HISTORIC AND DESIGN REVIEW COMMISSION

December 21, 2022

HDRC CASE NO:	**2022-396**
ADDRESS:	206 LAVACA ST
LEGAL DESCRIPTION:	NCB 713 BLK 10 LOT 10
ZONING:	RM-4, H
CITY COUNCIL DIST.:	1
DISTRICT:	Lavaca Historic District
APPLICANT:	Sam Xu/Lake Flato Architects
OWNER:	URBAN CREATIVE LLC HILL
TYPE OF WORK:	Front façade modification
APPLICATION RECEIVED:	December 09, 2022
60-DAY REVIEW:	Not applicable due to City Council Emergency Orders
CASE MANAGER:	Rachel Rettaliata

REQUEST:

The applicant is requesting a Certificate of Appropriateness for approval to remove the stucco cladding from the front façade.

APPLICABLE CITATIONS:

Historic Design Guidelines, Chapter 2, Exterior Maintenance and Alterations
2. Materials: Masonry and Stucco
A. MAINTENANCE (PRESERVATION)
i. *Paint*—Avoid painting historically unpainted surfaces. Exceptions may be made for severely deteriorated material where other consolidation or stabilization methods are not appropriate. When painting is acceptable, utilize a water permeable paint to avoid trapping water within the masonry.
ii. *Clear area*—Keep the area where masonry or stucco meets the ground clear of water, moisture, and vegetation.
iii. *Vegetation*—Avoid allowing ivy or other vegetation to grow on masonry or stucco walls, as it may loosen mortar and stucco and increase trapped moisture.
iv. *Cleaning*—Use the gentlest means possible to clean masonry and stucco when needed, as improper cleaning can damage the surface. Avoid the use of any abrasive, strong chemical, sandblasting, or high-pressure cleaning method.
B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)
i. *Patching*—Repair masonry or stucco by patching or replacing it with in-kind materials whenever possible. Utilize similar materials that are compatible with the original in terms of composition, texture, application technique, color, and detail, when in-kind replacement is not possible. EIFS is not an appropriate patching or replacement material for stucco.
ii. *Repointing*—The removal of old or deteriorated mortar should be done carefully by a professional to ensure that masonry units are not damaged in the process. Use mortar that matches the original in color, profile, and composition when repointing. Incompatible mortar can exceed the strength of historic masonry and results in deterioration. Ensure that the new joint matches the profile of the old joint when viewed in section. It is recommended that a test panel is prepared to ensure the mortar is the right strength and color.
iii. *Removing paint*—Take care when removing paint from masonry as the paint may be providing a protectant layer or hiding modifications to the building. Use the gentlest means possible, such as alkaline poultice cleaners and strippers, to remove paint from masonry.
iv. *Removing stucco*—Remove stucco from masonry surfaces where it is historically inappropriate. Prepare a test panel to ensure that underlying masonry has not been irreversibly damaged before proceeding.

FINDINGS:

a. The primary structure located at 206 Lavaca is a 1-story, single-family residence constructed in the Vernacular style. The structure first appears on the 1896 Sanborn maps in the existing footprint. The structure features a side gable metal roof, a full-width front porch with round columns on brick bases, one-over-one wood windows, and a central entry door with a transom window and sidelites. The structure is adobe construction and features

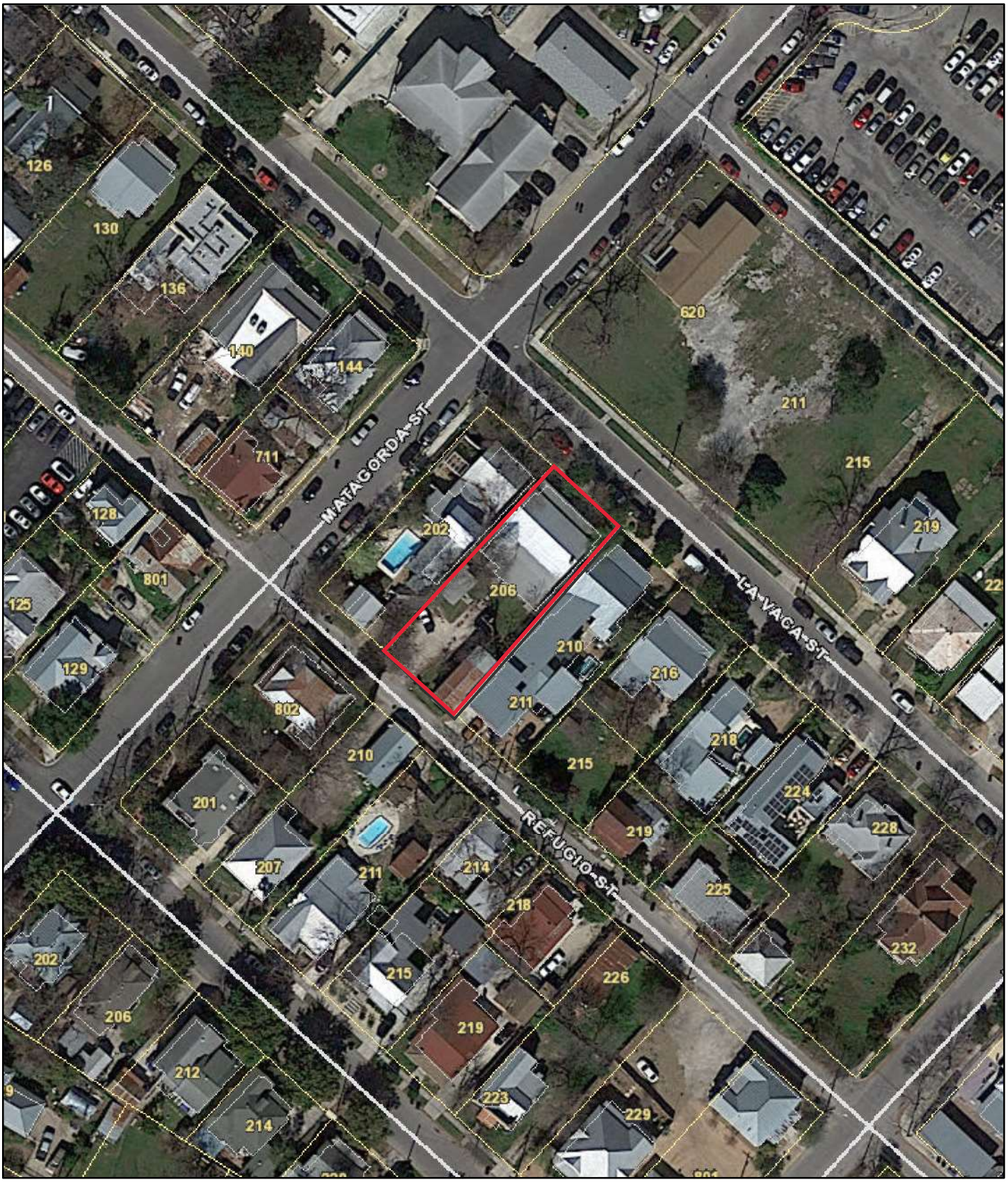
stucco cladding on the front façade with an ashlar stacked block motif. The property is contributing to the Lavaca Historic District.

b. TRADITIONAL SURFACE COATINGS – Adobe surfaces are notoriously fragile and need frequent maintenance. To protect the exterior and interior surfaces of new adobe walls, surface coatings such as mud plaster, lime plaster, whitewash, and stucco have been used. Such coatings applied to the exterior of adobe construction have decelerated surface deterioration by offering a renewable surface to the adobe wall. When these coatings deteriorate, they need to be replaced. Although lime plaster and portland cement stucco are less satisfactory as a surface coating, many adobe buildings have always had them as a surface coating. The complete removal of stucco surface coatings is inadvisable as the process may prove to be more deteriorating than the natural deterioration.
c. STUCCO CLADDING REMOVAL – The applicant has proposed to remove the existing stucco cladding from the front façade to expose the stone construction. According to the 1904 Sanborn map, the structure is constructed of adobe (caliche block) and likely featured a stucco coating at the time of construction. Guideline 2.B.iv for Exterior Maintenance and Alterations states that stucco should only be removed from masonry surfaces where it is historically inappropriate. The applicant has submitted evidence that the existing stucco façade treatment likely dates to the 1950s; however, adobe structures traditionally featured a sacrificial coating, such as cement stucco, which came into use as an adobe surface coating in the early 20th century, to protect the adobe. The existing stucco façade treatment was in all likelihood applied to replace a previously existing surface coating. Staff finds that the façade would have historically featured a stucco treatment in a similar presentation as existing and that full removal would not be appropriate or consistent with the Guidelines.

RECOMMENDATION:

Staff does not recommend the approval of the removal of the stucco cladding from the front façade based on findings a through c. Staff recommends that the stucco and the appearance of the front façade not be altered.

City of San Antonio One Stop



December 15, 2022

User drawn lines

1:1,000

0 0.0075 0.015 0.03 mi

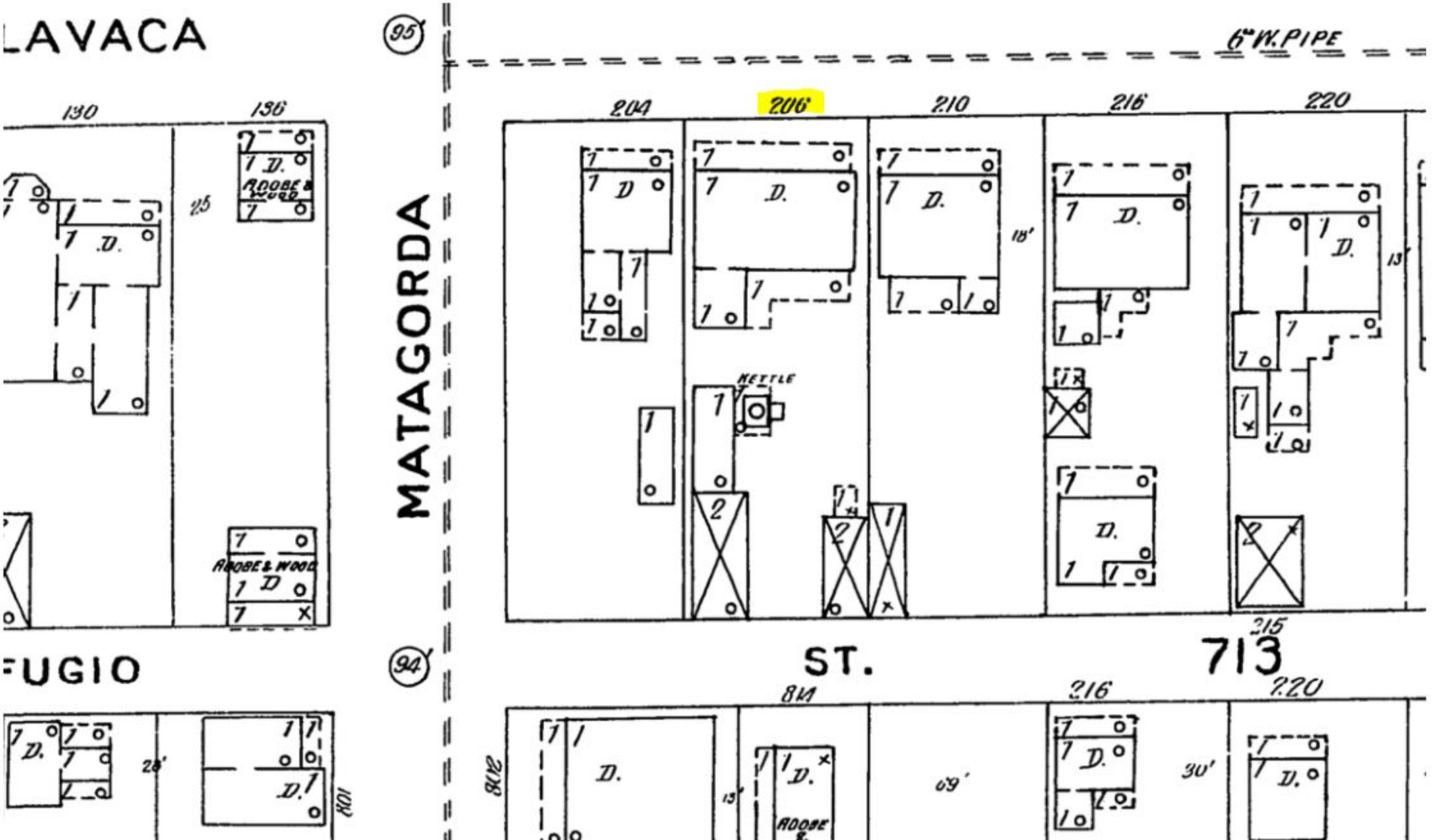
0 0.0125 0.025 0.05 km

San Antonio 1896, Sheet 32

< Back to Browse Maps

State: Texas City: San Antonio Date: 1896

< Previous Next >



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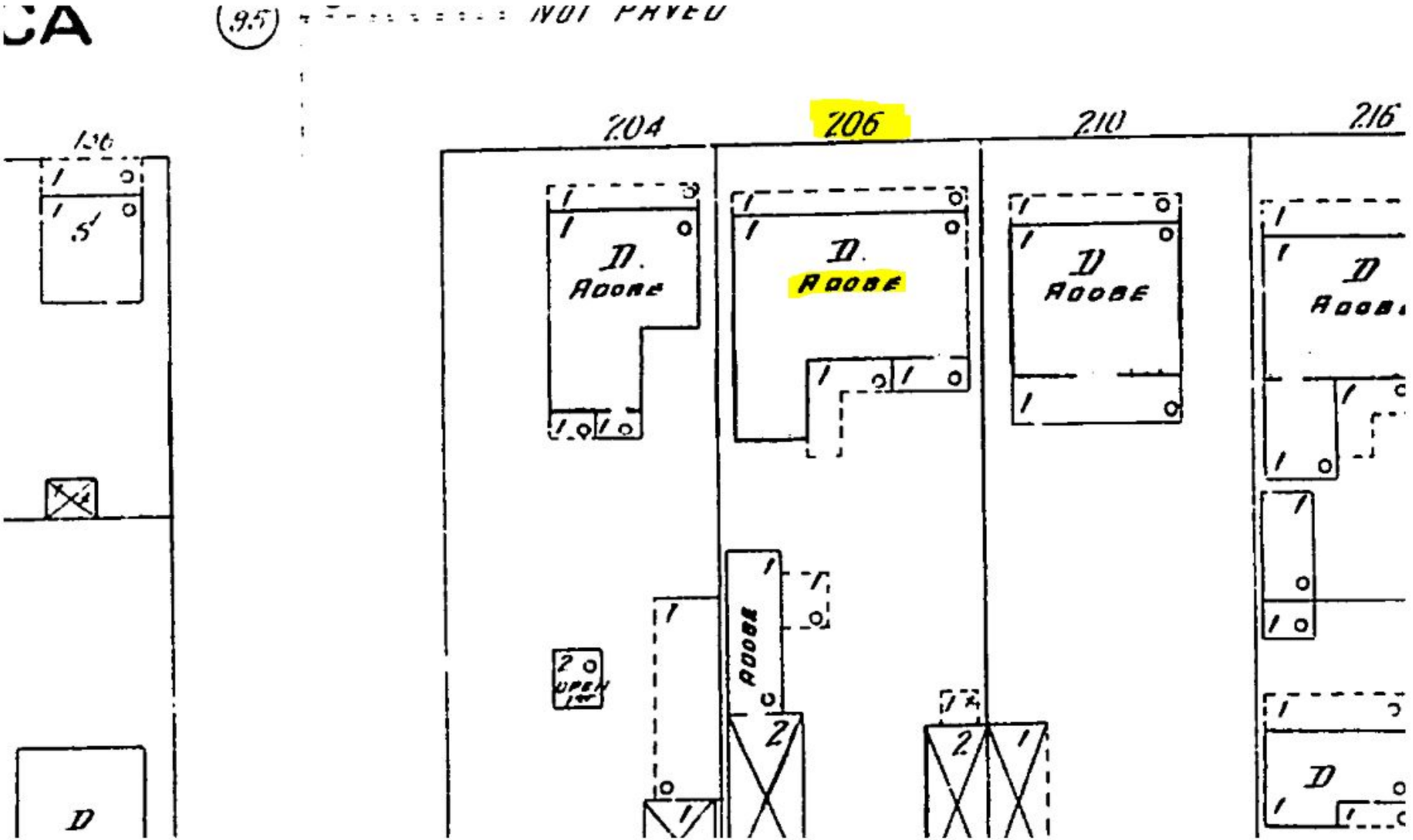

San Antonio 1911-1924 vol. 3, 1912, Sheet 244

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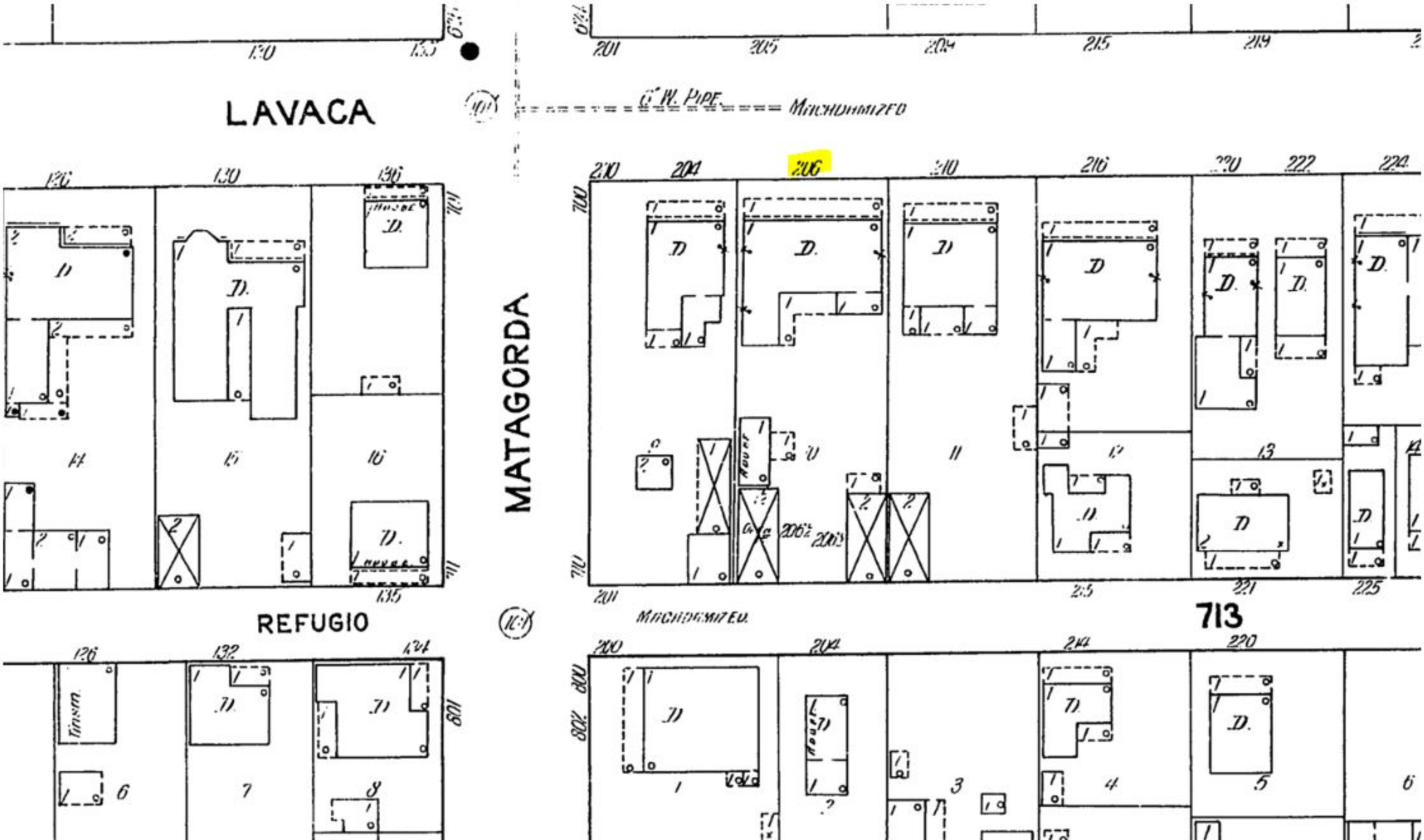

San Antonio 1911-Mar. 1951 vol. 3, 1912-Feb. 1951, Sheet 244

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State: Texas | City: San Antonio | Date: 1911-Mar. 1951 * | Volume: vol. 3, 1912-Feb. 1951

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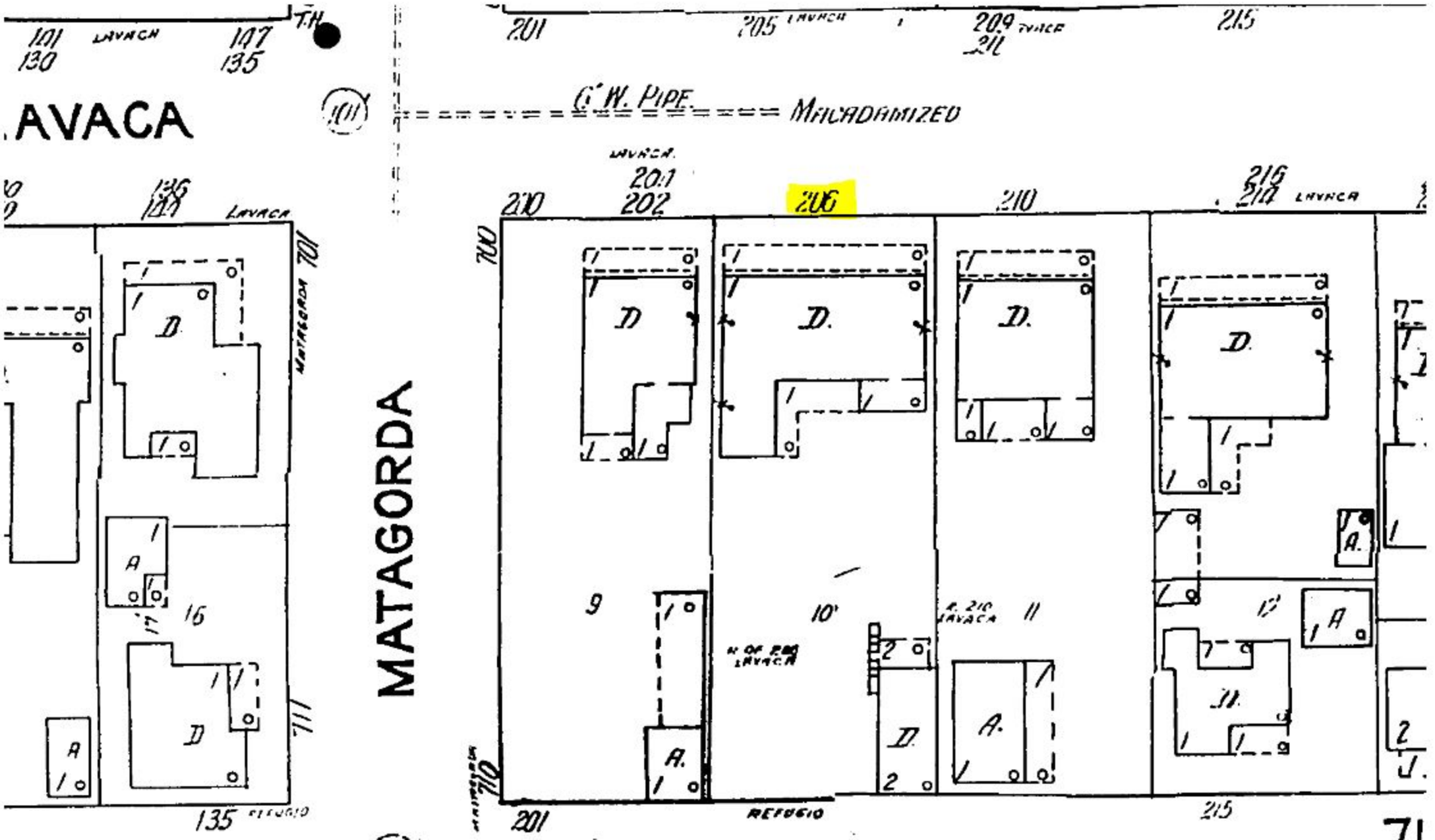
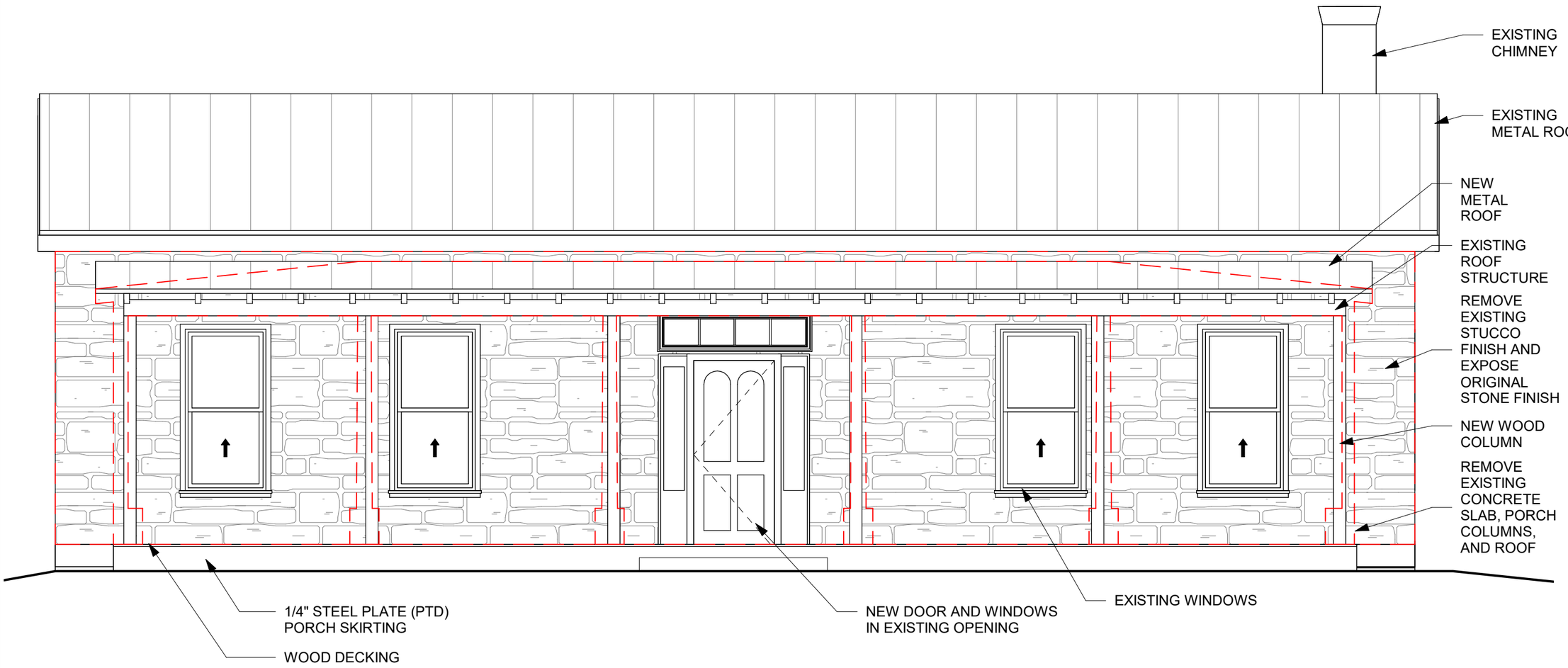




1 / A1 EAST ELEVATION

1/4" = 1'-0"

LAKE | FLATO ARCHITECTS INC.
311 THIRD STREET
SAN ANTONIO, TEXAS 78205
P 210 227 3335 F 210 224 9515
www.lakeflato.com

206 LAVACA

206 LAVACA STREET
SAN ANTONIO,
TX 78210

DESCRIPTION: EAST ELEVATION
REFERENCE SHEET(S):
L/F PROJECT NO. 22018
PROJECT ARCHITECT:
DRAWN BY: VY

11/29/22

A1

Wiss, Janney, Elstner Associates, Inc.
9511 North Lake Creek Parkway, Austin, Texas 78717
512.257.4800 tel
Texas Registered Engineering Firm F-0093
www.wje.com

October 5, 2022

Mr. John Rubiola
Rubiola Construction
1805 Capitol Avenue
San Antonio, Texas 78201

206 Lavaca Street
Petrographic Examination of a Stucco Sample
WJE No. 2022.6200.0

Dear Mr. Rubiola:

Per your request, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a petrographic examination of a stucco sample reportedly removed from the exterior front wall of the Stacey Hill residence located at 206 Lavaca Street, San Antonio, Texas (Figure 1). We understand that the house was originally constructed in 1875 and is currently under renovation. The objective of the petrographic examination was to assess the general properties of the stucco and to determine whether it was original historical stucco. Accordingly, petrographic examination of the stucco was performed based on ASTM C856, *Standard Practice for Petrographic Examination of Hardened Concrete*, which also applies to stucco.

No other information regarding the stucco or the residence was provided.

SAMPLE AND TESTS

Three pieces of stucco reportedly removed from the exterior front wall of the residence were received (Figure 2 to Figure 4). The largest piece of the stucco measured approximately 12 inches long, 4 inches wide, and 1 inch thick.

Visual examination indicated that all pieces represented the same stucco sample. Therefore, only one sample (identified as No. 4 in Figure 4) was selected for the petrographic examination. Due to the softness, no cutting or polishing was attempted. The selected sample was impregnated with a blue-dyed epoxy first and then cut. One piece was used to fabricate a thin section. A thin section is about 25 µm in thickness and transparent and allows for detailed evaluation of the stucco, including mineral identification for aggregate, identification of residual cement and other components in the paste, and general characteristics of the stucco. The blue epoxy serves to highlight voids and cracks. The other piece was polished. Powder mounts of the paste and areas of interest were also prepared. The powder mounts and thin section were examined using a petrographic (polarized light) microscope at magnifications up to 630X. Freshly fractured surfaces and the polished surface were examined using a computer-controlled stereomicroscope at magnifications up to 160X.

A point count was performed on the thin section under plane polarized light as well crossed polars of the petrographic microscope at a magnification of 200X. More than 400 points were counted for different components of the stucco, including paste, voids, and different aggregate components. The results of the

point counts were used to estimate the mix proportions of the stucco utilizing data developed by WJE from point count results of laboratory-prepared mortar samples with known mix proportions.

FINDINGS

General

The stucco was one coat system with a total thickness between 7/8 inch and 1-1/4 inches. The stucco contained a gray paint layer on the exterior surface, which was up to 4 mils in thickness and tightly bonded to the stucco. The bottom surface of the stucco was flat with no adhered foreign materials.

The stucco was white, with a nearest matching Munsell Color Index of N9 (Figure 5). The stucco was moderately soft and relatively porous and contained natural sand aggregate uniformly distributed in a portland cement and hydrated lime paste that was non-air-entrained. No animal hairs or other natural or synthetic fibers were detected. No metal lath reinforcement was detected. A summary of the properties of the mortar, including the results of the point count, is given in Table 1.

Aggregate

The aggregate was natural sand and accounted for 53.2 percent of the total stucco volume based on the point count (Table 1). The aggregate was composed primarily of quartz (95.0 percent) with a minor amount of chert (4.1 percent) and trace amounts of limestone (0.5 percent) and feldspar (0.5 percent). The sand was subangular to subrounded, mostly clear to buff to brown, hard, dense, and had a nominal top size of 1/16 inch. The aggregate was well-graded and uniformly distributed (Figure 5 to Figure 7).

Paste

The paste was off white and completely carbonated. The paste was uniform, soft, porous, and had a finely granular texture. The Mohs' Hardness Index of the paste was approximately 2.0 or slightly less than 2.0. The paste accounted for 31.7 percent of the stucco volume and was composed of abundant residual portland cement particles and an abundant amount of lumps of hydrated lime (Figure 8). No fly ash or other supplementary cementitious materials were detected. The residual cement particles were primarily pseudomorphs of alite (mostly consumed during hydration but left voids in the forms of original alite and filled with carbonated calcium hydroxide). No significant belite and/or ferrite phases in ordinary portland cement were detected, suggesting that the cement used was likely white portland cement. The pseudomorphs of alite were typically 70 µm or smaller. No large (greater than 100 µm) residual cement particles were detected.

The lumps of lime were hydrated lime that was not uniformly mixed in the paste; the lumps were carbonated and turned into calcite but still retained the shape of lime lumps. The lime lumps were typically smaller than 100 µm.

Based on the characteristics of the paste, the cement to lime volumetric ratio was estimated to be 1:1.5. Based on the volumetric aggregate to paste ratio of 1.68 obtained via the point count, the binder to sand volumetric ratio was estimated at 1:3.7.

Air Void System

The stucco was non-air-entrained but contained relatively abundant entrapped voids and water voids, measuring at 15.1 percent via the point count method (Table 1). Most voids were irregular, relatively large, uniformly distributed, and essentially free of secondary deposits (Figure 9).

No distress or deterioration was detected in the stucco sample.

DISCUSSION AND RECOMMENDATIONS

The stucco represented by the sample was a non-air-entrained, single coat stucco system containing natural siliceous sand uniformly distributed in a matrix consisting of white portland cement and hydrated lime. Based on the volumetric aggregate-to-paste ratio of 1.68 determined via the modified point count, the volumetric binder-to-sand ratio was estimated to be 1:3.7. The cement-to-hydrated lime ratio was estimated to be 1:1.5.

While there is no standard test method for determining the age of a stucco, there are features providing circumstantial evidence for its relative age. Historical stucco made in the 19th century or early 20th century tend to have larger and poorly graded aggregate particles. The paste may contain no portland cement or large residual portland cement particles exceeding 150 µm. In addition, animal hairs were often used as fiber reinforcement. The stucco represented by the sample contained no such features. The aggregate was relatively fine and well graded. The stucco was uniform and contained abundant residual white portland cement particles that were intermediate to small in particle size. Therefore, it is WJE's opinion that the stucco represented by the sample was not the original and was likely placed after 1950 and should not be considered historical for restoration purpose.

We appreciate the opportunity to assist you on this project. If more assistance is needed, please do not hesitate to contact us.

Sincerely,

WISS, JANNEY, ELSTNER ASSOCIATES, INC.

Derek Cong, PhD
Associate Principal and Petrographer

NOTE: Samples will be discarded after 60 days unless we are instructed otherwise in written form. Charges will be incurred for additional storage and handling.

Table 1. Summary of Findings of Petrographic Examination

Properties	Findings
General Color	Off white
Munsell Color Index	N9
Total thickness	7/8 to 1-1/4 inch
Mohs Hardness Index	≤2.0
Surface condition	Gray paint layer up to 4 mils in thickness
Aggregate	Natural sand with a top size of 1/16 inch
Paste	Hydrated lime and residual cement, soft and porous, and likely over watered
Point Count Results of the Mortar	
Paste (%)	31.7
Void (%)	15.1
Aggregate (%)	53.2
Subtotal (%)	100.0
Estimated Binder-to-Sand Volumetric Ratio	1:3.7
Estimated cement to lime ratio	1: 1.5
Aggregate Compositions	
Quartz (%)	95.0
Chert (%)	4.1
Limestone (%)	0.5
Feldspar (%)	0.5
Subtotal	100.1

Figure 1. The front view of the residence at 206 Lavaca Street showing the stucco wall (courtesy of Rubiola Construction).

Figure 2. Sampling of the stucco (courtesy of Rubiola Construction).

Figure 3. As received samples.

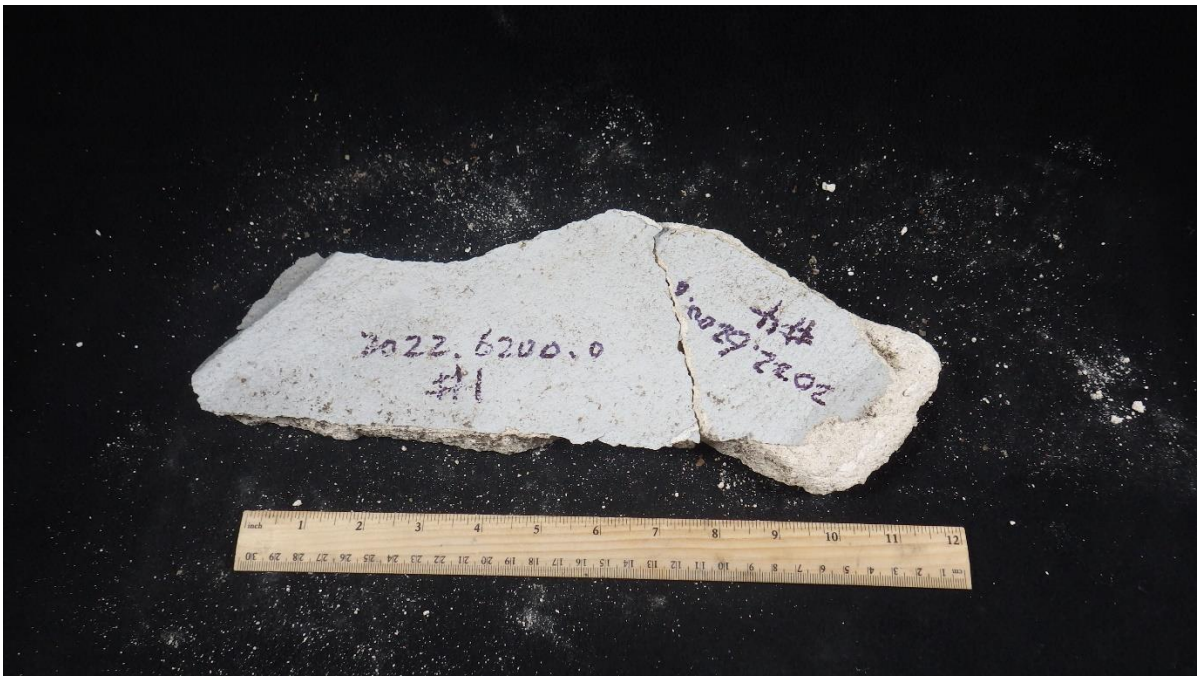


Figure 4. The broken pieces of one of the samples reassembled together.

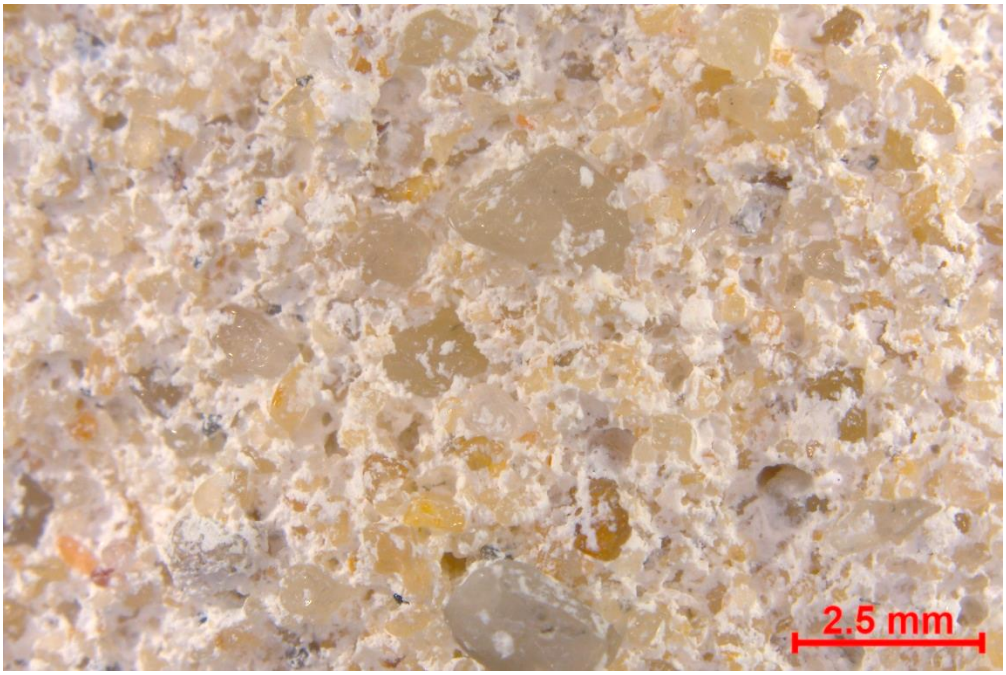


Figure 5. A fracture surface of the stucco showing the uniform paste color and aggregate distribution.

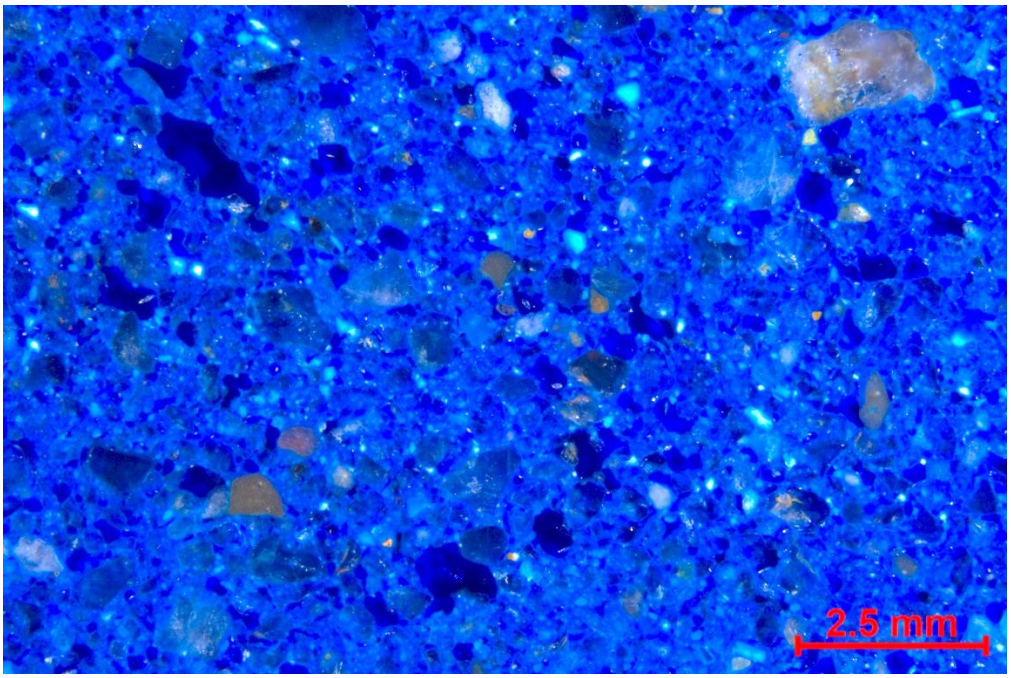


Figure 6. A polished and blue epoxy impregnated section showing the uniform distribution of aggregate particles.

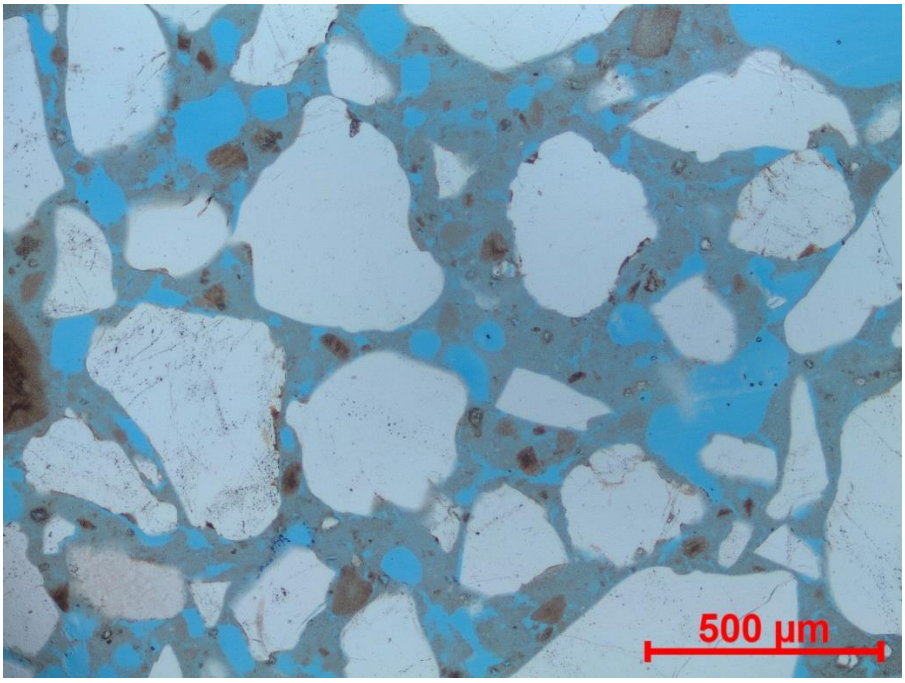


Figure 7. A thin section image of the stucco showing the abundant air voids (filled with blue epoxy) and uniform aggregate distribution.

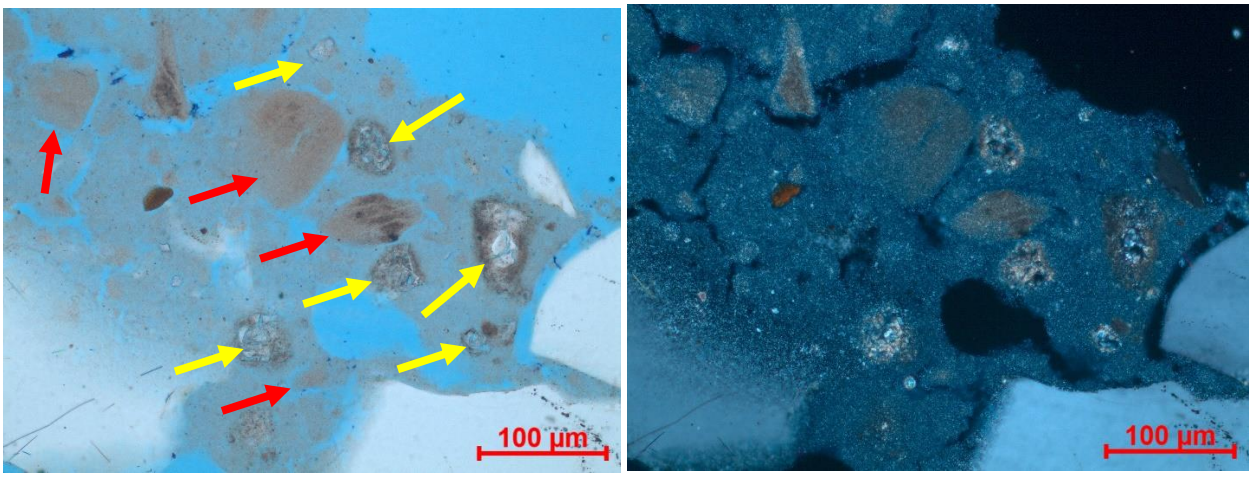


Figure 8. Photomicrographs of the same field of view of the thin section of the stucco taken under plane polarized light (left) and crossed polars (right) of a petrographic microscope showing a fully carbonated paste with abundant lumps of hydrated lime (red arrows) and residual cement particles (yellow arrows).

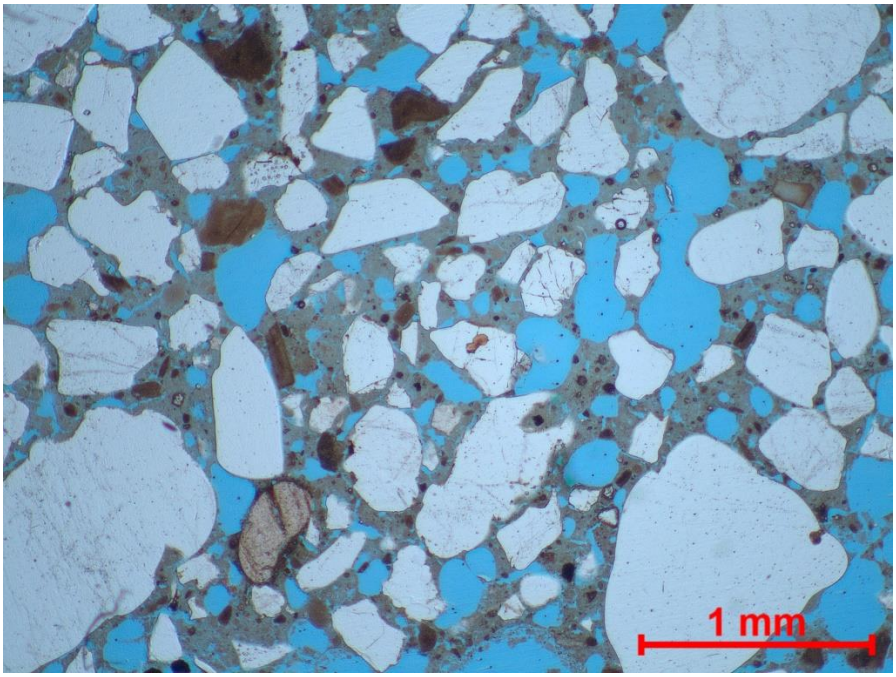


Figure 9. A thin section image of the stucco showing the entrapped air voids (filled with blue epoxy).

Previous Submittal

EXISTING EAST ELEVATION

EXISTING FRONT DOOR

EXISTING STONE NORTH WALL

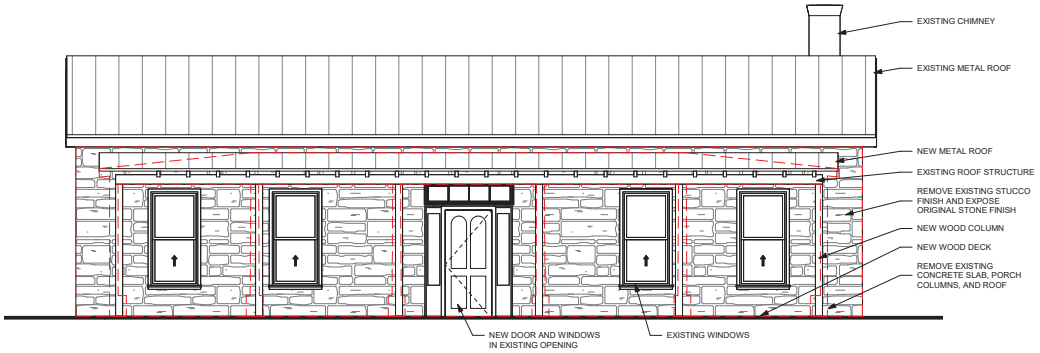
EXISTING WEST ELEVATION

EXISTING ADDITION

EXISTING ROOF

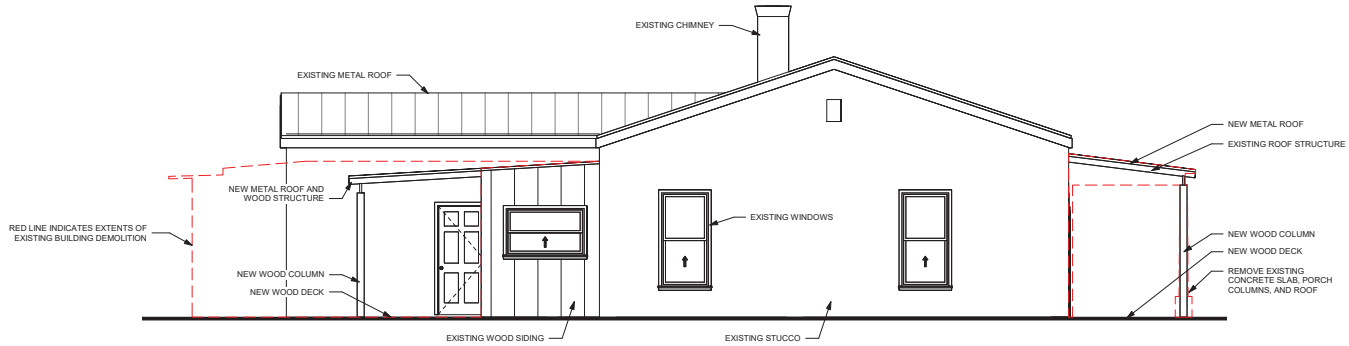
EXISTING BUILDING

Previous Submittal



EAST ELEVATION

1/8" = 1'-0"

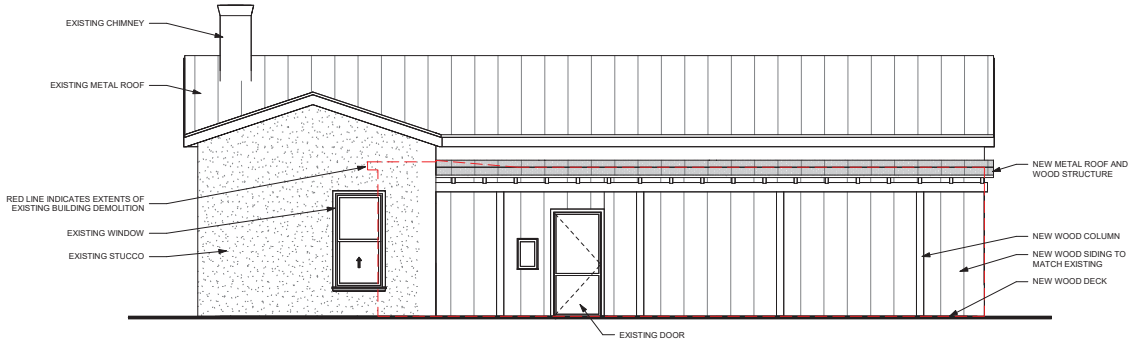


SOUTH ELEVATION

1/8" = 1'-0"

BUILDING ELEVATIONS

Previous Submittal



WEST ELEVATION

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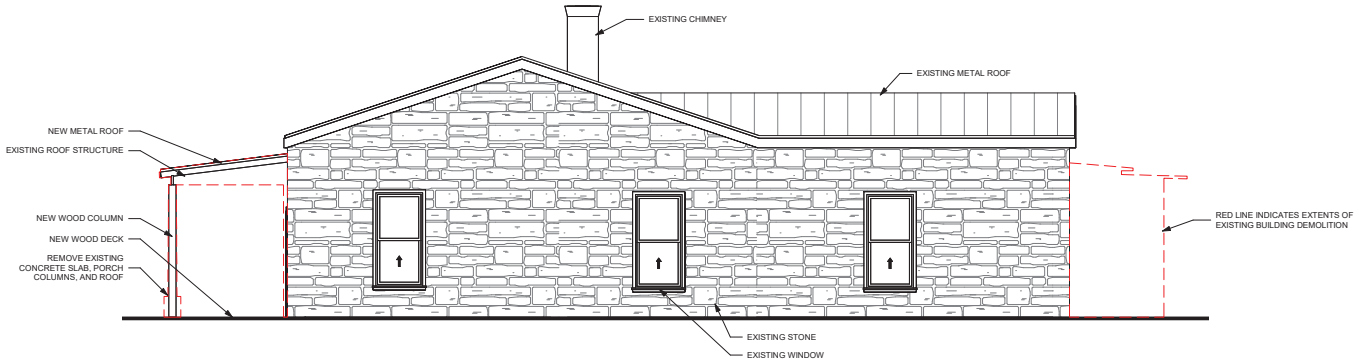

NORTH ELEVATION

1/8" = 1'-0"

BUILDING ELEVATIONS

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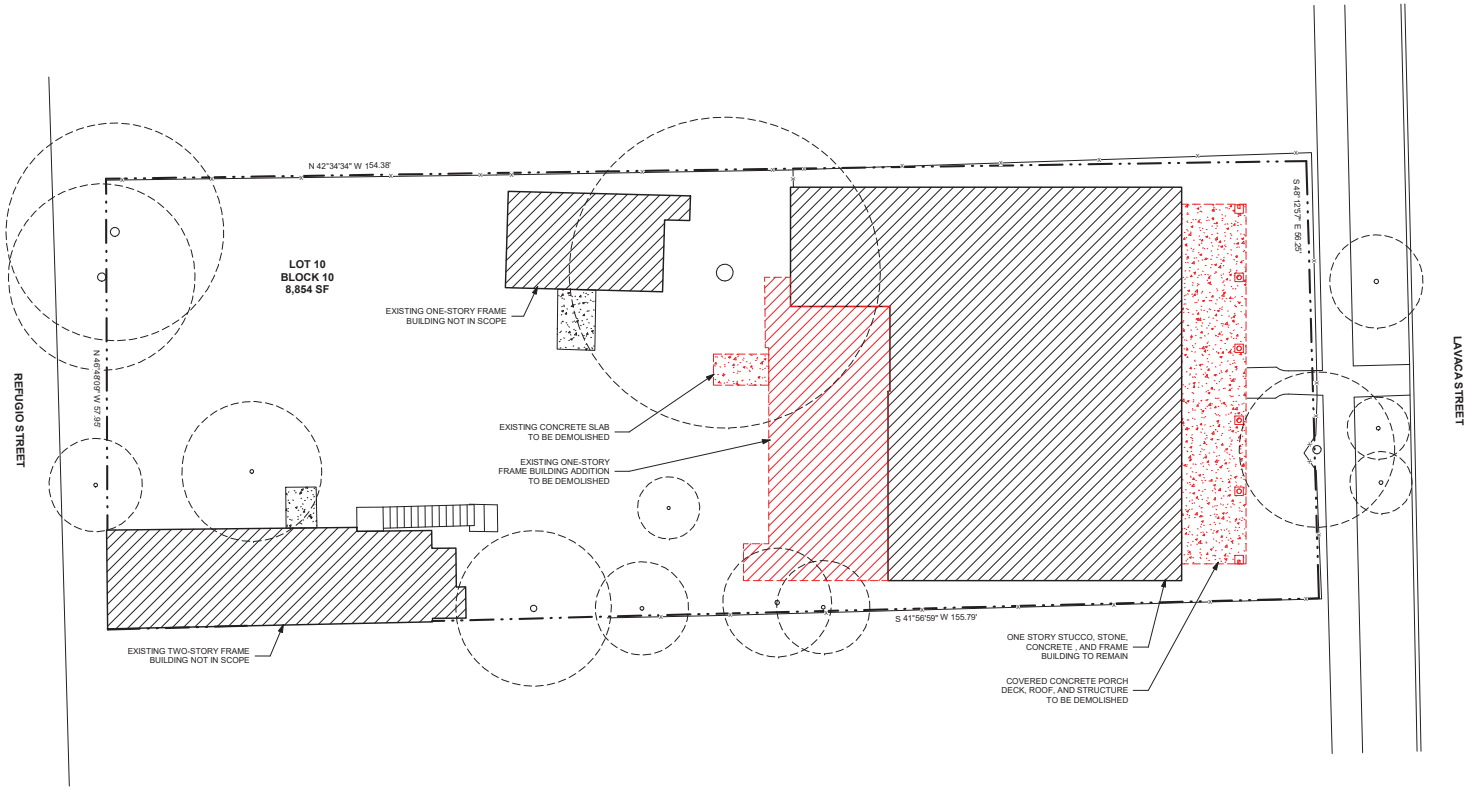
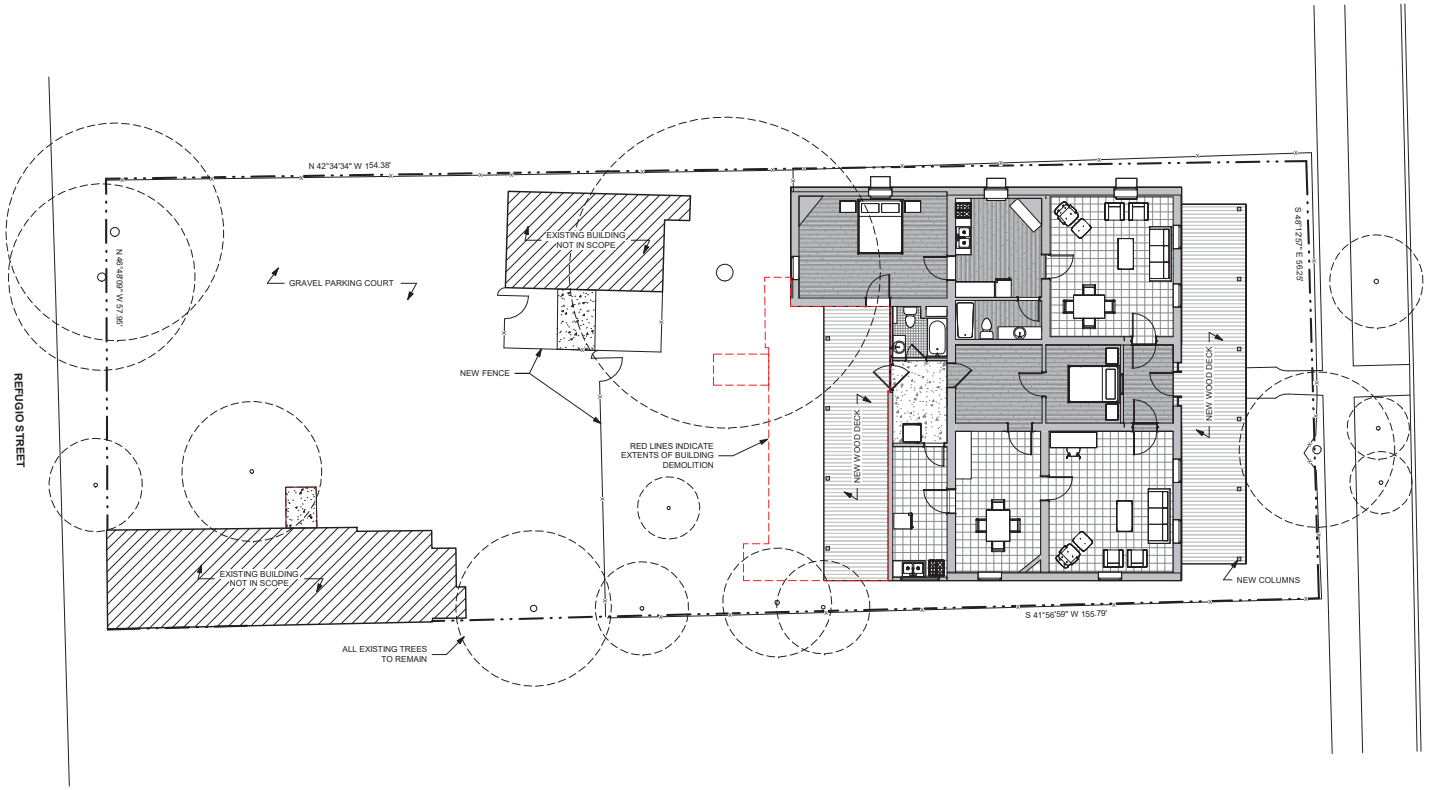


1/16" = 1'-0"

DEMOLITION PLAN

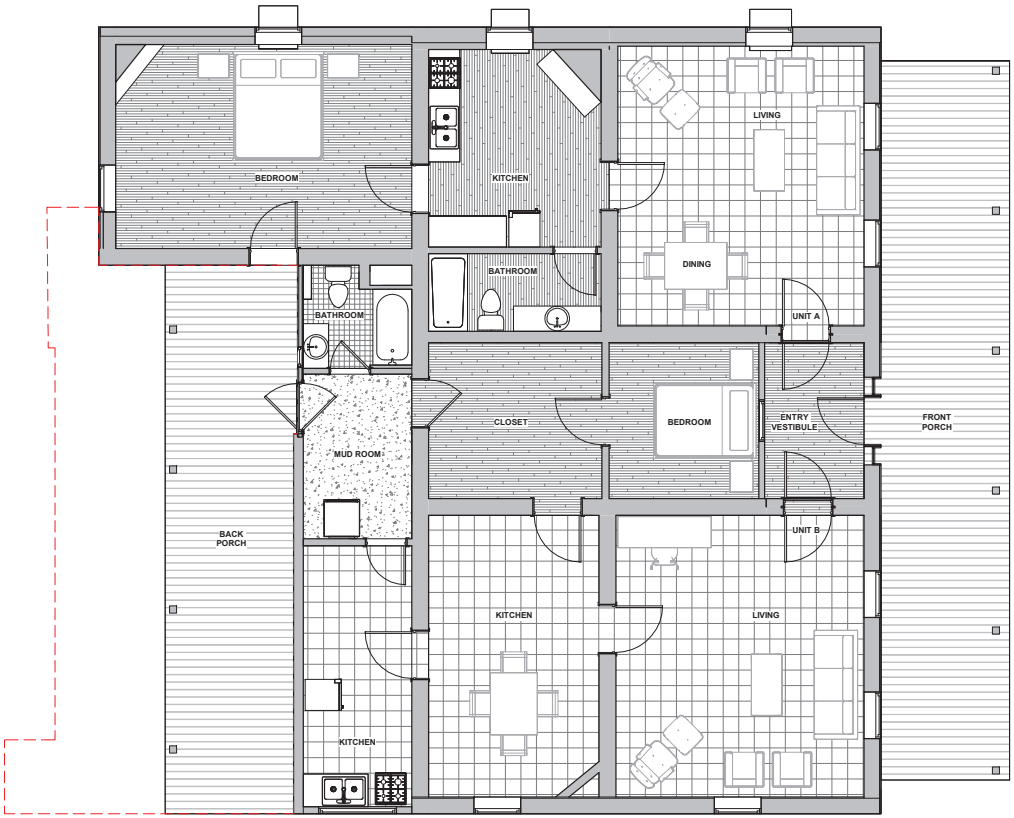
Previous Submittal



1/16" = 1'-0"

SITE PLAN

Previous Submittal



1/8" = 1'-0"

FLOOR PLAN