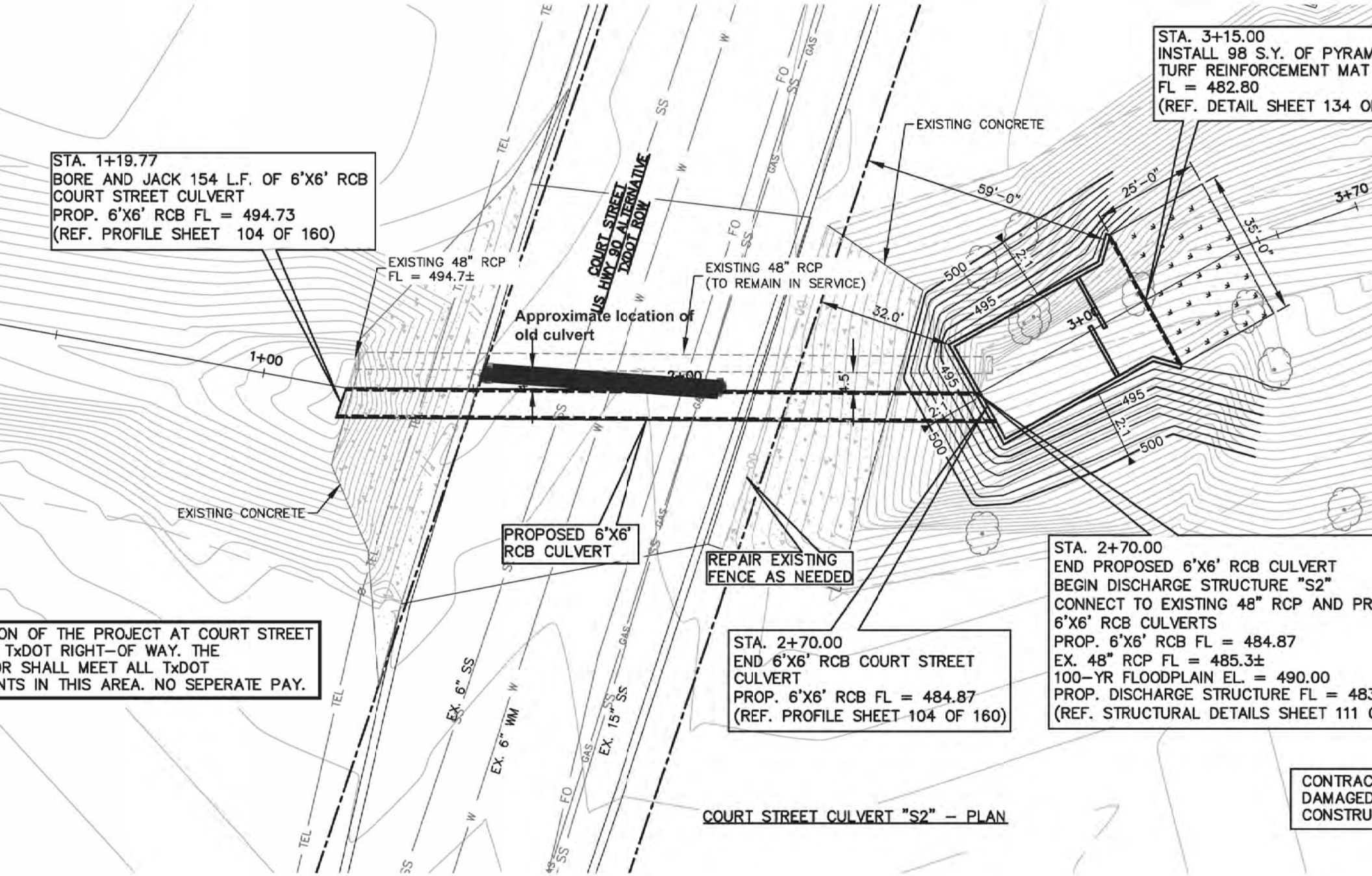
Figure 8. View of brick course on western side of culvert.

Figure 9. View of capping with moder machine-made brick at north end of culvert.

Figure 10. View of modification of southern end to accommodate box culvert (ca. 1925-1930).

Figure 11. Confidental Information.

Figure 12. View of northeastern culvert segment where RCP base runs parallel to on east side.



COURT STREET CULVERT "S2" – PLAN

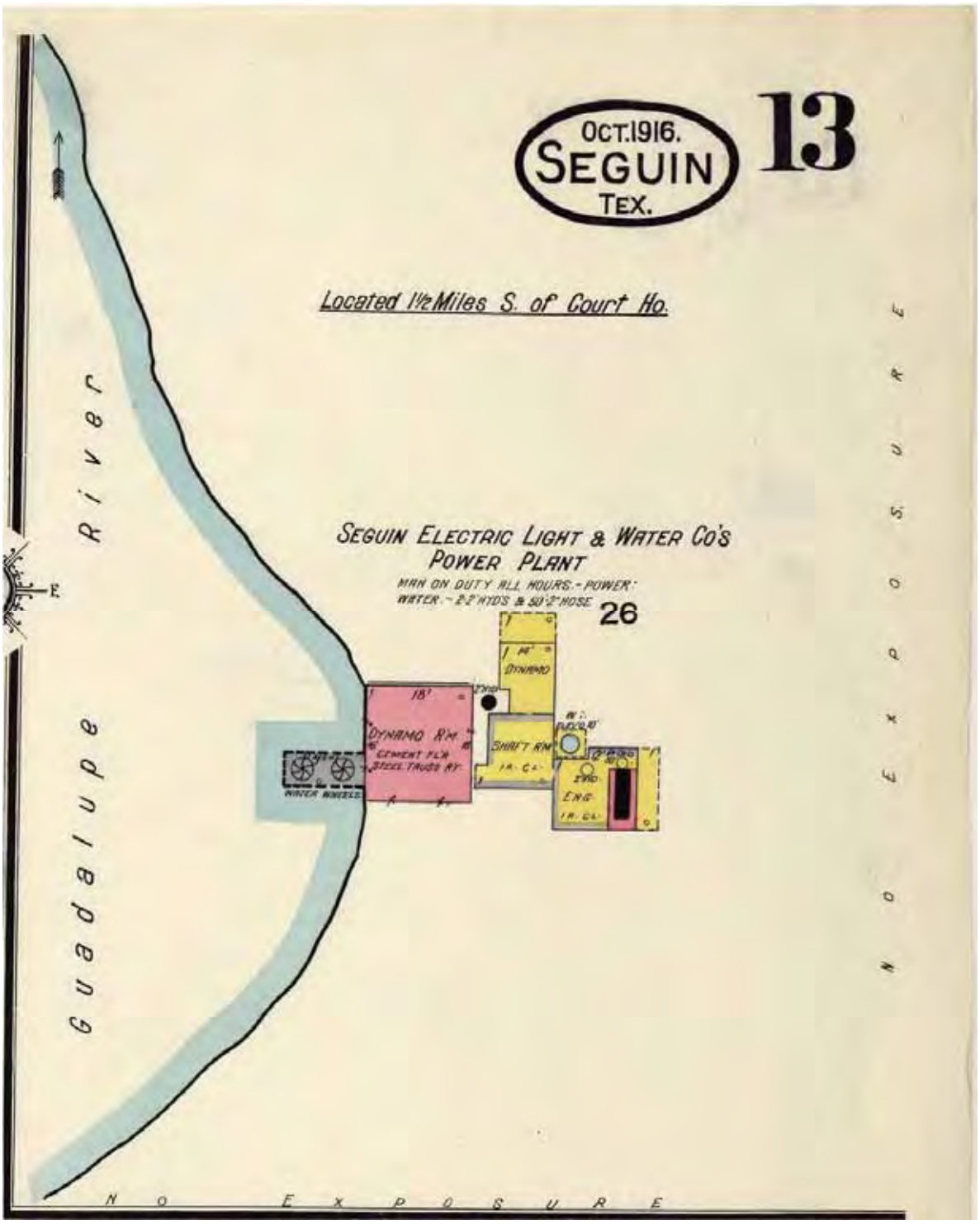


Figure 14.Seguin Electric Light and Water Co. Power Plant (Troell's 2nd Mill location) along the Guadalupe River (located 1 ½ miles south of Courthouse); Seguin Sanborn Map (Sheet 13, 1916).

Figure 15. Miller Bridge at the 2nd Mill location Seguin Electric Light and Water Company Power Plant.

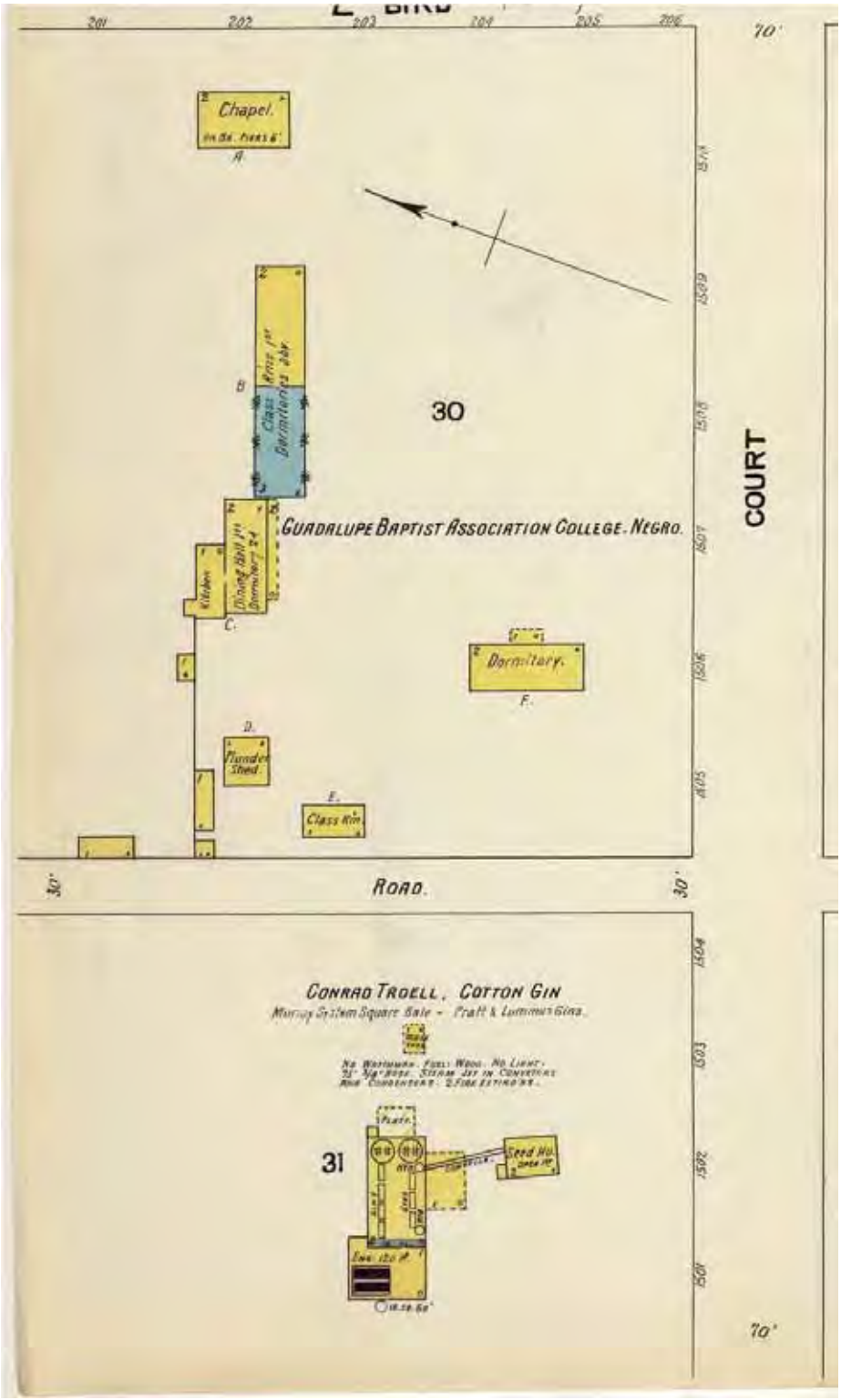


Figure 16. Troell's Cotton Gin (3rd Mill location)built ca. 1897 located on the NW corner of Guadalupe St and Court (1/4 mile west of the Courthouse) from Seguin Sanborn Map (Sheet 3, 1902).

Figure 17. Photo looking west at 4th Mill Seguin Milling and Power company (located 3.5 miles west of the Courthouse at Erskine's Ferry; Guadalupe River in background.

APPENDIX B:

Letter Report for Site Investigations Summary of Architectural Feature, Court Street Tunnel, Guadalupe County, Texas,

By:

S. Elizabeth Valenzuela

LETTER REPORT

FOR

SITE INVESTIGATIONS SUMMARY OF ARCHITECTURAL FEATURE
COURT STREET TUNNEL

GUADALUPE COUNTY, TEXAS

TRC MSA #: AUS-VPS-0813
Task Order # 3

Report Author:
S. Elizabeth Valenzuela, Valenzuela Preservation Studio, LLC for TRC

February 24, 2015

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SITE ASSESSMENT SUMMARY

S. Elizabeth Valenzuela, Preservation Specialist for Valenzuela Preservation Studio, LLC (VPS), participated in a site visit with TRC Environmental Corporation, Inc. (TRC) on February 13, 2015 to assess a historic-age architectural feature uncovered during construction of drainage upgrades by the City of Seguin. Construction crews encountered a historic-age underground drainage channel during boring for a new concrete box culvert below US 90-A (Court Street).

PHYSICAL DESCRIPTION OF ARCHITECTURAL FEATURE

Coordination efforts with the Texas Historical Commission (THC) have resulted in the classification of the architectural feature as a historic structure. The feature, located approximately 9'-0" below US 90-A, runs an estimated distance of 120'-0" roughly parallel to the creek bed north and south of the roadway. The feature consists of four distinct construction materials and techniques. The northern-most segment is an estimated 7'-0" circular tube constructed of 8" (length) x 4" (width) x 2 3/4" (height) brick masonry with a lime mortar. While the brick color varies, the majority are buff-colored. The brick are brittle to the touch and appear to date to the late-nineteenth to early-twentieth century due to quality of the brick and brick-making size and technique. The integrity of the northern segment of the tunnel has been compromised by the installation of a round concrete pipe (RCP) that is visible along a portion of the east side of the brick tunnel. The north end of the tunnel has been capped by a modern red brick masonry wall. A portion of the tunnel south of the brick masonry segment is constructed of stacked conglomerate that has settled in some locations (*Figure 1*). The center section of the tunnel again features a brick masonry tube similar in dimension and construction to the northern segment. The two materials are roughly keyed into each other and portions of this connection have been reinforced with a Portland cement mortar (*Figure 2*). Beyond the second section of brick masonry walls, the tunnel is constructed of cast concrete walls and a vaulted ceiling and floor (*Figure 3*). The cast-concrete section follows the same line for a short distance and then turns at an approximately 45-degree angle to the east. The southern-most segment is capped by a modern red brick masonry wall, similar in material and construction to the end wall at the northern entrance to the tunnel.

Figure 1. View of rough-cut stacked conglomerate at west wall of tunnel (VPS 2015).

Figure 2. Connection between conglomerate and brick masonry tunnel wall (VPS 2015).

Figure 3. View of tunnel looking south illustrating transition between brick masonry walls and the cast-concrete walls of the architectural feature. Turn in tunnel visible at end of cast-concrete segment (VPS 2015).

BRIEF HISTORIC CONTEXT OF ARCHITECTURAL FEATURE

VPS Preservation Specialist conducted a limited review of primary and secondary research materials in an effort to place the architectural feature within an appropriate historic context. It is estimated that the brick masonry tunnel was constructed post-1870 due to the consistency of size and quality of the brick. The section of stacked conglomerate could date to an earlier period of the mid-nineteenth century. The southern segment of the tunnel, constructed of cast-concrete, is estimated to date from ca. 1940 improvements to the roadway as documented through the review of Sanborn maps and newspaper articles from this time period.

The architectural feature is located along natural springs north of the Guadalupe River, along US 90-A (Court Street) between Bauer Street and N. Gravel Street. The parcel was set aside as "acre" or "farm" lots reserved for livestock and gardens[1]. Early settlers of the city of Seguin developed the use of natural cements and concrete for residential and commercial structures in response to available local building materials (conglomerate and other cement rock deposits) and under the influence of Dr. John Esten Park. Dr. Park, trained as a medical doctor and chemist, helped to identify the raw materials necessary for the development of hydraulic cement in the Seguin region. He is credited with the construction of numerous concrete walled structures in Seguin during the mid-nineteenth century[2].

Primary construction techniques of structures in Seguin transitioned from concrete to brick masonry after the arrival of the railroad in late 1875. Sanborn maps indicate at least one brick yard (Joseph Shonkas Cotton Gin and Brick Yard) was located near Seguin as early as 1891. A 1902 Sanborn map illustrates the evolution of the ca. 1890 brick yard to a brick factory housing brick manufacturing equipment, a kiln, and a drying shed (*Figure 4*). By 1912, a larger brick manufacturing plant, the Seguin Vitrified Paving and Faced Brick Company, was located 4 ½ miles west of the court house (*Figure 5*), in addition to expanded facilities of the Joseph Sonka (sp) Cotton Gin and Brick Works.

The section of East Court Street under investigation first appears on Sanborn Maps in 1924 (*Figure 6*). A creek is shown bisecting the parcel and flows perpendicular to East Court Street. A residence is located west of the creek and the Seguin Steam Laundry is located east of the creek. No architectural features are noted in the location of the historic-age tunnel. However, a 6" water pipe is located at the center of the roadway, running west to east. By 1930, a concrete bridge is illustrated on Sanborn maps at this location (*Figure 7*).

Court Street was incorporated as part of State Highway 3 in 1939 by the Texas Highway Department. Additional research indicates that a number of public works projects were also undertaken by the Public Works Administration and the Works Projects Administration in Seguin in 1939. These projects included an expenditure of $519,000 for a 20,000-foot storm sewer system, 28,000-foot sanitary sewer extensions, and $18,000-foot water main extensions[3]. Review of primary and secondary research is

[1] Hauser, Vincent Paul. *A Survey of the Technologies Contributing to the Concrete Era of Seguin, Texas in the Mid-Nineteenth Century*. Master's Thesis, University of Texas at Austin, 1980, 47.
[2] Ibid, 54-58
[3] The Bryan Eagle. *"Seguin Enjoys Improvements Worth $750,000 But Keeps Tax Rate Down, Makes No Increase On Bonded Debt,"* November 21, 1939, 8.

currently being undertaken to attempt to tie in the construction of the historic structure with these public works and transportation improvement projects.

SUMMARY

After limited archival research and field investigations, it appears that the historic structure under investigation is related to flood-control measures and infrastructure improvements along US 90-A (Court Street) as an attempt to divert the flow of a natural spring and creek underneath the roadway. It does not appear to be a mill run or related to any manufacturing purpose at this location. It appears to have been constructed during at least three time periods, with the stacked conglomerate stone section the earliest, the brick sections coming next, and the cast concrete segment last. It appears the earliest construction of the tunnel could date to as early as the mid-nineteenth century with additional segments constructed during the early twentieth century.

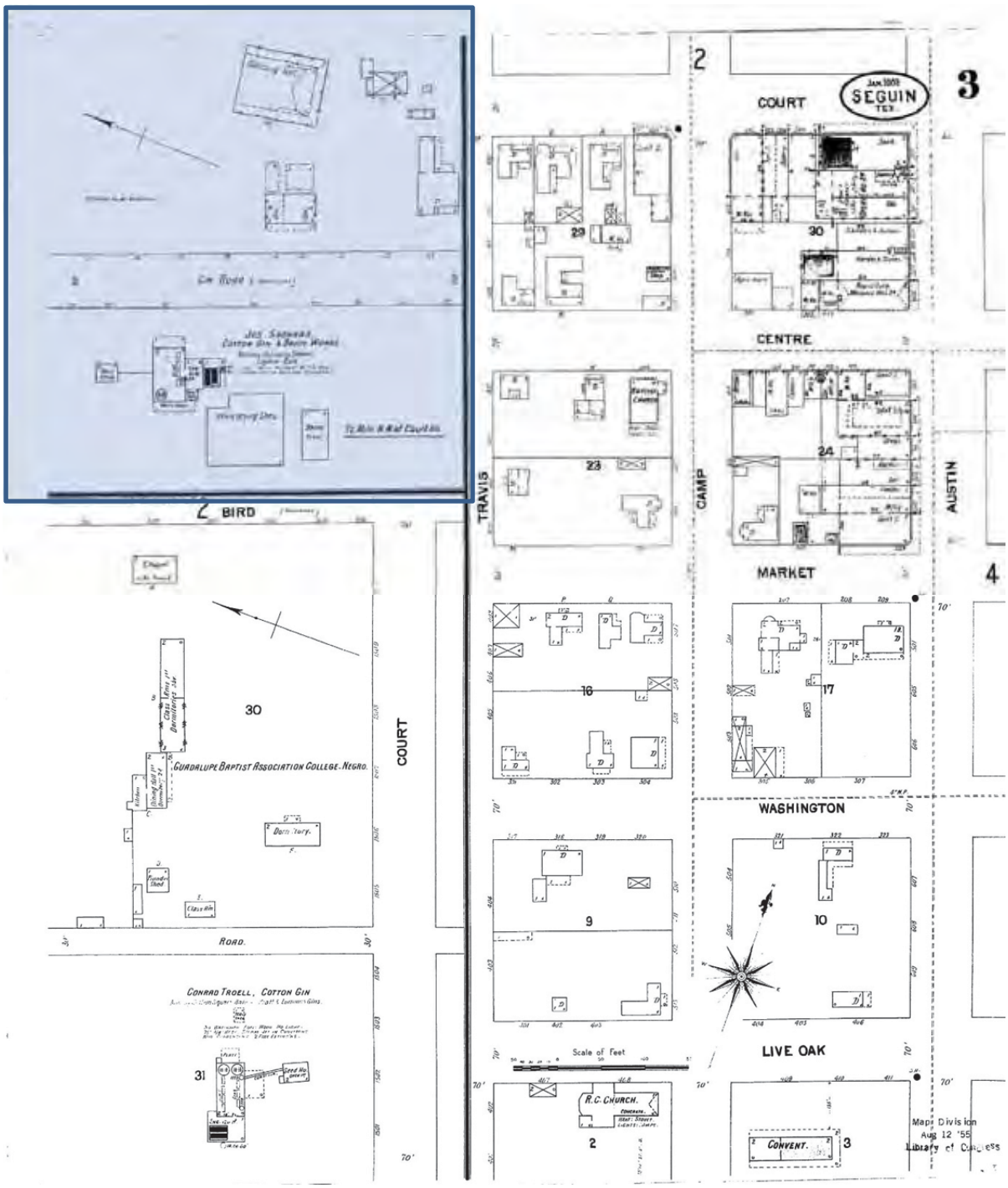

Figure 4. 1902 Sanborn map of Joseph Swonkas Cotton Gin and Brick Works (Sanborn Fire Insurance Company Map, 1902)

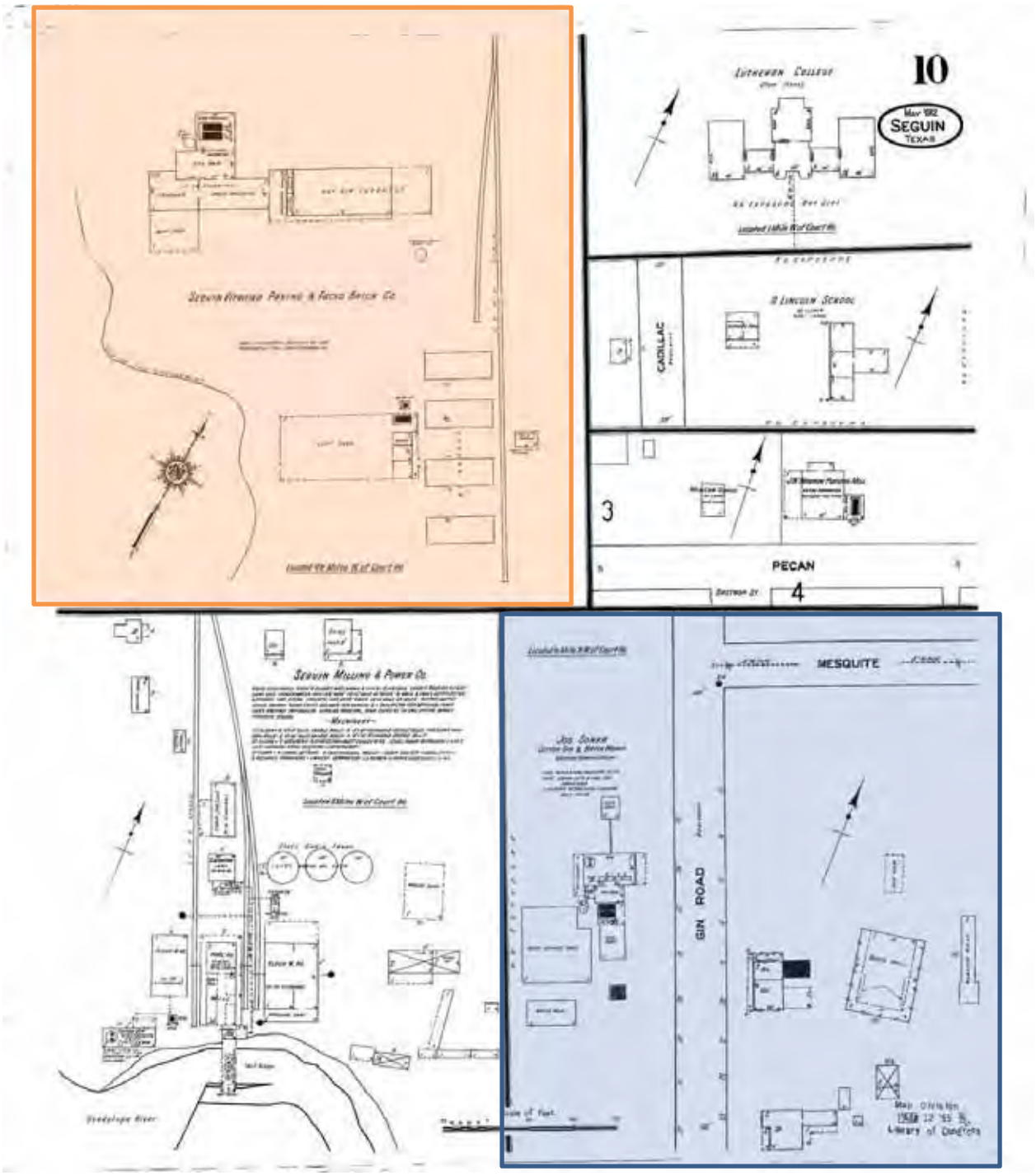

Figure 5. 1912 Sanborn Map of Seguin Vitrified Paving and Faced Paving Company and the Joseph Sonka Cotton Gin and Brick Works (Sanborn Fire Insurance Company Map, 1912).

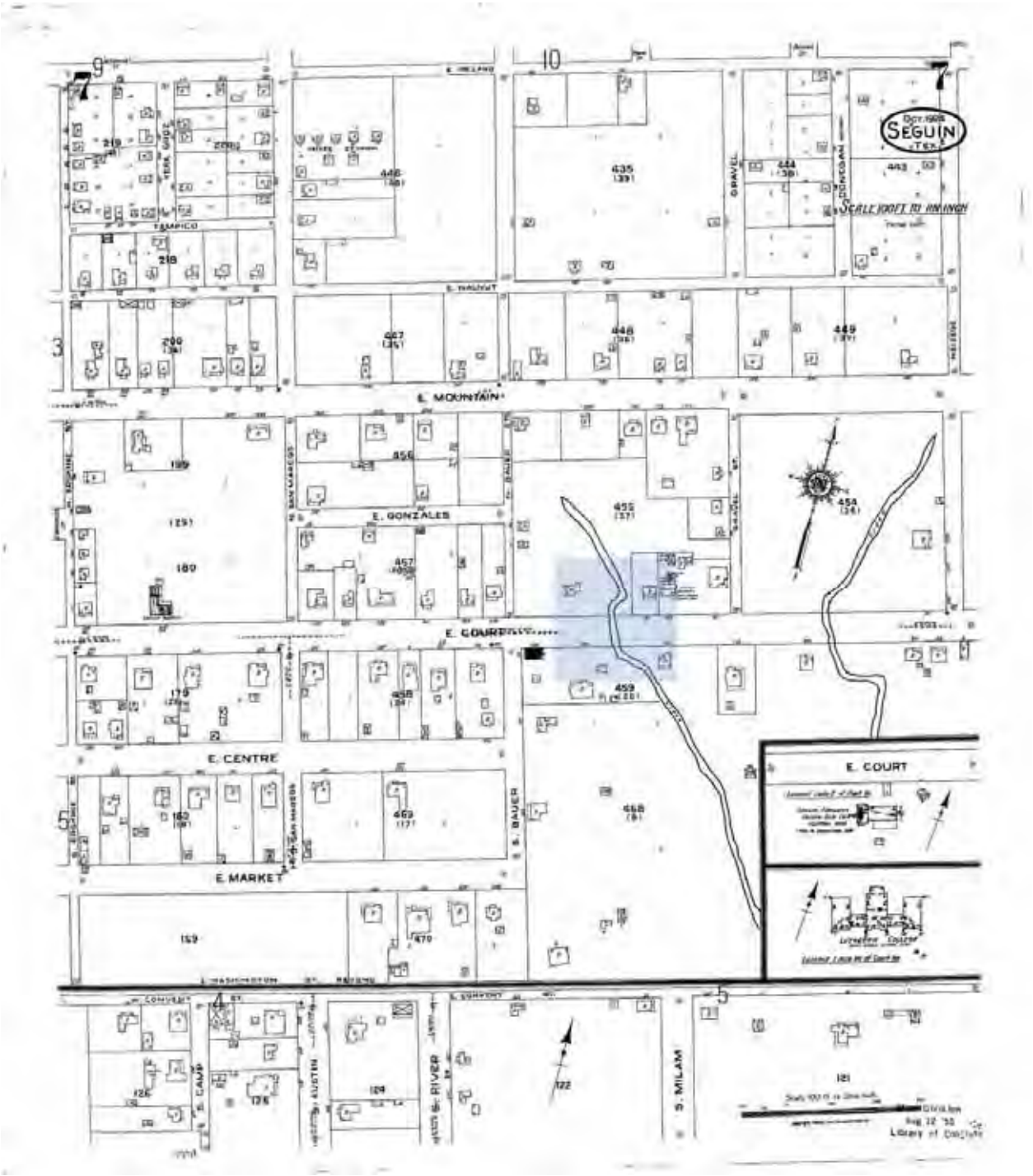

Figure 6. 1924 Sanborn map with area of investigation highlighted in blue (Sanborn Fire Insurance Company Map, 1924).

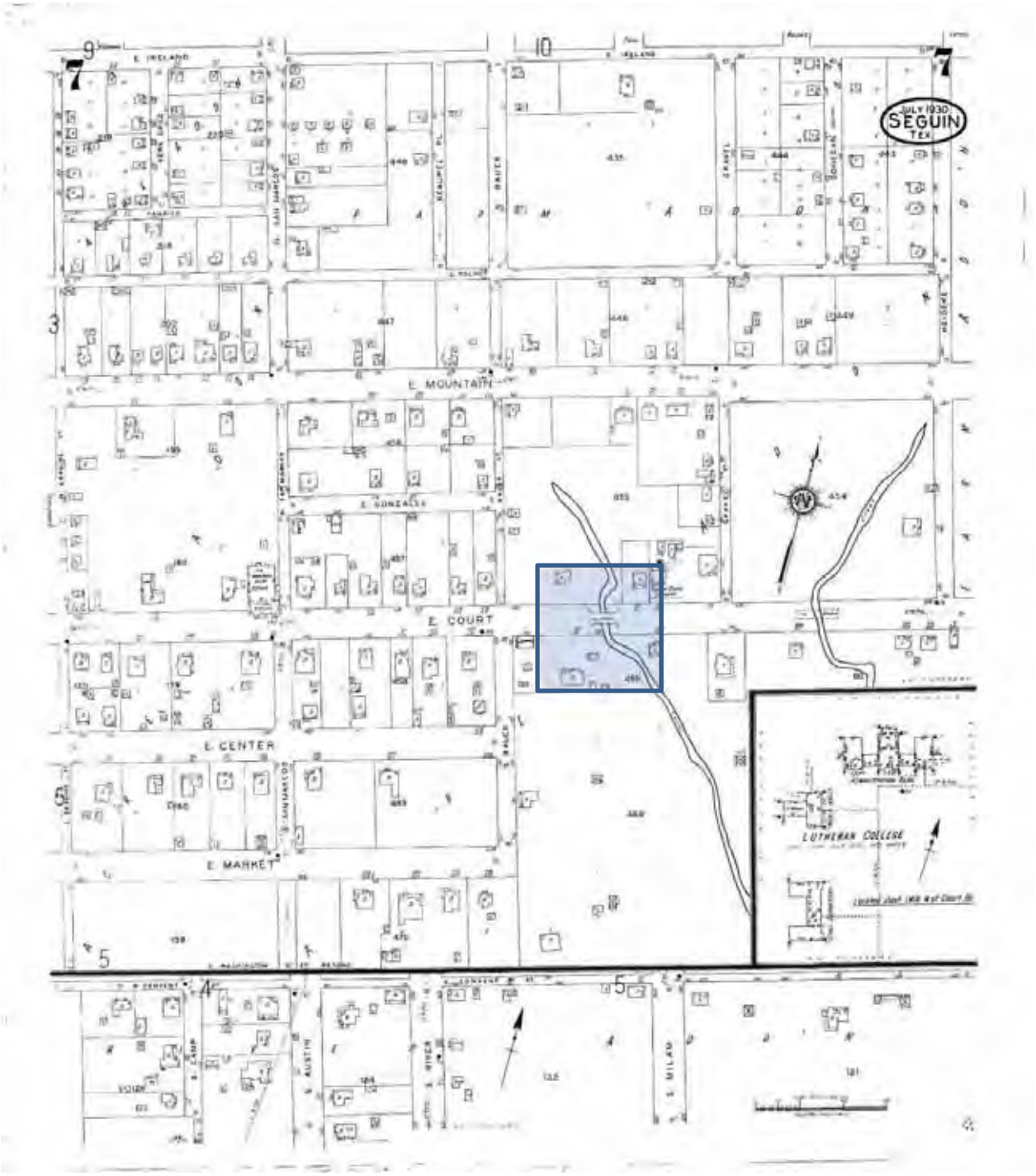

Figure 7. 1930 Sanborn map with area of investigation highlighted in blue (Sanborn Fire Insurance Company Map, 1930).

REFERENCES CITED

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