

**Environmental Review for Activity/Project that is Categorically
Excluded Subject to Section 58.5**

Project:

**MUSEO HISTORICO DE QUEBRADILLAS
QUEBRADILLAS, PR
PR-CRP-000554
CDBG-DR**

City Revitalization Program



Applicant: Municipality of Quebradillas
Prepared by: José D. Centeno Calero PE
Professional Engineer
License 20206
Date: October 23, 2023



U.S. Department of Housing and Urban Development

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Washington, DC 20410
www.hud.gov

espanol.hud.gov

Environmental Review for Activity/Project that is Categorically Excluded Subject to Section 58.5

Pursuant to 24 CFR 58.35(a)

Project Information

Project Name: Museo Histórico de Quebradillas

Responsible Entity: Puerto Rico Department of Housing

Grant Recipient (if different than Responsible Entity): Municipio de Quebradillas

State/Local Identifier: PR-CRP-000554

Preparer: José D. Centeno PE

Certifying Officer Name and Title: Permit and Compliance Officers: Sally Acevedo Cosme, Pedro De León Rodríguez, María T. Torres Bregón, Angel G. López-Guzmán, Ivelisse Lorenzo Torres, Santa Damarys Ramírez Lebrón, Janette I. Cambrelén, Limary Velez-Marrero, Juan Carlos Perez Bofill and Mónica Machuca Rios.

Consultant (if applicable): Ingenieros del Oeste CSP

Direct Comments to: Angel López Guzmán at environmentcdbg@vivienda.pr.gov

Project Location: Calle Honorio Hernández, Bo. Pueblo, Quebradillas, PR
Latitude 18.473865, Longitude -66.938194. Parcel ID# 008-080-009-06.

Description of the Proposed Project [24 CFR 50.12 & 58.32; 40 CFR 1508.25]:

The proposed project is intended to remodel and rehabilitate the existing building located in Honorio Hernandez, in front of the main square of Quebradillas to become the "Quebradillas Historic Museum"(see Project Map at end of checklist). It is proposed to use the existing old structure (built in 1918), repair it to use the first level as a Historical Museum and the second level for an office and archives. In the back, a space used for a bathroom has well-deteriorated support columns. The floor of the first level is made of terrazzo and has been preserved. The lot where the project is located has a surface area of 233 square meters. The existing two-story structure has an occupancy area of 1,304 sf (121.2076 square meters). The new occupancy area will be 1,627 sf (151.2307 square meters).

Project contemplates demolishing a portion of the existing building. This portion corresponds to an addition to the building to provide an additional bathroom on the second level. This portion of the structure has structural deterioration that requires demolition. Columns and beams have exposed and corroded structural steel. The process for the demolition of this portion will be carried out with manual tools. This is because there is no access to the rear to allow the use of mechanical equipment, such as a small backhoe.

Starting from the demolition, excavations will be carried out for the foundations of the proposed extension. The designed footings correspond to spread footing at a depth of 2 feet (0.6097 meters). The footings occupy a 100.875 sf (9.38 square meters) portion of the patio area. This includes utilizing the 132.25 sf (12.292 sm) area previously impacted by the construction of the second-floor bathroom years ago.

On the first floor, is proposed to demolish a portion of the existing wall (west side) to provide access from the existing structure to the proposed extension. Demolition consists of cutting out an area of 10.5 sf (0.9759 sm) under the existing window to create 25.333 sf (2.354 sm) doorway. It is also proposed to demolish two interior walls at the back corresponding to the existing bathroom on the first floor. As part of the work required for the two new bathrooms, it will be necessary to cut the slab and the existing concrete floor to install the pipe for the sanitary sewer. At the front of the first floor (main hall) it is proposed to demolish an interior step to create uniform steps at the required height. The step measures 3 ft by 1 ft.

On the second level, only the demolition of the bathroom is proposed. The roof of the second level (existing portion, in the form of a hammer), will maintain the levels and discharges like the existing ones, according to the footprint in the boundary of the walls. In the second level, it is proposed to repair the door openings using mortar. A new metal ceiling will be installed with a suspended ceiling inside.

Regarding the main facade, water at no more than 60 psi and a brush will be used to clean the surface. Starting from the cleaning, the painting works will be carried out, using the original colors (salmon color). The new construction consists of a 23.25 ft (7.088 mts) by 10.25 ft (3.125 mts) concrete and block expansion to include a showroom on the first level and provide access to the backyard. In addition, two new bathrooms will be created on the first level in the rear interior of the building. They will occupy an area of 11'-10" by 8'-0" (94.667 sf or 8.8 sm) and will have access only from the inside.

The existing building plumbing and electrical system will be replaced and/or upgraded. To bring the proper distribution of interior lighting, it is necessary to install a suspended acoustic ceiling.

In the patio, it is proposed to build an L-shaped terrace that occupies a space of 206 sf (19.148 sm).

All work will be performed within the project parcel boundaries. The area of potential effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. Based on this definition and the nature and scope of the Undertaking, the Program has determined that the direct APE for this project is 0.05533 acres (223.9436 sq/m) (10.54 meters by 22.00 meters approximately), and the visual APE is the view shed of the proposed project. The project is located within the boundaries of the Traditional Urban Center of Quebradillas town in front of the Main Square.

Level of Environmental Review Determination:

Categorically Excluded per 24 CFR 58.35(a), and subject to laws and authorities at § 58.5 : (iii). In the case of non-residential structures, including commercial, industrial, and public buildings: (A) The facilities and improvements are in place and will not be changed in size or capacity by more than 20%. Existing building capacity is 2,148.35 sf and proposed enlargement on first floor will be 427.1875sf (about 19.88% increase) AND (B) The activity does not involve a change in land use, such as from non-residential to residential, commercial to industrial, or from one industrial use to another.

Funding Information

Grant Number	HUD Program	Funding Amount
B-17-DM-72-0001 B-18-DP-72-0001 B-19-DP-78-0002 B-18-DE-72-0001	CDBG-DR	\$11,938,162,230

Estimated Total HUD Funded Amount: \$701,106.67

Estimated Total Project Cost (HUD and non-HUD funds) [24 CFR 58.32(d)]: \$701,106.67

Compliance with 24 CFR 50.4, 58.5, and 58.6 Laws and Authorities

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 & 58.6		
Airport Hazards 24 CFR Part 51 Subpart D	Yes No ☐ ☒	The project site is not within 15,000 feet of a military airport or 2,500 feet of a civilian airport, nor is it within an airport Runway Protection Zone (RPZ). The nearest airport RPZ/CZ (Aeropuerto Rafael Hernandez) is approximately 71,532 feet away. The project is in compliance with Airport Hazards requirements. The closest military airfield (Luis Munoz Marin Airport) is 60.5 miles to the East. See the attached Airports map, Exhibits A, B, C, and D.
Coastal Barrier Resources Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	Yes No ☐ ☒	This project is not located in a CBRS Unit. It is 12,158 feet (2.20 miles) from a protected area. Therefore, this project has no potential to impact a CBRS Unit and is in compliance with the Coastal Barrier Resources Act. See the attached CBR S map, Exhibit E.
Flood Insurance Flood Disaster Protection Act of 1973 and National Flood	Yes No ☐ ☒	The project site is located in a Zone X, Panel 720000C0180J effective 11/18/2009. The project does not

Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]		require flood insurance or is excepted from flood insurance; therefore, is in compliance with flood insurance requirements. See the attached Flood Map, Exhibit F.
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 & 58.5		
Clean Air Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Yes No ☐ ☒	Based on the project description, this project includes no activities that would require further evaluation under the Clean Air Act. The project is in compliance with the Clean Air Act. See Exhibit G.
Coastal Zone Management Coastal Zone Management Act, sections 307(c) & (d)	Yes No ☐ ☒	This project is at municipality of Quebradillas does not affect a Coastal Zone as defined in the state Coastal Management Plan. The project is located 2,640 feet (0.5 miles) from the coastal zone. The project is in compliance with the Coastal Zone Management Act. See Exhibits H.
Contamination and Toxic Substances 24 CFR Part 50.3(i) & 58.5(i)(2)	Yes No ☐ ☒	Site contamination was evaluated through online data searches to determine if toxic sites are located within 3,000-feet of the proposed project. Two RCRA sites, two hazardous waste generators, and one CWA site, were identified within 3,000 feet of the proposed project. The identified sites were in compliance and have had not violations within the past three years. There would be no impact to the project site. See Exhibit G and Appendix A

		Testing for asbestos containing materials(ACMs) and lead-based paints (LBPs) was conducted by Nortol Enviromental & Occupational Safety, Inc. Bulk samples of suspect ACMs were collected for analysis. Although asbestos was not detected in the samples collected. See Appendix E LBP was found at some project accessed components, some interior concrete walls have LBP and also were found on lead-glazed ceramics some walls or floors. See Appendix F Lead Base Materials on site will be removed prior to demolition. The Guidelines for the Evaluation and Control of Lead-Based Paint Hazards (HUD – Chapter 12 – Abatement) will be used for this Project (See Appendix H).
Endangered Species Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402	Yes No ☐ ☒	This project and proposed activity will have No Effect on listed species or habitats due to the nature of the activities involved in the project. There is no intent to cut down trees or change in land use. Based on the nature of the project, scope of work, information available, and a careful analysis of the Project Site, and IPaC species list, it was determined that there would be No Effect for any of the listed species. According to EPA NEPAassist Enviromapper, the nearest critical or

		proposed critical habitat is 1,120 feet to the west of the project location. Per the Official Species List from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website, the Puerto Rican Boa and the Puerto Rico Harlequin Butterfly can be found, but there are no critical habitats at this location. A site-specific review of endangered species was conducted in accordance with the Fish and Wildlife Act (47 Stat. 401, as amended: 16 U.S.C. 661 et seq.) and the Self-Certification guidelines in the 2014 USFW Caribbean Ecological Services Field Office Blanket Clearance Letter (See Appendix D). This project meets Project Criteria #4 "Rehabilitation of existing occupied single-family homes, and buildings; provided that equipment storage or staging areas are not located on vacant property harboring a wetland and/or forested vegetation and that the lighting associated to the new facilities is not visible directly or indirectly from a beach." If a Puerto Rican Boa is encountered, work will cease until it moves off the site or, failing that, the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Rangers will be notified for safe capture and relocation of the animal,
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		in accordance with the USFW Puerto Rican Boa Conservation Measures guidelines and the July 27, 2023 Amended Programmatic Biological Opinion. This project is in compliance with the Endangered Species Act. See Exhibits J and K and Appendix B
Explosive and Flammable Hazards 24 CFR Part 51 Subpart C	Yes No ☐ ☒	Based on the project description the project includes no activities that would require further evaluation under this section. The project is in compliance with explosive and flammable hazard requirements.
Farmlands Protection Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	Yes No ☐ ☒	This project does not include any activities that could potentially convert agricultural land to non-agricultural use. Also, it is not prime farmland. The project is in compliance with the Farmland Protection Policy Act. See Exhibit L.
Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55	Yes No ☐ ☒	This project does not occur in a floodplain, nor wetland. The project site is located in a Zone X, Panel 72000C0180J, effective 11/18/2009. The project is within Zone X on the ABFE map. The project is in compliance with Flood plain management requirements. See Exhibit M and N.
Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800	Yes No ☒ ☐	The determination effect (Section 106 NHPA) was conducted by Fernando Alvarado Muñoz Archaeologist and Carlos Ferrán Martinez Architectural Historian, they concluded: The following historic properties have been identified within the APE: • Direct Effect:

		On the historic building remains. • Indirect Effect: The existing historic building remains are part of the traditional Quebradillas historic core, facing the Historic Main Square and the Catholic Church. Based on the results of our historic property identification efforts, the Program has determined that project actions will affect the historic properties that compose the Area of Indirect Potential Effect. We promote, and it is our opinion that the cultural heritage that will be impacted by a new rehabilitation project preserve its existing identified elements without altering or demolishing them maintaining them in their current state, always considering their present original footprint. Based on the analysis of the historical plans and the aerial photographs we recognize that, on the parcel where the project building is located, prior to 1918, there was a previous building, which can be seen on the map of Quebradillas "Map of Quebradillas 1889, By Félix Ardanaz y Crespo, Corps of Military Engineers, Topographic Commission (Figure 2). This possibility points to the necessity to conduct an Archaeological Monitoring during the construction phase of the proposed project "Historical Museum of Quebradillas". SHPO Concurrence Determination is Conditional No Adverse Effect made on 6/2/2023.
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		A monitoring plan was approved on September 27, 2023 by Carlos A Rubio-Cancela (State Historic Preservation Officer). See Appendix C Estudio Arqueologico Fase 1 and Appendix D Section 106
Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	Yes No ☐ ☒	The project involves rehabilitation of existing non-residential building for non-residential use. The project is in compliance for this section. See Exhibits O and P.
Sole Source Aquifers Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149	Yes No ☐ ☒	There are no sole source aquifers in Puerto Rico. The project is in compliance with this citation without further evaluation. See Exhibit Q.
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	Yes No ☐ ☒	The National Wetlands Inventory map regulated by USFWS was used to determine the presence of wetlands on the project site. No wetlands were found on the project site. The project is 658 feet from the nearest wetland (Freshwater Forested/Shrub Wetland. See Exhibit R and S.
Wild and Scenic Rivers Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	Yes No ☐ ☒	The project is not within the proximity of a NWSRS river. The nearest Wild and Scenic River is 406,833 feet east of the project site. Therefore, this project is in compliance with the Wild and Scenic Rivers Act. See Exhibit T.
ENVIRONMENTAL JUSTICE		
Environmental Justice Executive Order 12898	Yes No ☐ ☒	No adverse environmental impacts were identified in the project's total environmental review. The project is in compliance with Executive Order 12898.

Field Inspection (Date and completed by): **June 16, 2022 / January 24, 2023 – Completed by José D. Centeno PE**

Summary of Findings and Conclusions:

The project involves rehabilitation/reconstruction of an existing building in a developed property. Mitigation activities will be required.

Mitigation Measures and Conditions [40 CFR 1505.2(c)]

The mitigation measures adopted by the Responsible Entity to eliminate the adverse environmental impacts and to avoid non-compliance or non-conformance with the authorities and factors is the removal of all material containing lead.

The Guidelines for the Evaluation and Control of Lead-Based Paint Hazards (HUD – Chapter 12 – Abatement) will be used for this Project (See Appendix H).

The Report prepared by Nortol Environmental & Occupational Safety, Inc. indicated that LBP was found at some project accessed components, some interior concrete walls have LBP and also were found on lead-glazed ceramics some walls or floors. See Appendix F.

These measures and conditions will be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures will be clearly identified in the mitigation plan.

An Archaeological Monitoring and Protection Plan has been approved to mitigate impacts to the historic building. The plan includes a detailed description of the archaeological monitoring procedure to be carried out before, during, and after the construction activities.

Law, Authority, or Factor	Mitigation Measure
Hazards Standards and Clearance Levels for Lead in Paint, Dust, and Soil (TSCA Sections 402 and 403)	The mitigation measures adopted by the Responsible Entity to eliminate the adverse environmental impacts and to avoid non-compliance or non-conformance with the authorities and factors is the removal of all material containing lead. The Guidelines for the Evaluation and Control of Lead-Based Paint Hazards (HUD – Chapter 12 – Abatement) will be used for this Project (See Appendix H). The Report prepared by Nortol Environmental & Occupational Safety, Inc. indicated that LBP was found in some project accessed components, some interior concrete walls have LBP and also were found on lead-glazed ceramics some walls or floors. See Appendix F. These measures and conditions will be incorporated into project contracts, development agreements, and other relevant documents.
Historic Preservation	An Archaeological Monitoring and Protection Plan has been approved to mitigate impacts to the historic building. The plan includes a detailed description of the archaeological monitoring procedure to be carried out before, during, and after the construction activities. The staff responsible for implementing and monitoring mitigation measures will be clearly identified in the mitigation plan.

Determination:

- ☐ This categorically excluded activity/project converts to Exempt, per 58.34(a)(12) because there are no circumstances which require compliance with any of the federal laws and authorities cited at §58.5. **Funds may be committed and drawn down after certification of this part** for this (now) EXEMPT project; OR
- ☒ This categorically excluded activity/project cannot convert to Exempt because there are circumstances which require compliance with one or more federal laws and authorities cited at §58.5. Complete consultation/mitigation protocol requirements, **publish NOI/RROF and obtain “Authority to Use Grant Funds”** (HUD 7015.16) per Section 58.70 and 58.71 before committing or drawing down any funds; OR
- ☐ This project is now subject to a full Environmental Assessment according to Part 58 Subpart E due to extraordinary circumstances (Section 58.35(c)).

Preparer Signature: _____ Date: October 23, 2023



Name/Title/Organization: José D. Centeno/ Professional Engineer/ Ingenieros del Oeste CSP

Responsible Entity Agency Official Signature:

A handwritten signature in blue ink, appearing to read 'S. Acevedo'.

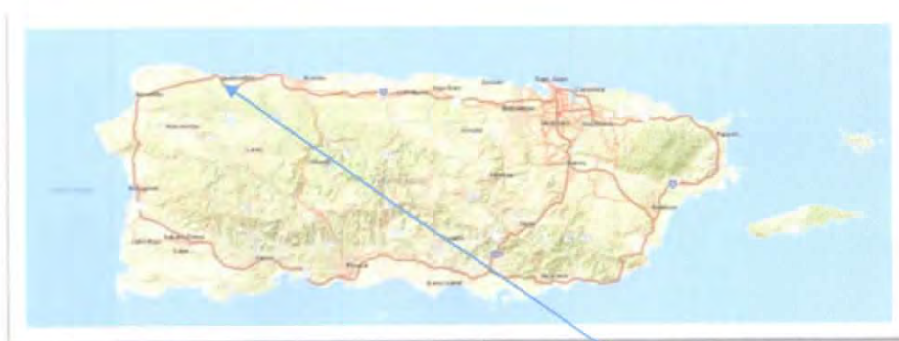
Date: January 17, 2024

Name/Title: Sally Z. Acevedo Cosme- Permits and Environmental Compliance Specialist

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).

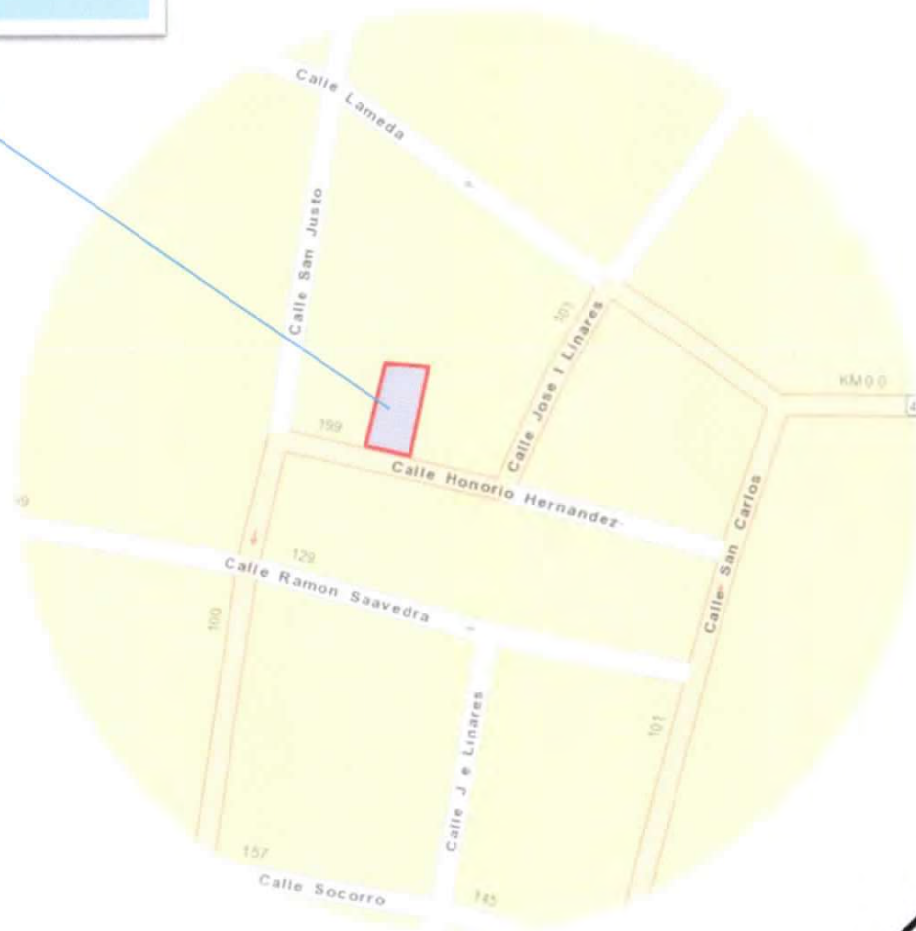
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PROJECT MAP

PR-CRP-000554
MUSEO HISTORICO DE
QUEBRADILLAS
QUEBRADILLAS, PR



WORKSHEETS

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554



AIRPORT HAZARDS

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

Airport Hazards (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/airport-hazards>

1. To ensure compatible land use development, you must determine your site's proximity to civil and military airports. Is your project within 15,000 feet of a military airport or 2,500 feet of a civilian airport?

☒ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within the applicable distances to a military or civilian airport.

☐ Yes → Continue to Question 2.

2. Is your project located within a Runway Potential Zone/Clear Zone (RPZ/CZ) or Accident Potential Zone (APZ)?

☐ Yes, project is in an APZ → Continue to Question 3.

☐ Yes, project is an RPZ/CZ → Project cannot proceed at this location.

☐ No, project is not within an APZ or RPZ/CZ

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Continue to the Worksheet Summary below. Provide a map showing that the site is not within either zone.

3. Is the project in conformance with DOD guidelines for APZ?

☐ Yes, project is consistent with DOD guidelines without further action.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documentation supporting this determination.

☐ No, the project cannot be brought into conformance with DOD guidelines and has not been approved. → Project cannot proceed at this location.

If mitigation measures have been or will be taken, explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.

[Click here to enter text.](#)

→ *Work with the RE/HUD to develop mitigation measures. Continue to the Worksheet Summary below. Provide any documentation supporting this determination.*

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

A map from each airport showing the distance between the project and airport are attached. Aguadilla airport (BQN) is 71,532 feet, Arecibo airport (ABO) Antonio Nery Juarbe is 91,587 feet, Mayaguez airport (MAZ) Eugenio María de Hostos is 108,130 feet, and San Juan airport (SJU) Luis Muñoz Marín is 319,440 feet from the project site.

From ADIP webpage also a screenshot from facility details of each airport is attached.

See Exhibits A, B, C and D.

COASTAL BARRIER RESOURCES

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

OMB No. 2506-0177
(exp.2/28/2025)

Coastal Barrier Resources (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/coastal-barrier-resources>

Projects located in the following states must complete this form.

Alabama	Georgia	Massachusetts	New Jersey	Puerto Rico	Virgin Islands
Connecticut	Louisiana	Michigan	New York	Rhode Island	Virginia
Delaware	Maine	Minnesota	North Carolina	South Carolina	Wisconsin
Florida	Maryland	Mississippi	Ohio	Texas	

1. Is the project located in a CBRS Unit?

- ☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within a CBRS Unit.*

☐ Yes → *Continue to 2.*

Federal assistance for most activities may not be used at this location. You must either choose an alternate site or cancel the project. In very rare cases, federal monies can be spent within CBRS units for certain exempted activities (e.g., a nature trail), after consultation with the Fish and Wildlife Service (FWS) (see [16 USC 3505](#) for exceptions to limitations on expenditures).

2. Indicate your recommended course of action for the RE/HUD

- ☐ Consultation with the FWS
- ☐ Cancel the project

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

An image from the US Fish and Wildlife Service webpage showing the CBRS nearest from the project is attached. The distance from the project is 0.47miles to the northwest. See Exhibit E.

FLOOD INSURANCE

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

Flood Insurance (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/flood-insurance>

1. Does this project involve mortgage insurance, refinance, acquisition, repairs, rehabilitation, or construction of a structure, mobile home, or insurable personal property?

☐ No. This project does not require flood insurance or is excepted from flood insurance.

→ Continue to the Worksheet Summary.

☒ Yes → Continue to Question 2.

2. Provide a FEMA/FIRM map showing the site.

The Federal Emergency Management Agency (FEMA) designates floodplains. The [FEMA Map Service Center](#) provides this information in the form of FEMA Flood Insurance Rate Maps (FIRMs).

Is the structure, part of the structure, or insurable property located in a FEMA-designated Special Flood Hazard Area?

☒ No → Continue to the Worksheet Summary.

☐ Yes → Continue to Question 3.

3. Is the community participating in the National Flood Insurance Program or has less than one year passed since FEMA notification of Special Flood Hazards?

☐ Yes, the community is participating in the National Flood Insurance Program.

Flood insurance is required. Provide a copy of the flood insurance policy declaration or a paid receipt for the current annual flood insurance premium and a copy of the application for flood insurance.

→ Continue to the Worksheet Summary.

☐ Yes, less than one year has passed since FEMA notification of Special Flood Hazards.

If less than one year has passed since notification of Special Flood Hazards, no flood insurance is required.

→ Continue to the Worksheet Summary.

☐ No. The community is not participating, or its participation has been suspended.

Federal assistance may not be used at this location. Cancel the project at this location.

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

From FEMA webpage is included an image of National Flood Hazard Layer FIRMette, showing that the project is not located in an area of flood hazard. See Exhibit F.

CLEAN AIR

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

Air Quality (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/air-quality>

1. Does your project include new construction or conversion of land use facilitating the development of public, commercial, or industrial facilities OR five or more dwelling units?

☐ Yes → Continue to Question 2.

☒ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide any documents used to make your determination.

2. Is your project's air quality management district or county in non-attainment or maintenance status for any criteria pollutants?

Follow the link below to determine compliance status of project county or air quality management district:

<http://www.epa.gov/oaqps001/greenbk/>

☐ No, project's county or air quality management district is in attainment status for all criteria pollutants

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.

☐ Yes, project's management district or county is in non-attainment or maintenance status for one or more criteria pollutants. → Continue to Question 3.

3. Determine the estimated emissions levels of your project for each of those criteria pollutants that are in non-attainment or maintenance status on your project area. Will your project exceed any of the *de minimis* or *threshold* emissions levels of non-attainment and maintenance level pollutants or exceed the screening levels established by the state or air quality management district?

☐ No, the project will not exceed *de minimis* or threshold emissions levels or screening levels

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Explain how you determined that the project would not exceed *de minimis* or threshold emissions.

☐ Yes, the project exceeds *de minimis* emissions levels or screening levels.

→ Continue to Question 4. Explain how you determined that the project would not exceed *de minimis* or threshold emissions in the Worksheet Summary.

4. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.

[Click here to enter text.](#)

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

From the United States Environmental Protection Agency webpage is included an image of a table that show Puerto Rico Nonattainment/Maintenance Status for each county by year for all criteria pollutants. See Exhibit G.

COASTAL ZONE MANAGEMENT

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

Coastal Zone Management Act (CEST and EA) – PARTNER

<https://www.onecpd.info/environmental-review/coastal-zone-management>

Projects located in the following states must complete this form.

Alabama	Florida	Louisiana	Mississippi	Ohio	Texas
Alaska	Georgia	Maine	New Hampshire	Oregon	Virgin Islands
American Samoa	Guam	Maryland	New Jersey	Pennsylvania	Virginia
California	Hawaii	Massachusetts	New York	Puerto Rico	Washington
Connecticut	Illinois	Michigan	North Carolina	Rhode Island	Wisconsin
Delaware	Indiana	Minnesota	Northern Mariana Islands	South Carolina	

1. Is the project located in, or does it affect, a Coastal Zone as defined in your state Coastal Management Plan?

- ☐ Yes → Continue to Question 2.
- ☒ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within a Coastal Zone.

2. Does this project include activities that are subject to state review?

- ☐ Yes → Continue to Question 3.
- ☐ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.

3. Has this project been determined to be consistent with the State Coastal Management Program?

- ☐ Yes, with mitigation. → The RE/HUD must work with the State Coastal Management Program to develop mitigation measures to mitigate the impact or effect of the project.
- ☐ Yes, without mitigation. → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.
- ☐ No → Project cannot proceed at this location.

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates

- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

From arcgis.com on Map viewer we obtain the image showing the Coastal Zone. The project is 0.5 miles from the Coastal Zone. See Exhibit H

CONTAMINATION AND TOXIC SUBSTANCES

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





Contamination and Toxic Substances (Multifamily and Non-Residential Properties) – PARTNER

<https://www.hudexchange.info/programs/environmental-review/site-contamination>

1. How was site contamination evaluated?¹ Select all that apply.

- ☒ ASTM Phase I ESA
- ☐ ASTM Phase II ESA
- ☐ Remediation or clean-up plan
- ☐ ASTM Vapor Encroachment Screening
- ☐ None of the above

→ Provide documentation and reports and include an explanation of how site contamination was evaluated in the Worksheet Summary.

Continue to Question 2.

2. Were any on-site or nearby toxic, hazardous, or radioactive substances found that could affect the health and safety of project occupants or conflict with the intended use of the property? (Were any recognized environmental conditions or RECs identified in a Phase I ESA and confirmed in a Phase II ESA?)

- ☒ No → Explain below.

No hazardous material or petroleum products were founded during site reconnaissance.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

- ☐ Yes → Describe the findings, including any recognized environmental conditions (RECs), in Worksheet Summary below. Continue to Question 3.

3. Can adverse environmental impacts be mitigated?

- ☐ Adverse environmental impacts cannot feasibly be mitigated → HUD assistance may not be used for the project at this site. Project cannot proceed at this location.
- ☐ Yes, adverse environmental impacts can be eliminated through mitigation.

¹ HUD regulations at 24 CFR § 58.5(i)(2)(ii) require that the environmental review for multifamily housing with five or more dwelling units or non-residential property include the evaluation of previous uses of the site or other evidence of contamination on or near the site. For acquisition and new construction of multifamily and nonresidential properties HUD strongly advises the review include an ASTM Phase I Environmental Site Assessment (ESA) to meet real estate transaction standards of due diligence and to help ensure compliance with HUD's toxic policy at 24 CFR §58.5(i) and 24 CFR §50.3(i). Also note that some HUD programs require an ASTM Phase I ESA.

→ Provide all mitigation requirements² and documents. Continue to Question 4.

4. Describe how compliance was achieved. Include any of the following that apply: State Voluntary Clean-up Program, a No Further Action letter, use of engineering controls³, or use of institutional controls⁴.

[Click here to enter text.](#)

If a remediation plan or clean-up program was necessary, which standard does it follow?

- ☐ Complete removal
☐ Risk-based corrective action (RBCA)

→ Continue to the Worksheet Summary.

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

The ACM survey was conducted on January 24, 2023 by Nortol Environmental & Occupational Safety, Inc, they submitted bulk samples for laboratory analysis. The bulk samples collected as part of the survey were reported as None Detected or 1%. See Appendix E

The LBP survey, conforming to HUD guidelines for the evaluation and control of lead based paint in housing was conducted on January 24, 2023 by Nortol Environmental & Occupational Safety, Inc. LBP was found at some project accessed components, some interior concrete wall have LBP and also were found on lead-glazed ceramics some walls or floors. See Appendix F

From the Echo web pages it was obtained the there is no violation Identified in Database. See Exhibit G and Appendix A.

Lead Base Materials on site will be removed by a Certified Company. The Guidelines for the Evaluation and Control of Lead-Based Paint Hazards (HUD – Chapter 12 – Abatement) will be used for this Project (See Appendix H).

² Mitigation requirements include all clean-up actions required by applicable federal, state, tribal, or local law. Additionally, provide, as applicable, the long-term operations and maintenance plan, Remedial Action Work Plan, and other equivalent documents.

³ Engineering controls are any physical mechanism used to contain or stabilize contamination or ensure the effectiveness of a remedial action. Engineering controls may include, without limitation, caps, covers, dikes, trenches, leachate collection systems, signs, fences, physical access controls, ground water monitoring systems and ground water containment systems including, without limitation, slurry walls and ground water pumping systems.

⁴ Institutional controls are mechanisms used to limit human activities at or near a contaminated site, or to ensure the effectiveness of the remedial action over time, when contaminants remain at a site at levels above the applicable remediation standard which would allow for unrestricted use of the property. Institutional controls may include structure, land, and natural resource use restrictions, well restriction areas, classification exception areas, deed notices, and declarations of environmental restrictions.

ENDANGERED SPECIES

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





Endangered Species Act (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/endangered-species>

1. Does the project involve any activities that have the potential to affect species or habitats?

☒ No, the project will have No Effect due to the nature of the activities involved in the project.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.

☐ No, the project will have No Effect based on a letter of understanding, memorandum of agreement, programmatic agreement, or checklist provided by local HUD office.

Explain your determination:

[Click here to enter text.](#)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.

☐ Yes, the activities involved in the project have the potential to affect species and/or habitats. → Continue to Question 2.

2. Are federally listed species or designated critical habitats present in the action area?

Obtain a list of protected species from the Services. This information is available on the [FWS Website](#).

☐ No, the project will have No Effect due to the absence of federally listed species and designated critical habitat.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation may include letters from the Services, species lists from the Services' websites, surveys or other documents and analysis showing that there are no species in the action area.

☐ Yes, there are federally listed species or designated critical habitats present in the action area. → Continue to Question 3.

3. Recommend one of the following effects that the project will have on federally listed species or designated critical habitat:

☐ No Effect: Based on the specifics of both the project and any federally listed species in the action area, you have determined that the project will have absolutely no effect on listed species or critical habitat.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation should include a species list and explanation of your conclusion, and may require maps, photographs, and surveys as appropriate.

☐ May Affect, Not Likely to Adversely Affect: Any effects that the project may have on federally listed species or critical habitats would be beneficial, discountable, or insignificant.

→ Partner entities should not contact the Services directly. If the RE/HUD agrees with this recommendation, they will have to complete Informal Consultation. Provide the RE/HUD with a biological evaluation or equivalent document. They may request additional information, including surveys and professional analysis, to complete their consultation.

☐ Likely to Adversely Affect: The project may have negative effects on one or more listed species or critical habitat.

→ Partner entities should not contact the Services directly. If the RE/HUD agrees with this recommendation, they will have to complete Formal Consultation. Provide the RE/HUD with a biological evaluation or equivalent document. They may request additional information, including surveys and professional analysis, to complete their consultation.

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

This project and proposed activity will have No Effect on listed species due to the nature of the activities involved in the project. Additionally, the project has no critical habitats in the area. This project is in compliance with the Endangered Species Act. See attached Critical Habitats map. From the US Fish and Wildlife Service Information for Planning and Consultation (IPaC) web page, can found there are no critical habitats at this location. See Exhibits J, K and Appendix B.

EXPLOSIVE AND FLAMMABLE HAZARDS

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

OMB No. 2506-0177
(exp.2/28/2025)

Explosive and Flammable Hazards (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/explosive-and-flammable-facilities>

- 1. Does the proposed HUD-assisted project include a hazardous facility (a facility that mainly stores, handles or processes flammable or combustible chemicals such as bulk fuel storage facilities and refineries)?**

☒ No

→ Continue to Question 2.

☐ Yes

Explain:

[Click here to enter text.](#)

→ Continue to Question 5.

- 2. Does this project include any of the following activities: development, construction, rehabilitation that will increase residential densities, or conversion?**

☒ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

☐ Yes → Continue to Question 3.

- 3. Within 1 mile of the project site, are there any current *or planned* stationary aboveground storage containers:**

- Of more than 100-gallon capacity, containing common liquid industrial fuels OR
- Of any capacity, containing hazardous liquids or gases that are not common liquid industrial fuels?

☐ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide all documents used to make your determination.

☐ Yes → Continue to Question 4.

- 4. Is the Separation Distance from the project acceptable based on standards in the Regulation?**

Please visit HUD's website for information on calculating Acceptable Separation Distance.

☐ Yes

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

Provide map(s) showing the location of the project site relative to any tanks and your separation distance calculations. If the map identifies more than one tank, please identify the tank you have chosen as the "assessed tank."

☐ No

→ Continue to Question 6.

Provide map(s) showing the location of the project site relative to any tanks and your separation distance calculations. If the map identifies more than one tank, please identify the tank you have chosen as the "assessed tank."

5. Is the hazardous facility located at an acceptable separation distance from residences and any other facility or area where people may congregate or be present?

Please visit HUD's website for information on calculating Acceptable Separation Distance.

☐ Yes

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

Provide map(s) showing the location of the project site relative to residences and any other facility or area where people congregate or are present and your separation distance calculations.

☐ No

→ Continue to Question 6.

Provide map(s) showing the location of the project site relative to residences and any other facility or area where people congregate or are present and your separation distance calculations.

6. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to make the Separation Distance acceptable, including the timeline for implementation. If negative effects cannot be mitigated, cancel the project at this location.

Note that only licensed professional engineers should design and implement blast barriers. If a barrier will be used or the project will be modified to compensate for an unacceptable separation distance, provide approval from a licensed professional engineer.

[Click here to enter text.](#)

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

Based on the project description the project includes no activities that would require further evaluation under this section. The project is in compliance with explosive and flammable hazard requirements.

FARMLANDS PROTECTION

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

Farmlands Protection (CEST and EA) - PARTNER

<https://www.hudexchange.info/environmental-review/farmlands-protection>

1. Does your project include any activities, including new construction, acquisition of undeveloped land or conversion, that could convert agricultural land to a non-agricultural use?

☐ Yes → Continue to Question 2.

☒ No

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

2. Does "important farmland," including prime farmland, unique farmland, or farmland of statewide or local importance regulated under the Farmland Protection Policy Act, occur on the project site?

You may use the links below to determine important farmland occurs on the project site:

- Utilize USDA Natural Resources Conservation Service's (NRCS) Web Soil Survey <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>
- Check with your city or county's planning department and ask them to document if the project is on land regulated by the FPPA (zoning important farmland as non-agricultural does not exempt it from FPPA requirements)
- Contact NRCS at the local USDA service center <http://offices.sc.egov.usda.gov/locator/app?agency=nrcs> or your NRCS state soil scientist http://soils.usda.gov/contact/state_offices/ for assistance

☐ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.

☐ Yes → Continue to Question 3.

3. Consider alternatives to completing the project on important farmland and means of avoiding impacts to important farmland.

- Complete form [AD-1006, "Farmland Conversion Impact Rating"](#) and contact the state soil scientist before sending it to the local NRCS District Conservationist.
- Work with NRCS to minimize the impact of the project on the protected farmland. When you have finished with your analysis, return a copy of form AD-1006 to the USDA-NRCS State Soil Scientist or his/her designee informing them of your determination.

Work with the RE/HUD to determine how the project will proceed. Document the conclusion:

☐ Project will proceed with mitigation.

Explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.

[Click here to enter text.](#)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide form AD-1006 and all other documents used to make your determination.

☐ Project will proceed without mitigation.

Explain why mitigation will not be made here:

[Click here to enter text.](#)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide form AD-1006 and all other documents used to make your determination.

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

This project does not include any activities that could potentially convert agricultural land to non-agricultural use. The project is in compliance with the Farmland Protection Policy Act. See the attached Farmlands map. See Exhibit L.

FLOODPLAIN MANAGEMENT

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

OMB No. 2506-0177
(exp.2/28/2025)

Floodplain Management (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/floodplain-management>

1. Does [24 CFR 55.12\(c\)](#) exempt this project from compliance with HUD's floodplain management regulations in Part 55?

☐ Yes

Provide the applicable citation at 24 CFR 55.12(c) here. If project is exempt under 55.12(c)(6) or (8), provide supporting documentation.

[Click here to enter text.](#)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Continue to the Worksheet Summary.

☒ No → Continue to Question 2.

2. Provide a FEMA/FIRM map showing the site.

The Federal Emergency Management Agency (FEMA) designates floodplains. The [FEMA Map Service Center](#) provides this information in the form of FEMA Flood Insurance Rate Maps (FIRMs).

Does your project occur in a floodplain?

☒ No → Continue to the Worksheet Summary below.

☐ Yes

Select the applicable floodplain using the FEMA map or the best available information:

☐ Floodway → Continue to Question 3, Floodways

☐ Coastal High Hazard Area (V Zone) → Continue to Question 4, Coastal High Hazard Areas

☐ 500-year floodplain (B Zone or shaded X Zone) → Continue to Question 5, 500-year Floodplains

☐ 100-year floodplain (A Zone) → The 8-Step Process is required. Continue to Question 6, 8-Step Process

3. **Floodways**

Is this a functionally dependent use?

☐ Yes

The 8-Step Process is required. Work with HUD or the RE to assist with the 8-Step Process.

→ Continue to Worksheet Summary.

☐ No → *Federal assistance may not be used at this location unless an exception in 55.12(c) applies. You must either choose an alternate site or cancel the project.*

4. **Coastal High Hazard Area**

Is this a critical action such as a hospital, nursing home, fire station, or police station?

☐ Yes → *Critical actions are prohibited in coastal high hazard areas unless an exception in 55.12(c) applies. You must either choose an alternate site or cancel the project.*

☐ No

Does this action include new construction that is not a functionally dependent use, existing construction (including improvements), or reconstruction following destruction caused by a disaster?

☐ Yes, there is new construction of something that is not a functionally dependent use.
New construction must be designed to FEMA standards for V Zones at 44 CFR 60.3(e) (24 CFR 55.1(c)(3)(i)).

→ *Continue to Question 6, 8-Step Process*

☐ No, this action concerns only existing construction.

Existing construction must have met FEMA elevation and construction standards for a coastal high hazard area or other standards applicable at the time of construction.

→ *Continue to Question 6, 8-Step Process*

5. **500-year Floodplain**

Is this a critical action?

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Continue to the Worksheet Summary below.*

☐ Yes → *Continue to Question 6, 8-Step Process*

6. **8-Step Process.**

Is this 8-Step Process required? Select one of the following options:

☐ 8-Step Process applies.

This project will require mitigation and may require elevating structure or structures. See the link to the HUD Exchange above for information on HUD's elevation requirements.

→ *Work with the RE/HUD to assist with the 8-Step Process. Continue to Worksheet Summary.*

☐ 5-Step Process is applicable per 55.12(a)(1-3).

Provide the applicable citation at 24 CFR 55.12(a) here.

[Click here to enter text.](#)

→ *Work with the RE/HUD to assist with the 5-Step Process. Continue to Worksheet Summary.*

☐ 8-Step Process is inapplicable per 55.12(b)(1-4).

Provide the applicable citation at 24 CFR 55.12(b) here.

[Click here to enter text.](#)

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

This project does not occur in a floodplain, nor wetland. The project site is located in a Zone X, Panel 72000C0180J, effective 11/18/2009. The project is in compliance with Flood plain management requirements. See Exhibit M & N.

HISTORIC PRESERVATION

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

OMB No. 2506-0177
(exp.2/28/2025)

Historic Preservation (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/historic-preservation>

Threshold

Is Section 106 review required for your project?

- ☐ No, because a Programmatic Agreement states that all activities included in this project are exempt. (See the [PA Database](#) to find applicable PAs.)

Either provide the PA itself or a link to it here. Mark the applicable exemptions or include the text here:

[Click here to enter text.](#)

→ *Continue to the Worksheet Summary.*

- ☐ No, because the project consists solely of activities included in a No Potential to Cause Effects memo or other determination [36 CFR 800.3(a)(1)].

Either provide the memo itself or a link to it here. Explain and justify the other determination here:

[Click here to enter text.](#)

→ *Continue to the Worksheet Summary.*

- ☒ Yes, because the project includes activities with potential to cause effects (direct or indirect). → *Continue to Step 1.*

The Section 106 Process

After determining the need to do a Section 106 review, HUD or the RE will initiate consultation with regulatory and other interested parties, identify and evaluate historic properties, assess effects of the project on properties listed on or eligible for the National Register of Historic Places, and resolve any adverse effects through project design modifications or mitigation.

Step 1: Initiate consultation

Step 2: Identify and evaluate historic properties

Step 3: Assess effects of the project on historic properties

Step 4: Resolve any adverse effects

Only RE or HUD staff may initiate the Section 106 consultation process. Partner entities may gather information, including from SHPO records, identify and evaluate historic properties, and make initial assessments of effects of the project on properties listed in or eligible for the National Register of Historic Place. Partners should then provide their RE or HUD with all of their analysis and documentation so that they may initiate consultation.

Step 1 - Initiate Consultation

The following parties are entitled to participate in Section 106 reviews: Advisory Council on Historic Preservation; State Historic Preservation Officers (SHPOs); federally recognized Indian tribes/Tribal

Historic Preservation Officers (THPOs); Native Hawaiian Organizations (NHOs); local governments; and project grantees. The general public and individuals and organizations with a demonstrated interest in a project may participate as consulting parties at the discretion of the RE or HUD official. Participation varies with the nature and scope of a project. Refer to HUD's website for guidance on consultation, including the required timeframes for response. Consultation should begin early to enable full consideration of preservation options.

Use the [When To Consult With Tribes checklist](#) within [Notice CPD-12-006: Process for Tribal Consultation](#) to determine if the RE or HUD should invite tribes to consult on a particular project. Use the [Tribal Directory Assessment Tool \(TDAT\)](#) to identify tribes that may have an interest in the area where the project is located. Note that only HUD or the RE may initiate consultation with Tribes. Partner entities may prepare a draft letter for the RE or HUD to use to initiate consultation with tribes, but may not send the letter themselves.

List all organizations and individuals that you believe may have an interest in the project here:

Using the checklist "When to Consult With Tribes", was determinate that none of the activities are included in the project. See Appendix G

→ *Continue to Step 2.*

Step 2 - Identify and Evaluate Historic Properties

Provide a preliminary definition of the Area of Potential Effect (APE), either by entering the address(es) or providing a map depicting the APE. Attach an additional page if necessary.

As defined in 36 CFR §800.16(d), the area of potential effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. Based on this definition and the nature and scope of the Undertaking, the Program has determined that the direct APE for this project is 0.05533 acres (223.9436 sq/m), and the visual APE is the viewshed of the proposed project. The project is located within the boundaries of the Traditional Urban Center of Quebradillas town in front of the Main Square.

See Appendix C & D

Gather information about known historic properties in the APE. Historic buildings, districts and archeological sites may have been identified in local, state, and national surveys and registers, local historic districts, municipal plans, town and county histories, and local history websites. If not already listed on the National Register of Historic Places, identified properties are then evaluated to see if they are eligible for the National Register. Refer to HUD's website for guidance on identifying and evaluating historic properties.

In the space below, list historic properties identified and evaluated in the APE.

Every historic property that may be affected by the project should be listed. For each historic property or district, include the National Register status, whether the SHPO has concurred with the finding, and whether information on the site is sensitive. Attach an additional page if necessary.

Identification of Historic Properties – Historic General Background

Back in 1805 existed a civil struggle between the residents of Camuy and Quebradillas to obtain authorization to populate the area of “Las Quebradillas”. In 1815, neighbors of Camuy Arriba and “Las Quebradillas”, gave authority to Francisco Jiménez to request authorization from the government to the foundation of a town on the site of “Las Quebradillas”. Las Quebradillas owes its name to the existence of numerous small streams that travel its territory. The town of Quebradillas was officially founded in 1823 by Don Felipe Ruiz and Francisco A Bravo. Ruiz and Bravo donated the land to build the town; Ruiz donated eight “cuerdas” of land and Bravo, one and a half “cuerdas” necessary to establish the urban area of the future village.

In that same year of 1823, began the municipal works surrounding the cemetery, and the King's House construction begins, finishing in 1824. The Church was completed in 1828, it was named “San Rafael Arcángel”. Manuel Valdez was its first Parish Priest. At the time of its foundation Quebradillas was formed by Cacao, Cocos and Sapo neighborhoods. Twenty years later, in 1824, Quebradillas had 1,829 inhabitants. By that time, the town of Quebradillas consisted of only ten (10) houses and ten (10) bohios. In the neighborhood only 3 houses and 332 wooden, palm and straw bohios.¹ Ten years later, in 1836, the municipality had 1,500 neighbors, of which only 102 were native Creoles of Puerto Rico. In this initial stage the economy of Quebradillas was based on the cultivation of sugar cane, coffee, livestock, tobacco, and other minor fruits. There were eleven (11) cane mills and four “alambiques”. The Municipality produces sugar, “melao” and “aguardiente” (rum).

Synthesis of the Urban development of the town of Quebradillas

- Officially founded in 1823 in nine and a half “cuerdas” of land.
- In that same year of 1823, began the municipal works of the cemetery and the King's House construction begins, finishing in 1824.
- 1824, the town of Quebradillas consisted of ten (10) houses and ten (10) bohios.
- The Church was completed in 1828, devoted to “San Rafael Arcángel”.
- The 1869 plan (Figure 1) identifies 166 structures erected in the urban center including the Catholic Church.
- In 1869 the Catholic Church was the only masonry structure in the village.
- The Catholic Church was part of the Main Square (Figure 1 and Figure 2)).
- In 1878 in the village were 64 houses, 79 bohios, 261 families, 5 mixed shops and 12 grocery stores.
- In 1878 the village was form by five streets: Comercio, San Justo, California, San José, and Socorro and six “Callejones”.
- In 1878, the main square was the Plaza de San Rafael an a “Plazuela” name “Las Mercedes”.
- In 1878, the wooden Town Hall was in the “Plazuela de Las Mercedes”.
- Map of Quebradillas 1889, By Félix Ardanaz y Crespo, Corps of Military Engineers, Topographic Commission, shows an existing structure in the parcel under evaluation (Figure 2).
- Descriptions of William H. Amstrong In 1909, “The town, like all other towns in P.R., is built about the church and plaza where all the business is carried on and where the best residences are (Figure 3).

- “Most of the buildings are low single story wooden buildings although there are a number of old masonry buildings. The town hall is an old rickety two-story house opposite the south side of the church. The telegraph office is in the same building. Town has no hospital, fire department or factories. Town could easily be burned as most of its buildings are of wood.”³
- “The church is 40 X 100 feet.”
- “The streets are “Level but rough and rocky...”
- “Cigars are manufactured in four old buildings”.⁴

See Appendix C & D

Provide the documentation (survey forms, Register nominations, concurrence(s) and/or objection(s), notes, and photos) that justify your National Register Status determination.

Was a survey of historic buildings and/or archeological sites done as part of the project?

If the APE contains previously unsurveyed buildings or structures over 50 years old, or there is a likely presence of previously unsurveyed archeological sites, a survey may be necessary. For Archeological surveys, refer to HP Fact Sheet #6, [Guidance on Archeological Investigations in HUD Projects](#).

☒ Yes → Provide survey(s) and report(s) and continue to Step 3.

Additional notes:

See Appendix C & D

☐ No → Continue to Step 3.

Step 3 - Assess Effects of the Project on Historic Properties

Only properties that are listed on or eligible for the National Register of Historic Places receive further consideration under Section 106. Assess the effect(s) of the project by applying the Criteria of Adverse Effect. ([36 CFR 800.5](#)) Consider direct and indirect effects as applicable as per HUD guidance.

Choose one of the findings below to recommend to the RE or HUD.

Please note: this is a recommendation only. It is **not** the official finding, which will be made by the RE or HUD, but only your suggestion as a Partner entity.

☒ No Historic Properties Affected

Document reason for finding:

☐ No historic properties present.

☒ Historic properties present, but project will have no effect upon them.

☐ No Adverse Effect

Document reason for finding and provide any comments below.

Comments may include recommendations for mitigation, monitoring, a plan for unanticipated discoveries, etc.

[Click here to enter text.](#)

☐ Adverse Effect

Document reason for finding:

Copy and paste applicable Criteria into text box with summary and justification.

Criteria of Adverse Effect: [36 CFR 800.5](#)]

[Click here to enter text.](#)

Provide any comments below:

Comments may include recommendations for avoidance, minimization, and/or mitigation.

[Click here to enter text.](#)

Remember to provide all documentation that justifies your National Register Status determination and recommendations along with this worksheet.

NOISE ABATEMENT AND CONTROL

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

Noise (CEST Level Reviews) – PARTNER

<https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control>

1. What activities does your project involve? Check all that apply:

- ☐ New construction for residential use

NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.

→ Continue to Question 4.

- ☐ Rehabilitation of an existing residential property

NOTE: For modernization projects in all noise zones, HUD encourages mitigation to reduce levels to acceptable compliance standards. See 24 CFR 51 Subpart B for further details.

→ Continue to Question 2.

- ☒ None of the above

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

2. Do you have standardized noise attenuation measures that apply to all modernization and/or minor rehabilitation projects, such as the use of double glazed windows or extra insulation?

- ☐ Yes

Indicate the type of measures that will apply (check all that apply):

- ☐ Improved building envelope components (better windows and doors, strengthened sheathing, insulation, sealed gaps, etc.)

- ☐ Redesigned building envelope (more durable or substantial materials, increased air gap, resilient channels, staggered wall studs, etc.)

- ☐ Other (explain below)

[Click here to enter text.](#)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below and provide any documentation.

- ☐ No

→ Continue to Question 3.

3. Complete the Preliminary Screening to identify potential noise generators in the vicinity (1000' from a major road, 3000' from a railroad, or 15 miles from an airport).

Describe findings of the Preliminary Screening:

Click here to enter text.

→ Continue to Question 6.

4. Complete the Preliminary Screening to identify potential noise generators in the vicinity (1000' from a major road, 3000' from a railroad, or 15 miles from an airport).

Indicate the findings of the Preliminary Screening below:

- ☐ There are no noise generators found within the threshold distances above.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing the location of the project relative to any noise generators.

- ☐ Noise generators were found within the threshold distances.

→ Continue to Question 5.

5. Complete the Noise Assessment Guidelines to quantify the noise exposure. Indicate the findings of the Noise Assessment below:

- ☐ Acceptable: (65 decibels or less; the ceiling may be shifted to 70 decibels in circumstances described in §24 CFR 51.105(a))

Indicate noise level here: Click here to enter text.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide noise analysis, including noise level and data used to complete the analysis.

- ☐ Normally Unacceptable: (Above 65 decibels but not exceeding 75 decibels; the floor may be shifted to 70 decibels in circumstances described in 24 CFR 51.105(a))

Indicate noise level here: Click here to enter text.

Is the project in a largely undeveloped area¹?

- ☐ No → **The project requires completion of an Environmental Assessment (EA) pursuant to 51.104(b)(1)(i).**
- ☐ Yes → **The project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i).**

→ Work with the RE/HUD to elevate the level of review. Provide noise analysis, including noise level and data used to complete the analysis.
Continue to Question 6.

- ☐ Unacceptable: (Above 75 decibels)

Indicate noise level here: Click here to enter text.

The project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i). Work with HUD or the RE to either complete an EIS or obtain a waiver signed by the appropriate authority.

→ Continue to Question 6.

¹ A largely undeveloped area means the area within 2 miles of the project site is less than 50 percent developed with urban uses and does not have water and sewer capacity to serve the project.

6. HUD strongly encourages mitigation be used to eliminate adverse noise impacts. Work with the RE/HUD on the development of the mitigation measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.

☐ Mitigation as follows will be implemented:

[Click here to enter text.](#)

→ Provide drawings, specifications, and other materials as needed to describe the project's noise mitigation measures.

Continue to the Worksheet Summary.

☐ No mitigation is necessary.

Explain why mitigation will not be made here:

[Click here to enter text.](#)

→ *Continue to the Worksheet Summary.*

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

The project consist of the rehabilitation of existing commercial building for non-residential use. Exhibits O and P.

SOLE SOURCE AQUIFERS

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

Sole Source Aquifers (CEST and EA) - PARTNER

<https://www.hudexchange.info/environmental-review/sole-source-aquifers>

1. Is the project located on a sole source aquifer (SSA)¹?

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination, such as a map of your project or jurisdiction in relation to the nearest SSA.*

☐ Yes → *Continue to Question 2.*

2. Does the project consist solely of acquisition, leasing, or rehabilitation of an existing building(s)?

☐ Yes → *The review is in compliance with this section. Continue to the Worksheet Summary below.*

☐ No → *Continue to Question 3.*

3. Does your region have a memorandum of understanding (MOU) or other working agreement with EPA for HUD projects impacting a sole source aquifer?

Contact your Field or Regional Environmental Officer or visit the HUD webpage at the link above to determine if an MOU or agreement exists in your area.

☐ Yes → *Continue to Question 4.*

☐ No → *Continue to Question 5.*

4. Does your MOU or working agreement exclude your project from further review?

☐ Yes → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination and document where your project fits within the MOU or agreement.*

☐ No → *Continue to Question 5.*

5. Will the proposed project contaminate the aquifer and create a significant hazard to public health?

Consult with your Regional EPA Office. Your consultation request should include detailed information about your proposed project and its relationship to the aquifer and associated streamflow source area. EPA will also want to know about water, storm water and waste water at the proposed project. Follow your MOU or working agreement or contact your Regional EPA office for specific information you may need to provide. EPA may request additional information if impacts to the aquifer are questionable after this information is submitted for review.

¹ A sole source aquifer is defined as an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. This includes streamflow source areas, which are upstream areas of losing streams that flow into the recharge area. See Exhibit N.

- ☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide your correspondence with the EPA and all documents used to make your determination.*
- ☐ Yes → *The RE/HUD will work with EPA to develop mitigation measures. If mitigation measures are approved, attach correspondence with EPA and include the mitigation measures in your environmental review documents and project contracts. If EPA determines that the project continues to pose a significant risk to the aquifer, federal financial assistance must be denied. Continue to Question 6.*

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

There are no EPA sole source aquifers in Puerto Rico. The project is in compliance with Sole Source Aquifer requirements. See Exhibit Q.

WETLANDS PROTECTION

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

Wetlands (CEST and EA) – Partner

<https://www.hudexchange.info/environmental-review/wetlands-protection>

1. Does this project involve new construction as defined in Executive Order 11990, expansion of a building's footprint, or ground disturbance?

The term "new construction" includes draining, dredging, channelizing, filling, diking, impounding, and related activities and construction of any any structures or facilities.

☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

☒ Yes → *Continue to Question 2.*

2. Will the new construction or other ground disturbance impact a wetland as defined in E.O. 11990?

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map or any other relevant documentation to explain your determination.*

☐ Yes → *Work with HUD or the RE to assist with the 8-Step Process. Continue to Question 3.*

3. Does Section 55.12 state that the 8-Step Process is not required?

☐ No, the 8-Step Process applies.

This project will require mitigation and may require elevating structure or structures. See the link to the HUD Exchange above for information on HUD's elevation requirements.

→ *Work with the RE/HUD to assist with the 8-Step Process. Continue to Worksheet Summary.*

☐ 5-Step Process is applicable per 55.12(a).

Provide the applicable citation at 24 CFR 55.12(a) here.

[Click here to enter text.](#)

→ *Work with the RE/HUD to assist with the 5-Step Process. This project may require mitigation or alternations. Continue to Worksheet Summary.*

☐ 8-Step Process is inapplicable per 55.12(b).

Provide the applicable citation at 24 CFR 55.12(b) here.

[Click here to enter text.](#)

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to Worksheet Summary.*

☐ 8-Step Process is inapplicable per 55.12(c).

Provide the applicable citation at 24 CFR 55.12(c) here.

Click here to enter text.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to Worksheet Summary.*

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

Based on the project description this project includes no activities that would require further evaluation under this section. There is no ground disturbance to take place in the project scope. The project is in compliance with Executive Order 11990. See Exhibits R and S.

WILD AND SCENIC RIVERS

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

Wild and Scenic Rivers (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/wild-and-scenic-rivers>

1. Is your project within proximity of a Wild and Scenic River, Study River, or Nationwide Rivers Inventory River?

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide documentation used to make your determination.*

☐ Yes → *Continue to Question 2.*

2. Could the project do any of the following?

- Have a direct and adverse effect within Wild and Scenic River Boundaries,
- Invade the area or unreasonably diminish the river outside Wild and Scenic River Boundaries, or
- Have an adverse effect on the natural, cultural, and/or recreational values of a NRI segment.

Consult with the appropriate federal/state/local/tribal Managing Agency(s), pursuant to Section 7 of the Act, to determine if the proposed project may have an adverse effect on a Wild & Scenic River or a Study River and, if so, to determine the appropriate avoidance or mitigation measures.

Select one:

☐ The Managing Agency has concurred that the proposed project will not alter, directly, or indirectly, any of the characteristics that qualifies or potentially qualifies the river for inclusion in the NWSRS.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide documentation of the consultation (including the Managing Agency's concurrence) and any other documentation used to make your determination.*

☐ The Managing Agency was consulted and the proposed project may alter, directly, or indirectly, any of the characteristics that qualifies or potentially qualifies the river for inclusion in the NWSRS.

→ *The RE/HUD must work with the Managing Agency to identify mitigation measures to mitigate the impact or effect of the project on the river.*

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

The project is not within the proximity of a NWSRS river. The nearest Wild and Scenic River is 406,833 feet east of the project site. Therefore, this project is in compliance with the Wild and Scenic Rivers Act. See Exhibit T.

ENVIROMENTAL JUSTICE

WORKSHEET

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

OMB No. 2506-0177
(exp.2/28/2025)

Environmental Justice (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/environmental-justice>

1. Were any adverse environmental impacts identified in any other compliance review portion of this project's total environmental review?

☐ Yes → Continue to Question 2.

☒ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

2. Were these adverse environmental impacts disproportionately high for low-income and/or minority communities?

☐ Yes

Explain:

[Click here to enter text.](#)

→ The RE/HUD must work with the affected low-income or minority community to decide what mitigation actions, if any, will be taken. Provide any supporting documentation.

☐ No

Explain:

[Click here to enter text.](#)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

No adverse environmental impacts were identified in the project's total environmental review. The project is in compliance with Executive Order 12898.

EXHIBITS

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554



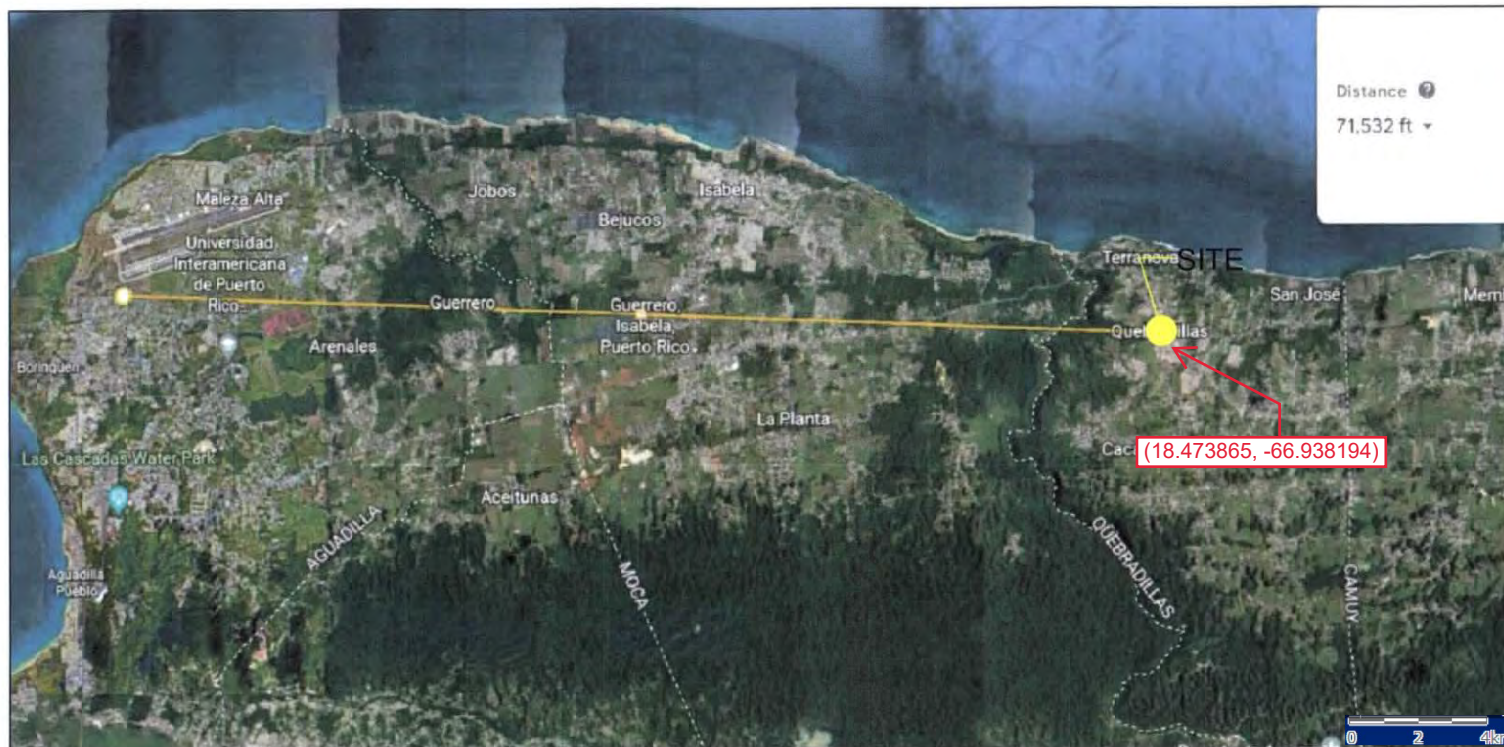


**BQN-AIRPORT RAFAEL HERNANDEZ,
MAP AND FACILITY DETAILS
AGUADILLA, PUERTO RICO**

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT A





MUNICIPIO DE QUEBRADILLAS



BQN AIRPORT MAP

RAFAEL HERNANDEZ,
AGUADILLA, PUERTO RICO

Source: CRIM 2014
(<https://catastro.crimpr.net/cdprpc/>).
Federal Aviation Administration (FAA)
National Transportation Atlas 2022
(https://services2.arcgis.com/FiaPA4ga0iQKduv3/arcgis/rest/services/ntad_airports_v1/FeatureServer)

Applicant ID: PR-CRP-000554
Project Coordinates: 18.473865, -66.938194
Address: Calle Honorio Hernández, Bo. Pueblo,
Quebradillas PR

Legend
● Site
● Airport

Ingenieros del Oeste C.S.P.

Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com



PR-CRP-000554

PROJECT:
**MUSEO HISTORICO DE
QUEBRADILLAS**

EXHIBIT A

MUNICIPIO DE QUEBRADILLAS



BQN AIRPORT FACILITY DETAILS RAFAEL HERNANDEZ, AGUADILLA, PUERTO RICO

ADIP

(BQN) RAFAEL HERNANDEZ

Effective: November 03, 2022

New Search

Facility Details

Facility Map

Charts

Login to ADIP application to make changes to airport data. Instructions can be found [here](#).

Location and General Information		Ownership Type:	
Site Id:	53004 *A	Facility Use:	PUBLIC
NPIAS Number:	72-0020	NPIAS:	YES
Service Level:	Primary	NPIAS/Federal Agreement:	NGPV
Hub Type:	Non-Hub	CBD To Airport:	03NM / NE
Airport Status:	Operational	ARTCC:	SAN JUAN (ZSU)
Location:	18° 29' 41.5" N / 67° 7' 46" W	Sectional:	PUERTO RICO-VIRGIN ISLANDS
	ESTIMATED	Region / ADO:	ASO / ATL
City/State:	AGUADILLA, PR	Area:	1600 ac.
County:	— PUERTO RICO		
Elevation:	2372 ft.		
Variation:	SURVEYED Location:		
Last Inspection Date:	10W (1985)		
	03/11/2019		

Services & Facility Information		Wind Indicator:	
Control Tower:	On Airport ATCT	Segmented Circle:	LIGHTED
Tower Hours:	SUN THRU SAT 1100-0100Z AND OTHER TIMES BY NOTAM	Lighting Schedule:	YES
FSS On Airport:	NO	Beacon Lens Color:	SS-SR
FSS:	SAN JUAN (SJU)	Beacon Schedule:	CG
FSS Toll Free Phone:	1-800-WX-BRIEF	Landing Fee:	SS-SR
NOTAMS Facility:	TJ8Q	Fuel Types:	YES
Attendance:	CONTINUOUS	Other Services:	100 AL
		FAR 139 Index:	CARGO,CHTR,INST
		International Airport of Entry for:	18 S 07/2005
		Customs:	NO
		Military/Civil Joint Use:	NO

Ingenieros del Oeste C.S.P.

Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com



PR-CRP-000554

PROJECT:

**MUSEO HISTORICO DE
QUEBRADILLAS**

EXHIBIT A

ABO- AIRPORT ANTONIO NERY JUARBE,
MAP AND FACILITY DETAILS
ARECIBO, PUERTO RICO

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

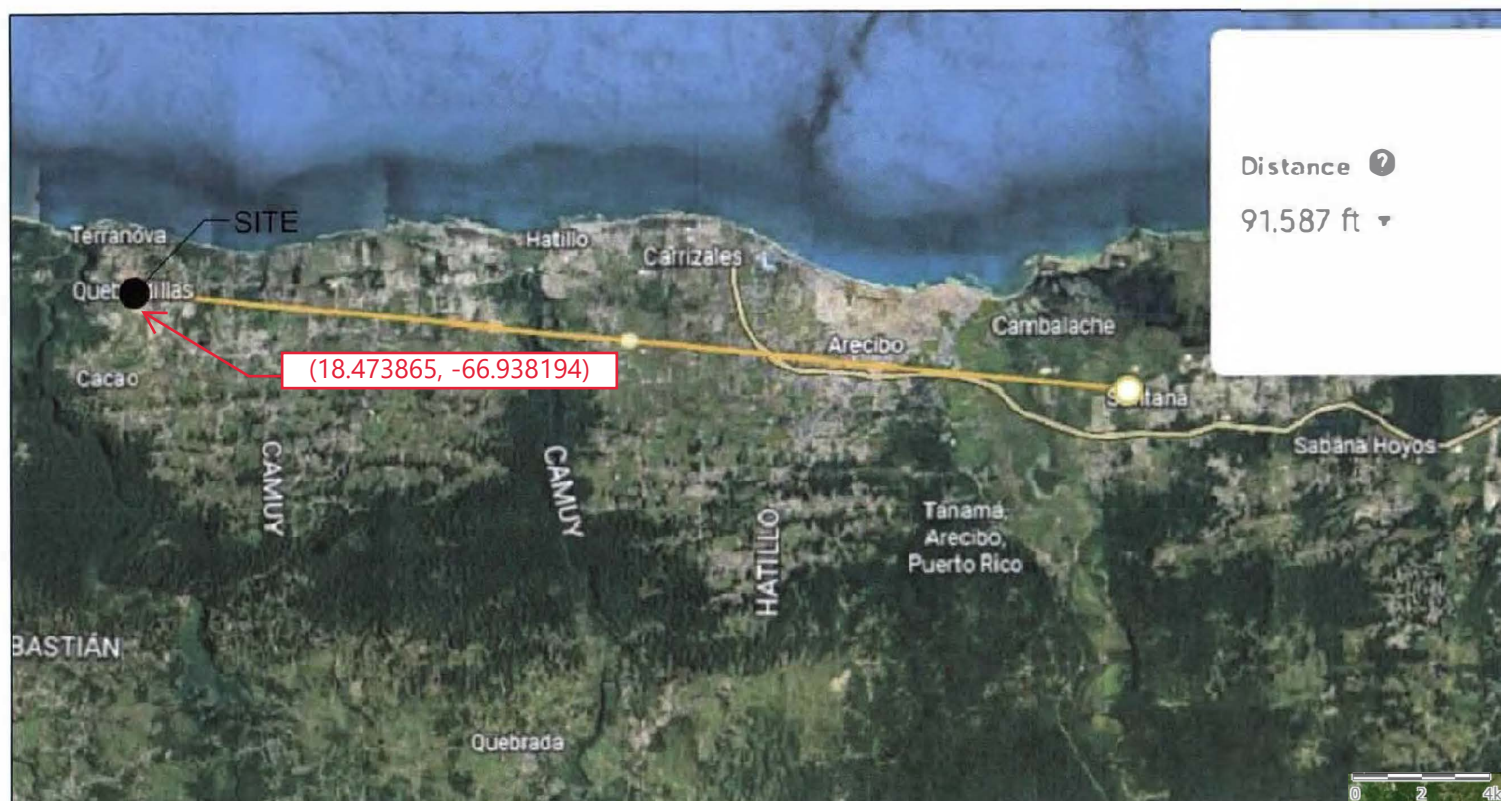
EXHIBIT B



MUNICIPIO DE
QUEBRADILLAS



Distance ?
91.587 ft ▾



Source: CRIM 2014
(<https://catastro.crimpr.net/cdprpc/>).
Federal Aviation Administration (FAA)
National Transportation Atlas 2022
(https://services2.arcgis.com/FiaPA4ga0iQKduv3/arcgis/rest/services/ntad_airports_v1/FeatureServer)

Applicant ID: PR-CRP-000554
Project Coordinates: 18.473865, -66.938194
Address: Calle Honorio Hernández, Bo. Pueblo,
Quebradillas PR

Legend
● Site
● Airport

ABO AIRPORT MAP

ANTONIO NERY JUARBE,
ARECIBO PUERTO RICO

Ingenieros del Oeste C.S.P.
Calle José de Diego #65, Aguadilla
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PR-CRP-000554
PROJECT:
MUSEO HISTORICO DE
QUEBRADILLAS

EXHIBIT B

MUNICIPIO DE QUEBRADILLAS



ABO AIRPORT FACILITY DETAILS ANTONIO NERY JUARBE, ARECIBO PUERTO RICO

(ABO) ANTONIO/NERY/JUARBE POL

Q New Search

➔ Facility Details

🗺 Facility Map

📊 Charts

Login to ADIP application to make changes to airport data. Instructions can be found [here](#).

Effective: November 03, 2022

All General Information Based Aircraft & Operations Communications NavAids Weather Runways Obstacles Remarks

Location and General Information

Site Id: 53008,*A
NPIAS Number: 72-0002
Service Level: General Aviation
Hub Type: N/A
Airport Status: Operational
Location: 18° 27' 3.245" N / 66° 40' 31.619" W
ESTIMATED
City/State: ARECIBO, PR
County: --PUERTO RICO
Elevation: 20.8 ft.
SURVEYED Location:
Variation: 10W (1985)
Last Inspection Date: 05/02/2022

Ownership Type: PUBLIC
Facility Use: PUBLIC
NPIAS: YES
NPIAS/Federal Agreement: NGPV
CBO To Airport: 03NM / SE
ARTCC: SAN JUAN (ZSU)
Sectional: PUERTO RICO-VIRGIN ISLANDS
Region / ADO: ASO / ATL
Area: 178 ac.

Services & Facility Information

Control Tower: On Airport ATCTNONE
FSS On Airport: NO
FSS: SAN JUAN (SJU)
FSS Toll Free Phone: 1-800-WX-BRIEF
NOTAMS Facility: TJSJ
Attendance: 0730-1600 MON-FRI

Wind Indicator: LIGHTED
Segmented Circle: YES
Lighting Schedule: SS-SR
Beacon Lens Color: CG
Beacon Schedule: SS-SR
Landing Fee: YES
Other Services: PAIA
International Airport of Entry for: NO
Customs:
Military/Civil Joint Use: NO

📍 = Remark

Ingenieros del Oeste C.S.P.

Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com



PR-CRP-000554
PROJECT:
MUSEO HISTORICO DE
QUEBRADILLAS

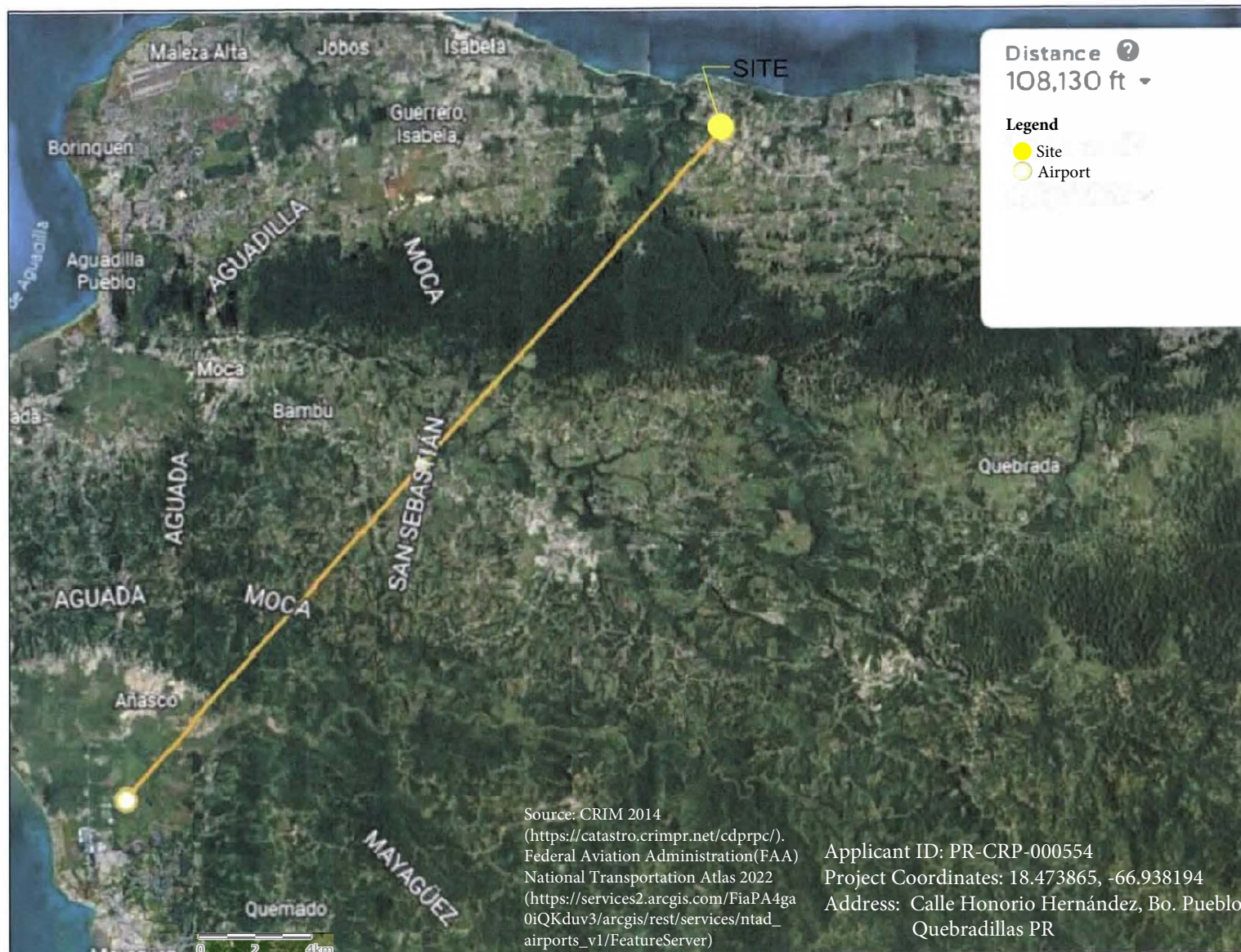
EXHIBIT B

MAZ-AIRPORT EUGENIO MARIA DE HOSTOS,
MAP AND FACILITY DETAILS
MAYAGUEZ, PUERTO RICO

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT C





MUNICIPIO DE QUEBRADILLAS



MAZ AIRPORT MAP

EUGENIO MARIA DE HOSTOS,
MAYAGUEZ, PUERTO RICO

Applicant ID: PR-CRP-000554
Project Coordinates: 18.473865, -66.938194
Address: Calle Honorio Hernández, Bo. Pueblo,
Quebradillas PR

Ingenieros del Oeste C.S.P.

Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com



PR-CRP-000554
PROJECT:
MUSEO HISTORICO DE
QUEBRADILLAS

EXHIBIT C

MUNICIPIO DE QUEBRADILLAS



MAZ AIRPORT FACILITY DETAILS EUGENIO MARIA DE HOSTOS, MAYAGUEZ, PUERTO RICO

ADIP

(MAZ) EUGENIO MARIA DE HOSTOS

New Search

Effective: November 03, 2022

Facility Details

Facility Map

Charts

Login to ADIP application to make changes to airport data. Instructions can be found [here](#).

All General Information Based Aircraft & Operations Communications NavAids Weather Runways Obstacles Remarks

Location and General Information

Site Id:	53120.1A	Ownership Type:	PUBLIC
NPIAS Number:	72-0020	Facility Use:	PUBLIC
Service Level:	Commercial Service	NPIAS:	YES
Hub Type:	N/A	NPIAS/Federal Agreements:	NGR1
Airport Status:	Operational	CBD To Airport:	03NM / N
Location:	ESTIMATED 18° 15' 20.5" N / 67° 8' 54.5" W	ARTCC:	SAN JUAN (ZSU)
City/State:	MAYAGUEZ, PR	Sectional:	PUERTO RICO-VIRGIN ISLANDS
County:	--PUERTO RICO	Region / ADO:	ASO / ATL
Elevation:	27.7 ft	Area:	1.72 ac
Variation:	SURVEYED Location:		
Last Inspection Date:	10W (1983) 05/03/2022		

Services & Facility Information

Control Tower:	On Airport ATCTNONE	Wind Indicator:	LIGHTED
FSS On Airport:	NO	Segmented Circle:	YES
FSS:	SAN JUAN (ZSU)	Lighting Schedule:	SEE RML
FSS Toll Free Phone:	1-800-WX-BRIEF	Beacon Lens Color:	CG
NOTAMS Facility:	TJMZ	Beacon Schedule:	SS-SR
Attendance:	0730-1600 MON-FRI	Landing Fee:	YES
		International Airport of Entry for Customs:	YES
		Military/Civil Joint Use:	NO

- CLNC DEL PRIVDD BY SAN JUAN CERAP ON FREQ 121.7
- APCH/DEP SVC PRIVDD BY SAN JUAN CERAP ON FREQS 118.75/269.0 (EL YUNQUE RCAG)

Ingenieros del Oeste C.S.P.

Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com



PR-CRP-000554
PROJECT:
MUSEO HISTORICO DE
QUEBRADILLAS

EXHIBIT C

**SJU-AIRPORT LUIS MUÑOZ MARIN,
MAP AND FACILITY DETAILS
SAN JUAN, PUERTO RICO**

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT D



MUNICIPIO DE
QUEBRADILLAS



SJU AIRPORT MAP
LUIS MUÑOZ MARIN,
SAN JUAN, PUERTO RICO



Source: CRIM 2014
(<https://catastro.crimpr.net/cdprpc/>).
Federal Aviation Administration (FAA)
National Transportation Atlas 2022
(https://services2.arcgis.com/FiaPA4ga0iQKduv3/arcgis/rest/services/ntad_airports_v1/FeatureServer)

Applicant ID: PR-CRP-000554
Project Coordinates: 18.473865, -66.938194
Address: Calle Honorio Hernández, Bo. Pueblo,
Quebradillas PR

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EXHIBIT D

MUNICIPIO DE QUEBRADILLAS



SJU AIRPORT FACILITY DETAILS

LUIS MUÑOZ MARIN,
SAN JUAN, PUERTO RICO

ADIP

(SJU) LUIS MUÑOZ MARIN INTL

Q New Search

Effective: March 23, 2023

All General Information Based Aircraft & Operations Communications NavAids Weather Runways Contacts Remarks

Facility Details

Facility Map

Charts

Login to ADIP application to make changes to airport data. Instructions can be found [here](#).

Location and General Information

Site Id:	53180.11A	Ownership Type:	PUBLIC
NPIAS Number:	72-0016	Facility Use:	PUBLIC
Service Level:	Primary	NPIAS:	YES
Hub Type:	Medium	NPIAS/Federal Agreements:	NO
Airport Status:	Operational	CED To Airport:	USNM / SE
Location:	18° 26' 21.857" N / 66° 0' 7.68" W	ARTCC:	SAN JUAN (ZSU)
	ESTIMATED	Sectional:	PUERTO RICO-VIRGIN ISLANDS
City/State:	SAN JUAN, PR	Region / ADO:	ASO / ATL
County:	PUERTO RICO	Area:	1600 ac.
Elevation:	96 ft.		
	SURVEYED Location:		
Variation:	11W (1985)		
Last Inspection Date:	06/11/2020		

Services & Facility Information

Control Tower:	On Airport ATCT	Wind Indicator:	LIGHTED
Tower Hours:	24	Segmented Circle:	NO
Primary AFCH Hours:	24	Lighting Schedule:	SS-SR
Primary DEF Hours:	24	Beacon Lens Color:	White and Green
FSS On Airport:	NO	Beacon Schedule:	SS-SR
FSS:	SAN JUAN (SJU)	Landing Fee:	YES
FSS Toll Free Phone:	1-800-WX-BRIEF	Fuel Types:	100, A+, A-4
NOTAMS Facility:	TJSJ	Other Services:	AFRTCARGO/CHTR
Attendance:	CONTINUOUS	FAR 139 Index:	1 D S 05/2005
		International Airport of Entry fee:	YES
		Customs:	
		Military/Civil Joint Use:	NO

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PR-CRP-000554
PROJECT:
**MUSEO HISTORICO DE
QUEBRADILLAS**

EXHIBIT D

COASTAL BARRIER RESOURCES SYSTEM

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT E



Source: Source: USFWS 2019 (<https://fwsprimary.wim.usgs.gov/CBRSMapperv2/#layersPanel>).

Applicant ID: PR-CRP-000554
Project Coordinates: 18.473865, -66.938194
Address: Calle Honorio Hernández, Bo. Pueblo,
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COASTAL BARRIER
RESOURCES SYSTEM

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PR-CRP-000554
PROJECT:
MUSEO HISTORICO DE
QUEBRADILLAS

EXHIBIT E

NATIONAL FLOOD HAZARD LAYER FIRMette
FLOOD INSURANCE

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT F

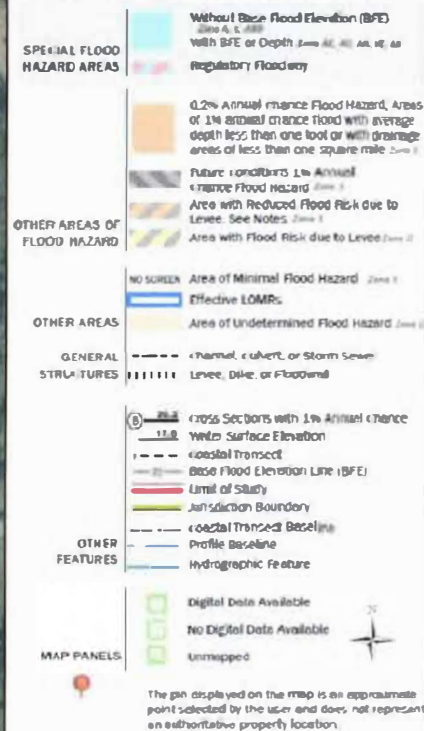


National Flood Hazard Layer FIRMette



Legend

SEE FILE PERFECT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT



MUNICIPIO DE QUEBRADILLAS



NATIONAL FLOOD HAZARD LAYER FIRMette

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PR-CRP-000554

PROJECT:

MUSEO HISTORICO DE QUEBRADILLAS

EXHIBIT F

CLEAN AIR (EPA)

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT G





You are here: EPA Home > Green Book > >National Area and County-Level Multi-Pollutant Information >Puerto Rico Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants

Puerto Rico Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants

Data is current as of November 30, 2023

Listed by County, NAAQS, Area. The 8-hour Ozone (1997) standard was revoked on April 6, 2015 and the 1-hour Ozone (1979) standard was revoked on June 15, 2005.

* The 1997 Primary Annual PM-2.5 NAAQS (level of 15 µg/m³) is revoked in attainment and maintenance areas for that NAAQS. For additional information see the PM-2.5 NAAQS SIP Requirements Final Rule, effective October 24, 2016. (81 FR 58009)

Change the State:

PUERTO RICO

Important Notes

Download National Dataset: dbf | xls | Data dictionary (PDF)

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
PUERTO RICO								
Arecibo Municipio (2008)	Lead	Arecibo, PR	11121314151617181920212223	//		Part	32,185	72/013
Bayamon Municipio (2010)	Sulfur Dioxide	San Juan, PR	181920212223	//		Part	22,921	72/021
Catano Municipio (2010)	Sulfur Dioxide	San Juan, PR	181920212223	//		Whole	28,140	72/033
Guaynabo Municipio (1987)	PM-10	Mun. of Guaynabo, PR	929394959697989900010203040506070809	02/11/2010	Moderate	Part	90,470	72/061
Guaynabo Municipio (2010)	Sulfur Dioxide	San Juan, PR	181920212223	//		Part	23,802	72/061
Salinas Municipio (2010)	Sulfur Dioxide	Guayama-Salinas, PR	181920212223	//		Part	23,401	72/123
San Juan Municipio (2010)	Sulfur Dioxide	San Juan, PR	181920212223	//		Part	147,963	72/127
Toa Baja Municipio (2010)	Sulfur Dioxide	San Juan, PR	181920212223	//		Part	52,441	72/137

Important Notes

Discover.

Connect.

Ask.

https://www3.epa.gov/airquality/greenbook/anayo_pr.html

MUNICIPIO DE QUEBRADILLAS



CLEAN AIR (EPA)

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PR-CRP-000554
PROJECT:
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QUEBRADILLAS

EXHIBIT G

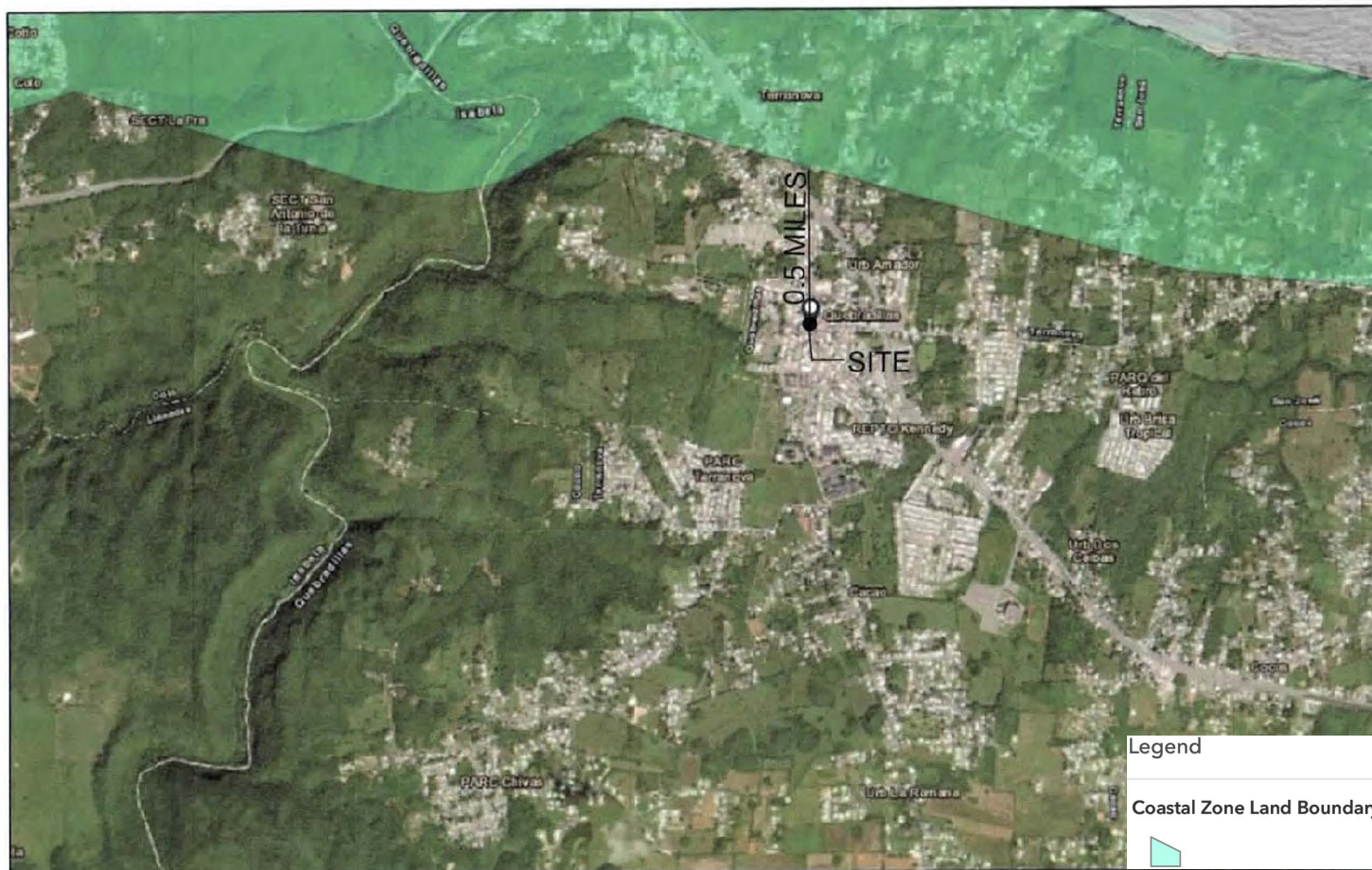
COASTAL ZONE MANAGEMENT

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT H



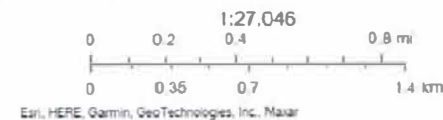
Coastal Zone Map



12/13/2022

Source: Department of Natural and Environmental Resources 2010. Puerto Rico Coastal Vulnerability Viewer (<https://www.arcgis.com/apps/mapviewer/index.html?webmap=1d0eff6661f340dcabb0e9928d01ec57>).

Applicant ID: PR-CRP-000554
Project Coordinates: 18.473865,
-66.938194
Address: Calle Honorio Hernández,
Bo. Pueblo, Quebradillas, PR



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PR-CRP-000554

PROJECT
MUSEO HISTORICO DE
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MUNICIPIO DE
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COASTAL ZONE MANAGEMENT

EXHIBIT H

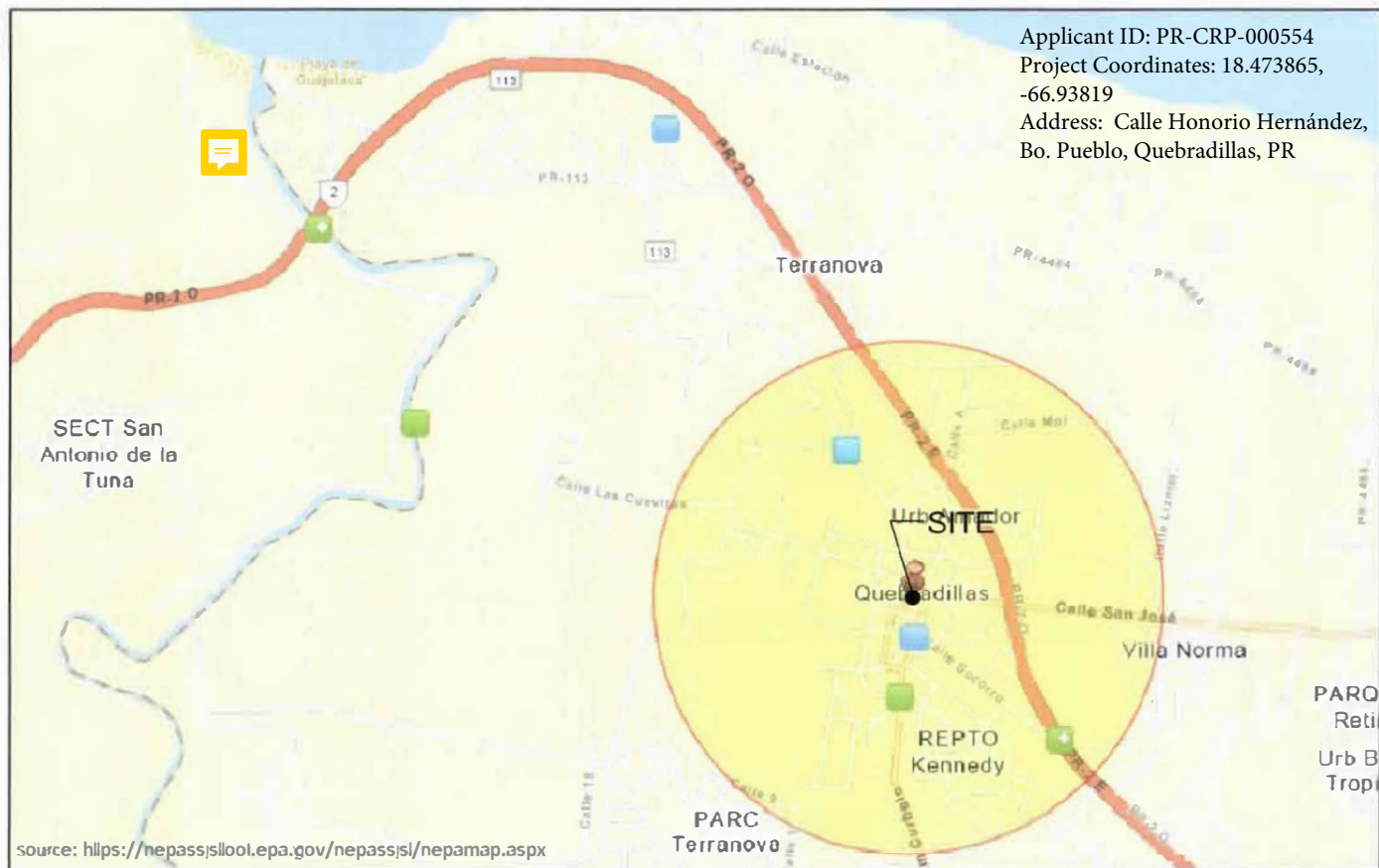
CONTAMINATION AND TOXIC SUBSTANCES
NEPAssist EPA FACILITIES MAP AND REPORT

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT I

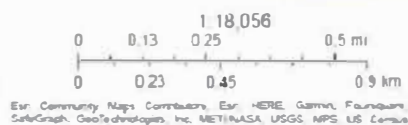


NEPassit EPA Facilities Map Museo Historico de Quebradillas



December 7, 2022

- Toxic Releases (TRI)
- Hazardous Waste (RCRAInfo)
- Water Dischargers (NPDES)
- Hazardous Waste (RCRAInfo)
- Air Pollution (ICIS-AIR)
- Project Buffer
- Museo Historico de Quebradillas



MUNICIPIO DE QUEBRADILLAS



CONTAMINATION AND TOXIC SUBSTANCES NEPassit EPA Facilities Map

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PROJECT:
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EXHIBIT I

CRITICAL HABITAT

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT J



Home ▾ Critical Habitat for Threatened & Endangered Species [USFWS]

Open in Map Viewer Modify

Details Basemap

Share Print Measure Bookmarks 18.473865, -66.938194

About Content Legend

Legend

Final Polygon Features



Final Linear Features



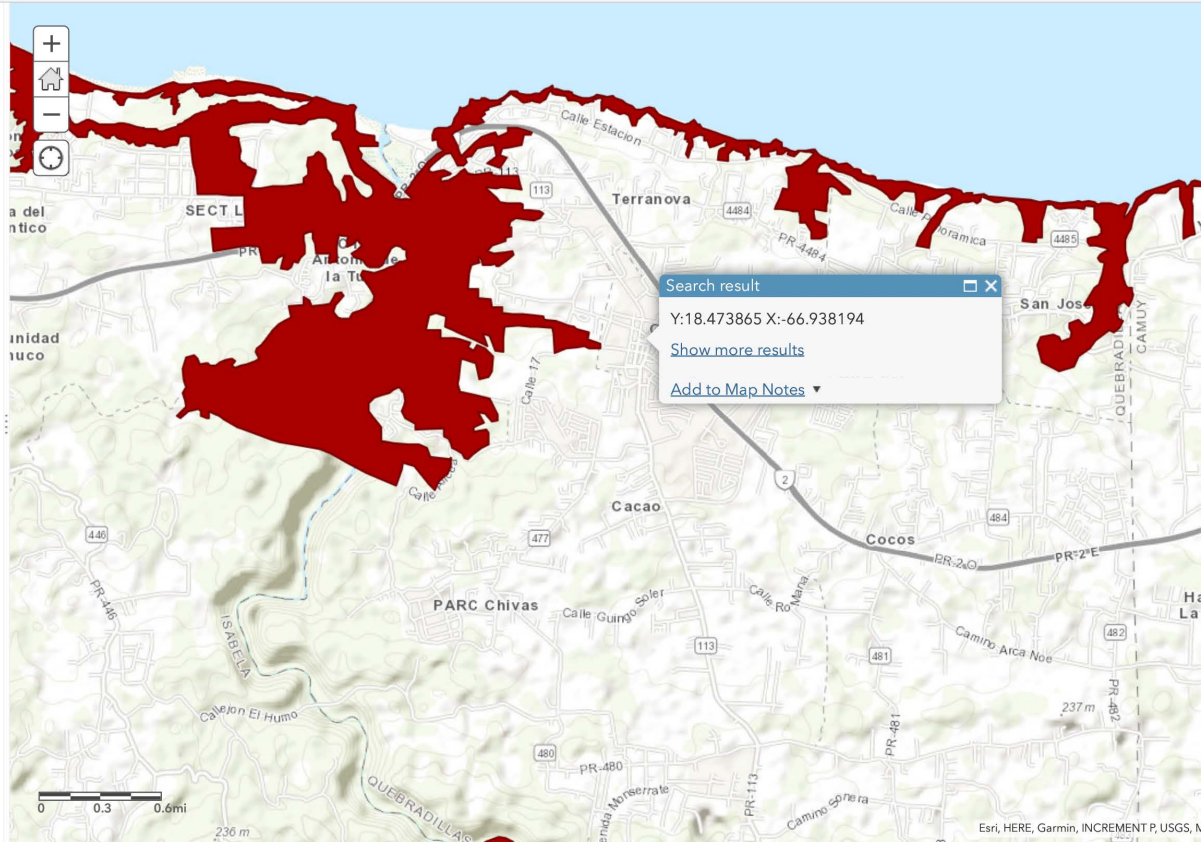
Proposed Polygon Features



Proposed Linear Features



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MUNICIPIO DE QUEBRADILLAS



CRITICAL HABITAT

<https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77>

Applicant ID: PR-CRP-000554
 Project Coordinates: 18.473865,
 -66.938194
 Address: Calle Honorio Hernández,
 Bo. Pueblo, Quebradillas, PR

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PR-CRP-000554

PROJECT:

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EXHIBIT J

ENDAGERED SPECIES

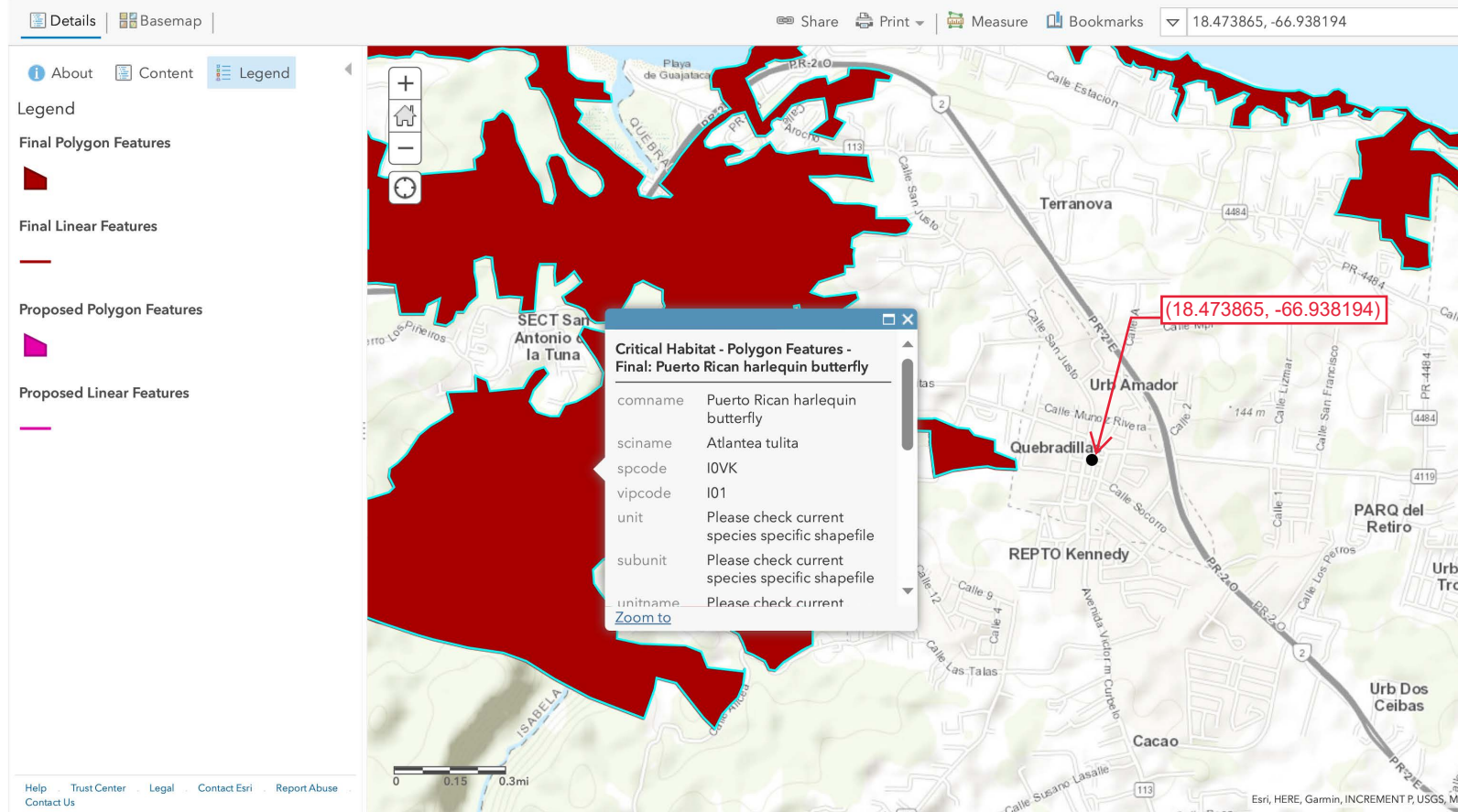
Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT K



Home ▾ Critical Habitat for Threatened & Endangered Species [USFWS]

Open in Map Viewer Modify


<https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77>

Applicant ID: PR-CRP-000554

Project Coordinates: 18.473865,
-66.938194Address: Calle Honorio Hernández,
Bo. Pueblo, Quebradillas, PRMUNICIPIO DE
QUEBRADILLAS

ENDANGERED SPECIES

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EXHIBIT K

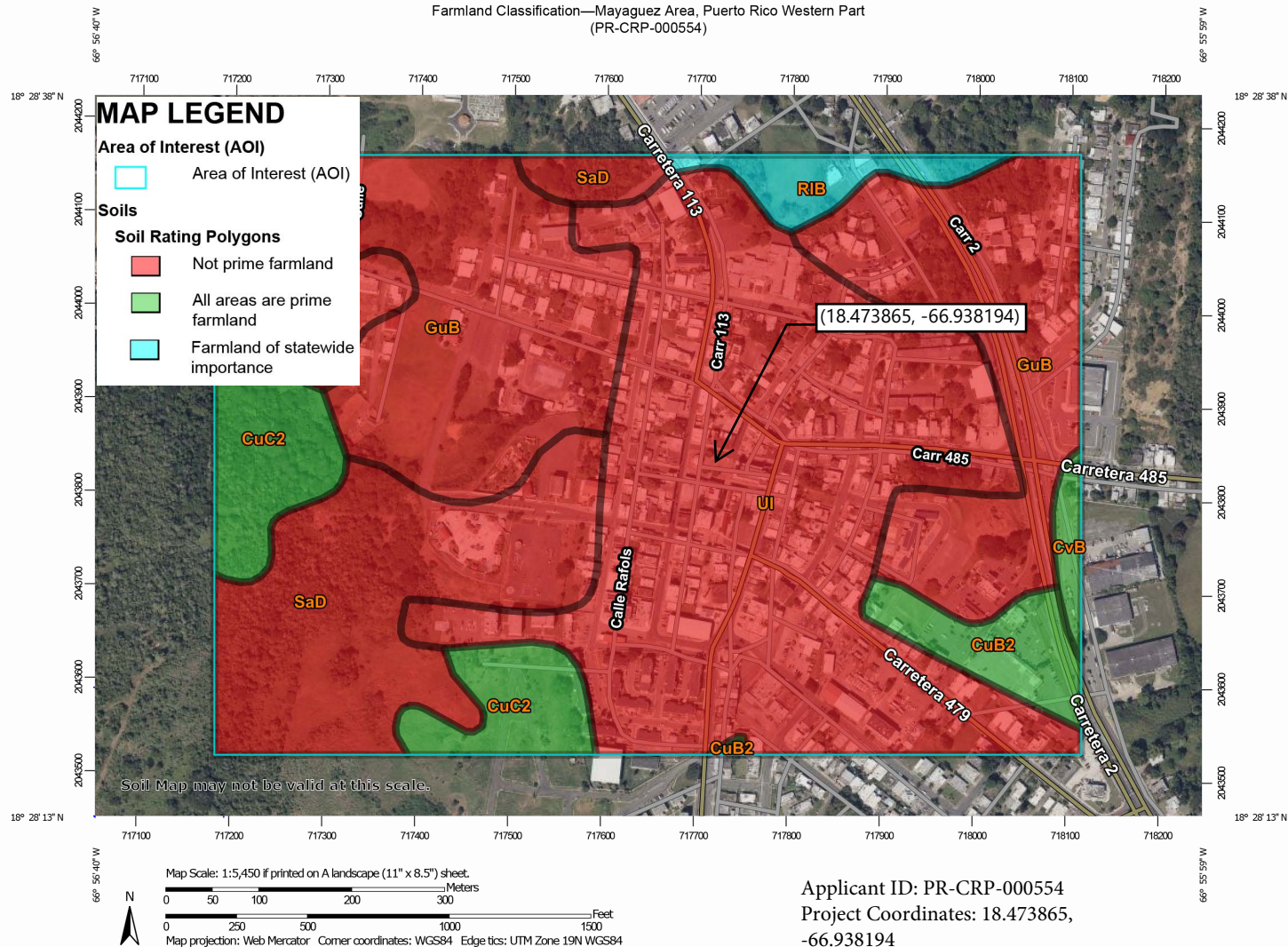
FARMLANDS PROTECTION MAP

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT L



Farmland Classification—Mayaguez Area, Puerto Rico Western Part
(PR-CRP-000554)



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

Natural Resources Conservation Service 2023 (<https://websoilsurvey.sc.egov.usda.gov>).

Applicant ID: PR-CRP-000554

Project Coordinates: 18.473865,
-66.938194

Address: Calle Honorio Hernández,
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12/8/2023
Page 1 of 6

MUNICIPIO DE
QUEBRADILLAS



FARMLANDS
PROTECTION MAP

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PR-CRP-000554

PROJECT:

MUSEO HISTORICO DE
QUEBRADILLAS

EXHIBIT L

FLOODPLAIN MANAGEMENT COMPARISON OF FLOOD HAZARD MAP

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT M

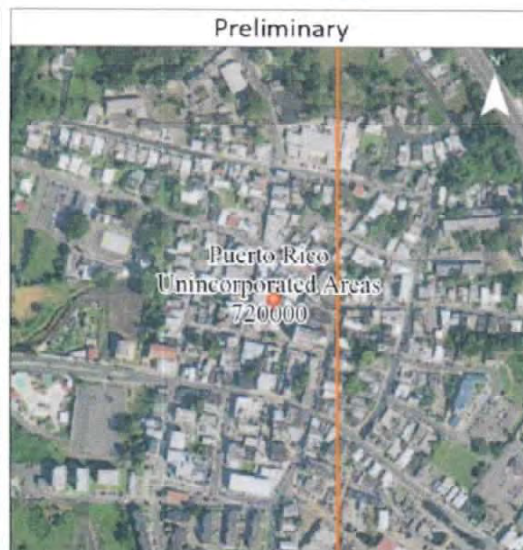
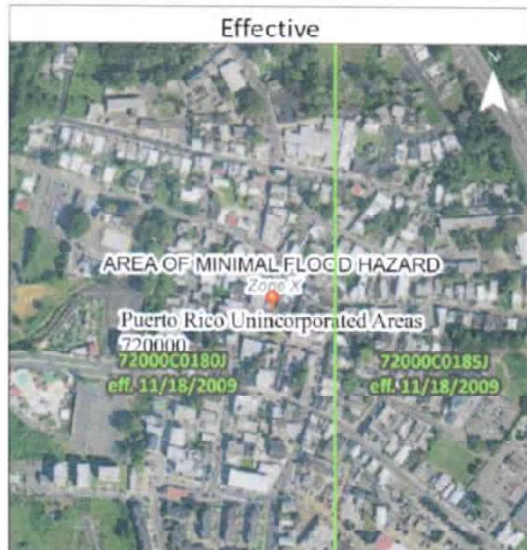


Comparison of Flood Hazard

Effective & Preliminary Flood Hazards



MUNICIPIO DE QUEBRADILLAS



Effective	
POI Longitude/Latitude	-66.9382, 18.4739
Effective FIRM Panel	720000C0180J
Effective Date	11/18/2009
Flood Zone	X
Static BFE*	Not Available
Flood Depth	Not Available
Vertical Datum	Not Available

Preliminary	
POI Longitude/Latitude	-66.9382, 18.4739
Preliminary FIRM Panel	720000C0180J
Preliminary Issue Date	11/16/2018
Flood Zone	Not Available
Estimated Static BFE*	Not Available
Estimated Flood Depth	Not Available
Vertical Datum	Not Available

* A Base Flood Elevation is the expected elevation of flood water during the 1% annual chance storm event. Structures below the estimated water surface elevation may experience flooding during a base flood event.

Hazard Level **Flood Hazard Zone**
 High Flood Hazard AE, A, AH, AO, VE and V Zones. Properties in these flood zones have a 1% chance of flooding each year. This represents a 26% chance of flooding over the life of a 30 year mortgage.

Moderate Flood Hazard **Shaded Zone X.** Properties in the moderate flood risk areas also have a chance of flooding from storm events that have a less than 1% chance of occurring each year. Moderate flood risk indicates an area that may be provided flood risk reduction due to a flood control system or an area that is prone to flooding during a 0.2% annual chance storm event. These areas may have been indicated as areas of shallow flooding by your community.

Low Flood Hazard **Unshaded Zone X.** Properties on higher ground and away from local flooding sources have a reduced flood risk when compared to the Moderate and High Flood Risk categories. Structures in these areas may be affected by larger storm events, in excess of the 0.2% annual chance storm event.

Insurance Note: High Risk Areas are called "Special Flood Hazard Areas" and flood insurance is mandatory for federally backed mortgage holders. Properties in Moderate and Low Flood Risk areas may purchase flood insurance at a lower-cost rate, known as Preferred Risk Policies. See your local insurance agent or visit <https://www.fema.gov/national-flood-insurance-program> for more information.

Disclaimer: This report is for informational purposes only and is not authorized for official use. The positional accuracy may be compromised in some areas. Please contact your local floodplain administrator for more information or go to www.fema.gov to view an official copy of the Flood Insurance Rate Maps.

Service Layer Credits: USGS, USNAD

3/21/2023 3:48:52 PM

FLOOD HAZARD MAP

EXHIBIT M

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**FLOODPLAIN MANAGEMENT
PUERTO RICO ABFE MAP**

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT N



3/21/23 2:08 PM

ArcGIS - My Map

My Map

PuertoRico_ABFE_1PCT

Municipios

Flood Hazard Boundary
(zoom in to make visible)

Limit of Moderate Wave
Action (LMWA)

Flood Hazard Extent

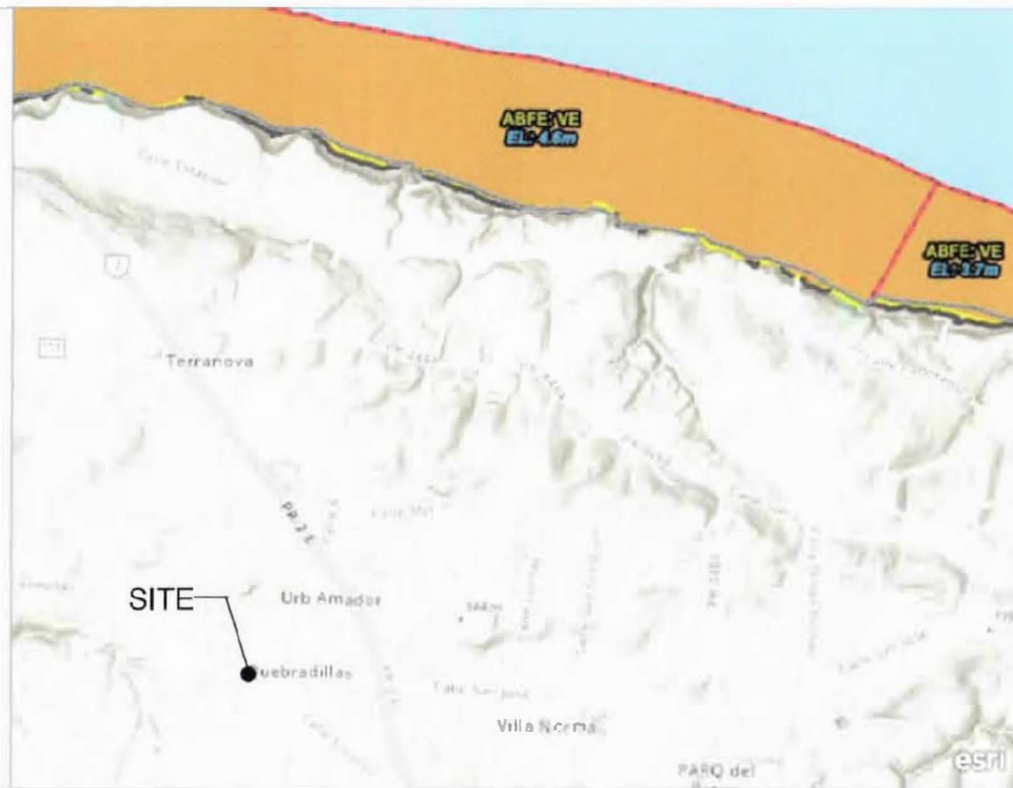
- 1% Annual
Chance Flood
- 0.2% Annual
Chance Flood

Zone/BFE Boundary

Flood Hazard Area (zoom in
to make visible)

Flood Hazard Zone

- A
- AO
- AE
- Coastal A Zone



Source: FEMA 2018 (https://www.arcgis.com/home/webmap/viewer.html?url=https%3A%2F%2Fgis.fema.gov%2Farcgis%2Frest%2Fservices%2FDR%2FPuertoRico_ABFE_1PCT%2FMapServer&source=sd).

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Applicant ID: PR-CRP-000554

Project Coordinates: 18.473865,

-66.938194

Address: Calle Honorio Hernández,

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<https://www.arcgis.com/home/webmap/print.html>

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PUERTO RICO ABFE MAP

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PR-CRP-000554

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EXHIBIT N

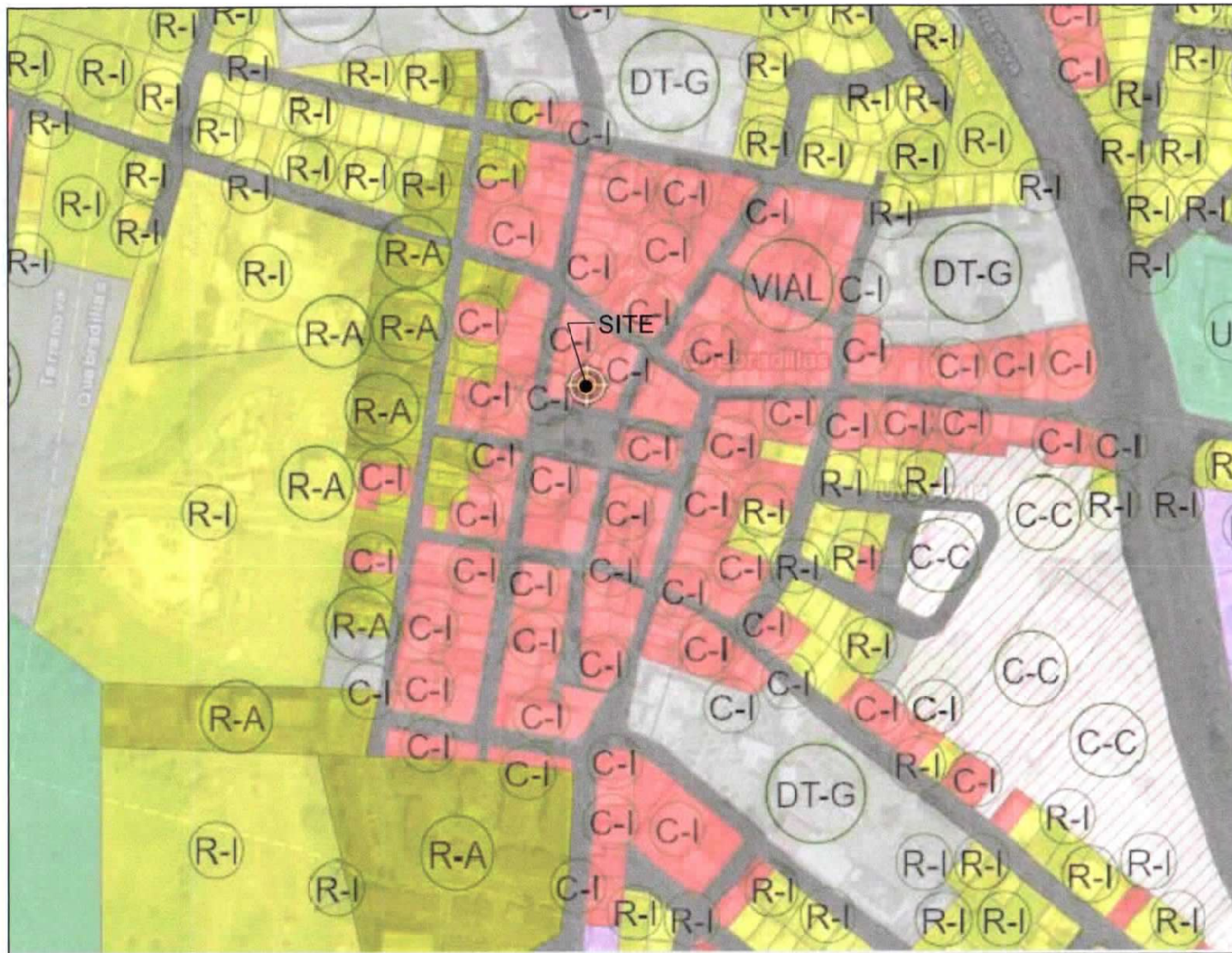
Ingenieros **del Oeste C.S.P.**

ZONNING MAP

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT O





MUNICIPIO DE
QUEBRADILLAS



ZONING MAP
Non-residential use

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PR-CRP-000554

PROJECT:

MUSEO HISTORICO DE
QUEBRADILLAS

EXHIBIT O

SITE AERIAL IMAGE

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT P





Source: Google Earth 2023

Applicant ID: PR-CRP-000554
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 Quebradillas PR

MUNICIPIO DE
 QUEBRADILLAS



SITE AERIAL IMAGERY
 Non-residential building

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 Tel/Fax: 787 891-8256
 ingenierosdeloestecsp@gmail.com



PR-CRP-000554

PROJECT:

MUSEO HISTORICO DE
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EXHIBIT P

SOLE SOURCE AQUIFERS MAP

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT Q



ArcGIS Web AppBuilder



12/7/2022, 1:52:34 PM

 Sole_Source_Aquifers

Applicant ID: PR-CRP-000554
Project Coordinates: 18.473865,
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U.S. Environmental Protection Agency

MUNICIPIO DE QUEBRADILLAS



SOLE SOURCE
AQUIFERS MAP

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EXHIBIT Q

WETLANDS AND RIPARIAN

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT R



NATIONAL WETLANDS INVENTORY

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

EXHIBIT S

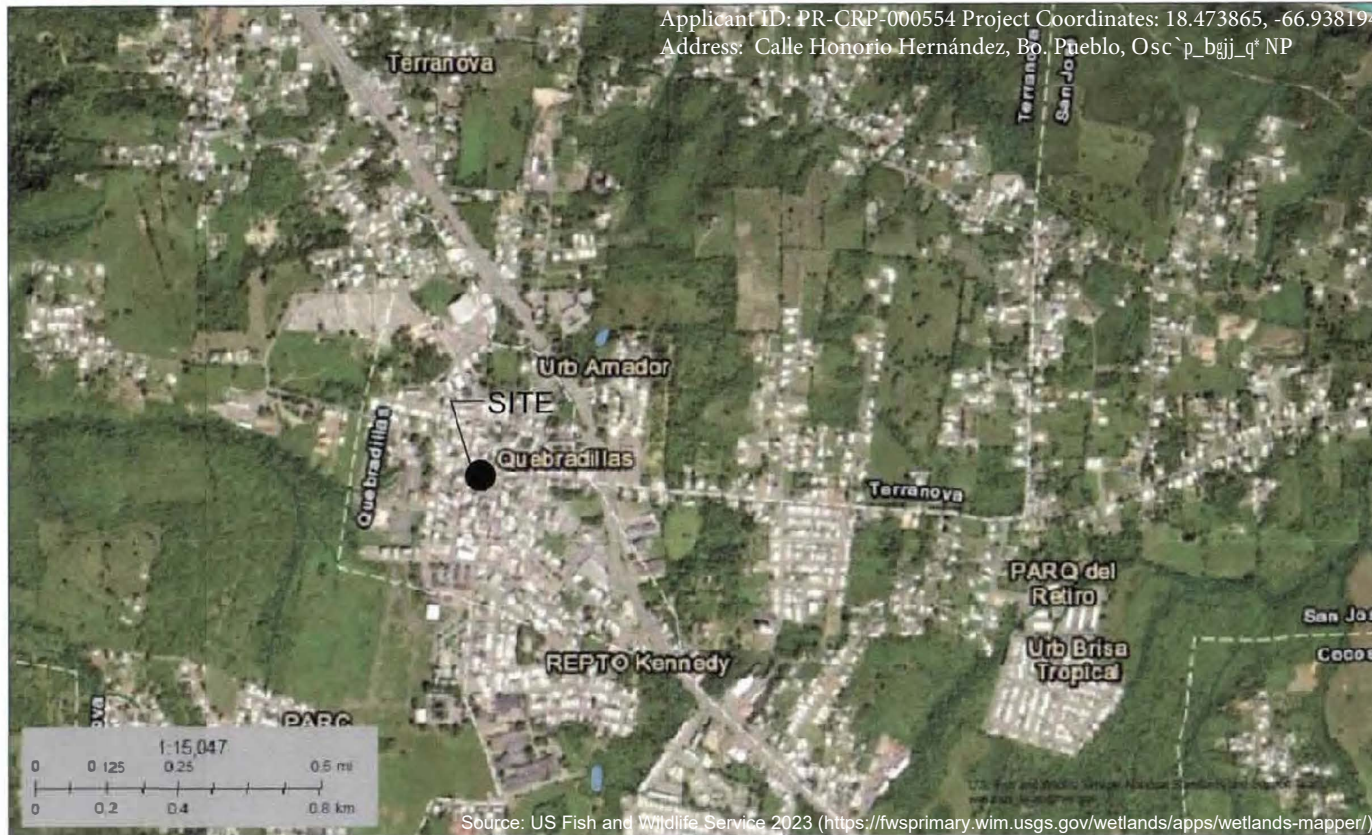




U.S. Fish and Wildlife Service
National Wetlands Inventory

Museo Historico de Quebradillas

Applicant ID: PR-CRP-000554 Project Coordinates: 18.473865, -66.938194
Address: Calle Honorio Hernández, Bo. Pueblo, Osc`p\_bjjj\_q` NP



November 16, 2022

Wetlands

	Estuarine and Marine Deepwater		Freshwater Emergent Wetland		Lake
	Estuarine and Marine Wetland		Freshwater Forested/Shrub Wetland		Other
			Freshwater Pond		Riverine

This map is for general reference only. The U.S. Fish and Wildlife Service is not responsible for the accuracy or currency of the base data shown on this map. All wetlands-related data should be used in accordance with the latest metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper.

Ingenieros del Oeste C.S.P.

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PR-CRP-000554

PROJECT:

**MUSEO HISTORICO DE
QUEBRADILLAS**

**MUNICIPIO DE
QUEBRADILLAS**



**NATIONAL WETLANDS
INVENTORY**

EXHIBIT S

WILD AND SCENIC RIVER MAP

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-000554

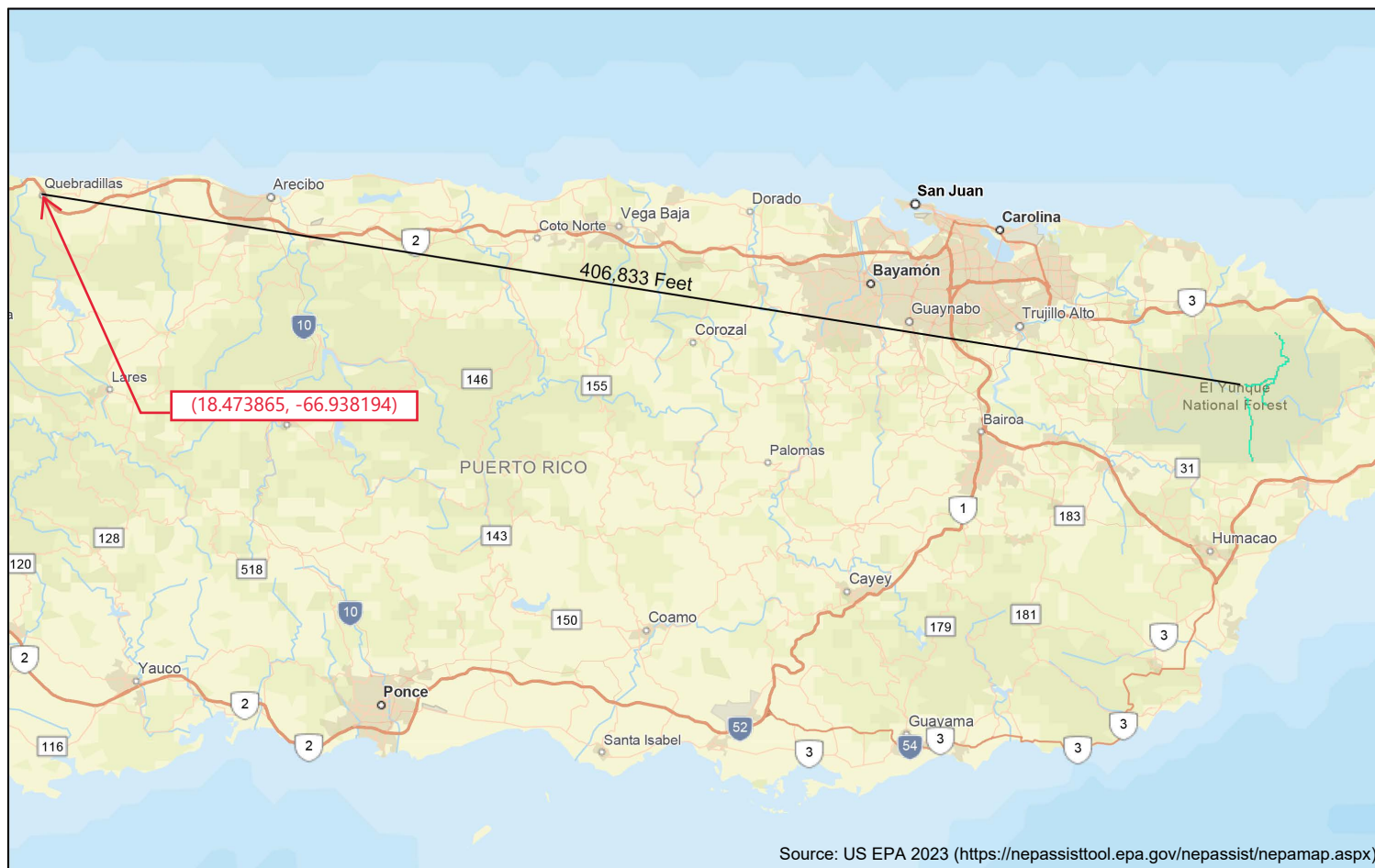
EXHIBIT T



MUNICIPIO DE QUEBRADILLAS



WILD AND SCENIC RIVER



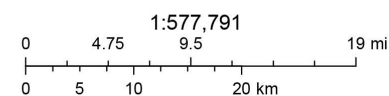
December 8, 2023

Wild and Scenic Rivers

Applicant ID: PR-CRP-000554

Project Coordinates: 18.473865, -66.938194

Address: Calle Honorio Hernández, Bo. Pueblo,
Quebradillas PR



Esri, HERE, Garmin, Foursquare, SafeGraph, FAO, METI/NASA, USGS, NPS

Ingenieros del Oeste C.S.P.

Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com



PR-CRP-000554

PROJECT:

**MUSEO HISTORICO DE
QUEBRADILLAS**

EXHIBIT T

APPENDIX

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-00054



APPENDIX A

DETAILED FACILITY REPORT ECHO/US EPA

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-00054



Detailed Facility Report



Detailed Facility Report

Facility Summary

PR PUBLIC HOUSING FRANCISCO VIGO SALAS

RD 113 & RAFOLS ST, QUEBRADILLAS, PR 00678

FRS (Facility Registry Service) ID: 110007816426

EPA Region: 02

Latitude: 18.471109

Longitude: -66.938243

Locational Data Source: RCRAINFO

Industries: --

Indian Country: N

Enforcement and Compliance Summary

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	--
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information

Clean Water Act (CWA): No Information

Resource Conservation and Recovery Act (RCRA): Inactive
Other, (PRR000001263)

Safe Drinking Water Act (SDWA): No Information

[Go To Enforcement/Compliance Details](#)
[Known Data Problems](#)

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information

Greenhouse Gas Emissions (eGGRT): No Information

Toxic Releases (TRI): No Information

Compliance and Emissions Data Reporting Interface (CEDRI):
No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		<u>110007816426</u>					N	18.471109	-66.938243
RCRAInfo	RCRA	PRR000001263	Other	Inactive ()			N	18.471109	-66.938243

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		<u>110007816426</u>	PR PUBLIC HOUSING FRANCISCO VIGO SALAS	RD 113 & RAFOLS ST, QUEBRADILLAS, PR 00678	Quebradillas Municipio
RCRAInfo	RCRA	PRR000001263	PR PUBLIC HOUSING FRANCISCO VIGO SALAS	RD 113 & RAFOLS ST, QUEBRADILLAS, PR 00678	Quebradillas Municipio

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
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No data records returned

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
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No data records returned

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
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No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years ▾

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
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No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
RCRA	PRR000001263	No	09/09/2023	0	09/08/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
RCRA (Source ID: PRR000001263)		10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23	04/01-06/30/23	07/01-09/30/23
	Facility-Level Status	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency											

Informal Enforcement Actions

Last 5 Years ▾

Statute	System	Source ID	Type of Action	Lead Agency	Date
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No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Value	Comp Action Cost
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No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
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No data records returned

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Ecological Use	Fish Consumption Use	Recreation Use	Other Use
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No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)
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No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers
-----------------	------	---------------------	--------------------------	--	------------------------	------------------	------------------------	--------------------------

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name

No data records returned

CWA (Clean Water Act) Discharge Monitoring Report (DMR) Pollutant Loadings

[DMR and TRI Multi-Year Loading Report](#)

No data records returned

Community

Environmental Justice

This section shows indexes from EJScreen, EPA's screening tool for environmental justice (EJ) concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. Use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the [EJScreen home page](#).

EJScreen Indexes Shown

Compare to

USState

Index Type

Environmental JusticeSupplemental

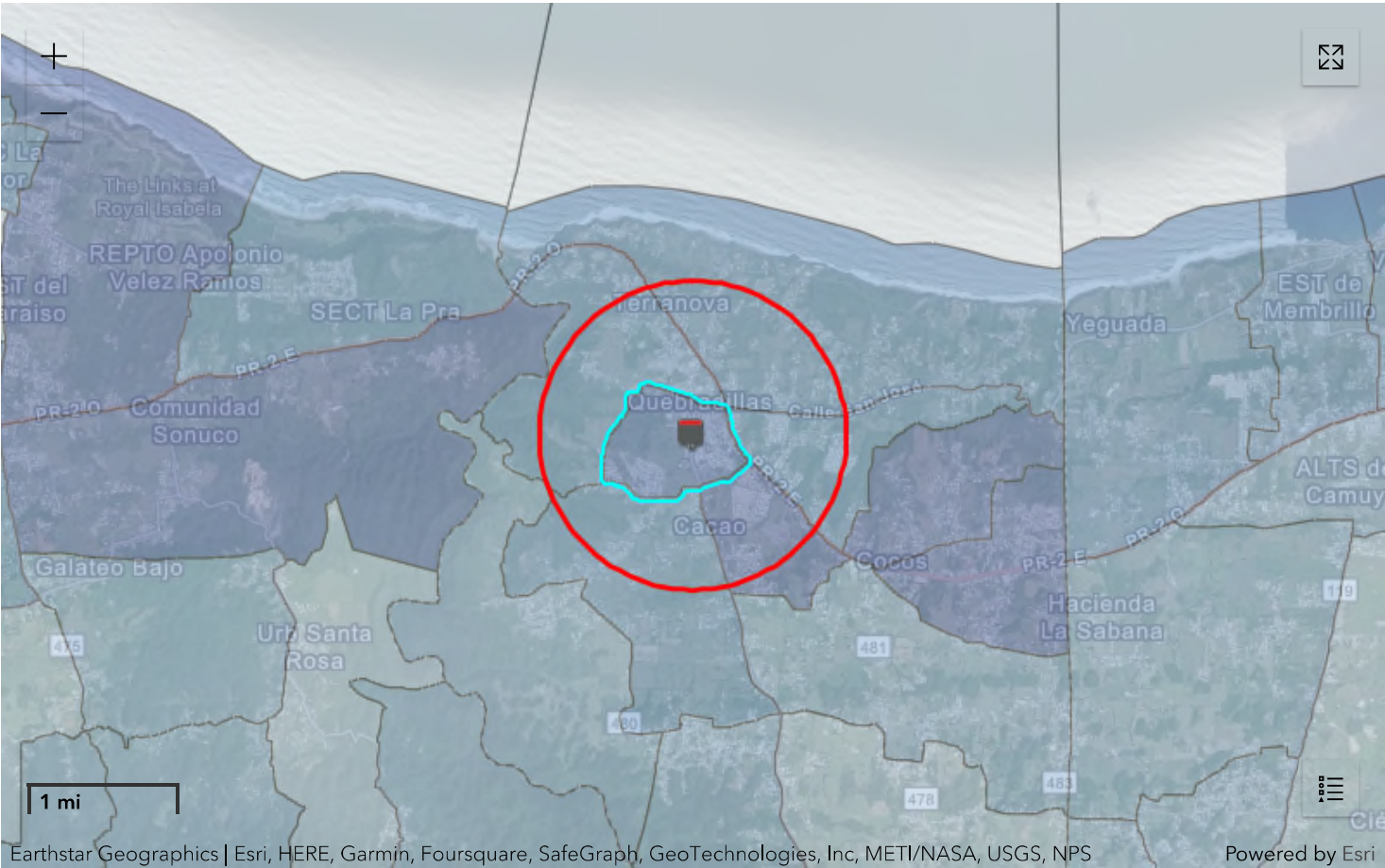
Related Reports

[EJScreen Community Report](#)

Download Data

Census Block Group ID: 721153302002	US (Percentile)	
Supplemental Indexes	Facility Census Block Group	1-mile Max
Count of Indexes At or Above 80th Percentile	6	6
Particulate Matter 2.5	0	--
Ozone	0	--
Diesel Particulate Matter	0	--
Air Toxics Cancer Risk	36	36
Air Toxics Respiratory Hazard Index	37	37
Toxic Releases to Air	99	99
Traffic Proximity	96	98
Lead Paint	99	99
Risk Management Plan (RMP) Facility Proximity	94	95
Hazardous Waste Proximity	50	50
Superfund Proximity	92	92
Underground Storage Tanks (UST)	98	99
Wastewater Discharge	46	51

Facility 1-mile Radius Facility Census Block Group



Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2017 - 2021 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the [DFR Data Dictionary](#).

General Statistics (U.S. Census)	
Total Persons	7,823
Population Density	2,503/sq.mi.
Housing Units in Area	3,413

General Statistics (ACS (American Community Survey))	
Total Persons	6,286
Percent People of Color	99%
Households in Area	2,279
Households on Public Assistance	224
Persons With Low Income	5,170
Percent With Low Income	82%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	18.471109
Center Longitude	-66.938243
Land Area	100%
Water Area	0%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than \$15,000	1,036 (45.42%)
\$15,000 - \$25,000	394 (17.27%)
\$25,000 - \$50,000	620 (27.18%)
\$50,000 - \$75,000	198 (8.68%)
Greater than \$75,000	33 (1.45%)

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	534 (7%)
Minors 17 years and younger	1,940 (25%)
Adults 18 years and older	5,883 (75%)
Seniors 65 years and older	1,266 (16%)

Race Breakdown (U.S. Census) - Persons (%)	
White	6,845 (88%)
African-American	335 (4%)
Hispanic-Origin	7,762 (99%)
Asian/Pacific Islander	13 (0%)
American Indian	10 (0%)
Other/Multiracial	621 (8%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	664 (14.35%)
9th through 12th Grade	439 (9.49%)
High School Diploma	1,305 (28.2%)
Some College/2-year	384 (8.3%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	861 (18.61%)

LAST UPDATED ON SEPTEMBER 21, 2022

[DATA REFRESH INFORMATION](#)

Detailed Facility Report



Detailed Facility Report

Facility Summary

QUEBRADILLAS

CALLE SAN CARLOS #60, QUEBRADILLAS, PR 00678

FRS (Facility Registry Service) ID: 110064630305

EPA Region: 02

Latitude: 18.47281

Longitude: -66.93779

Locational Data Source: FRS

Industries: --

Indian Country: N

Enforcement and Compliance Summary

Statute	CWA
Compliance Monitoring Activities (5 years)	–
Date of Last Compliance Monitoring Activity	12/04/2012
Compliance Status	Unknown
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	–
Formal Enforcement Actions (5 years)	–
Penalties from Formal Enforcement Actions (5 years)	–
EPA Cases (5 years)	–
Penalties from EPA Cases (5 years)	–

Regulatory Information

Clean Air Act (CAA): No Information

Clean Water Act (CWA): Minor, Permit Expired; Compliance Tracking Partially Off (PRR040069)

Resource Conservation and Recovery Act (RCRA): No Information

Safe Drinking Water Act (SDWA): No Information

[Go To Enforcement/Compliance Details](#)
[Known Data Problems](#)

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information

Greenhouse Gas Emissions (eGGRT): No Information

Toxic Releases (TRI): No Information

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		<u>110064630305</u>					N	18.47281	-66.93779
ICIS-NPDES	CWA	PRR040069	Minor: General Permit Covered Facility	Expired; Compliance Tracking Partially Off	Urban Stormwater (Small MS4)	06/30/2021	N	18.47389	-66.937101

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		<u>110064630305</u>	QUEBRADILLAS	CALLE SAN CARLOS #60, QUEBRADILLAS, PR 00678	
ICIS-NPDES	CWA	PRR040069	QUEBRADILLAS	CALLE SAN CARLOS #60, QUEBRADILLAS, PR 00678	Quebradillas Municipio

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
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No data records returned

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
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No data records returned

Facility Industrial Effluent Guidelines

Identifier	Effluent Guideline (40 CFR Part)	Effluent Guideline Description	Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
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No data records returned

Facility Tribe Information

No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
---------	-----------	--------	---------------	----------------------------	-------------	------	-------------------------

No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CWA	PRR040069	No	03/31/2023	0	09/08/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13
	CWA (Source ID: PRR040069)	04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23	04/01-09/08/23
	Facility-Level Status	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Undetermined
	Quarterly Noncompliance Report History	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date
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No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Value	Comp Action Cost
---------	--------	-------------	-----------	----------------	----------	-------------	-----------	-------------------	---------------------	------------------------	--------------------------	------------------------------	--------------------------	-----------	------------------

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-Listed Aquatic Species?
210100020506	Non-contributing area-Name not assigned	–	No	No	–	Yes

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Ecological Use	Fish Consumption Use	Recreation Use	Other Use
PR	2020	<u>PRNE4A</u>	QUEBRADA BELLACA ESTUARY	Unknown - With Restoration Plan	–	--	Insufficient Information	--	Insufficient Information	–

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)
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No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers
-----------------	------	---------------------	--------------------------	--	------------------------	------------------	------------------------	--------------------------

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name

No data records returned

CWA (Clean Water Act) Discharge Monitoring Report (DMR) Pollutant Loadings

[DMR and TRI Multi-Year Loading Report](#)

No data records returned

Community

Environmental Justice

This section shows indexes from EJScreen, EPA's screening tool for environmental justice (EJ) concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. Use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the [EJScreen home page](#).

EJScreen Indexes Shown

Compare to

☒ US ☐ State

Index Type

☐ Environmental Justice ☒ Supplemental

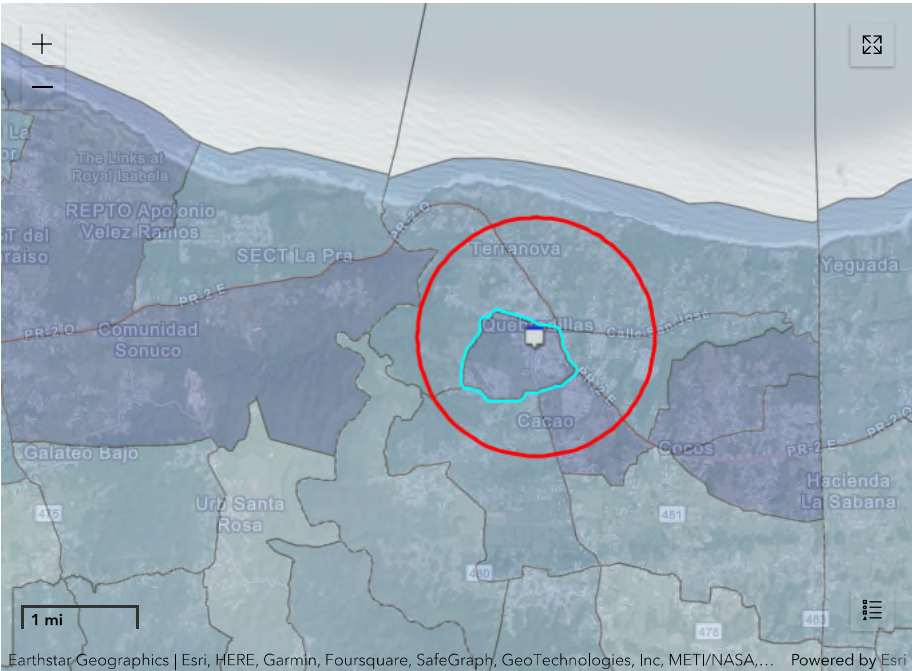
Related Reports

[EJScreen Community Report](#)

Download Data

Census Block Group ID: 721153302002	US (Percentile)	
Supplemental Indexes	Facility Census Block Group	1-mile Max
Count of Indexes At or Above 80th Percentile	6	6
Particulate Matter 2.5	0	—
Ozone	0	—
Diesel Particulate Matter	0	—
Air Toxics Cancer Risk	36	36
Air Toxics Respiratory Hazard Index	37	37
Toxic Releases to Air	99	99
Traffic Proximity	96	98
Lead Paint	99	99
Risk Management Plan (RMP) Facility Proximity	94	95
Hazardous Waste Proximity	50	50
Superfund Proximity	92	92
Underground Storage Tanks (UST)	98	99
Wastewater Discharge	46	51

☐ Facility 1-mile Radius ☐ Facility Census Block Group



Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2017 - 2021 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the [DFR Data Dictionary](#).

General Statistics (U.S. Census)		Age Breakdown (U.S. Census) - Persons (%)	
Total Persons	7,754	Children 5 years and younger	526 (7%)
Population Density	2,504/sq.mi.	Minors 17 years and younger	1,915 (25%)
Housing Units in Area	3,401	Adults 18 years and older	5,839 (75%)
General Statistics (ACS (American Community Survey))		Seniors 65 years and older	1,268 (16%)
Total Persons	6,072	Race Breakdown (U.S. Census) - Persons (%)	
Percent People of Color	99%	White	6,802 (88%)
Households in Area	2,208	African-American	320 (4%)
Households on Public Assistance	216	Hispanic-Origin	7,690 (99%)
Persons With Low Income	4,978	Asian/Pacific Islander	13 (0%)
Percent With Low Income	82%	American Indian	10 (0%)
Geography		Other/Multiracial	611 (8%)

Geography	
Radius of Selected Area	1 mi.
Center Latitude	18.47281
Center Longitude	-66.93779
Land Area	100%
Water Area	0%
Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than \$15,000	997 (45.15%)
\$15,000 - \$25,000	378 (17.12%)
\$25,000 - \$50,000	605 (27.4%)
\$50,000 - \$75,000	197 (8.92%)
Greater than \$75,000	31 (1.4%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	657 (14.62%)
9th through 12th Grade	435 (9.68%)
High School Diploma	1,240 (27.6%)
Some College/2-year	377 (8.39%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	841 (18.72%)

LAST UPDATED ON SEPTEMBER 21, 2022

[DATA REFRESH INFORMATION](#)

Detailed Facility Report



Detailed Facility Report

Facility Summary

LUMA - QUEBRADILLAS TECHNICAL OPERATIONS OFFICE

81 CALLE SOCORRO, QUEBRADILLAS, PR 00678

FRS (Facility Registry Service) ID: 110043192309

EPA Region: 02

Latitude: 18.471423

Longitude: -66.935819

Locational Data Source: FRS

Industries: Utilities

Indian Country: N

Enforcement and Compliance Summary

Statute	RCRA
Compliance Monitoring Activities (5 years)	--
Date of Last Compliance Monitoring Activity	--
Compliance Status	No Violation Identified
Qtrs in Noncompliance (of 12)	0
Qtrs with Significant Violation	0
Informal Enforcement Actions (5 years)	--
Formal Enforcement Actions (5 years)	--
Penalties from Formal Enforcement Actions (5 years)	--
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information

Clean Water Act (CWA): No Information

Resource Conservation and Recovery Act (RCRA): Inactive
Other, (PRR000023457)

Safe Drinking Water Act (SDWA): No Information

[Go To Enforcement/Compliance Details](#)
[Known Data Problems](#)

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information

Greenhouse Gas Emissions (eGGRT): No Information

Toxic Releases (TRI): No Information

Compliance and Emissions Data Reporting Interface (CEDRI):
No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110043192309					N	18.471423	-66.935819
RCRAInfo	RCRA	PRR000023457	Other	Inactive ()			N	18.47184	-66.936367

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110043192309	LUMA - QUEBRADILLAS TECHNICAL OPERATIONS OFFICE	81 CALLE SOCORRO, QUEBRADILLAS, PR 00678	Quebradillas Municipio
RCRAInfo	RCRA	PRR000023457	LUMA - QUEBRADILLAS TECHNICAL OPERATIONS OFFICE	81 CALLE SOCORRO, QUEBRADILLAS, PR 00678	Quebradillas Municipio

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
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No data records returned

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
RCRAInfo	PRR000023457	22112	Electric Power Transmission, Control, and Distribution

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
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No data records returned

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
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No data records returned

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current <u>SNC (Significant Noncompliance)</u> /HPV (High Priority Violation)	Current As Of	Qtrs with <u>NC (Noncompliance)</u> (of 12)	Data Last Refreshed
RCRA	PRR000023457	No	09/09/2023	0	09/08/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
	RCRA (Source ID: PRR000023457)	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-12/31/22	01/01-03/31/23	04/01-06/30/23	07/01-09/30/23
	Facility-Level Status	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified	No Violation Identified
	Violation	Agency											

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date
---------	--------	-----------	----------------	-------------	------

No data records returned

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Value	Comp Action Cost
---------	--------	-------------	-----------	----------------	----------	-------------	-----------	-------------------	---------------------	------------------------	--------------------------	------------------------------	--------------------------	-----------	------------------

No data records returned

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
--	---	---	---------------------------------	--------------------------------------	--	---

No data records returned

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Ecological Use	Fish Consumption Use	Recreation Use	Other Use
-------	--------------	--------------------	----------------------	-----------------	-----------------------	--------------------	----------------	----------------------	----------------	-----------

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)
-----------	-----------------------------------	---	---------------------------------	---

No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers
-----------------	------	---------------------	--------------------------	--	------------------------	------------------	------------------------	--------------------------

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name

No data records returned

CWA (Clean Water Act) Discharge Monitoring Report (DMR) Pollutant Loadings

[DMR and TRI Multi-Year Loading Report](#)

No data records returned

Community

Environmental Justice

This section shows indexes from EJScreen, EPA's screening tool for environmental justice (EJ) concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. Use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the [EJScreen home page](#).

EJScreen Indexes Shown

Related Reports

[EJScreen Community Report](#)

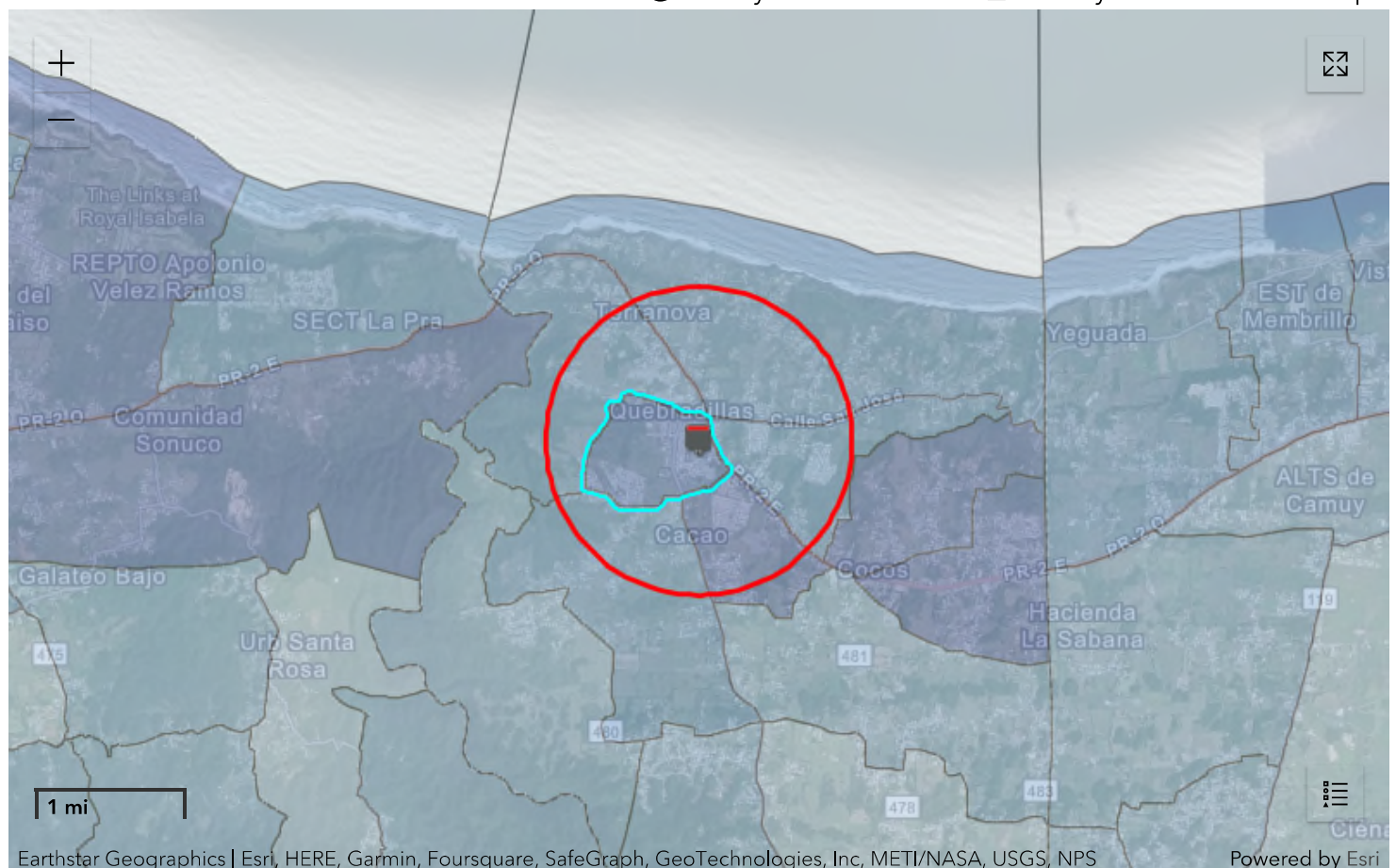
Compare to ☒ US ☐ State

Index Type ☐ Environmental Justice ☒ Supplemental

Download Data

Census Block Group ID: 721153302002	US (Percentile)	
Supplemental Indexes	Facility Census Block Group	1-mile Max
Count of Indexes At or Above 80th Percentile	6	6
Particulate Matter 2.5	0	--
Ozone	0	--
Diesel Particulate Matter	0	--
Air Toxics Cancer Risk	36	36
Air Toxics Respiratory Hazard Index	37	37
Toxic Releases to Air	99	99
Traffic Proximity	96	98
Lead Paint	99	99
Risk Management Plan (RMP) Facility Proximity	94	95
Hazardous Waste Proximity	50	50
Superfund Proximity	92	92
Underground Storage Tanks (UST)	98	99
Wastewater Discharge	46	51

☐ Facility 1-mile Radius ☐ Facility Census Block Group



Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2017 - 2021 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the [DFR Data Dictionary](#).

General Statistics (U.S. Census)	
Total Persons	8,045
Population Density	2,574/sq.mi.
Housing Units in Area	3,507

General Statistics (ACS (American Community Survey))	
Total Persons	6,548
Percent People of Color	99%
Households in Area	2,367
Households on Public Assistance	229
Persons With Low Income	5,342
Percent With Low Income	82%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	18.471423
Center Longitude	-66.935819
Land Area	100%
Water Area	0%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than \$15,000	1,081 (45.69%)
\$15,000 - \$25,000	382 (16.15%)
\$25,000 - \$50,000	647 (27.35%)
\$50,000 - \$75,000	218 (9.21%)
Greater than \$75,000	38 (1.61%)

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	553 (7%)
Minors 17 years and younger	1,998 (25%)
Adults 18 years and older	6,047 (75%)
Seniors 65 years and older	1,292 (16%)

Race Breakdown (U.S. Census) - Persons (%)	
White	7,045 (88%)
African-American	340 (4%)
Hispanic-Origin	7,981 (99%)
Asian/Pacific Islander	13 (0%)
American Indian	9 (0%)
Other/Multiracial	638 (8%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	684 (14.35%)
9th through 12th Grade	442 (9.27%)
High School Diploma	1,315 (27.58%)
Some College/2-year	415 (8.7%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	896 (18.79%)

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[DATA REFRESH INFORMATION](#)



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RCRAInfo Facility

Facility Information

OUTDOOR FOOTWEAR CO INC

Handler ID: PRD982794828

RD 2 KM 100.8

QUEBRADILLAS, PR 00742

County Name: QUEBRADILLAS

Latitude: 18.4699

Latitude: -66.933471

Hazardous Waste Generator:

Owner Name: SIDNEY SWARTZ

No Biennial Report data is available for the facility listed above.

LIST OF FACILITY CONTACTS

NAME	STREET	CITY	STATE
	PO BOX 869	ISABELA	PR
	PO BOX 869	ISABELA	PR



HANDLER / FACILITY CLASSIFICATION

Unspecified Universe for the facility listed above.



HANDLER TYPE

Not in a universe

NO PROCESS INFORMATION IS AVAILABLE FOR THE FACILITY LISTED ABOVE.

No NAICS Codes are available for the facility listed above.

No Waste Codes are available for the facility listed above.



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<<https://www.epa.gov/enviro/web-services>> | Mobile <<https://www.epa.gov/enviro/uv-index-mobile-app>> | Other Datasets <<https://www.epa.gov/enviro/other-datasets>>

RCRAInfo Facility

Facility Information

COINCO PUERTO RICO INC

Handler ID: PRD090060088

RTE 2 KM 100.8

QUEBRADILLAS, PR 00742

County Name: QUEBRADILLAS

Latitude: 18.4699

Latitude: -66.933471

Hazardous Waste Generator:

Owner Name: OWNERNAME

No Biennial Report data is available for the facility listed above.

LIST OF FACILITY CONTACTS

NAME	STREET	CITY	STATE
	PO BOX C	QUEBRADILLAS	PR
	PO BOX C	QUEBRADILLAS	PR

HANDLER / FACILITY CLASSIFICATION

Unspecified Universe for the facility listed above.



HANDLER TYPE

Not in a universe

NO PROCESS INFORMATION IS AVAILABLE FOR THE FACILITY LISTED ABOVE.

No NAICS Codes are available for the facility listed above.

No Waste Codes are available for the facility listed above.



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APPENDIX B

IPaC Resource list US Fish & Wildlife Service

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-00054



IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Quebradillas County, Puerto Rico



Local office

Caribbean Ecological Services Field Office

☎ (787) 834-1600

📠 (787) 851-7440

✉ CARIBBEAN_ES@FWS.GOV

MAILING ADDRESS

Post Office Box 491

Boqueron, PR 00622-0491

PHYSICAL ADDRESS

Office Park I

State Road #2 Km 156.5, Suite 303}

Mayaguez, PR 00680-0510

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are not shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME

STATUS

Puerto Rican Boa *Chilabothrus inornatus*

Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6628>

Insects

NAME

STATUS

Puerto Rico Harlequin Butterfly *Atlantea tulita*

Threatened

Wherever found

There is final critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/9005>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

There are no migratory birds of conservation concern expected to occur at this location.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Coastal Barrier Resources System

Projects within the [John H. Chafee Coastal Barrier Resources System](#) (CBRS) may be subject to the restrictions on Federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local [Ecological Services Field Office](#) or visit the [CBRA Consultations website](#). The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the [official CBRS maps](#). The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: <https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation>

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does not replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



Self-Certification

<http://www.fws.gov/caribbean/ES/Index.html>

Endangered Species Act Certification

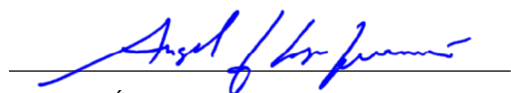
The U.S. Fish and Wildlife Service, Caribbean Ecological Services Field Office developed a Blanket Clearance Letter in compliance with Endangered Species Act of 1973, as amended, and the Fish and Wildlife Coordination Act for federally funded projects.

The Service determined that projects in compliance with the following criteria are not likely to adversely affect federally-listed species.

Puerto Rico Department of Housing (PRDOH) certifies that the following project Museo Histórico de Quebradillas (PR-CRP-000554) consisting of remodeling and rehabilitation of existing building in front of the main square of Quebradillas located at Honorio Hernández St, Pueblo Ward, Quebradillas, PR, complies with:

Check	Project Criteria
☐	1. Street resurfacing.
☐	2. Construction of gutters and sidewalks along existing roads.
☐	3. Reconstruction or emergency repairs of existing buildings, facilities and homes.
☒	4. Rehabilitation of existing occupied single-family homes, and buildings; provided that equipment storage or staging areas are not located on vacant property harboring a wetland and/or forested vegetation and that the lighting associated to the new facilities is not visible directly or indirectly from a beach.
☐	5. Demolition of dilapidated single-family homes or buildings; provided that the demolition debris is disposed in certified receiving facilities; equipment storage or staging areas are not located on vacant property harboring a wetland and/or forested vegetation.
☐	6. Rebuilding of demolished single-family homes or buildings, provided that the new construction is within the existing footprint of the previous

	structure and/or within pre- existing grassed or paved areas, and that the lighting associated to the new facilities are not visible directly or indirectly from a beach.
☐	7. Activities within existing Right of Ways (ROWs) of roads, bridges and highways, when limited to actions that do not involve cutting native vegetation or mayor earth moving; and are not located within, or adjacent to, drainages, wetlands, or aquatic systems. These activities include the installation of potable water and sanitary pipelines.
☐	8. Improvements to existing recreational facilities, including the installation of roofs to existing basketball courts, provided that the lighting associated to the facilities are not visible directly or indirectly from the beach.
☐	9. Construction of electric underground systems in existing towns and communities, provided that the property is not a wetland area and the lighting associated to the facilities are not visible directly or indirectly from the beach.
☐	10. Construction of facilities on vacant properties covered with grasses in urban areas, provided that the lighting associated to the facilities are not visible directly or indirectly from the beach.
☐	11. Construction of houses, buildings or acquiring lands in urban areas covered by grass for relocation of low-income families and/or facilities that have been affected by weather conditions.


Ángel G. López-Guzmán
Deputy Director
Permits and Environmental Compliance Division

November 14, 2023

Date

Office of Disaster Recovery
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Museo Histórico de Quebradillas

Calle Honorio Hernández

Bo. Pueblo

Quebradillas, Puerto Rico 00678

Estudio arqueológico de Fase IA

OGPE: 2022-446339-SRA-057312

ICP#:

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13 de octubre de 2022

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13 de octubre de 2022

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Introducción

El informe arqueológico que se presenta a continuación de Fase IA se realiza para el programa de Arqueología y Etnohistoria del Instituto de Cultura Puertorriqueña. El informe fue requerido mediante una comunicación escrita del 07-05-2022.¹ En la que expresan que han llegado a la conclusión de que existen probabilidades de que las actividades de desarrollo que contempla el proyecto pudieran afectar recursos de naturaleza arqueológica.

El proyecto consiste de una examinación de los archivos históricos arqueológicos que pudieran existir relacionados a la estructura del recurso patrimonial ubicado en la calle Honorio Hernández en el centro del municipio de Quebradillas, frente a la plaza Luis Muñoz Rivera, en el barrio Pueblo, de este municipio.

El proyecto será desarrollado en una parcela con el # de Catastro 008-080-009-06-001. Con una cabida de estructura: 252 m2 y un Área de mapa: 250.28 m2.

El informe se realizó en conformidad a las especificaciones de la Guía para hacer investigaciones arqueológicas, Fases I, II y III, además de la Guía para hacer informes arqueológicos fases I, II y III de la Oficina Estatal de Preservación Histórica (OEPH) (1993^a y b) y del Reglamento # 8932, revisado del 8 de febrero de 2017, Reglamento para la Radicación Arqueológica De Proyectos de Construcción del Consejo para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico (CAT), adscrito al Instituto de Cultura Puertorriqueña, (ICP), y de manera consistente con los “Standards and Guidelines for Evaluation and Archaeological Documentation” del Secretario de lo Interior de los EE.UU., y con los boletines del Servicio Nacional de Parques “How to Apply the National Register Criteria for Evaluation” (Secretario del Interior 1990) y “Guidelines for Evaluation and Registering Archaeological Properties” (Little et. Al 2000).

Este informe se habrá de preparar para cumplir con los requisitos establecidos por las Agencias reguladoras en asuntos culturales. La evaluación arqueológica Fase IA-IB ha sido descrita como la primera fase de estudio y definida por el Arqueólogo John Vetter de la Agencia Federal de Protección Ambiental (EPA), región de Nueva York de la siguiente manera:

¹ Carta de la OGPE, donde solicita un estudio Fase IA, Ver anejo

The Stage IA is the initial level of survey requires comprehensive documentary research designed to identify and know or potential historical, architectural and / or archaeological resources within a project area.

A primary objective of the study, is to evaluate the differential sensibility of the project area for the presence of cultural resources, this information will be used to guide the field investigation that follows.

In carrying out the literature search, sources at the State Historic Preservation Office (SHPO), universities, local libraries, museum, historical societies and the like, to be consulted. In addition, the nature and extend of the proposed project is evaluated, an initial walkover reconnaissance and surface inspection is complete and the effect of prior ground disturbance of the probability of identifying cultural resources is ascended.

The final document must focus on the project area and minimally includes:

- A. brief project description
- B. description of the environmental setting as it pertains to actual or potential cultural resource's locations.
- C. synthesis of prehistoric and historic and cultural development and land use patterns.²

² <https://parks.ny.gov/shpo/environmental-review/archeo-survey.aspx>

Investigación Fase IA

Este informe presenta los resultados del estudio arqueológico Fase I A, realizó para el proyecto del municipio de Quebradillas: Museo Histórico de Quebradilla. El informe se realizó en conformidad a las especificaciones de la Guía para hacer investigaciones arqueológicas, Fases I, II, y III, además de la Guía para preparar informes arqueológicos, fases, I, II, y III de la Oficina Estatal de Preservación Histórica (OEPH) (1993^a y b) y del Reglamento # 8932, revisado del 8 de febrero de 2017, Reglamento para la Radicación Arqueológica De Proyectos de Construcción del Consejo para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico (CAT), adscrito al Instituto de Cultura Puertorriqueña, (ICP), y de manera consistente con los “Standards and Guidelines for Evaluation and Archaeological Documentation” del Secretario de lo Interior de los EE.UU., y con los boletines del Servicio Nacional de Parques “How to Apply the National Register Criteria for Evaluation” (Secretario del Interior 1990) y “Guidelines for Evaluation and Registering Archaeological Properties” (Little et. Al 2000).

El informe tiene como principal enfoque poder determinar la presencia o ausencia de recursos culturales (arqueológico de índole prehispánico y/o histórico) presente dentro del lugar del proyecto. A manera de poder estar en contexto con el objetivo trazado, acudimos y revisamos archivos pertinentes, y efectuamos una búsqueda superficial, para la realización de redacción del presente informe. Se desprende de la búsqueda en los archivos utilizados, una posibilidad de mediana a baja sensibilidad para la presencia de recursos arqueológicos dentro del área del proyecto.

El informe se habrá de preparar para cumplir con los requisitos establecidos por las Agencias reguladoras en asuntos culturales de evaluación arqueológica de Fase I A.

Para mayores resultados proponemos la verificación de la información realizando una búsqueda detallada de la superficie expuesta y la revisión de los cortes realizados dentro del área del proyecto, en tiempos pasados.

Descripción del proyecto

El proyecto consiste en la restauración y acondicionamiento de la estructura en que pretenden ubicar, el Museo Histórico de Quebradillas. Se encuentra localizado en la calle Honorio Hernández en el centro del municipio de Quebradillas. Al momento de la investigación es una estructura desprovista de techo. Según la investigación del arquitecto C. Ferran “El edificio, debido a su ubicación, era eminentemente de uso comercial y como ocurre en la mayoría de este tipo de estructura, la combinación en el uso comercial liviano con residencia no se aleja de ser evidente. Con toda probabilidad el dueño del comercio residía en el nivel segundo”.

El informe del proyecto se realizó a fin de cumplir con la petición del Programa de Arqueología y Etnohistoria y El Consejo de Arqueología Terrestre, ambos del Instituto de Cultura Puertorriqueña.

Durante la investigación se acudió al área de ubicación de la estructura, donde se pudo apreciar y corroborar el estado de la estructura en conjunto con el patio posterior. En las facilidades de las agencias culturales, ICP/CAT y OEPH/SHPO por sus siglas en inglés, investigamos sobre esta estructura. No se encontró ninguna información es referencia.



Foto # 1 Área del Proyecto

Foto tomada del CRIM

Figura # 1 Área de Estudio

2. Topografía

El municipio de Quebradillas pertenece a la Meseta del Noroeste, más el sur de su territorio (barrios Guajataca, Charcas y parte de San Antonio) presenta las características topográficas y climáticas de la región de las colinas húmedas del norte, en la cual la altura sobre el nivel del mar fluctúa entre los 200 y los 500 metros (656 y 1,640 pies); por dichos barrios corren las montañas Guarionex. Este municipio también se encuentra en la región del Carso o cársica, por lo cual en su superficie encontramos mogotes y sumideros, bajo ella se pueden encontrar cuevas.



Figura # 2 Ubicación del municipio de Quebradillas en relación a Puerto Rico

3. Precipitación

La probabilidad de días mojados en Quebradillas varía considerablemente durante el año. La temporada más mojada dura 7.0 meses, de 27 de abril a 27 de noviembre, con una probabilidad de más del 33 % de que cierto día será un día mojado. El mes con más días mojados en Quebradillas es septiembre, con un promedio de 14.3 días con por lo menos 1 milímetro de precipitación.

La temporada más seca dura 5.0 meses, del 27 de noviembre al 27 de abril. El mes con menos días mojados en Quebradillas es marzo, con un promedio de 6.0 días con por lo menos 1 milímetro de precipitación.

Entre los días mojados, distinguimos entre los que tienen solamente lluvia, solamente nieve o una combinación de las dos. El mes con más días con solo lluvia en Quebradillas es septiembre, con un promedio de 14.3 días. En base a esta categorización, el tipo más común de precipitación durante el año es solo lluvia, con una probabilidad máxima del 49 % el 2 de noviembre.

4. Hidrografía

Dentro del predio del área del proyecto ni del casco urbano de Quebradillas existen cuerpos de agua que pudieran ser afectados por el proyecto Museo Histórico de Quebradillas.

La hidrografía de Quebradilla está compuesta al lado oeste por el río Guajataca que nace en el municipio de Lares con una longitud de 32 kilómetros unas 20 millas. Sirve de límite entre los municipios de Isabela y Quebradillas desembocando en el océano Atlántico. Durante su curso se forma el lago Guajataca, esta vez entre los municipios de Quebradillas y San Sebastián. La altura máxima es de alrededor de 190 metros.



Figura # 3 Hidrografía del área de Quebradillas

5. Geografía

El pueblo de Quebradillas se encuentra ubicado en el área norte de la Isla. Limita por el norte con el océano Atlántico, por el sur con el lago Guajataca (San Sebastián), por el este con el municipio de Camuy y por el oeste con el río Guajataca (Isabela). Forma parte de la Meseta del Noroeste. También, la parte sur del pueblo (barrios Guajataca, Charcas y parte de San Antonio) posee características topográficas y climáticas de la región de las Colinas Húmedas del Norte. La altura de esta zona fluctúa entre los 200 y los 500 metros (656 y 1,640 pies) sobre el nivel del mar, distinguiéndose la cadena de montañas llamada Guarionex. Otras elevaciones son el cerro San Antonio (entre el sureste del barrio Cacao y San Antonio) con unos 500 metros (1,640 pies) de altura, el cerro El Centro y el monte de la Luz (barrio Cacao) con una altura no mayor de 200 metros (656 pies).

Quebradillas está ubicada en la región cárstica, donde se pueden encontrar mogotes, sumideros y cuevas. Algunas cuevas son: “La Luz” y “del Abono” (barrio Guajataca); “Las Golondrinas” (barrio Cacao), y “Maleona” (barrio Terranova).

El pueblo es regado por el río Guajataca. El mismo se extiende a lo largo de 32 kilómetros (20 millas) desde su origen en el pueblo de Lares hasta su desembocadura, en el océano Atlántico, entre los pueblos de Quebradillas e Isabela. Además, en su cauce se forma el lago Guajataca, siendo éste es la mayor fuente de agua en la región y sirve como reserva para los sistemas de irrigación que existen en la zona.

6. Geología

La geología y el relieve de esta región que abarca la investigación que compone la investigación del área de Mayagüez, en donde se incluye el territorio del municipio de Quebradillas incluye tres principales divisiones fisiológicas: 1- tierras de montaña (las más extensivas), 2- los llanos costaneros, 3- los llanos inundables a lo largo de los ríos. Estas formas de terrenos consisten de rocas y sedimentos que se que se originaron mayormente en los tiempos terciarios y cuaternarios.

Las rocas de esta compleja cordillera de montañas son mayormente de origen volcánico e ígneo intrusivo, pero consisten además de esquistos, de serpentinita, al igual que tufas volcánicas, flujos de lava y breccias de tufa. Las montañas se caracterizan por laderas inclinadas, cubiertas de suelo, cumbres en forma de V invertida y hondonadas en forma de V, que han sido profundamente bisectadas por las corrientes de agua.

7. Suelos

Los suelos de Quebradilla Pueblo no fueron investigados en los sondeos (survey) de suelos realizado por el United States Geological Survey (USGS) en el libro Soil Survey of Mayagüez, Area of Puerto Rico, Washington DC.



Figura # 4 Mapa del Suelo General de Quebradillas

Estos suelos pertenecen a las asociaciones de los suelos de los llanos costaneros. En el caso del territorio municipal de Quebradillas está asociado con el color amarillo, representado con el número 2. Serie Bejucos.

Esta serie, Bejucos, consiste de suelos profundos ligeramente inclinados, de buen desagüe, lómicos, que son muy fuertemente ácidos y moderadamente permeables. Los suelos están en los llanos costaneros, cerca de los montes calizos. Se formaron de materiales moteados de los llanos costaneros.

En un perfil representativo la capa superficial es pardo-amarillosa oscura, muy fuertemente ácidas, arenoso-lámica, de alrededor de 9 pulgadas de espesor. La parte superior del perfil consiste de capas fuertemente cementadas, pardo-amarillo oscuro, muy fuertemente ácidas, muy firmes, ligeramente pegajosas y plásticas limo arcilloso lámica y limo arcilloso. La parte inferior del subsuelo consiste de capas gruesas débilmente cementadas, de color pardo fuerte y muy fuertemente ácidas, muy firmes, pegajosas y plásticas limo arcilloso lámica, que tiene muchas manchas comunes y finas de color rojo y gris rosado.



Figura # 5 Mapa de suelos del area urbana de Quebradillas

8. Flora

En el predio del lote de la propiedad se encuentra cubierto por diferentes especies de arbustos, muchos de los cuales se han utilizado en el folclore de la tradición cultural Puertorriqueña. Dentro del haber se encontró presente diferentes plantas. Una gran variedad dentro de un espacio bastante reducido.

Tabla #1 Flora encontrada en la Finca

Nombre Común	Nombre Científico
Insulina	Chamaecostus cuspidatus
Tomate	Lycopersicon
Angelito o Bejuco Corralillo	Antigonon leptopus
Anamú	Petiveria Alliacea L
Cundiamor	Momordica charantia
Pangola	Gramineas
Aranto	Kalanchoe
Yautía	Colocasia esculenta

9. Fauna

Dentro del reducido espacio pudimos observar una variedad de Fauna que integran los espacios comunes en Puerto Rico. Las siguientes formas de fauna estaban presentes.

Tabla # 2 Fauna estuvo presente en la Finca

Nombre Común	Nombre Científico
Abeja	Apis mellifera
Hormiga	Formicidae
Lagartija común	Anolis cristatellus

B. Síntesis del Desarrollo Cultural

1. Trasfondo Cultural Prehispánico

El primer arqueólogo en documentar los sitios arqueológicos en el área cercana fue el arqueólogo Dr. Froelich Rainey. Los realiza en la región costera de Camuy a Isabela, durante el 1934. El sitio del Coto en el municipio de Isabela donde se localizan enterramientos, vasijas del estilo Saladoide, entre los materiales encontrados. El sitio del Coto ubica al oeste del Río Guajataca. Documentan dos diferentes ocupaciones, asentamientos y les llama Crab culture y Shell culture. La primera (cerámica Saladoide) se encontró dentro de una capa estratigráfica que contenida solo restos de cangrejos. La segunda en una capa de conchas marinas con el estilo cerámico Saladoide tardío y se refirió como un desarrollo tardío local. Junto a esta cerámica excavo 60 enterramientos humanos.

En esta región de Quebradillas, los proyectos de investigación no son muchos. Entre otras investigaciones realizadas está el realizado por el arqueólogo Edgard Maíz, Costa Isabela Resort, donde cubre territorio de Isabela y Quebradillas. Descubre nuevos sitios: QB-7 e I-5, I-6 y I-7.

Luego están los demás Informes arqueológicos dentro del territorio municipal de Quebradillas.

2. Los originarios Pre-Cerámicos: Edades lítica y Arcaica (4000 A.C. – 500 A.C.)

La evidencia arqueológica presenta material de pedernal extraído del sitio de Long Island en Antigua, encontrada en el sitio de Maruca en el actual municipio de Ponce. (Febles 2004, citando a Ramos quien cita a su vez a Jeffrey B. Walker). Los hallazgos de este tipo de pedernal encontrándose lascas de Antigua. Fueron producidas mediante la técnica de la percusión directa, con formato de reducción multidireccional. Las implicaciones parecen indicar, por ser pocas las encontradas de Antigua, que fueron traídas como objetos transaccionales intra isla envolviendo el movimiento de esta materia prima desde las fuentes ubicadas tanto al sudoeste de PR como al noroeste (Rodríguez Ramos 2010). En el aspecto cerámico resulta interesante encontrarlos en contextos pre-arahucos. El proceso inicial de colonización de las islas presento dos manifestaciones principales: las series Casimiroide, asentada en las Antillas Mayores y las series Ortoroide, que se descubre en Trinidad. La primera tiene diferentes orígenes como Yucatán, (Rouse 1989, 1992a, Wilson et al. 1998) Otros los sitúan al sureste de EE UU (Febles y Baena 1995). Otros los relacionan con la cultura Siboney, del occidente de Cuba, por cronistas del S XVI. Pero la clase arqueológica caribeña les circunscribe solo a Cuba, Haití y La República Dominicana. Rodríguez Ramos, 2001:27; Hayward et al. 2001:12 les agrupan en algunos probables lugares de Antigua, Jamaica y Puerto Rico.

Su presencia en la Isla de Puerto Rico se ha puesto en duda dado que su presencia similar se encuentra en el sitio de Cerrillos, con la singularidad que tuvo un uso continuo desde el periodo arcaico hasta el cerámico. La evidencia se ocupa por un fechado de radiocarbono, (Pantel:1988, 1991) La cronología nada clara hacia dudar a la clase arqueológica. No obstante, la evidencia posterior pudo demostrar su llegada a la Isla. Maruca proveyó fechados del 6000 A. P., Rodríguez 1997.

Se reconoce a los Casimiroides como cazadores recolectores, y que explotaban los recursos acuáticos. La organización estructural la han definido como una economía de beneficios inmediatos. Esta particularidad ha provisto la base para describir a este grupo como uno sin unidades de viviendas estables (Rodríguez Ramos 2001: 27). En lítica se tipifica como una industria navaja-núcleo, sin la producción de herramientas pulidas al comienzo de las fases de ocupación. Seleccionaban materia prima de grano fino (Veloz Maggiolo y Ortega 1973; Rodríguez Ramos 2001:27). No presentan herramientas de material en concha, podría si haber sido utilizado herramientas de material perecedero (Oliver 1995:22-24; Rouse 1992 a: 20-69).

Por otro lado, La serie Ortoroide estaba mayormente localizada en las Antillas Menores y Puerto Rico. El sitio más antiguo se localiza en Banwari-Trace en Trinidad, con fechados de 6350 a 6700 A. P. (Rodríguez Ramos 2001) Se piensa que esta serie se origina probablemente con personas que migraron a las Antillas desde Trinidad y desde las costas del oriente de Venezuela (Rodríguez Ramos 2001; Hayward et al. 2001). Rouse: 1992 a, ha propuesta una subserie Corosan para Puerto Rico e Islas Vírgenes, Corozo y Krum Bay, respectivamente. Los artefactos de estos grupos Ortoroides es diferente al de los grupos de las Antillas Mayores, por la evidencia de uso de picoteo y desgaste (pecking and grinding). Los materiales que los distinguen son tajadores, percutores, buriles, lascas, hachas talladas o parcialmente pulidas y raederas de concha (Hayward et al. 2001:12)

En Puerto Rico e Islas Vírgenes estas culturas arcaicas presentan una variación local considerable, aunque participan del patrón general compartido de subsistencia y asentamiento. En ese patrón se enfatiza la explotación primaria de recursos marinos accesibles y la ubicación de asentamientos cercanos a los mismos. Su subsistencia parece haber estado basada en la caza, pesca y recolección de recursos como son los crustáceos, peces de arrecife, pájaros, tortugas, roedores y plantas. Estos sitios consisten en concheros y cuevas en la costa o cercana a ellas. Se caracterizan por haber estado ocupados por grupos pequeños de personas por periodos cortos y/o recurrentes (Lundberg 1980: 132-133; Oliver 1995:28; Rouse 1992 a:66-67; Rouse y Alegria1990: 26-27).

C. Poblamiento Cerámico: La Edad Cerámica (2500 A.P. – 500 A.P.)

1. Serie Saladoide

La forma más aceptada por la comunidad arqueológica del Caribe, en relación a la segunda migración que se asienta en las Antillas, proviene del área del Río Orinoco en Venezuela alrededor del 2500 A.P. (Rodríguez Ramos 2001:29). Se les ha llamado Saladoide, que, en su recorrido desde la costa venezolana hacia las Antillas Menores, se allegan a las Islas Vírgenes, Puerto Rico y parte de la porción oriental de la República Dominicana, en alrededor de 500 A.C.

Las subseries *Cedrosan Saladoide*, nueva manifestación cultural fue la responsable de introducir a las Antillas la cerámica, horticultura, sedentarismo, cementismo y una organización social basada en relaciones de parentesco extendidas. Estos agro-alfareros iniciales se asentaron mayormente en las planicies costeras, cerca de fuentes de agua fresca. En Puerto Rico los sitios conocidos hasta el momento, se encuentran en las planicies costeras y en los valles aluviales. Mientras con la manifestación *Cedrosan* tardío se comienzan a mover hacia el interior montañoso.

Hacienda Grande, es el estilo cerámico más temprano de esta subserie. Sus elementos predominantes en la decoración de la cerámica es la pintura blanca sobre roja, y los diseños incisos entrecruzados en zonas de sus recipientes. Se caracteriza por la delgadez en la pasta, que es fina. Las vasijas tienen paredes rectas y ángulos agudos. Sus formas cerámicas exclusivas de este estilo consisten en quemadores de incienso, jarras y cuencos con bases anulares. Las técnicas decorativas distintivas presentan el uso del engobe rojo, que aplica a toda o parte de la vasija; orejas zoomorfas o antropomorfas; la presencia de incisos entrecruzados normalmente en los bordes; y diseños blancos sobre rojo, ejecutados de manera fina (Hayward et al. 2001). Presentan de igual manera otros artefactos cerámicos: burenes, amuletos, cuentas tubulares, figurillas y discos.

Los llamados Hacienda Grande empleaban piedra, concha, coral y hueso, para hacer un sinnúmero de adornos personales y herramientas. Presentan pequeñas cuentas de piedra pulida, que trabajaron finamente, amuletos y pendientes tallados, pulidos intrincadamente, con líneas incisas, perforaciones y puntuado utilizando utilizado para enfatizar los diseños de ranas u otra fauna exótica. La materia prima era la disponible localmente, así como una cantidad de material foráneo, incluso de fuera de la Isla. Esta afirmación sugiere que existía una cadena de trueque de materias primas y probablemente artículos manufacturados (Oliver 1995:32-33; Siegle 1992:100).

En este periodo se incrementan los artefactos en piedra pulida en cuanto a variedad y excelencia. Se pueden encontrar cuentas, raederas, manos, hachas, metates y percutores, mientras que la industria de la piedra tallada tiene un desarrollo menor. Los núcleos que se pueden encontrar son pequeños, consistiendo la mayoría del material en lascas grandes sin el retoque (Siegle 1992: 111). Es común el encontrar artefactos en hueso y concha, con la salvedad en que son menos sensitivos cronológicamente que la cerámica (Hayward et al. 2001:17). Entre los artefactos en concha se incluyen agujas, cuentas, ceníes de tres puntas, discos, amuletos, cucharas, gubias, cinceles, y figurillas. Los artefactos en hueso estriban en proyectiles, amuletos, punzones, espátulas, cuentas además de figuras talladas en huesos de manatí o humanos (Siegle 1992:100, 106). Los amoladores, yunques, pesas de redes de pesca y raederas eran manufacturadas de coral.

En su fase tardía esta serie *Cedrosan Saladoid* está representada en Puerto Rico por el estilo cerámico Cuevas, el cual comienza a ser presencia en alrededor de 1600 años A.P. Estos grupos presentan un movimiento migratorio hacia el interior de la Isla, la evidencia del porque no está clara, hasta el momento, fuera de la posibilidad de explotación del medio ambiente costero (Ortiz Aguilú 1990: comunicación personal) aunque muchos de los sitios continuaron ubicados en las planicies costeras (Rodríguez: 1992) El arreglo de los sitios conformaban un círculo concéntrico, mayormente se entiende por la comunidad arqueológica como un patrón anteriormente introducido a las Antillas por los primeros ceramistas que arribaron.

Entre los cambios en la cerámica encontrados se puede apreciar un descenso del uso de la pintura policromada, agrandamiento en tamaño de las vasijas, elementos decorativos diferenciales entre las cerámicas utilitarias y ceremoniales, así como el empleo de lo que Víctor Carbone llamo un “sistema representativo muy abstracto y formal que fusiona elementos del sistema de decoración temprano” (Carbone 1980:26). La cerámica con paredes finas (menos de 5mm) duras y bien cocidas continúa encontrándose en el ajuar cerámico del estilo Cuevas, así como la presencia de recipientes con forma de campanas invertidas. Aunque el perfil de las vasijas tiende a ser más redondeado y elegante, menos angulado que el de las vasijas del estilo Hacienda Grande. Cambios observados en la cerámica durante esta fase incluyen un descenso en la proporción de fragmentos decorados, la eliminación del inciso entrecruzado en zonas y la presencia de motivos blanco sobre rojo más burdos (Rouse y Alegría 1990:39-49; Rouse 1952 a: 336-344). Para este periodo Cuevas tardío el Puerto Rico solo continuó el uso de la pintura roja en los labios e interior de los bordes, o como un engobe general.

Oliver (1995:33) describe el patrón de asentamiento de un sitio *Cedrosan Saladoid* donde puede consistir en una serie de montículos ubicados en semicírculo o en formas de herradura, frente a un espacio central o plaza abierta, la cual es frecuentemente utilizada como cementerio. La evidencia sugiere entonces que los sitios Saladoides no muestran signos de diferenciación en tamaños, disposición o contenido, sugiriendo el que aún no se habían desarrollado una jerarquización entre las aldeas. De la misma forma, el tratamiento de los muertos no muestra señales de rango ya que los individuos eran tratados más o menos igualmente en términos de los bienes suntuarios y otros marcadores de diferenciación social (Siegel 1989; Rouse 1992 a: 80, Oliver 1995:27).

2. Serie Ostionoides

Una nueva serie Ostionoides en el alrededor del 1350 AP comienza a emerger en Puerto Rico. Los cambios entre el Ostiones al oeste de Puerto Rico y la subserie *Cedrosan Saladoid* son dramáticos entre los académicos de la arqueología que promovió un debate en donde unos proponían que la serie era el resultado de una nueva emigración a la Antillas, otros sugerían era un desarrollo local de culturas que ya estaban establecidas en el área. El debate se le conoció como la dicotomía cangrejo/concha (29alt/Shell dicotomy) debido a los cambios observados en la dieta entre un periodo al otro, en específico un cambio de dieta basada en la tierra en la edad cerámica temprana a una explotación marítima de recursos bióticos en las fases de ocupación posteriores (Rainey 1940). Ha sido varios los modelos desarrollados para entender este cambio en los patrones de alimentos. Para Rainey (1940) es producto de una segunda migración; Carbone (1980) propone una teoría de desecación paleo ambiental; Goodwin (1980), presión poblacional resultado de una necesidad de intensificación y diversificación; Keegan (citado en De France 1989:57), expansión dietética de raciones con costo-beneficio reducido, y Jones (citado en DeFrance 1989:57), aumento poblacional versus producción de alimentos reducido. En estos momentos los modelos de Rainey y Carbone ya no se los consideran válidos, y los tres modelos restantes necesariamente tienen que ser refinados para explicar los cambios en las estrategias de subsistencia a nivel pan-caribeño.

Entre los cambios dramáticos que se han observado en las series Ostionoides resulta ser el establecimiento de precintos demarcados con piedras (Curet y Oliver 1998) y el énfasis en la deformación craneana como parte de sus prácticas culturales. En el caso de Puerto Rico esta práctica comenzó en las fases tardes del estilo Cuevas. Esta práctica se ha interpretado o sugerido, por presentarla solo algunos individuos como indicador formal de diferenciación social durante este periodo (Crespo 1991).

Los patrones Ostionoides manifiestan algunas similitudes y diferencias con el periodo que le precede. Caso del patrón temprano de concheros arreglados en un círculo alrededor del área abierta central, tenga o no el cementerio, continuó en la edad tardía, aumentando el número y el tipo de asentamientos. En el caso de Puerto Rico, se asocia a nuevos asentamientos en el interior (Rouse 1992 a: 94; Oliver 1995: 39). Se localizan estos sitios a la proximidad de ríos y de posiciones de defensa, como pudieran ser: topes de colinas, crestas y terrazas, presumiblemente para ser protegidos de los elementos naturales o de otras poblaciones (Oliver 1995:39; Hayward et al. 2001:25).

El periodo Ostiones es uno donde la evidencia de la diferencia del rango está marcada entre los diferentes sitios. Se pueden encontrar aldeas de diferentes tamaños, grandes y pequeñas, en la costa y tierra adentro; unidades domésticas individuales; sitios de índole especializado de exportación de los recursos, bosques y mangles, áreas más pequeñas especializadas o rituales en cuevas o de sitios de petroglifos en orillas de ríos; y de lugares con bateyes solos o múltiples. La información sobre el estilo organizativo dentro de la aldea y los tipos de estructuras no es abundante (Hayward et al. 2001:26).

En la cerámica se discontinúa el uso de pintura blanco sobre rojo, pasando a ser utilizado la pigmentación rosada y rojos; el uso de las líneas geométricas y de punzonado inciso se convierte en los elementos decorativos más utilizados, dentro del aumento en la regionalización de los estilos (Oliver 1995:36). Otros cambios incluyen la utilización de aplique o diseños modelados, con gran representación de elementos zoomorfos.

En el caso de Puerto Rico esta serie se representa por las subseries *Elenan Ostionoid* en la parte oriental de la Isla. En el oeste se encuentra representado por *Ostionan Ostionoid* y el *Chican Ostionoid*.

3. Subserie Elenan Ostionoid (600-1200 D. C.)

El estilo Monserrate (A. D. 600-800/900) en Puerto Rico es el que la inicia. Para Rouse el estilo es de vasijas semi globulares de paredes gruesas y raramente pintadas (Rouse y Alegría 1990:53). Los elementos secundarios son las asas curvas. La pasta es burda y pobremente horneada. El uso del engobe rojo y del inciso es muy raro. Utiliza la pintura roja y el tizado negro y crea diseños simples (Rouse y Alegría 1990:31; Roe et al. 1990; Oliver 1995). Se sugiere que es desarrollado del continuo estilo Cuevas, aunque caracterizado por la pérdida de modos decorativos y formales (Oliver 1995:31).

El estilo Santa Elena (A.D. 800/900-1200) incluye vasijas con paredes gruesas, con una tendencia hacia fragmentos con pasta marrón rojiza. La tendencia iniciada durante el periodo Cuevas, con pérdida gradual de pintura, culminó con el complejo Santa Elena (Siegel 2002:19). En este periodo las vasijas que se encuentran son de forma hemisféricas simples, con curvas simples más que angulares. Su forma es circular a navicular, base plana, en todas las vasijas. La variedad en formas es considerablemente menor comparado a los periodos anteriores. El uso del estilo Monserrate de la pintura roja y tizado negro continúa, aunque en una frecuencia menor (Rouse 1952 b, 1982).

Sin embargo, la gran mayoría de las vasijas casi nunca tienen pintura. Como técnica decorativa utiliza la incisión, de manera gruesa y profunda, con mayor asociación a vestigios de asas y en otras ocasiones la amplia incisión vertical sirve para definir un asa) Siegel 2002: 19). En los sitios *Elenan* están presentes plazas o bateyes estructurados. Los sitios de esta subserie localizados en el este de Puerto Rico muestran un tamaño y complejidad que va desde una plaza no estructurada a sitios con una o dos plazas estructuradas y sitios con varios bateyes y plazas (Oliver 1992).

4. Subserie Chican Ostionoid (1200-1500 D. C.)

En el alrededor del 750 A.P. la serie Ostionoid se desarrolló en lo que comúnmente se le conoce como Taino, o subserie *Chican Ostionoid*. Estos se encontraban organizados en un sistema complejo de cacicazgos sustentados por el desarrollo de grandes aldeas. Se encontraban estas aldeas, controladas por un sistema político centralizado y se mantenían gracias a una agricultura intensiva, con una tecnología de pesca desarrollada y un sistema social estratificado.

En Puerto Rico se presentan para este periodo los estilos Boca Chica, Esperanza y Capá. En el estilo Boca Chica se caracteriza por formas cerámicas complicadas, pulidos, pintura roja limitada y diseños elaborados incisos, modelados y punzados (Oliver 1995:33). El estilo Esperanza es parecido al material Santa Elena temprano en cuanto a las formas de vasija y elementos decorativos simples. La técnica decorativa prevaleciente es el inciso en líneas amplias y muy espaciadas en patrones formados por pares de líneas paralelas arqueadas, acompañadas frecuentemente por punzados (Oliver 1995: 35). El estilo Capá se caracteriza por líneas incisas amplias, orejas modeladas en formas geométricas y zoomorfas, apliqué y modelado común. Las formas de las vasijas son comúnmente cazuelas y la pasta es suave y arenosa (Oliver 1995: 36).

D. Recursos arqueológicos del municipio

En el municipio de Quebradillas se han identificado hasta el momento en 21 sitios arqueológicos en el listado del Concejo de Arqueología Terrestre (CAT) en el Instituto de Cultura Puertorriqueña (ICP). Hay siete (7) prehistóricos y catorce (14) históricos.

Entre los tipos de sitios prehistóricos hay residuario, petroglifo y en los históricos un teatro, haciendas, puente, túneles del sistema ferroviario, atajea, rieles, camino empedrado y cortes en la piedra caliza realizados y utilizados para el paso del tren de circunvalación.

En la Oficina Estatal de Preservación Histórica (SHPO) se reportan 33. De estos 10 son prehistóricos y 23 son históricos.



**Foto # 2 circunferencia de un kilómetro desde el área del proyecto
Señalando investigaciones realizadas.**

E. Prehistoria del Municipio Quebradillas

En el municipio de Quebradillas se han identificado dentro de la evidencia arqueológica varios lugares. El sitio con evidencia de cerámica más temprano para Quebradillas puede ser el sitio Qb-6. Localizado en la ribera del río Guajataca donde se identificó cerámica y concha pertenecientes al periodo Ostionoides, con una fecha que fluctúa entre el 600dc al 1200dc. Los otros sitios son considerados posiblemente del periodo Chicomilco (Taíno) y se trata de residuarios de cerámica y concha (Qb-1, Qb-5 y Qb-7), conchero (Qb-2) y arte rupestre en cuatro cuevas (Maleona, Las Golondrinas 1 y 2 y del Abono) y 2 petroglifos en campo abierto (Qb-4).

Tabla # 3 Sitios Arqueológicos en el municipio de Quebradillas registrados en el Consejo de Arqueología Terrestre (CAT)

TAG	NOMBRE	ASOCIACION	CRONOLOGIA	TIPO DE SITIO
QB0100001	Puerto Hermina QB1	Precolombino-Taíno	1200dc-1500dc	Conchero-residuario
QB0100002	Terranova 2 QB 2	Precolombino-Taíno	1200dc-1500dc	Conchero
QB0100003	Terranova 1/Cueva las Golondrinas 1	Precolombino-Taíno	1200dc-1500dc	Cueva/petroglifos Destruídos
QB0100004	QB-4	Precolombino-Taíno	1200dc-1500dc	2 petroglifos en campo
QB0100005	QB-5 La Palma	Precolombino-Taíno	1200dc-1500dc	Residuario y conchero fuera de abrigo rocoso
QB0100006	QB-6 La Sequía	Precolombino Ostionoides	1200dc-1200dc	Residuario cerámica y concha
QB0100007	QB-7	Precolombino	n/a	Concha y cerámica
QB0100008	Cueva de las Golondrinas 2	Precolombino-Taíno	1200dc-1200dc	Arte rupestre
QB0100009	Cueva Maleona	Precolombino-Taíno	1200dc-1200dc	Arte rupestre
QB0100010	Cueva del Abono/Cueva Sergio Lloret	Precolombino-Taíno	1200dc-1200dc	Arte rupestre
QB0200001	Ruinas fortín de Puerto Hermina	Histórico-siglo XIX	ca. 1800	Antiguo almacén marítimo
QB0200002	Teatro Liberty	Histórico-siglo XX	1921	Ed. ecléctico hormigón planta rectangular
QB0200003	Hda. San Antonio/Hda. Comulada	Histórico-siglo XIX	1828-1837	Ruina Hda. Azucarera
QB0200004	Hda. San Patricio	Histórico-siglo XIX	1882	Hda. Azucarera
QB0200005	Hda. Perseverancia	Histórico-siglo XIX	1857	Hda. Originalmente Cafetalera/Azucarera

QB0200006	Hda. Amador	Histórico-S.XIX/XX	1824-1966	Casa de dos niveles en ladrillo Hda. Tabacalera
QB0200007	Ruina Escuela Horace Mann	Histórico-siglo XX	1904-1910	Estructuras que pertenecieron a escuela
QB0200008	Puente Blanco Núm.1112 Viaducto Que. La Mala	Histórico-siglo XX	1922	Puente Con Arco en Hormigón
QB0200009	Puente Santa Matilde/ Puente Rojo	Histórico-S.XIX/XX	1897-1975	Puente de cercha de acero
QB0200010	Puente de Guajataca Núm. 1572	Histórico-siglo XX	1906-1952	Puente de dos tramos con soporte de acero de armadura y estribos de mampostería al centro
QB0200011	Viaducto de Quebrada Bellaca	Histórico-siglo XX	1906	Puente de ferrocarril de caballetes de acero
QB0200012	Túnel de Quebradillas Túnel Negro	Histórico-siglo XX	1906	Bóveda hormigón Paredes en piedra
QB0200013	Alcantarilla La Mala 1	Histórico-siglo XX	1906	Obra de vía, cilíndrica doble de hormigón con muros de piedra
QB0200014	Alcantarilla La Mala 2	Histórico-siglo XX	1906	Puente de piedra y hormigón sobre paredes de piedra y aletas
QB0200015	Alcantarilla La Mala 3	Histórico-siglo XX	1906	Alcantarilla hormigón y piedra con bóveda doble de hormigón, muros y paredes de piedra con bordes de ladrillo
QB0200016	Tajea La Mala 1	Histórico-siglo XX	1906	Tarjea cilíndrica de hormigón
QB0200017	Tajea La Mala 2	Histórico-siglo XX	1906	Tarjea de piedra y hormigón
QB0200018	Tajea Yeguada 1	Histórico-siglo XX	1906	Tarjea cilíndrica de piedra y hormigón
QB0200019	Tajea Terranova	Histórico-siglo XX	1906	Tarjea de hormigón
QB0200020	Tajea Merendero	Histórico-siglo XX	ca. 1906	Tarjea cilíndrica de hormigón
QB0200021	Triángulo Terranova	Histórico-siglo XX	ca. 1906	Obra de vía cilíndrica hormigón
QB0200022	Estación de Quebradillas	Histórico-siglo XX	ca.1930	Estación de pasajeros
QB0200023	Cementerio San Rafael se las Quebradillas	Histórico-siglo XIX	1823	Cementerio abandonado
QB0200024	Hada. Reforma	Histórico-siglo XIX	1862	Hada. Azucarera

F. Datos Históricos del municipio y el barrio Pueblo donde ubica el proyecto.

Quebradillas es uno de los municipios del Estado Libre Asociado de Puerto Rico. Quebradillas se divide en 8 barrios. El barrio pueblo, es el centro administrativo y principal barrio del municipio. Los límites geográficos son, en la costa norte colinda con el Océano Atlántico. Al este su colindancia es con el territorio del municipio de Camuy. En su parte sur hace frontera de colindancia con la municipalidad de San Sebastián. Por su lado oeste colinda con el municipio de Isabela.

1. Eventos de Quebradillas durante la Colonia Española

El pueblo de Quebradillas fue fundado en el año de 1823, por Don Felipe Ruiz y Francisco A Bravo. Ellos donaron el terreno, Ruiz dona ocho cuerdas y Bravo una y media para levantar las obras municipales. Desde el año de 1805 había una pugna entre los vecinos de Camuy y Quebradillas para obtener autorización de poblar el área. Quebradillas debe su nombre a la existencia de numerosas quebradas pequeñas que drenan su territorio.

En el 1815 los vecinos de Camuy Arriba o Quebradillas, dieron poder a Francisco Jiménez para que solicitara del gobierno autorización para fundar el pueblo en el sitio de las Quebradillas.

Luego de muchos esfuerzos entre los días 6 ó 7 del mes de junio de 1823, se llevó a cabo la fundación de San Rafael de las Quebradilla. En ese mismo año iniciaron las obras municipales cercando el cementerio, el próximo se termina la Casa del Rey, terminándose en 1824.

La Iglesia se terminó en el año 1828 y fue su primer Párroco el Reverendo Padre Manuel Valdez lleva por nombre del santo patrón San Rafael Arcángel.

2. Eventos de Quebradillas bajo el régimen de Estados Unidos

En 1902 la Asamblea Legislativa de Puerto Rico aprobó una ley llamada para la Consolidación de ciertos Términos Municipales que eliminó el municipio de Quebradillas e incorporó sus barrios y funcionarios a los de Camuy.

Entre 1903 y 1908 se completó el trazado de la vía férrea entre San Juan a Ponce del Ferrocarril de Circunvalación de Puerto Rico que atravesaba Quebradillas con la erección de un puente sobre Quebradas en Isabela y Quebradillas y el impresionante viaducto de caballetes a base de vigas en acero cruzando el cañón del Río Guajataca y sus dos túneles de acceso.

En el 1905, tres años después una nueva ley devolvió a Quebradillas su carácter de municipio con los mismos linderos y barrios que tenía en 1902.

3. El barrio Pueblo de Quebradillas

El proyecto del Museo Histórico de Quebradillas se localiza en el barrio Pueblo, de termino municipal del mismo nombre, Quebradillas. Se localiza en la Calle Honorio Hernández, frente a la Plaza de recreo del pueblo. Colinda en su lado Oeste con la propiedad de la Sra. Nilda Prieto. En la parte Norte, limita con la propiedad de la Sra. Virginia Hernández. En el lado Este con propiedad del Sr. Longino Medina. Según el plano de Mesura y Niveles, fechado el 15 de junio de 2022.

En el Censo de 2010 el barrio pueblo tenía una población de 3103 habitantes y una densidad poblacional de 1.843,19 personas por km². Su elevación es de 113 m sobre el nivel del mar. La superficie abarca 168 hectáreas o 1,680,000 metros cuadrados. Las zonas que abarca son conocidas como Amador, Ávila y Del Carmen. Las coordenadas del del barrio pueblo son 18°28'26" N, 66°56'19"W.

G. Aportación investigativa de los informes arqueológicos de municipio (previos 1980 al presente)

Los informes arqueológicos realizados dentro del territorio municipal de Quebradillas para la Oficina del Consejo Para La Protección Del Patrimonio Arqueológico Terrestre De Puerto Rico, comenzaron en el año de 1985. El informe fue de la autoría de Antonio Dubón Vidal, de una Fase IA-IB. El proyecto Centro Comercial Quebradillas Plaza and Urb. Villa Borges, con el código ICP/CAT-QB-85-01-02.

Según el listado existente de la Sala de Referencias cuenta con 33 Informes arqueológicos realizados para el municipio de Quebradillas. De esos solo uno es de Fase II realizado por el arqueólogo Juan González Colón, para el sitio de Terranova IV, ICP/CAT-QB-08-04-01, ubicado en el barrio Terranova. No se encontró otro proyecto de otra Fase Arqueológica.

La Oficina Estatal de Conservación Histórica del Gobierno de Puerto Rico tiene registrados 14 informes registrados para el municipio de Orocovis. Se comienza con el que realizo el arqueólogo Antonio Daubón Vidal. Realizo un informe de Fase IA, la que abarca Fase IA IB. Se realizo para el proyecto Centro Comercial Quebradilla Plaza le conoce como su RN SHPO # 03-19-06. Todos los proyectos son de Fase IA-IB.

H. Análisis de informes arqueológicos cercanos al proyecto

Los informes cercanos al área del proyecto son 12. Solo uno resulto con resultados positivo. El proyecto ICP/CAT-HT 15-11-06 Corredor Noroeste, abarco los municipios de Hatillo, Camuy, Quebradilla, Moca y Aguadilla. Fue realizado por la arqueóloga Virginia Rivera Calderón, en 2016.

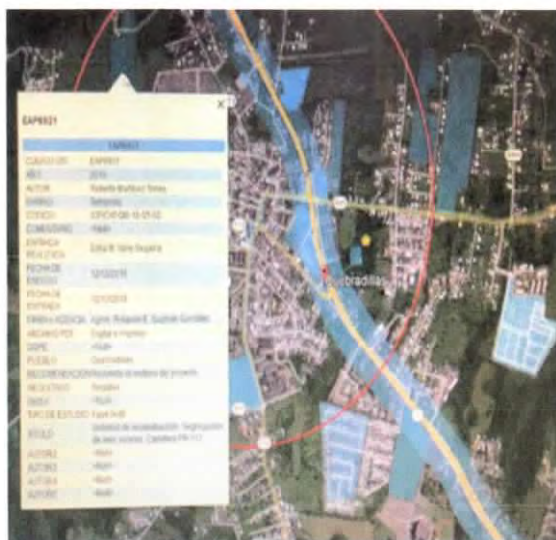


Foto #3 ICP/CAT-QB-16-05-02

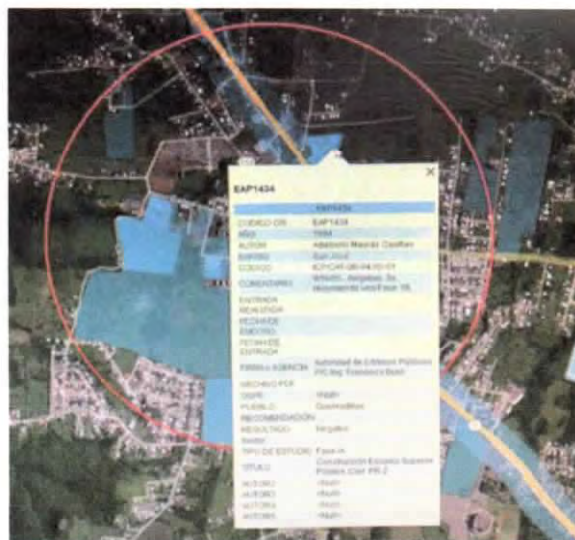


Foto # 4 ICP/CAT-QB-94-02-01

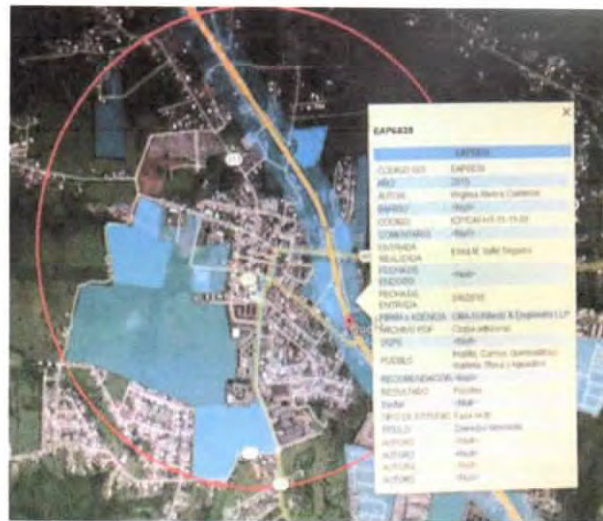


Foto # 6 ICP/CAT-HT-15-11-06

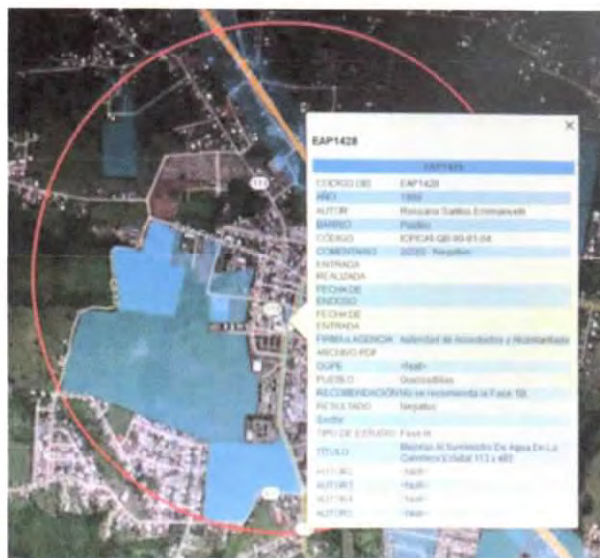


Foto # 8 ICP/CAT-QB-90-01-04

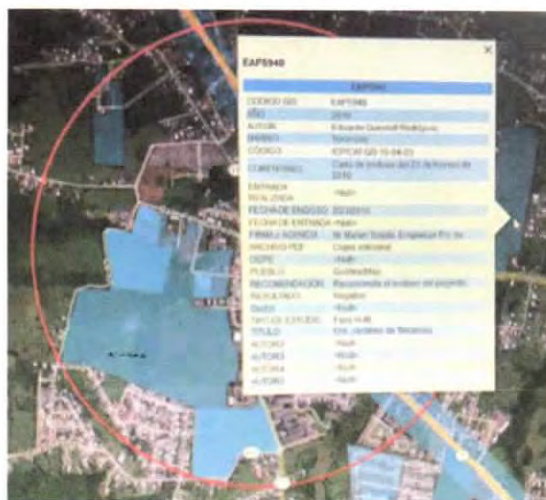


Foto # 10 ICP/CAT-QB-10-04-03

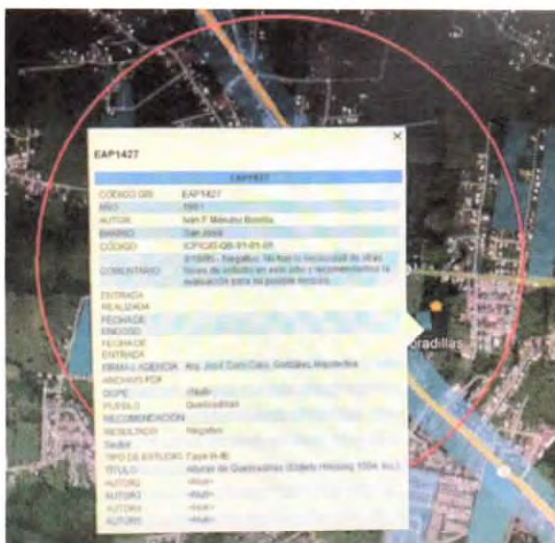


Foto # 12 ICP/CAT-QB-91-01-05

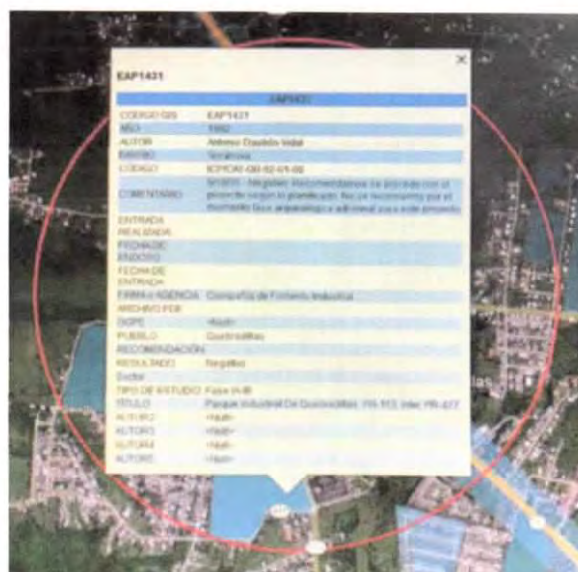


Foto # 14 ICP/CAT-QB-92-01-08

Tabla # 4 Informes cercanos dentro de un radio de 1 kilometro

Código	Fase	Título	Autor	Resultado
ICP/CAT-QB-90-01-04	Fase IA	Mejoras al Suministro de Aguas Carr. PR 113 y 485	Rossana Santos Emanuelli	Negativo
ICP/CAT-QB-91-01-05	Fase IA-IB	Alturas de Quebradillas	Iván F. Meléndez Bonilla	Negativo
ICP/CAT-QB-92-01-08	Fase IA-IB	Parque Industrial de Quebradillas	Antonio Daubón Vidal	Negativo
ICP/CAT-QB-92-01-09	Fase IA-IB	Villas de Quebradillas	Juan González Colón	Negativo
ICP/CAT-QB-94-02-01	Fase IA	Construcción Escuela Superior	Adalberto Mauras Casillas	Negativo
ICP/CAT-QB-98-02-05	Fase IA-IB	Urbano de Interés Social	Juan J. Ortiz Aguilú	Negativo
ICP/CAT-QB-03-03-03	Fase IA-IB	Saralinda Development Corp.	Andrés Príncipe Jácome	Negativo
ICP/CAT-QB-08-04-02	Fase IA	Parque Urbano	Fernando Muñoz Alvarado	Negativo
ICP/CAT-QB-10-04-03	Fase IA-IB	Jardines de Terranova	Eduardo Questell Rodríguez	Negativo
ICP/CAT-QB-10-04-04	Fase IA	Urbanización La Ceiba	Roberto Martínez Torres	Negativo
ICP/CAT-QB-16-05-02	Fase IA-IB	Solicitud de reconstrucción, Segregación tres solares	Roberto Martínez Torres	Negativo

I. Recursos arqueológicos del municipio de Quebradillas en OECH

En el listado de sitios arqueológicos de la Oficina Estatal de Conservación Histórica (OECH) se reportan 34 sitios. Se encuentran incluidos los sitios prehispánicos y los históricos. Se registran 23 sitios históricos, 10 prehispánicos y 1 histórico que se repite. Este repetido es el de Puerto Hermida (antes Qb1) aparece en el área urbana como QB0200001 y con la misma numeración (QB0200001) en la frontera noreste entre Quebradillas y Camuy. Entendemos es un error y todo indica que la ubicación correcta es en el área de la colindancia del territorio municipal con el municipio de Camuy.



Figura #6 Señalando la ubicación del sitio de Puerto Hermida en dos lugares.

Tabla # 5 Sitios Arqueológicos en el municipio de Quebradillas registrados en OEPH

TAG	Nombre del Sitio
QB0100001	Puerto Hermina (antes Qb-1)
QB0100002	Terranova 2; Qb-2
QB0100003	Terranova 1; Cueva de Las Golondrinas; Finca Cintrón; Qb-3
QB0100004	Qb-4
QB0100005	La Palma; Qb-5
QB0100006	La Sequía; Qb-6
QB0100007	Qb-7
QB0100008	Cueva de las Golondrinas 2
QB0100009	Cueva Maleona
QB0100010	Cueva del Abono; Cueva Sergio Lloret
QB0200001	Ruinas del Fortín de Puerto Hermina
QB0200003	Hacienda San Antonio; Hacienda Comulada
QB0200004	Hacienda San Patricio
QB0200005	Hacienda Perseverancia
QB0200006	Hacienda Amador
QB0200007	Ruinas Escuela Horace Mann
QB0200008	Puente Blanco; Viaducto de Quebrada La Mala; Puente núm. 1112
QB0200009	Puente Santa Matilde; Puente Rojo
QB0200010	Puente de Guajataca; Puente núm. 1572
QB0200011	Viaducto de Quebrada Bellaca
QB0200012	Túnel de Quebradillas; Túnel Negro
QB0200013	Alcantarilla La Mala 1
QB0200014	Alcantarilla La Mala 2
QB0200015	Alcantarilla La Mala 3
QB0200016	Tajea La Mala 1
QB0200017	Tajea La Mala 2
QB0200018	Tajea Yeguada
QB0200019	Tajea Terranova
QB0200020	Tajea Merendero
QB0200021	Triangulo Terranova
QB0200022	Estación de Quebradillas
QB0200023	Cementerio San Rafael de las Quebradillas
QB0200024	Hacienda Reforma

J. Recursos Históricos del Municipio

El territorio del municipio de Quebradillas solo tiene dos registros Históricos en el *National Register of Historical Sites*. El primero fue nominado en el 1984. Registrado como Puente Blanco, Puente construido en el 1922, y Abarcando el Cañón Quebrada Mala en la Calle Panorámica, en el barrio Terranova. Las coordenadas son 18°29'10" N 66°55'34"W.

La segunda nominación corresponde al Teatro Liberty en el 1989. Ubica en el número 157 de la calle Rafols, en el barrio Pueblo, es un edificio de 1921, diseñado por Arcilio Rosa. Las coordenadas son 18°28'24" N 66°56'21"W.



Foto # 15 Puente Blanco



Foto # 16 Teatro Liberty

K. Planos Históricos, fotos y dibujos del municipio

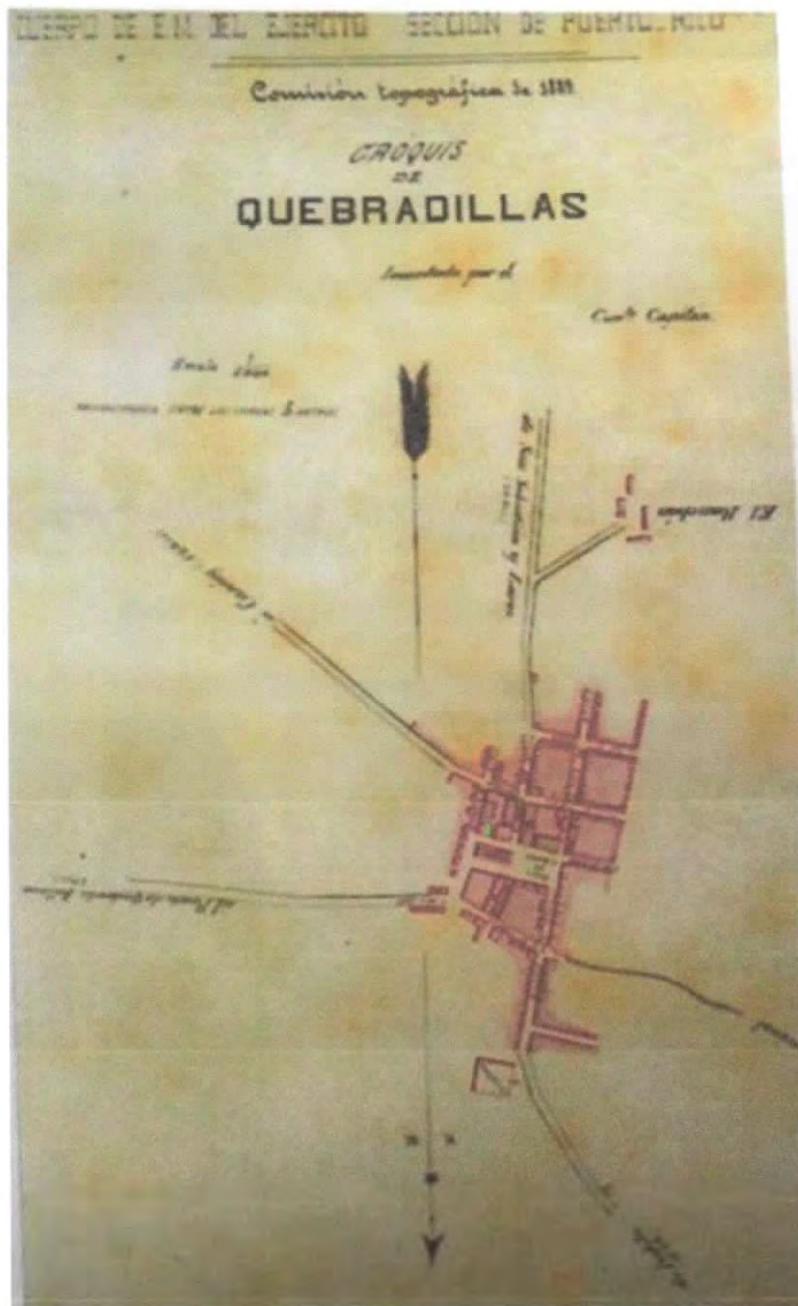


Figura #7 Plano histórico de Quebradillas 1889 (Proyecto señalado en verde)
(Sepúlveda Puerto Rico Urbano Vol.3 p.318)

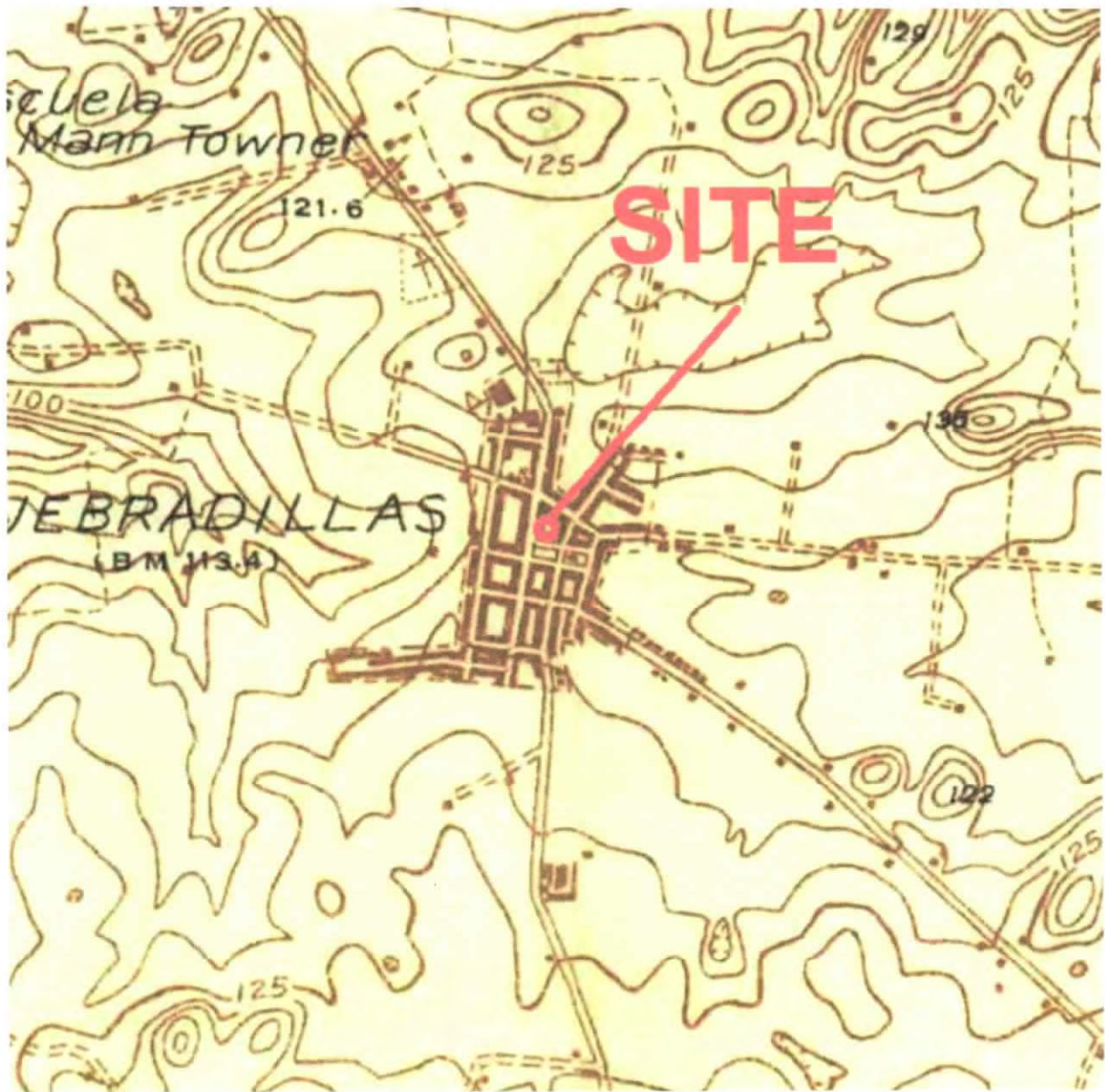


Figura #8 Cuadrángulo Topográfico 1937-38 (Surveyed 1922)

En le cuadrángulo del 1937-1938, se pude observar las primeras cuadras construidas en el casco urbano de Quebradillas.



Figura #9 Cuadrángulo Topográfico 1942

Para el 1942, se observan otras cuerdas desarrolladas con el pasar del tiempo.

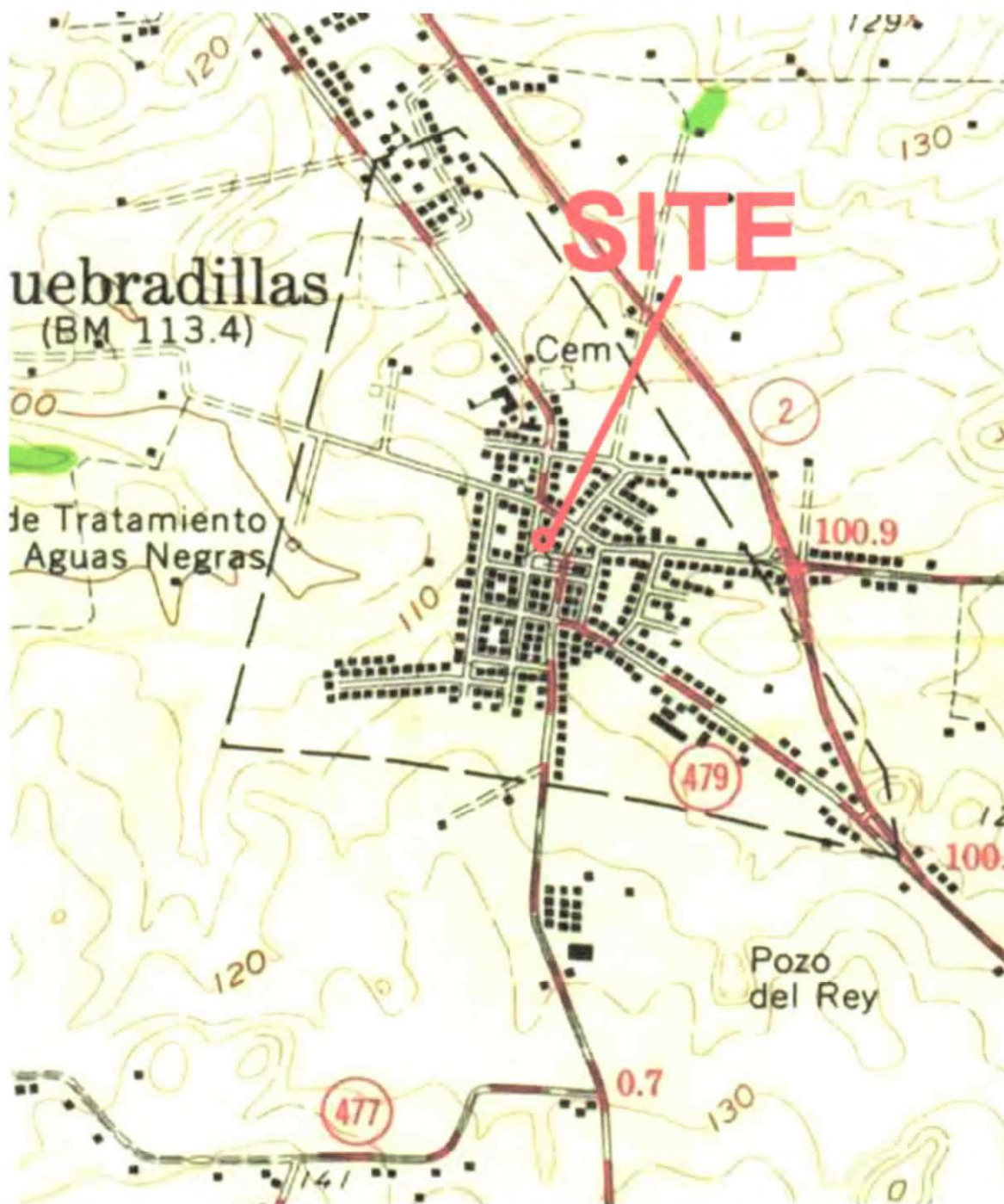


Figura #10 Cuadrángulo Topográfico 1957-1961

En la pasada imagen, se aprecia el desarrollo del casco urbano y la construcción de varias edificaciones construidas para la fecha.

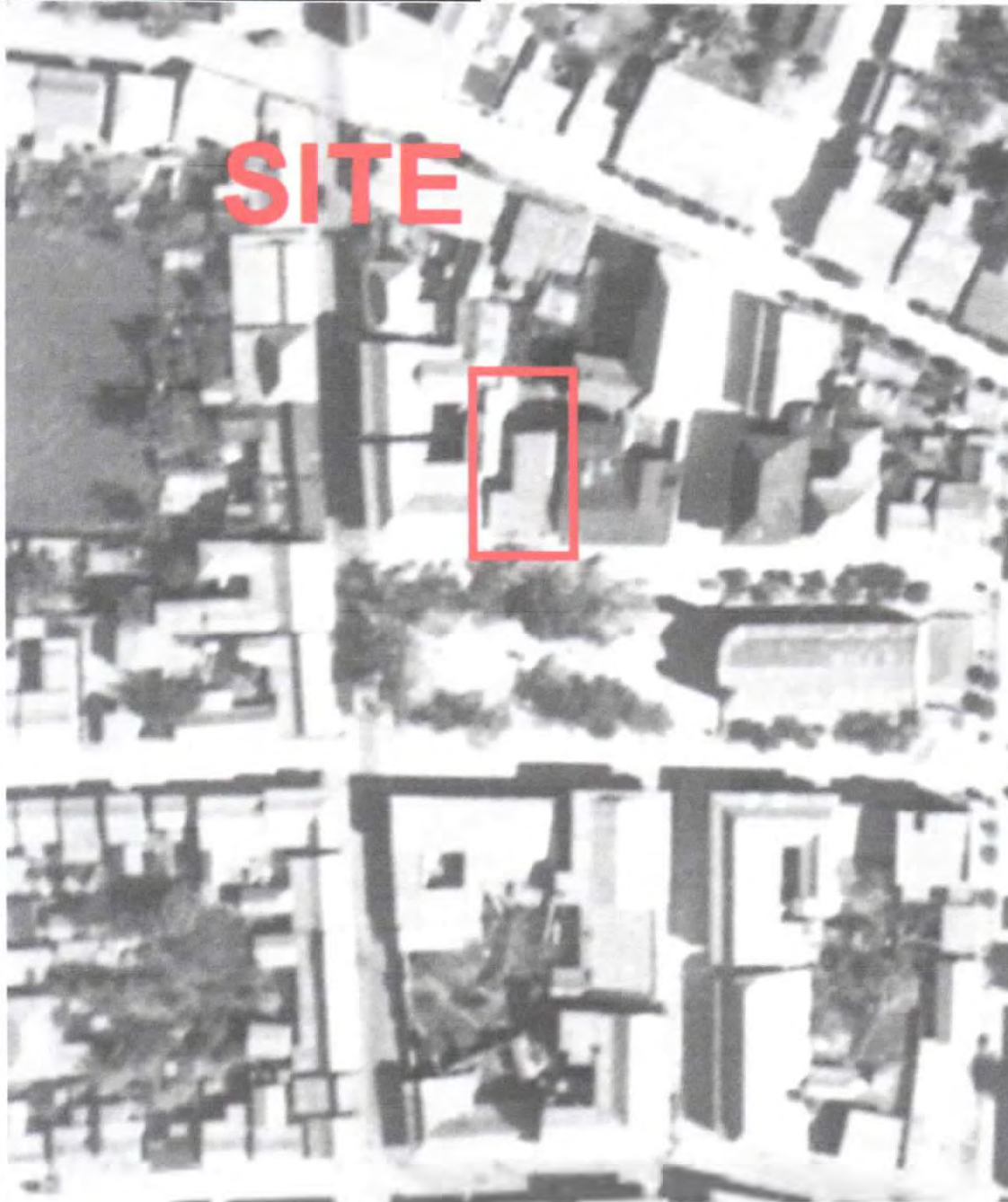


Figura #11 Quebradillas en 1931, DTOP

En el 1931, se observa la edificación en forma de martillo, observada en la actualidad. Otras edificaciones de gran tamaño son observables colindante con el área bajo estudio.



Figura #12 Quebradillas en 1976, DTOP

Para el 1972, se observa una pequeña ampliación hacia el costado oeste. En los alrededores del ara bajo estudio, se encuentran nuevas construcciones en comparación con la imagen anterior del 1931.



Figura #13 Quebradillas en 1985, DTOP

Para el 1985, no se observan cambios al área bajo estudio, con respecto a la foto del 1976.



Foto # 17 Quebradillas señalando en verde brillante el lugar del proyecto Google 2018



Foto #18 Vista antigua de la Calle Honorio Hernández. Se observa el área del proyecto (c. 1950)



Foto # 19 Casa Amador
QB0200006



Foto # 20 San Rafael de las Quebradillas
QB0200023



Foto # 21 Ruinas Puerto Hermina
QB0200001



Foto # 22 Túnel de Quebradillas o Túnel Negro
QB0200012

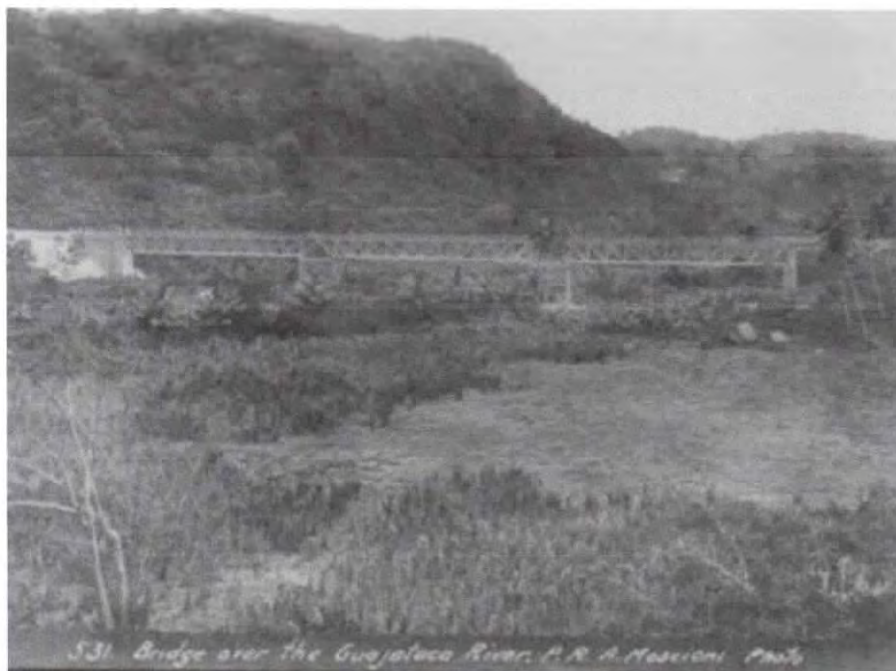


Foto #23 Puente sobre el Río Guajataca entre 1898 y 1917 Autor Moscioni, A.



Foto #24 Construcción Túnel de Guajataca ca. 1917 Autor Moscioni, A.

L. Registro de la Propiedad

La propiedad ubica en terreno municipal de Quebradilla. No hay constancia de haber sido registrada ninguna de las dos, la estructura ni el terreno. Todos los intentos de localizar la información respecto a un registro fueron infructuosos, por parte de los dueños anteriores de la estructura, La Iglesia Católica, Diócesis de Arecibo y posteriormente, Gobierno Municipal de Quebradillas.

M. Patrón y uso del Terreno

En los comentarios que recibimos por diferentes personas del pueblo que se acercaron a preguntar, por lo que estaría sucediendo a la estructura, supimos que fue residencia, privada en un principio, con local de índole comercial en su planta baja. Luego bazar de la Iglesia Católica, hasta la adquisición por el Gobierno Municipal de Quebradillas, para ser convertido en Museo de la Historia de Quebradillas.

N. Justificación de la metodología utilizada para la inspección preliminar de campo y evaluación de los resultados obtenidos

La metodología que fue realizada durante la inspección preliminar de campo se formula en la observación de la estructura. Se inspecciona el patio trasero, observando la superficie del suelo, la colindancia de la parcela, y la estructura en sus dos niveles (primer y segundo piso). El nivel del suelo en el patio trasero y la parte lateral, esta vez cubierto el espacio frontal derecho por la escalera de acceso al segundo nivel. En su lado izquierdo no tiene acceso por estar ubicado el cuerpo de la estructura, que como nos comenta el Arquitecto Ferran, *la planta del edificio se expresa en forma de "L" o Martillo muy típica de este tipo de desarrollo urbano.*

N. Análisis de las condiciones ambientales pretéritas y actuales

Las condiciones ambientales pretéritas entendemos que no son las mismas que en un principio de la parcela. La construcción de la estructura, el pozo séptico existente, las verjas de demarcación de la parcela enmarcan un predio que no siempre fue así.

El paisaje original donde ubica esta estructura cambio. Eso es sabido, pero conforme un nuevo entorno que ha enmarcado el centro urbano del pueblo de Quebradilla en los pasados cien años. El paisaje urbano en conjunto de esta estructura y las circundantes le ha dado un carácter propio al concepto urbano de Quebradillas. Es por eso que esta estructura en su conjunto es parte importante del todo urbano.

O. Inspección de superficie adentro de la Fase 1A

Durante la inspección de la superficie realizada pudimos observar que parte del área estaba conformada por un piso en cemento que resulta ser la parte superior de un pozo séptico con la que conto la estructura. La superficie se encuentra cubierta de diferentes plantas que han crecido en ese traspatio. Conforman una vegetación plantas de índole silvestre, algunas de las cuales son utilizadas como medicinales y las de tomate de uso culinario.



Foto #25 Vista frontal del edificio



Foto #26 Vista frontal del edificio



Foto #27 Vista del interior del edificio

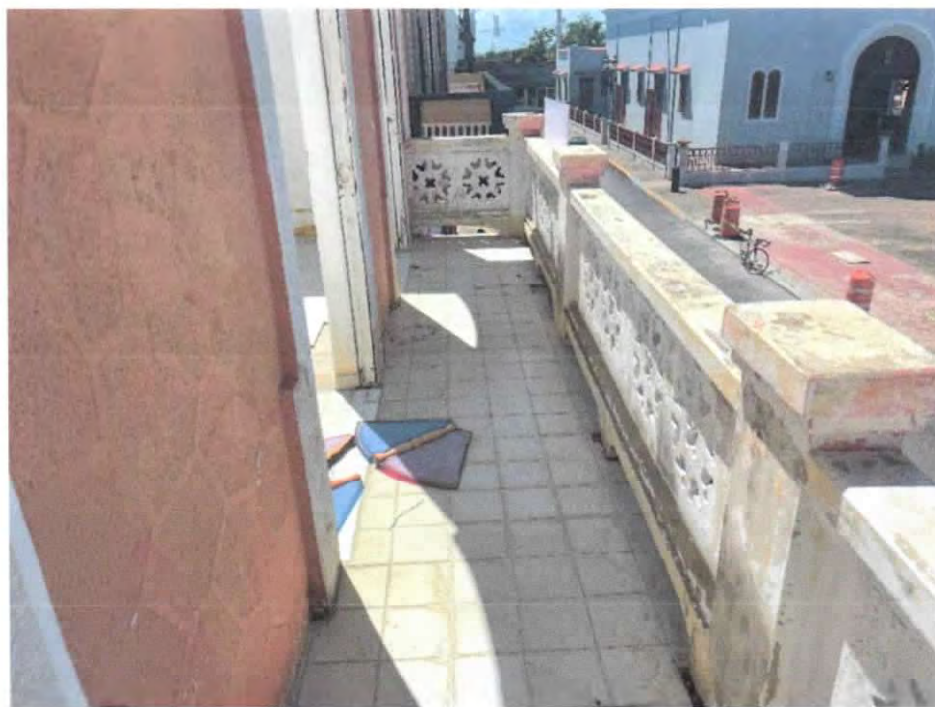


Foto #28 Vista del balcón



Foto #29 Vista de la parte posterior del edificio



Foto #30 Vista de plazoleta en la parte posterior de la propiedad



Foto #31 Vista de la parte posterior de la propiedad



Foto #32 Vista de pared aledaña construida en piedra caliza



Foto #33 Vista de expansión y construcciones adosadas



Foto #34 Vista de pasillo localizado en el extremo este de la propiedad



Foto #35 Vista de personal haciendo el recorrido de campo

P. Conclusión de la Fase IA

Realizamos una investigación en los archivos de las agencias gubernamentales culturales del Gobierno de Puerto Rico, Instituto de Cultura Puertorriqueña/Consejo Arqueológico Terrestre de Puerto Rico (ICP/CAT) y la Oficina Estatal de Conservación Histórica, mejor conocida por sus siglas en inglés, SHPO.

No salió a relucir ninguna información de ningún lugar prehispánico. La estructura en sí, es un recurso histórico. La evidencia en fotos tomadas en el 1950 nos Tomando la información del Arquitecto Carlos Ferrán en su Informe Evaluativo del Acervo Cultural de Arquitectura ubicándolo en el pasado siglo XX. *Se puede identificar el alzado principal como Neoclásico-Colonial de principio de Siglo XX (1918) y que se encuentra identificado en el adorno de concha sobre la puerta central del nivel primero.*

Reconocemos la importancia de mantener nuestro acervo cultural y la importancia que ello implica. Nuestros pueblos tienen una idiosincrasia particular a cada ambiente en el que se desarrolló y estructuro. Cada uno de los elementos de los acervos culturales que puedan ser reutilizados debemos de protegerlos. La sola mención de demoler no sería aconsejable para este inmueble. El Arquitecto Ferrán muy claramente expone esta recomendación cuando nos dice y cito: *“Nuestra recomendación ha sido siempre la de motivar y exhortar la protección y conservación de este y otros recursos culturales en la medida que sean posible. Además, evitar un impacto mayor y aceleramiento del detrimento del medio. El objeto de este informe en cumplimiento con la normativa vigente de protección es reconocer los bienes patrimoniales y la huella histórica producto de su época son parte de nuestro legado histórico que nos definen como nación.”*

“Promovemos considerar el recurso como un elemento que puede y debe ser fusionado o integrado a los nuevos proyectos manteniendo sus características particulares en las zonas donde existen, ocurren y permanecen. Se debe motivar siempre su Reutilización, ya sea a través de una restauración lo más fidedigna que se pueda, propiamente para los usos que fueron desarrollados originalmente o a través de otras iniciativas que proveen las normativas que rigen las intervenciones sobre el patrimonio edificado. Mencionamos entre las cuales se encuentra las actividades de Rehabilitación, que permite incorporar nuevos usos en antiguas estructuras con el mínimo de alteración a su fábrica origina.”

Secundamos estas consideraciones del Arquitecto y nos unimos en sus recomendaciones, para que el proyecto del Museo Histórico de Quebradilla pueda ser avalado por las Agencias Culturales Gubernamentales, del Gobierno de Puerto Rico.

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Coordenadas del Barrio Pueblo Quebradillas

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Sectores, Elevacion, Superficie,

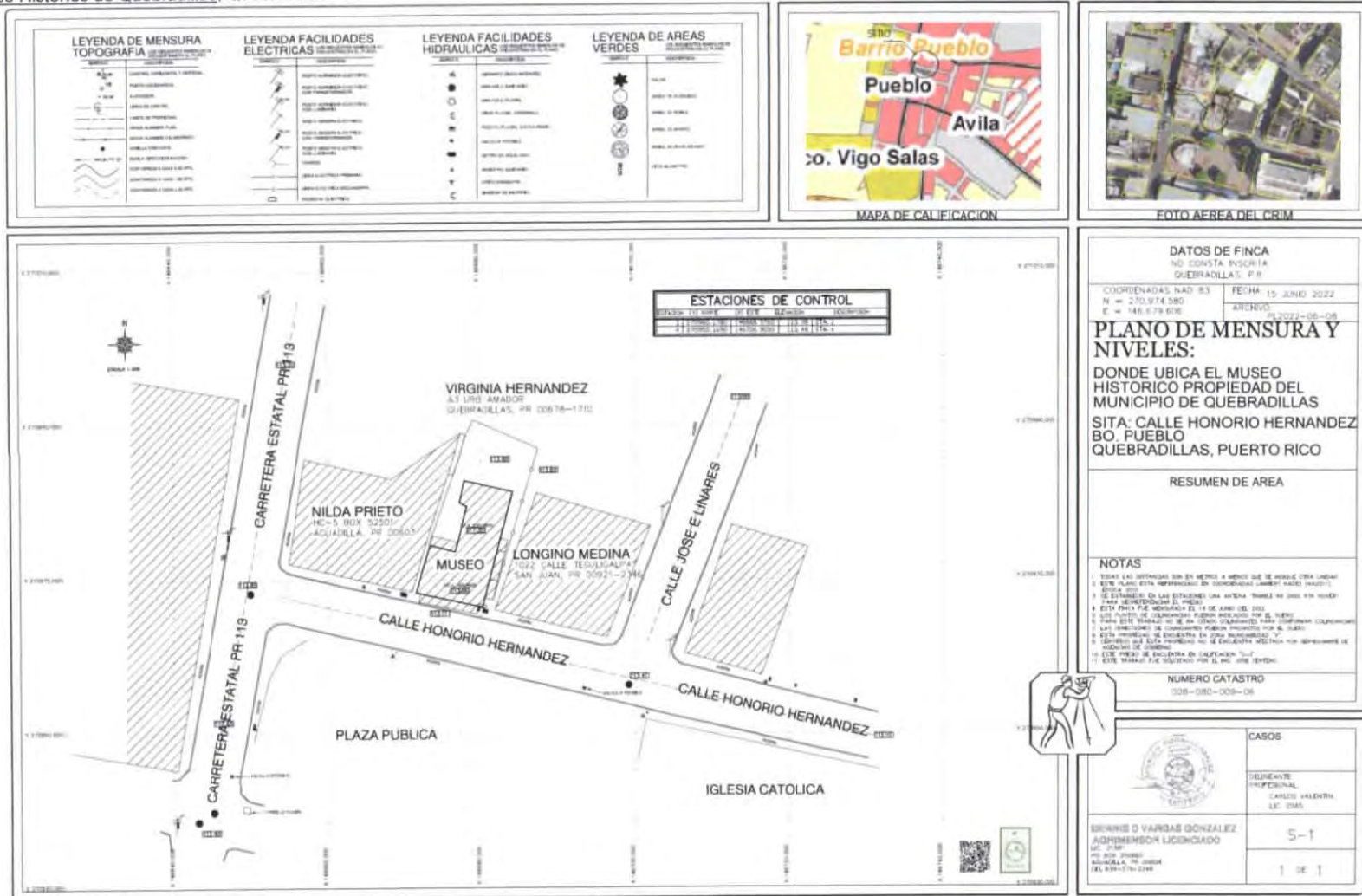
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Memoria 62 Quebradilla-1955

https://demografia.rcm.upr.edu/wp-content/uploads/sites/35/2020/04/Memoria_62_Quebradilla-1955.pdf

R. Anejos

- A. Plano del Proyecto.
- B. Plano con el recorrido efectuado
- C. Carta de la OGPE solicitando el estudio
- D. Documentación arquitectónica realizada por el Arq. Carlos Ferrán



A. Plano del Proyecto





GOBIERNO DE PUERTO RICO
Departamento de Desarrollo Económico y Comercio
Oficina de Gerencia de Permisos

Número de Caso:
2022-446339-SRA-057312

Recomendaciones

MUSEO HISTORICO DE QUEBRADILLAS

Datos de Localización

De acuerdo a la información suministrada se propone una actividad: Público con Contratación Privada en:

Dirección Física

CALLE H HDEZ
Quebradillas Puerto Rico, 00678

Número(s) de Catastro

008-080-009-06

Calificación

Distrito(s) de Calificación: C-I

Distrito en el Mapa de Inundabilidad: X

Tipo de Suelo: SNS

Dueño

Javier Butler

Certificado por

Ingeniero : José Centeno Calero, Lic. No. 20206

Cabida

Cabida según escritura: 223.94 metros cuadrados

Arqueología y Conservación Histórica

COMENTARIO DACH-ICP A CASO NUM.: 2022-446339-SRA-057312-- PROYECTO: -- MUSEO HISTORICO DE QUEBRADILLAS -- I. BASE LEGAL: Se emite el siguiente comentario en base a la Ley 374 del 14 de marzo de 1949, según enmendada, Ley de Zonas Antiguas o Históricas y Zonas de Interés Turístico, Ley 3 del 2 de marzo de 1951, Ley de Edificios y otras Estructuras Históricas y la Ley 89 del 21 de junio de 1955, según enmendada, conocida como Ley Orgánica del Instituto de Cultura Puertorriqueña y la Ley 161 del 1 de diciembre de 2009, conocida como Ley para la Reforma del Proceso de Permisos de Puerto Rico. Estas leyes le confieren jurisdicción sobre los siguientes asuntos: 1. Edificios, lugares y zonas incluidas en el Registro de Sitios y Zonas Históricas de Puerto Rico de la Junta de Planificación (REGLAMENTO CONJUNTO PARA LA EVALUACIÓN Y EXPEDICIÓN DE PERMISOS RELACIONADOS AL DESARROLLO, USO DE TERRENOS Y OPERACIÓN DE NEGOCIOS); 2. Edificios, lugares y zonas declaradas históricas a través de legislación (o de resolución de la JUNTA DE DIRECTORES DEL ICP); 3. Plazas de recreo y edificios circundantes (REGLAMENTO CONJUNTO PARA LA EVALUACIÓN Y EXPEDICIÓN DE PERMISOS RELACIONADOS AL DESARROLLO, USO DE TERRENOS Y OPERACIÓN DE NEGOCIOS); 4. Propiedades zonificadas "P" construidas previo a 1960 (RESOLUCIÓN JPE-25 Y RESOLUCIÓN JPE-047); 5. Propiedades zonificadas "CRH", "SH" o "R-ZH". Según REGLAMENTO CONJUNTO PARA LA EVALUACIÓN Y EXPEDICIÓN DE PERMISOS RELACIONADOS AL DESARROLLO, USO DE TERRENOS Y OPERACIÓN DE NEGOCIOS; 6. Propiedades elegibles a sitios históricos; propiedades de valor histórico que satisfacen los criterios de elegibilidad como sitios históricos para ser designada como tal individualmente (LEY NÚM. 89 DE 1955; REGLAMENTO CONJUNTO PARA LA EVALUACIÓN Y EXPEDICIÓN DE PERMISOS RELACIONADOS AL DESARROLLO, USO DE TERRENOS Y OPERACIÓN DE NEGOCIOS); II. PROGRAMA DE PATRIMONIO HISTORICO EDIFICADO (PPHE): RECOMENDACION FAVORABLE CONDICIONADA A ETAPA CONCEPTUAL DE DISEÑO. De acuerdo a nuestros expedientes y la información provista: 1. La propiedad no es al momento Sitio Histórico designado, ni es parte de una Zona Histórica según estos conceptos están definidos por el tomo XII (12), parte III, definiciones S-67, Z-12[=13] y Z-13[=14], y elaborados en el tomo X (10), del Reglamento Conjunto. 2. La propiedad no es un Monumento Histórico declarado según este concepto está definido por el Tomo XII Glosario de la Junta de Planificación, parte III, definición M-55 del Reglamento Conjunto 2020. 3. La propiedad se localiza en centro fundacional,





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entiéndase en bloque circundante a la Plaza de Recreo Luis Muñoz Rivera. 4. La propiedad queda en otro lugar bajo competencia del ICP, localizado dentro de los límites de un centro urbano según este concepto está definido por el Tomo XII Glosario de la Junta de Planificación, parte III, definición C-71 del Reglamento Conjunto 2020 5. La propiedad presenta componentes visibles sobre la tierra con valor histórico evidente. a. Propiedad histórica elegible a ser incluida en el Registro de Sitios y Zonas Históricas del de la JP 6. Está reglamentariamente bajo competencia del Instituto de Cultura Puertorriqueña: a. Regla 2.1.8, Sección 2.1.8.7, Inciso "b": Todo proyecto público o privado que conlleve movimiento de terreno, excavación, extracción de corteza terrestre o construcción, reconstrucciones o canalizaciones deberá solicitar a la División o Unidad de Evaluación Ambiental (DECA) la recomendación del ICP sobre Arqueología y Conservación Histórica, ya sea a través de la OGPe, los Municipios Autónomos con Jerarquía I a la III o el Profesional Autorizado. b. Regla 2.2.8, Inciso c-10; Consultas de Ubicación a proyectos de mejoras públicas municipales en propiedades y estructuras que ubiquen en los centros fundacionales, dentro de Zonas Históricas o designadas como sitio histórico deberán contar con la recomendación del ICP, previo comienzo de la obra. c. Regla 2.3.1: El PA requerirá una Recomendación del ICP en todo aquel permiso único a otorgarse en las estructuras oficialmente designadas e incluidas en el Registro de Sitios y Zonas Históricas de la JP y en los centros fundacionales de los Municipios. Los permisos y determinaciones finales a un permiso de construcción y para la demolición, reparación, restauración o remodelación de una estructura con valor histórico requerirán de la recomendación del ICP. d. Regla 3.2.1 Permisos de Construcción, Sección 3.2.1.2, inciso "f": El proyecto que se encuentre en una zona histórica, centros urbanos tradicionales y yacimientos arqueológicos, la OGPe, Los Municipios Autónomos con jerarquías de la I a la III o los PA, requerirán la recomendación escrita del ICP antes de autorizar cualquier permiso de construcción, conforme a la Regla 10.2.11 de Conservación del Patrimonio Inmueble, en el Tomo X de este Reglamento Conjunto. e. Regla 3.2.2, inciso "b-6": Si el proyecto se encuentre en una zona histórica, centros urbanos tradicionales y yacimientos arqueológicos, la OGPe, los Municipios Autónomos con Jerarquía I a la III, o los PA, requerirán la recomendación escrita del ICP antes de autorizar la actividad de demolición. En caso de ser una propiedad histórica, estará conforme a lo establecido en este Reglamento Conjunto sobre Conservación de Sitios y Zonas Históricas, entiéndase Tomo X, o cualquier documento formal emitido por las Entidades Gubernamentales Concernidas cuando existe una situación de emergencia previamente decretada por el Gobierno de Puerto Rico o el Gobierno Federal. Luego de la evaluación de los documentos sometidos para la etapa conceptual de diseño, se determina emitir una RECOMENDACIÓN FAVORABLE CONDICIONADA. Las condiciones a esta recomendación son las siguientes: Radicación de nueva "SRA" para planos finales de diseño. Esta deberá incluir 1. Memorial Explicativo que incluya información histórica de la propiedad. 2. Plano de Condición Existente 3. Plano de Demolición Selectiva 4. Juego de planos de construcción completos, entiéndase deberá incluir: arquitectura, plomería, electricidad y estructural. Tablas de puertas, ventanas y terminaciones, rejas, etc. 5. La propuesta de diseño deberá reevaluar el modelo de puertas a ser utilizadas en la fachada frontal. Debe evitar el uso de puertas de aluminio y cristal del tipo comercial. Deben ser armoniosas con el estilo histórico de la propiedad. No se recomienda que se selle los arcos de medio punto sobre las puertas en el segundo piso. El hueco original debe conservarse completo. Puede ser modelo doble hoja en metal (tipo Old San Juan con paños de cristal). Deberá presentar foto o dibujo de puertas a ser utilizadas en los pisos de la fachada frontal. 6. La propuesta de diseño debe conservar todo piso con valor





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histórico en la propiedad. Ejemplo: losa tipo criolla. 7. Deberá incluir esquema de colores conforme a estilo de la propiedad. Se recomienda retalles y pilastras en color claro (blanco, gris o crema) y bajo fondo en color sólido (colores pasteles). 8. La rotulación debe ser cónsona con la valoración de la propiedad. a. Adosado al macizo de la fachada. Puede ser letras sueltas. b. No más de dos pulgadas de espesor c. Un solo rótulo por fachada, ubicado en la planta baja. d. Iluminación indirecta, no cajas lumínicas. Esta evaluación, no incluye los elementos a ser evaluados por el Programa de Arqueología y Etnohistoria del ICP. La Ley 161-2009, según enmendada, Artículo 19.6, enmienda las Secciones 2 y 3 de la Ley Núm. 112 de 20 de julio de 1988, según enmendada, conocida como "Ley de Protección del Patrimonio Arqueológico Terrestre de Puerto Rico", a los fines de transferir al Instituto de Cultura Puertorriqueña toda facultad, deber u obligación referente a la evaluación para la otorgación o denegación de determinaciones finales o permisos, esto en coordinación con la Oficina de Gerencia de Permisos. En caso de dudas, requerir aclarar conceptos o solicitar reunión con personal a cargo de la evaluación, puede comunicarse al correo electrónico mgonzalez@icp.pr.gov. Este documento tiene vigencia de un (1) año a partir de su emisión. III. PROGRAMA DE ARQUEOLOGIA Y ETNOHISTORIA (PAE). Base Legal: La Ley 161-2009, según enmendada, Artículo 19.6, enmienda las Secciones 2 y 3 de la Ley Núm. 112 de 20 de julio de 1988, según enmendada, conocida como "Ley de Protección del Patrimonio Arqueológico Terrestre de Puerto Rico", a los fines de transferir al Instituto de Cultura Puertorriqueña toda facultad, deber u obligación referente a la evaluación para la otorgación o denegación de determinaciones finales o permisos, esto en coordinación con la Oficina de Gerencia de Permisos. El Reglamento Conjunto para la Evaluación y Expedición de Permisos Relacionados al Desarrollo, Uso de Terrenos y Operaciones de Negocios (RC-2020): registrado en el Departamento de Estado de Puerto Rico bajo el Número 9233 con vigencia de 2 de enero de 2021, establece, entre otros, lo siguiente: a. Regla 2.1.8, Sección 2.1.8.7, Inciso "b": Todo proyecto público o privado que conlleve movimiento de terreno, excavación, extracción de corteza terrestre o construcción, reconstrucciones o canalizaciones deberá solicitar a la División o Unidad de Evaluación Ambiental (DECA) la recomendación del ICP sobre Arqueología y Conservación Histórica, ya sea a través de la OGPe, los Municipios Autónomos con Jerarquía 1 a la III o el Profesional Autorizado. b. CAPÍTULO 10.2, Sección 10.2.1.2 se requerirá la recomendación del ICP en todos los Permisos relacionados con construcción, reconstrucción, trabajos de excavación, extracción o movimiento de tierras en lugar alguno del que haya documentación previa o indicios fidedignos de presencia de material arqueológico. Incluye los centros fundacionales de los municipios, entiéndase, plaza de recreo y bloques circundantes, conforme a la Ley 89-1955, supra, Sección 4. —Propósitos, Funciones y Poderes del Instituto. (18 L.P.R.A. sec. 1198) y la Ley Número 112 del 20 de julio de 1988, conocida como la "Ley de Protección del Patrimonio Arqueológico Terrestre", según enmendada. IV. EVALUACIÓN ICP-PAE: -- SOLICITUD DE ESTUDIO ARQUEOLOGICO FASE IA-- El Programa de Arqueología y Etnohistoria del Instituto de Cultura Puertorriqueña ha evaluado los documentos relacionados al proyecto de referencia recibidos a través de la Oficina de Gerencia de Permisos. Como resultado de esta evaluación, hemos llegado a la conclusión de que las actividades de desarrollo que contempla este proyecto pueden afectar recursos de naturaleza arqueológica. La evaluación fue realizada conforme a las disposiciones de la Sección 10 de la Ley 112 del 20 de julio de 1988, según enmendada, conocida como la Ley del Consejo Para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico. Para corroborar dicha información, el proponente deberá someter, para nuestra evaluación y determinación un Informe Fase IA con énfasis en la Documentación





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Histórica-Arqueológica, este deberá ser preparado por un arqueólogo cualificado para dicho nivel de investigación por el Consejo para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico. Deberá ser radicado en el Programa de Arqueología y Etnohistoria del Instituto de Cultura Puertorriqueña, localizado en el Viejo San Juan y seguir el Reglamento para la Radicación y Evaluación Arqueológica de Proyectos de Construcción y Desarrollo de 2016, Núm. 8932, aprobado en 2017, <https://vlex.com.pr/source/reglamentos-departamento-estado-14072/chapter/instituto-de-cultura-puertorriquena-1665710>. Informe que incumpla con el Reglamento no será evaluado y se devolverá. El informe requerido de Fase IA, de carácter histórico-arqueológico incluye investigación de fuentes documentales de todo tipo. En dicho proceso de documentación histórica, algunas fuentes importantes de consulta deberán ser el Registro Nacional de lugares Históricos; el Registro de sitios y zonas históricas mantenida por la Junta de Planificación de Puerto Rico; el Archivo General de Puerto Rico; la Biblioteca Nacional; el Registro de la Propiedad; el sistema de biblioteca y archivos de la Universidad de Puerto Rico y/o de otras universidades; el Archivo de Arquitectura y Construcción de la UPR (AACUPR); las bibliotecas y archivos municipales y parroquiales. Además, deberá incluir planos o cartografía española, fotos y toda documentación necesaria para el proyecto. Igualmente debe incluir todo tipo de intervención pasada en las estructuras y los alrededores. De acuerdo con lo establecido en el Plan de Control Exposición al COVID-19 del I.C.P., deberá comunicarse con la Sra. Lynette Blanc, Oficinista del Programa de Arqueología y Etnohistoria del I.C.P., a través del correo electrónico mferrer@icp.pr.gov o llamando al 787-724-0700 ext. 1362 o 1360, para coordinar la entrega de los documentos y pago de cuota de evaluación del informe. De haber duda sobre el procedimiento de pago, puede comunicarse con la Sra. Jannette Ocasio de la Oficina de Finanzas del ICP (JOcasio@icp.pr.gov). Recuerden acompañar los documentos a entregar con una hoja de conduce donde informen el tipo de documento que va a entregar, hoja de servicios arqueológicos debidamente cumplimentada y el pago de cuota de radicación de \$200.00. No deberá llevarse a cabo ningún tipo de movimiento de terreno hasta concluir los estudios arqueológicos necesarios y contar con la autorización final de esta oficina. Se le apercibe que el incumplimiento de cualquiera de los requerimientos establecidos en la presente carta, podrá ser objeto de sanciones administrativas según lo establecido en las citadas leyes. V. RECOMENDACIÓN: La División de Arqueología y Conservación Histórica de la OGPe ha recibido y evaluado los documentos del caso y UN ESTUDIO ARQUEOLOGICO FASE IA para el proyecto propuesto según establecido y bajo las condiciones emitidas por el Programa de Patrimonio Histórico Edificado y el Programa de Arqueología y Etnohistoria del ICP.

Condiciones Especiales

NINGUNA

Condiciones Generales

Esta recomendación es solamente aplicable a la situación de hechos y los datos según presentados y evaluados en el caso. La OGPe se reserva el derecho de reevaluar, variar o modificar el mismo en cualquier momento anterior a la emisión del permiso o la acción administrativa correspondiente por parte de la agencia solicitante o proponente cuando surja nueva información oficial específica estableciendo que el derecho aplicable o las condiciones ambientales en el predio han cambiado sustancialmente, o cuando la recomendación original se emitió bajo premisas falsas o fraudulentas.

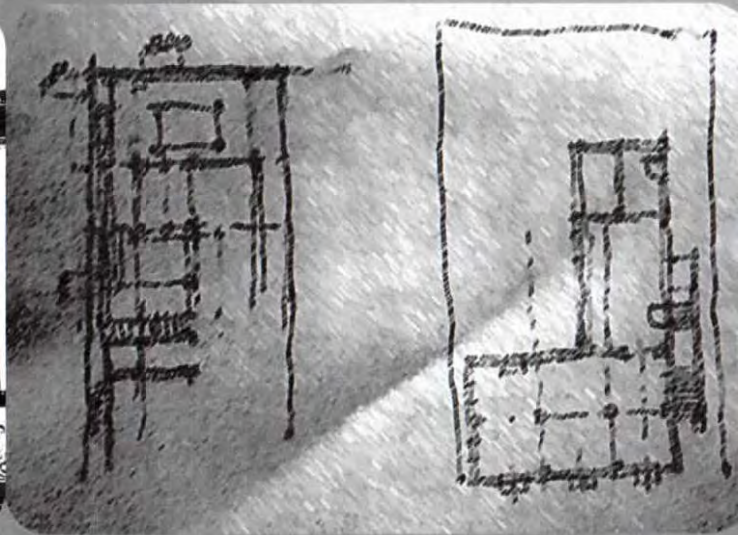
Las vigencias de las diferentes agencias del proceso de recomendación serán las establecidas en los comunicados que estas emiten conforme a sus reglamentos.



Julio del 2022

INFORME EVALUATIVO DEL ACERVO CULTURAL DE ARQUITECTURA

...recurso patrimonial en Quebradillas de Puerto Rico



CF ARQUITECTURA
ARQUITECTO CARLOS FERRÁN



"La arquitectura debe hablar de su tiempo y lugar,
pero debe anhelar la eternidad"
Arquitecto Frank Gehry, Canadá (1929)

“El diseño crea cultura. La cultura da forma a los valores.
Los valores determinan el futuro”
Arquitecto Gio Ponti, Italia. (1891-1979)

CF



ARQUITECTURA

Arquitecto Carlos Ferrán

Tel: (787) 720 1469

Email: cferranarquitecto@gmail.com

Este informe Estudio de Investigación Arqueológica- Arquitectónica, Etapa II se lleva a cabo en conformidad a la solicitud de las agencias reguladoras de Puerto Rico cuya labor ministerial es el reconocimiento, protección, conservación y mantenimiento de los recursos culturales y patrimoniales del país en la que los principales actores son el Instituto de Cultura Puertorriqueña (ICP) con su programa de Protección de Patrimonio Edificado y la Oficina Estatal de Conservación Histórica, OECH (SHPO siglas en Inglés)

Según obra la Ley 112 de protección del Patrimonio Arqueológico Terrestre de Puerto Rico del 1988, enmendada y la sección 106 de la Ley Nacional de Preservación Histórica de 1966, enmendada (36 CFR Parte 800) protección de Propiedades Históricas, así como recomendaciones descritas en el “Archeological and Preservation Act of 1974 del secretario de lo Interior, en sus Standards and Guidelines for Evaluation” entre otros reglamentos.

La investigación presenta el objetivo principal de brindar la suficiente información sobre los recursos culturales identificados y determinar su posibilidad de acciones a seguir, una de las cuales pueda ser incluirse al Registro Nacional de Lugares Históricos en Puerto Rico como en los Estados Unidos. Para lograr esta acción, será necesario determinar su potencial mediante levantar la documentación necesaria para comprobar la posibilidad de elegibilidad, entre otras acciones. Análogo con lo presentado, se procederá a evaluar cada una de las estructuras descubiertas e identificadas mediante la representación gráfica que posibilite su mejor entendimiento. Además, se considerará cualquier otro elemento que para bien contribuya a su comprensión.



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- Sr. Fernando Alvarado, Arqueólogo Investigador y director de Campo
 - Sr. Andrés Príncipe, Arqueólogo Investigador e Historiador Patrimonial
 - Arquitecto Carlos Ferrán- Arquitecto Investigador del Proyecto

Profesionales Destacados

-
- Sr. Heriberto Vélez, Alcalde del Municipio de Quebradillas de Puerto Rico
 - Sr. Jesús R. Zamot Rojas, Coordinador de Revitalización y Programa Federales Municipio de Quebradillas
 - Ingeniero Sr. José Centeno, Proyectista

Agradecimientos



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1. Con la finalidad de cumplimiento de los objetivos de la investigación, se llevará a cabo un recorrido minucioso en la parcela urbana y edificio a evaluarse y cualquier otro recurso que se identificase mediante la prospección en el área de impacto potencial.
 2. El Arqueólogo Fernando Alvarado y su equipo de trabajo llevarán a cabo las labores exploratorias determinadas en Estudio 1-A, según los requerimientos establecidos para este tipo de informe.
 - a. Todos los puntos identificados del Estudio Arqueológico, se trabajarán con técnicas y herramientas manuales.
 - b. El personal profesional levantará un registro por medio de anotaciones, fotografías u otro medio necesario de los elementos encontrados.
 3. El Arqueólogo Historiador, Sr. Andrés Príncipe, junto al Arqueólogo Fernando Alvarado llevará a cabo labores de exploración según determinadas en la Etapa 1-A, además de desarrollar el Informe Histórico del recurso patrimonial.
 4. El Arquitecto Carlos Ferrán llevará a cabo labores de levantar información pertinente, descripción, documentación del recurso identificado.
 - a. Conocer el grado de integridad del recurso que aporte al caudal de análisis científico.
 - b. Toda la información se recoge en un informe que incluye fotografías, dibujos o bocetos y graficas necesarias.



1. El foco central de este informe será la evaluación y determinación del grado de integridad estructural del recurso patrimonial, además de obtener la mayor información posible que mejoren el entendimiento sobre la contribución al legado histórico, las características de su diseño arquitectónico y construcción, información de su diseñador, de estar disponible y viabilidad de su permanencia.
 - a. Se podrá definir mediante la documentación recogida la expansión espacial del recurso, su extensión, sus límites, asociación cultural y cronología.
2. Con la información obtenida se presentará un informe que se encuentra en conformidad con los estándares y regulaciones estatales (Puerto Rico) y federales (EEUU).
 - a. Se utilizarán los criterios establecidos por las regulaciones del Departamento de lo Interior de lo EEUU Número 36 CFR inciso 60. De igual manera, según también lo establece el Reglamento Conjunto de Puerto Rico, enmendado y vigente desde año 2020.
3. Los criterios estandarizados se desglosan en los siguientes:
 - a. Propiedades asociadas con acontecimientos que han contribuido sustancialmente a los patrones de nuestra historia.
 - b. Propiedades asociadas con la vida de una persona o personas importantes de nuestro pasado.
 - c. Propiedades que poseen características sobresalientes de un tipo, periodo o método de construcción, que representan la obra de un Maestro Diseñador o Constructor, posee valor artístico, que representan una entidad importante y distintiva cuyos componentes carezcan de distinción individual.
 - d. Propiedades que contienen potencial de revelar información importante sobre la historia o la prehistoria.
4. Se cumplirá con el objetivo de determinar si los hallazgos cualifican para su inclusión en el Registro Nacional de Lugares Histórico en Puerto Rico y los Estados Unidos.
5. Se determinará si el proyecto propuesto de parte de sus Dueños y obras que afectan, impactan directa o indirectamente el recurso cultural identificado.
6. El informe incluye la presentación de mapas, fotografías, dibujos, descripciones y análisis de los resultados arrojados por la investigación para apoyar en la determinación de la aplicabilidad de los criterios.





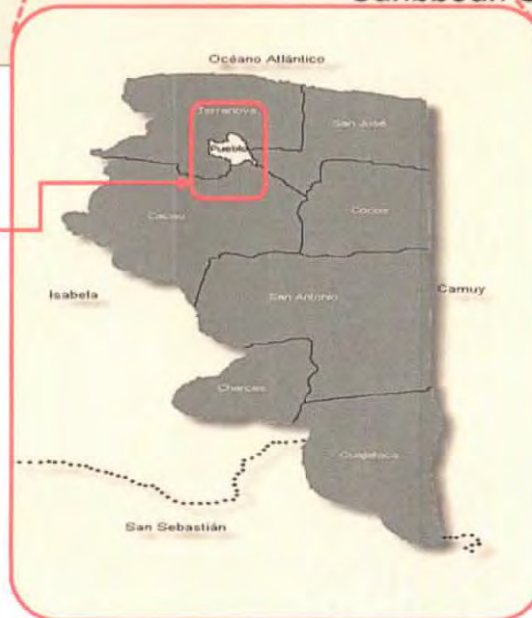
LOCALIZACIÓN DE PUERTO RICO EN EL MUNDO



ISLA DE PUERTO RICO



CENTRO TRADICIONAL DEL MUNICIPIO



MUNICIPIO DE QUEBRADILLAS

Documentos de
Ubicación



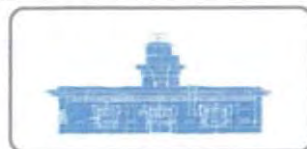


CENTRO TRADICIONAL
DEL MUNICIPIO DE
QUEBRADILLAS

UBICACIÓN
DEL PROYECTO



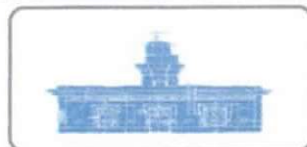
Documentos de
Ubicación



El recurso identificado objeto de este estudio es un edificio de dos niveles ubicado en la calle Honorio Hernández en el centro tradicional del Municipio de Quebradillas frente a la plaza principal y la iglesia católica en la que comparten el espacio urbano.

La información sobre el inmueble y la parcela en que se ubican, es la siguiente:

Catastro:	008-080-009-06
Coordenadas Na83	X: 146678.8353; Y: 270977.4799 Lat.: 18.47394221; Lon: -66.93817961
Área Aproximada:	223.94.36
Zona Inundabilidad:	X
Panel Inundabilidad:	72000C0180J
Floodway (Vía Inundable)	No se ubica
Suelos	SNS (Soil Not Surveyed) Suelos no investigados
Clasificación:	C-I (Comercial Intermedio)
Clasificación PT	SU (Suelo Urbano)
Clasificación PUT	SU (Suelo Urbano) Vigencia: 30-Nov-2015
Distrito	APE-ZC (Área de Planificación Especial- Zona Cársica)
Zona Histórica	No
Sitio Histórico	No
Status POT	Municipio Autónomo



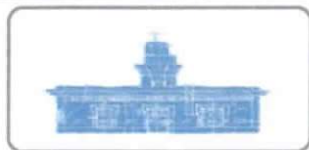
El edificio, debido a su ubicación, era eminentemente de uso comercial y como ocurre en la mayoría de este tipo de estructura, la combinación en el uso comercial liviano con residencia no se aleja de ser evidente. Con toda probabilidad el dueño del comercio residía en el nivel segundo.

Originalmente, la planta del edificio se expresa en forma de “L” o Martillo muy típica de este tipo de desarrollo urbano. Esta expresión tipológica en cuanto a la distribución espacial en su interior ocurre en el nivel primero, aunque en muchos de los casos similares se repiten en los niveles superiores con la excepción de que se añade el arribo o descanso de la escalera. Esta se ubica por lo general en un **zaguán** central o lateral. En este caso estudiado se ubica en el patio lateral y permite un acceso independiente del nivel primero.

La distribución espacial de esta planta está definida por dos naves que forman el martillo. Una se extiende paralela a la calle conformada por los elementos de apoyo que a partir del plano del alzado principal se repiten casi siempre equidistantes en su interior y pueden ser columnas, paredes o muros de cargas. Estos espacios intercisos o intercolumnios llamados **crujías** son elementos identificables del desarrollo de la planta arquitectónica y albergaban las áreas más públicas del edificio.

La otra nave, se extiende perpendicular con respecto a la primera y paralelamente a la línea de la colindancia más cercana. En estos espacios de usos comerciales se encontraban los almacenes, servicios sanitarios y oficina del dueño. En el caso de las residencias se distribuyen la cocina, el comedor, habitaciones y los servicios sanitarios. Por lo general, se accede a través de un corredor lateral orientado hacia el patio interior. Una de las razones son la accesibilidad a una mejor iluminación y ventilación natural.

Zaguán: Pieza cubierta, inmediata a la puerta de entrada y que sirve vestíbulo a una casa. -Atrio.
Crujías: Espacios entre dos muros de carga.



Esta condición le imprime un carácter de histórico ya que se encuentran en muchos de nuestros desarrollos antiguos. Podemos citar los orígenes del desarrollo en Antiguo San Juan previo a la construcción de los bloques urbanos y posteriormente en las parcelas urbanas de los cascos tradicionales en muchos de los municipios de Puerto Rico.

El techo sobre el nivel segundo se encuentra inexistente, aunque se puede determinar que se trataba de una estructura de vigas de maderas con una cubierta de metal acanalado. La cubierta de la nave paralela a la calle es de una sola agua con inclinación hacia el patio interior lateral con una lima hoyo diagonal comenzando con el punto más alto en la esquina Sureste. Aquí se une el techo de la segunda nave que también, es en una sola agua y se desplaza paralelo a la línea colindante. La cubierta refleja la forma de martillo que se aprecia en la planta arquitectónica original.

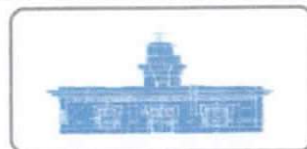
Se puede identificar el alzado principal como Neoclásico-Colonial de principio de Siglo XX (1918) y que se encuentra identificado en el adorno de concha sobre la puerta central del nivel primero. Señalamos, que prevalece la imposición de un **estilo ecléctico** en la manera que se combinan elementos decorativos sobre el plano de la fachada. Estos son muy bien elaborados y construidos en hormigón.

Cabe mencionar y enumerar que se destacan las siguientes características sobre el recurso patrimonial:

1. Alzado o Fachada

- Pretil o antepecho con **albardilla** y cornisa continua en el lado orientado hacia la calle. Sobre esta hilada de coronación se le colocaron urnas al centro y las esquinas.
- El pretil contiene un friso con decoraciones rectangulares insertadas en los centros de los paños.
- Escudo de Armas o Cartuch con una clara influencia masónica ubicado al centro y articulando el pretil en dos lados simétricos. Este presenta una simbología identificable como son el sable, hacha, adarga de protección y ancla. Estos se encuentran circunscritos dentro de unas formas geométricas triangulares, que crean visualmente un cuadrado.

Estilo Ecléctico: Método de reunir la doctrina de varios sistemas o estilos.
Albardilla: Tejadillo de los muros



- d. Todo el pretil descansa sobre la cornisa mayor que forma parte del **entablamento**.
- e. Hay que anotar la influencia de la arquitectura italiana, especialmente la neorrenacentista en la expresión y desarrollo de este pretil como una característica principalmente decorativa del estilo. Recuerda también, barandillas del cual se les conocía como Paseo de las Viudas o Paseo del Capitán, especialmente en lugares costeros y cuyo origen es de influjo norteamericano.

2. Nivel Segundo

- a. Se proyecta un balcón volado continuo con baranda cuyo tapiz son bloques ornamentales tipo rosetones y articulada con postes separándose en tres áreas. Estas unidades se podían adquirir comercialmente ya que son piezas modulares y se han encontrado utilizados también de igual manera en otros edificios residenciales de la época.
- b. Las fenestraciones de las puertas se encuentran flanqueadas con fajones a ambos lados del hueco y un paramento en forma de fajón en recuadro sobresaliente, en el tope del montante.
- c. Los huecos de las puertas presentan montantes de arco de medio punto con soles trancos y vitrales insertados. Actualmente desaparecidos, se pueden apreciar en la fotografía ubicada en este informe en la pág. 10. Las puertas eran de dos hojas fabricadas en madera y cada una de ellas integraban celosías movibles en los cuarterones centrales posiblemente con **postigos** en la parte posterior.

Entablamento: Parte superior de orden o columnas, formado por el arquitrabe, el friso y la cornisa
Postigos: Hoja de madera o metal que cierra el paso a la luz de una ventana por la parte interior.



3. Nivel Primero

- Las fenestraciones de las puertas son rectangulares cuyos fajones a cada lado son sustituidos por pilastras de media circunferencia y con **estrías** en su **fuste**, **capitel** y sobre estos las **ménsulas**.
- Las puertas dobles y al igual que el nivel segundo eran de madera y con cristales fijos en la parte superior. Aunque, sin montantes, posiblemente contaba con **cuarterones** centrales en ventanas de celosías movibles, con **postigos** en la parte posterior y cuarterones de base sólidos sobre el **cabio** bajo.
- Sobre las puertas se encuentran paramentos u ornamentaciones en forma de conchas muy estilizadas y servían para identificación. En la concha central se encuentra el año en números romanos de la construcción del edificio. (1918).
- Todo el edificio se encontraba levantado sobre un basamento y se le integran las bases de las columnas que muestran un terminado de sillería en el revoque.
- Los bordes del edificio en su alzado principal muestran terminaciones en **almohadillas** y ocurren en ambos niveles. También de influencia neoclásica, en este caso se trata de elementos decorativos en las esquinas.

Estrías:	Canal redondeada con bordes agudos que se labra como decoración de columnas y molduras.
Fuste:	Cuerpo de la columna. La parte comprendida entre la base y el capitel.
Capitel:	Parte superior, generalmente moldurada o esculpida, de una columna.
Ménsulas:	Elemento que sobresale de un plano vertical y sirve para sostener alguna cosa.
Cuarterón:	Cada uno de los cuadros o tableros que quedan entre los peñazos de las puertas y ventanas.
Cabio:	Cada uno de los travesaños superior e inferior que forman el bastidor de una puerta o ventana.
Almohadillas:	Parte sobresaliente de un paramento de algunos sillares que se disponen en las esquinas





FOTO: INGENIERO JOSÉ
CENTENO

ANTIGUA FOTOGRAFÍA DEL
EDIFICIO, C. 1950



FOTOGRAFÍAS POR ARQUITECTO
CARLOS FERRÁN, EXCEPTO AQUELLAS
IDENTIFICADAS EN PARTICULAR

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes





FOTO INGENIERO JOSÉ
CENTENO

**ALZADO PRINCIPAL CALLE
HONORIO HERNÁNDEZ**



FOTO INGENIERO JOSÉ
CENTENO

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Fotografías de Condiciones Existentes**





**CRUJÍA INICIAL DEL
NIVEL PRIMERO**

CRUJÍA: ESPACIO COMPRENDIDO ENTRE DOS MUROS DE CARGA. CADA UNA DE LAS NAVES O PARTES PRINCIPAL EN QUE, DESDE EL PUNTO DE VISTA CONSTRUCTIVO, SE DIVIDE LA PLANTA DE UN EDIFICIO

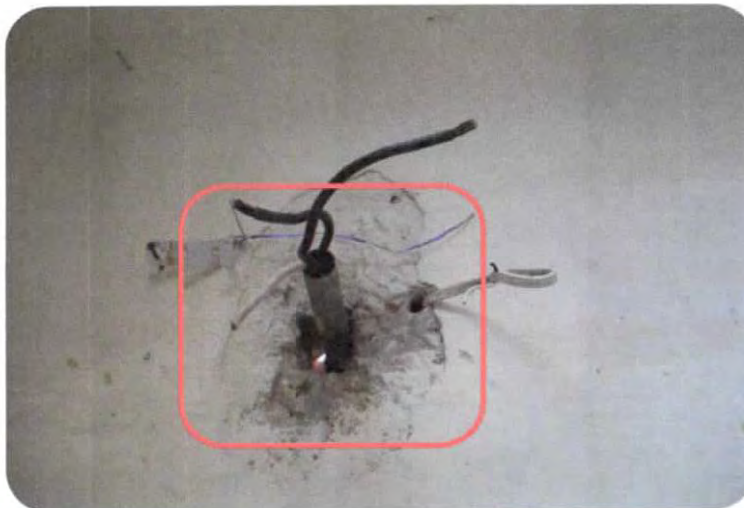
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Nivel Primero**



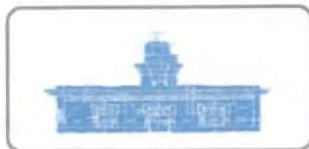


CRUJÍA SEGUNDA DEL NIVEL PRIMERO

1. CONDUCTOS METÁLICOS DE INFRAESTRUCTURA ELÉCTRICA CORROIDOS Y HAN PRODUCIDO LAMINADO DEL HORMIGÓN
2. INSTALACIONES DE CORRIDAS ELÉCTRICAS EXPUESTAS

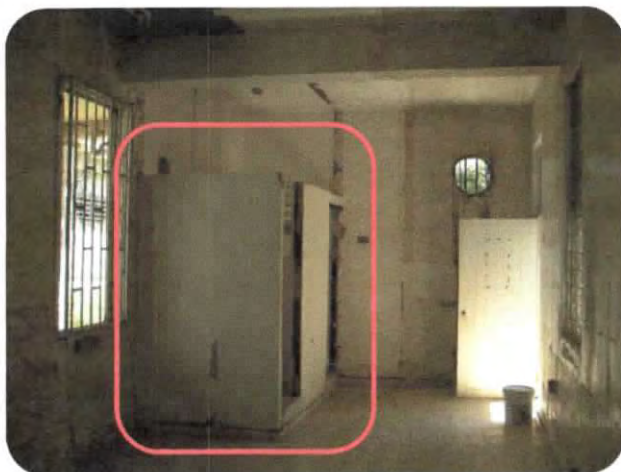


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Nivel Primero





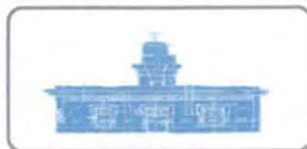
NAVE
POSTERIOR

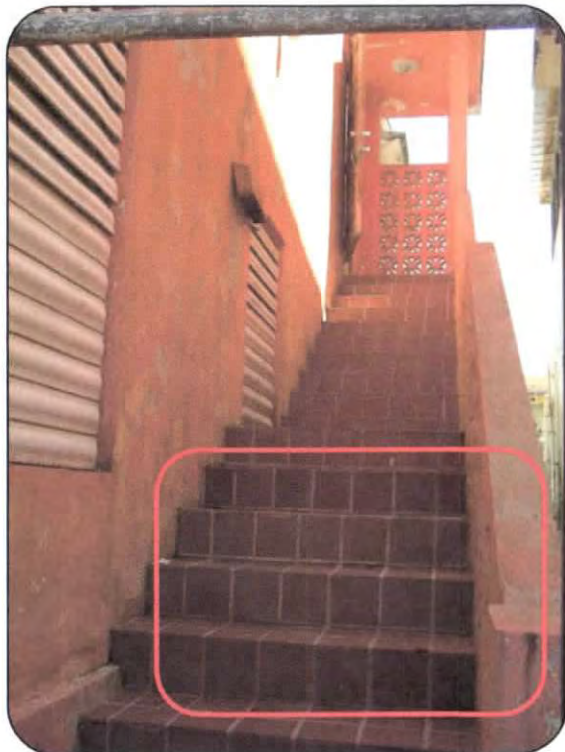


SERVICIOS SANITARIOS

1. EN EL INTERIOR DE LA NAVE POSTERIOR
2. NO ES UN ESPACIO ORIGINAL

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Nivel Primero





ESCALERA EXISTENTE EN EL PATIO LATERAL DERECHO

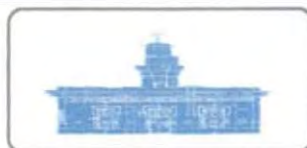
1. POSIBLEMENTE UBICACIÓN ORIGINAL Y ALTERADA.
2. TERMINACIÓN EN LOSA DE CANTERÍA, "QUARRY TILE"
3. BARANDA EN HORMIGÓN



SEGUNDO NIVEL SIN TECHO Y CRUJIA PRIMERA

1. CONSTRUCCIÓN TOTALMENTE EN HORMIGÓN.
2. FENESTRACIONES CON VENTANAS DE CELOSÍAS DE METAL (NO ORIGINALES).
3. PISOS TERMINADOS EN LOSA DE CERÁMICA, INSTALADO SOBRE LOSA ORIGINAL (HIDRAULICA) MONOCROMÁTICA

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Nivel Segundo





CRUJÍA PRIMERA DEL NIVEL SEGUNDO

1. LA AUSENCIA DEL TECHO ES EVIDENTE. ORIGINALMENTE ESTRUCTURA DE MADERA CUBIERTA CON PLANCAS ACANALADAS DE METAL (ZINC)
2. LOS PUNTALES DE LAS VIGAS DE MADERA QUE APOYABAN EL TECHO PENETRABAN LA PARED.
3. **PRETEL O ANTEPECHO** LEVANTADO CON **URNAS** DECORATIVAS SOBRE LA CORNISA Y ESCUDO AL CENTRO.
4. LAS FENETRACIONES DE LAS PUERTAS EN LA FACHADA PRINCIPAL CON **ARCOS DE MEDIO PUNTO** QUE INTEGRABAN MONTANTES TIPO **SOL TRUNCO** CON VITRALES (VER PÁG. 11)

PETIL O ANTEPECHO: MURO FORMADO POR LA ELEVACIÓN DE LAS PAREDES EXTERIORES DE UN EDIFICIO SOBRE LA AZOTEA O CONSTRUIDO SOBRE LA CORNISA

URNAS: VASIJAS EN LA QUE SE GUARDABAN LAS CENIZAS DE LOS MUERTOS, EN ESTE EDIFICIO, DECORACIONES DE LA FACHADA.

ARCOS DE MEDIO PUNTO: QUE CONSTA DE UN SEMICIRCULO.

SOL TRUNCO: MONTANTE SOBRE LAS PUERTAS PARA VENTILACIÓN E ILUMINACIÓN

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Nivel Segundo





ALZADO PRINCIPAL PARCIAL DEL NIVEL SEGUNDO

1. BALCÓN VOLADO.
2. FENESTRACIONES DE PUERTAS CON MONTANTES DE MEDIO PUNTO Y FAJONES CON RESALTES.
3. ANTEPECHO O PETRIL ALTO SOBRE CORNISA, CON URNAS Y ESCUDO CENTRAL.
4. CUADROS RECTANGULARES DECORATIVOS EN EL ALMA DEL PETRIL Y REMATE CON CORNISA.



BALCÓN VOLADO EN EL NIVEL SEGUNDO

1. PASAMANO CON BLOQUES ORNAMENTALES MODULARES Y ORIGINAL
2. PISO TERMINADO EN LOSA DE CERÁMICA (NO ORIGINAL)

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Nivel Segundo





PATIO LATERAL

1. VISTA DE LA PRIMERA NAVE EN EL NIVEL SEGUNDO
2. PEQUEÑO BALCÓN ORIENTADO AL PATIO CON REMANENTES DE PASAMANOS DE BALAUSTRES DE HIERRO FORJADO Y PARTE DE UNA ESCALERA DEMOLIDA



Recurso Patrimonial Identificado Fotografías de Condiciones Existentes, Exterior





**VISTAS DE LA
NAVE DEL
NIVEL SEGUNDO**



**CONSTRUCCIÓN SOBRE NAVE
POSTERIOR DEL NIVEL
PRIMERO**

1. NAVE EXTENDIDA HACIA EL PATIO LATERAL, APOYADO EN COLUMNAS DE HORMIGÓN.
2. ESTA SECCIÓN SE ENCUENTRA EN ESTADO ESTRUCTURAL MUY ADVERSAMENTE COMPROMETIDA.
3. INFRAESTRUCTURA SANITARIA EXPUESTA

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Exterior





ESTRUCTURA CONSTRUÍDA HACIA EL PATIO LATERAL

1. ESTRUCTURA EN COLUMNAS DE HORMIGÓN



RESTOS DE MURO

1. BRINDABA APOYO A UNA LOSA DE HORMIGÓN QUE SERVÍA DE DESCANSO A LA ESCALERA UBICADA HACIA EL PATIO POSTERIOR.
2. SE ENCUENTRA CONSTRUÍDA CON AGREGADO DE PIEDRAS BLANCAS Y AMARILLAS, POSIBLEMENTE RETAZOS DE CUARZOS



VARILAS DE ACERO

1. DEL TIPO CERPENTINA
2. LOSA EN HORMIGÓN DE DESCANSO DE LA ESCALERA (DEMOLIDA).

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Exterior





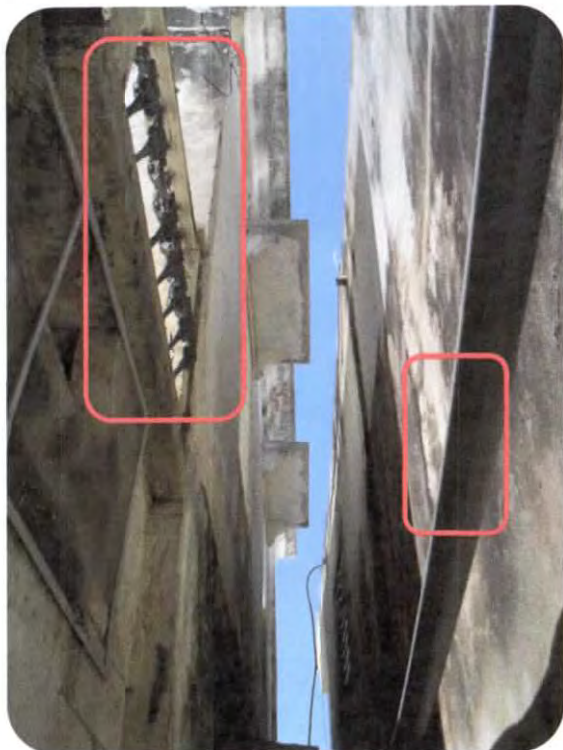
OBSERVACIONES:

1. CORREDOR EXTERIOR Y NAVE HACIA EL PATIO LATERAL EN NIVEL PRIMERO CON VARIAS INTERVENCIONES DE CERRAMIENTO.
2. CONDICIONES DETERIORADAS DE LA LOSA DE TECHO CON VARILLAS DE REFUERZO CORROIDAS Y LAMINADO DEL HORMIGÓN
3. INFECCIÓN DE INSECTOS (COMEJÉN)
4. FISURAS, GRIETAS Y HONGOS.



Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Exterior





ACCESO LATERAL IZQUIERDO ENTRE EDIFICIOS

1. ALEROS PROYECTADOS DEL PLANO DE LA FACHADA, EN AMBOS NIVELES.
2. INTERVENCIONES POSTERIORES: CERRAMIENTOS DE FENESTRACIONES DE LAS VENTANAS.
3. BARANDA EXISTENTE DE BALAUSTRES DE HIERRO FORJADO EN FORMA DE PECHO DE PALOMA.
4. CONDUCTO DE INFRAESTRUCTURA ELÉCTRICA EXPUESTA Y SOBRE LA FACHADA LATERAL DEL EDIFICIO CONTIGUO.

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Exterior





**ÁREA DE PATIO
LATERAL, ENTRE
EDIFICIOS Y EN EL CUAL
SE UBICA LA ESCALERA**

NOTA:
LUGAR EN DONDE SE ENCUENTRA
UNA ESCRITURA EN EL
EMPAÑETADO DE LA PARED. (VER
DETALLE EN PRÓXIMA PÁGINA)



**DESCANSO EN EL NIVEL
SEGUNDO DE LA ESCALERA
EXISTENTE**

1. CULMINA CON PARED DE BLOQUES ORNAMENTALES. LA ESCARELA ORIGINAL PUDO ESTAR UBICADO EN ESE LUGAR, PERO HA SIDO INTERVENIDA POSTERIORMENTE



ESPACIO BAJO LA ESCALERA

1. SE ENCUENTRA UNA PUERTA DE ACCESO AL PATIO POSTERIOR DESDE LA NAVE DEL NIVEL PRIMERO.

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Exterior





ESCRITURA EN RELIEVE SOBRE EL PLANO DE LA PARED

1. UBICADO BAJO LA ESCALERA EXTERIOR.
2. LAS PALABRAS QUE SE PUEDEN ENTENDERSE SON: "...SCLOROS, ALBAÑIL, TALLISTA".

NOTA:

POSIBLEMENTE SE TRATA DE LA PERSONA QUE LABORÓ Y CONSTRUYÓ LOS DETALLES EXPRESADOS EN LA FACHADA PRINCIPAL

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Exterior

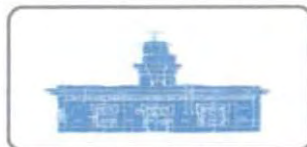




FOTO: INGENIERO
JOSE CENTENO

MURO COLINDANTE

1. VISTA HACIA PATIO POSTERIOR EN LA QUE SE ENCUENTRA UN MURO COLINDANTE CONSTRUIDO EN MATERIALES TRADICIONALES (LADRILLO, **ARGAMASA** O **MORTERO** CON EMPAÑETADO DE RECUBRIMIENTO SOLAMENTE)



ARGAMASA: MORTERO DE CAL O MEZCLA DE CAL, ARENA Y AGUA DE CONSISTENCIA PLÁSTICA.
MORTERO: MATERIAL CONSISTENTE EN CEMENTO O CAL, MEZCLADO CON ARENA Y AGUA, PARA FORMAR AGLOMERANTE USADO EN LAS CONSTRUCCIONES

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Exterior

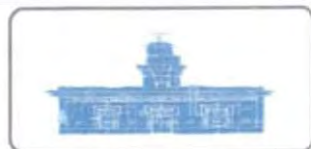




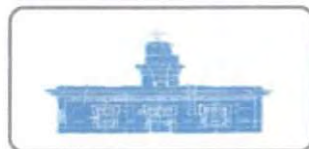
FOTO: INGENIERO JOSE CENTENO



VISTAS DEL ALZADO PRINCIPAL Y DETALLES DE LOS COMPONENTES DE LA FACHADA

1. **NIVEL PRIMERO:** ALMOHADILLADOS O SILLARES DE ESQUINA EN LOS EXTREMOS, FAJONES DE LAS PUERTAS EN PILASTRAS CON BASE, ARISTAS Y CAPITÉLES CORINTIOS CON CANECILLO DE ROSTRO FEMENINO Y MÉNSULAS. EMBLEMAS DE CONCHA SOBRES LOS MONTANTES
2. **NIVEL SEGUNDO:** BALCÓN VOLADO CONTINUO, FENESTRACIONES DE LAS PUERTAS CON FAJONES Y MONTANTES DE ARCOS DE MEDIO PUNTO Y CORNISA PRINCIPAL CONTINUA
3. **PETRIL:** CORNISA MENOR Y RECUADROS DECORATIVOS EN LOS PAÑOS INTERIORES ARTICULADOS POR FAJONES. ESCUDO AL CENTRO CON URNAS EN AMBOS LADOS Y EN LAS ESQUINAS.

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Alzado Principal





MÉNSULAS BAJO EL BALCÓN VOLADO

MÉNSULA: ELEMENTO QUE SOBRESALE DE UN PLANO VERTICAL Y SIRVE DE PARA SOSTENER ALGUNA COSA.

CAPITEL: PARTE SUPERIOR, GENERALMENTE MOLDURADA O ESCULPIDA, DE UNA COLUMNA.

CANECILLO: PIEZA VOLADIZA, ESPECIE DE CARTELA PARA SOSTENER UNA PIEZA ARQUITECTÓNICA.

FUSTE: CUERPO DE UNA COLUMNA, LA PARTE COMPRENDIDA ENTRE LA BASE Y EL CAPITEL.

PILAISTRA: COLUMNA RECTANGULAR (EN ESTE CASO REDONDA) QUE SOBRESALE LIGERAMENTE DE UNA PARED Y QUE EN LOS ÓRdenes CLÁSICOS SIGUE LAS PROPORCIONES Y LINEAS CORRESPONDIENTES



PILASTRAS

1. **CAPITEL** ESTILO CORINTIO PARCIAL Y CANECILLO DE FIGURA DECORATIVA CON ROSTRO DE MUJER.
2. EL **FUSTE** O CUERPO DE LA PILAISTRA CONTIENE ESTRÍAS EN SU SUPERFICIE
3. LAS **PILASTRAS** Y EL CAPITEL BRINDAN APOYO A LAS MÉNSULAS

Recurso Patrimonial Identificado
Fotografías de Condiciones
Existentes, Alzado Principal





**ALMOHADILLAS O
SILLAR DE LAS
ESQUINAS**

ALMOHADILLAS:
PARTE SOBRESALIENTE DEL
PARAMENTO DE ALGUNOS SILLARES
QUE SE DISPONEN EN LAS ESQUINAS,
COMO ELEMENTOS PRINCIPALES DEL
APAREJO

NOTAS:

1. SE OBSERVA
CORROSIÓN EN LOS
REFUERZO DE ACERO
DEL BALCÓN VOLADO
Y LAMINADO DE
HORMIGÓN EN SU
PERIMETRO.
2. LAS LÁMPARAS NO
SON APROPIADAS
PARA LA FACHADA



BARANDA DEL BALCÓN VOLADO

1. PIEZAS DEL PASAMANO
MODULARES EN BLOQUES DE
ORNAMENTACIÓN EN SU ALMA,
APOYADOS CON POSTES Y TOPES
DE **ALBARDILLAS** (ORIGINAL).
2. CONSTRUCCIÓN EN HORMIGÓN

ALBARDILLAS

HILADA DE CORONACIÓN DE UNA PARED CON
SALIENTES POR AMBOS PARAMENTOS PARA
PROTEGERLOS DE LA LLUVIA

Recurso Patrimonial Identificado
Fotografías de Condiciones
Existentes, Alzado Principal





ESCUDO

URNAS

CORNISA MENOR
CONTINUA DE LA
ALBARDILLA EN
EL ANTEPECHO

CORNISA CONTINUA
PRINCIPAL

ENLUCIDO DE
TEXTURA DE
PIEDRA Y PINTADA

TÍMPANO O ENJUTAS

MONTANTE DE
PUERTAS DE
ARCOS DE MEDIO
PUNTO

FAJONES

ESCUDO EN EL PRETEL DEL ALZADO PRINCIPAL

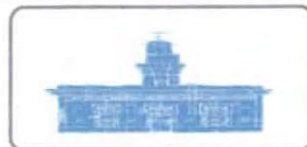
ESCUDO: ORNAMENTACIÓN ESCULPIDA O PINTADA EN FORMA DE ESCUDO DE ARMAS CON REPRESENTACIONES HERÁLDICAS, FIGURAS, CIFRAS O INSCRIPCIONES. SE APLICA EN DECORACIÓN DE FRISOS

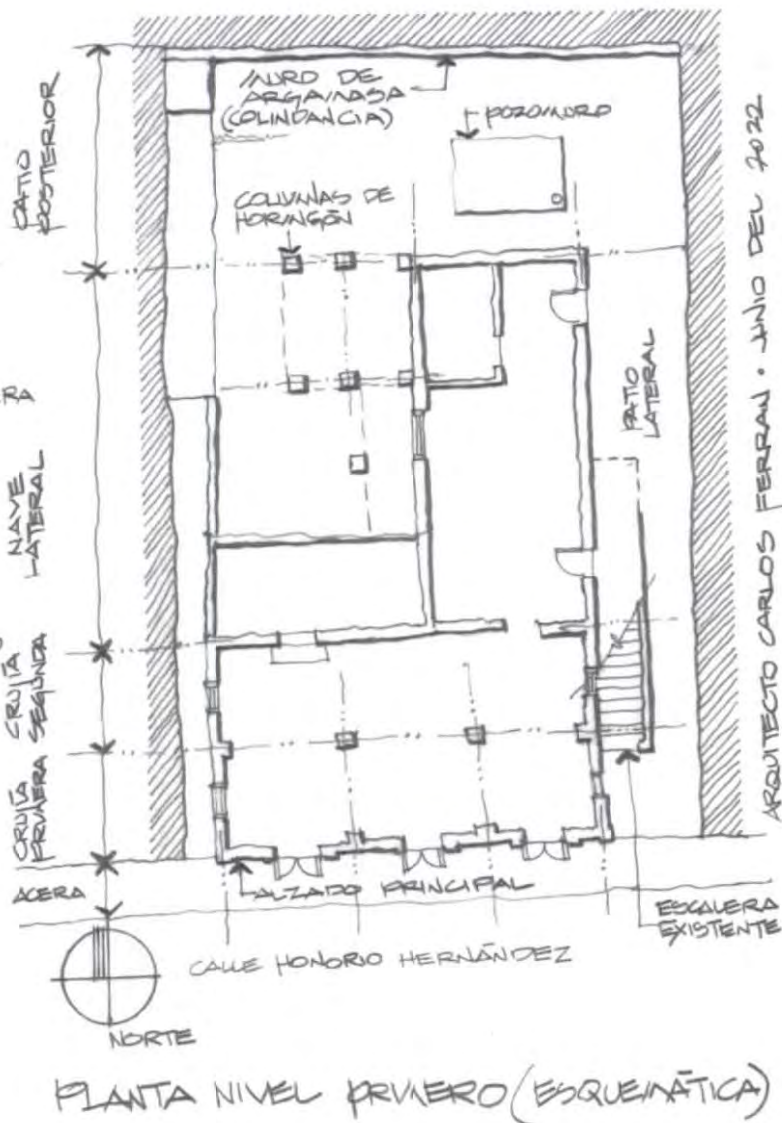
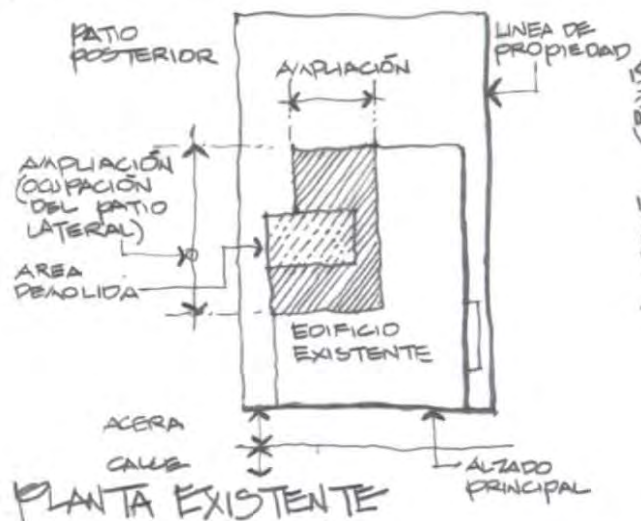
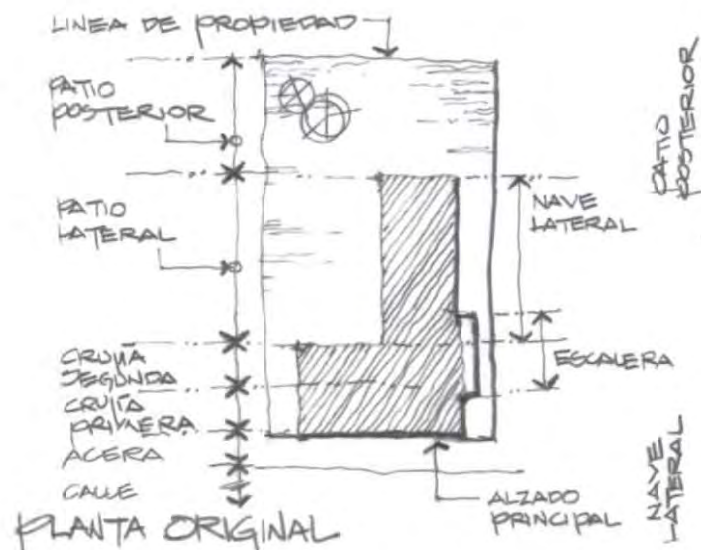
ENLUCIDO: REVESTIMIENTO APLICADO A PAREDES Y TECHOS, DE CEMENTO, MORTERO O CAL, EN OCACIONES DE YESO.

TÍMPANO O ENJUTAS: TRIÁNGULOS O ESPACIOS QUE DEJA EN UN CUADRADO UN ARCO INSCRITO.

FAJONES: RECUADRO ANCHO ALREDEDOR DE LOS HUECOS DE LAS PUERTAS Y VENTANAS.

Recurso Patrimonial Identificado
Fotografías de Condiciones Existentes,
Alzado Principal

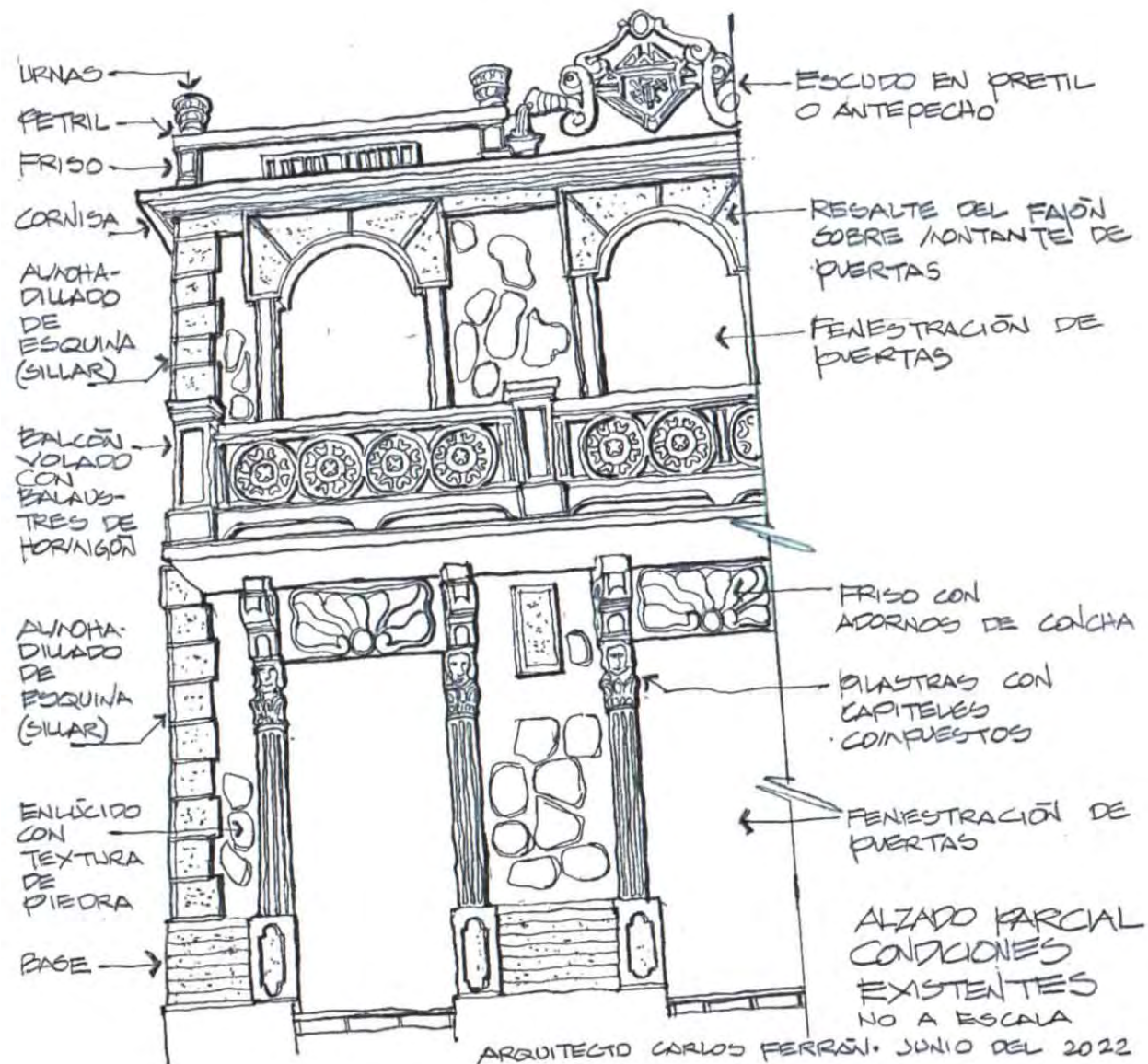




ARQUITECTO CARLOS FERRÁN • JUNIO DEL 2022

Bocetos





ARQUITECTO CARLOS FERRÁN • JULIO DEL 2022



MONTANTE DE ARCO DE
MEDIO PUNTO CON
SOL TRINCO & VITRALES

PUERTAS CON CRISTALES &
CELOSÍAS MOVIBLES

MONTANTE CON
CRISTALES

PUERTAS CON
CELOSÍAS MOVIBLES &
PANELES (QUARTERONES)

ALZADO PARCIAL
DE PROPUESTA
NO A ESCALA

NOTA: ESTE BOCETO SUGIERE
UNA PROPUESTA PARA EL
ALZADO PRINCIPAL

Bocetos



Nuestra recomendación ha sido siempre la de motivar y exhortar la protección y conservación de este y otros recursos culturales en la medida que sean posible. Además, evitar un impacto mayor y aceleramiento del detrimento del medio. El objeto de este informe en cumplimiento con la normativa vigente de protección es reconocer los bienes patrimoniales y la huella histórica producto de su época son parte de nuestro legado histórico que nos definen como nación.

Promovemos considerar el recurso como un elemento que puede y debe ser fusionado o integrado a los nuevos proyectos manteniendo sus características particulares en las zonas donde existen, ocurren y permanecen. Se debe motivar siempre su **Reutilización**, ya sea a través de una restauración lo más fidedigna que se pueda, propiamente para los usos que fueron desarrollados originalmente o a través de otras iniciativas que proveen las normativas que rigen las intervenciones sobre el patrimonio edificado. Mencionamos entre las cuales se encuentra las actividades de **Rehabilitación**, que permite incorporar nuevos usos en antiguas estructuras con el mínimo de alteración a su fábrica original

Es nuestra responsabilidad contribuir con el análisis y presentar en unión a las agencias reguladoras de Puerto Rico: Instituto de Cultura Puertorriqueña (ICP) y la Oficina Estatal de Conservación Histórica (OECH, (SHPO, siglas en inglés) así como los Consejos y Movimientos Internacionales sobre la recuperación y fomento de la protección del patrimonio edificado, expresamos algunas guías o normativas generales de intervención a los recursos:

1. Es imperativo el mantener la génesis estructural, carácter de las edificaciones y su entorno, sin alteraciones o intervenciones destructivas o que modifiquen demasiado la idiosincrasia originaria del complejo.
2. Se deberá conservar el carácter histórico de los edificios. No deben removerse materiales, ni alterar elementos que afecten su naturaleza.
3. Todo el recinto deberá ser reconocido como expediente y evidencia física de su época, lugar y uso. Se deberá evitar añadir elementos basados en suposiciones, hipótesis o que provengan de otros edificios.
4. Se deberán conservar los elementos particulares, terminaciones, técnicas constructivas y trabajos artesanales que contribuyan al carácter de un recuso patrimonial.

“La calidad del significado de la historia, arquitectura, ingenierías y la cultura en general que se desarrollan en distritos, sitios y estructuras son objetos que poseen integridad de la localización, diseño, calidad artesanal, sentimiento y asociabilidad.” *

(*Nota extraída del Boletín de los Criterios del Registro Nacional para la Evaluación de Recursos)

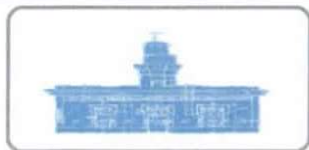


5. Todo componente de un recurso patrimonial que se encuentre deteriorado deberá ser reparado y no reemplazado. Si el desperfecto es de magnitud que requiere su sustitución, el nuevo elemento deberá ser compatible al original en cuanto a color, textura, diseño y especialmente a los materiales. La reproducción de piezas ausentes deberá estar basada en evidencia, documentos, bocetos o fotografías.
6. Intervenciones que impliquen ampliaciones, alteraciones o nueva construcción, no deberán destruir o sustituir materiales originarios o históricos que impriman valor a un recurso patrimonial. La edificación contemporánea, deberá ser distinguible de la antigua, aunque debe ser compatible en cuanto a volumetría, morfología, escala y elementos arquitectónicos o decorativos.
7. Intervenciones que impliquen ampliaciones, alteraciones o nueva construcción deberá ser llevada a cabo de tal manera que, si se demoliera en un futuro no afecte la cualidad del recurso patrimonial y su conjunto.
8. De encontrarse yacimientos arqueológicos en el recinto, estos deberán ser conservados y protegidos. Si fueran impactados por la intervención de un proyecto es imperativo establecer un protocolo de medidas y labores de mitigación.

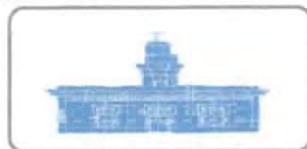
Es, por lo tanto, que enfatizamos en las siguientes recomendaciones basadas según las guías presentadas.

Según se ha reconocido, existe la propuesta de **Rehabilitación** en establecer usos para un museo en el edificio objeto de este estudio. Aunque se trata de una excelente posibilidad y entendemos que no se han desarrollado planos para su implantación, endosamos la propuesta, aunque sugerimos se tomen en cuenta las siguientes sugerencias:

1. Se deberá reconocer la planta original en forma de martillo.
 - a. Eliminar toda intervención no original e indebida que distorsione la distribución espacial primaria. Identificamos especialmente, la parte añadida que invade el patio interior lateral de la parcela y se ha identificado en este informe. Además, es evidente que se encuentra estructuralmente comprometida en la que se observan fisuras, productos de asentamientos diferenciales y exposición de los refuerzos de aceros debido a la corrosión junto al laminado del hormigón que las recubre, especialmente en las columnas.
2. Se deberá reconocer el patio interior lateral y se puede incorporar a la propuesta de diseño arquitectónico para uso del museo, evitando su invasión mediante la construcción de estructuras que sean permeables visualmente en cuanto a su construcción básica para este espacio.



-
3. Se puede considerar aumentar la cantidad de pies cuadrados de construcción solo si es requerido por el uso propuesto:
 - a. La expansión de la nave lateral hacia el patio posterior, aunque considerando mantener el espacio abierto en un tamaño reconocible y considerable.
 - b. El aumento a un nivel tercero de la nave lateral con el alzado que se orienta a la calle retranqueado, por lo menos a ubicarse después de la segunda crujía o de la proyección del tamaño de la segunda nave, solamente.
 4. Toda nueva construcción deberá reconocerse y diferenciarse de la original con la posibilidad de que la planta original (martillo) pueda ser recuperada sin que se afecte su forma, de ocurrir una nueva intervención en el futuro.
 5. La fachada principal, deberá mantenerse íntegra y sin intervenciones.
 - a. Se recomienda que no se utilicen químicos, ni componentes o sistemas corrosivos de limpieza, incluyendo máquinas de lavado con agua a presión, ni de arena (Sandblasting methods).
 - b. Se ha incluido en la sección de los bocetos, sugerencia del diseño de las puertas y sus componentes, para ambos niveles. Igualmente, se deberá considerar las propuestas de las ventanas, que continúen con el mismo patrón de las puertas, según la fenestración existente. Aunque recomendamos que las puertas y ventanas sean construidas en madera, son aceptables las de metal, siempre y cuando mantenga el diseño similar al original, según ha sido sugerido. Enfatizamos que se debe tener el endoso o recomendación del Programa de Protección del Patrimonio Construido adscrito al Instituto de Cultura Puertorriqueña (ICP).
 - c. Ninguna nueva construcción deberá coincidir con el plano del alzado principal.

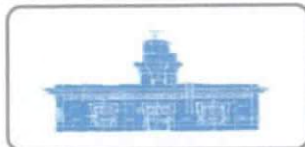


Los criterios de evaluación para la Nominación de Sitios y Zonas Históricas establecidos por el Instituto Puertorriqueño (ICP) a través del Reglamento Conjunto, enmendado y aprobado en enero del 2020 y la Oficina de Conservación Histórica (OECH o SHPO (siglas en inglés) quienes apoyan y recomiendan el desarrollo de estudios como el presente. Aquellos conceptos que aplican a los recursos identificados para protegerse según se recomiendan en el informe, son los siguientes:

1. **Criterio A:** Asociados con acontecimientos que hayan contribuido significativamente a los patrones de nuestra historia.
2. **Criterio B:** Asociado con las vidas de personas significativa de nuestra historia.
3. **Criterio C:** Representen las características distintivas de un tipo, periodo, o método de construcción. Represente la Obra de un Maestro, posea gran valor artístico o artesanal, represente una entidad significativa y distintiva, cuyos componentes carezcan de distinción individual. Que constituyan un espacio urbano de especial relevancia, belleza o significado.
4. **Criterio D:** Que tengan significado para la historia, arquitectura, arte, arqueología, ingeniería y que contribuyan a explicar los fundamentos del mismo.

Entendemos que de los cuatro criterios presentados aplican al caso estudiado para el recurso identificado, especialmente los **Criterios C y D**. Por lo tanto, nuestra recomendación es comenzar los procesos de inscripción del recurso identificado en el Registro Nacional. Para estas labores, no se requiere que comiencen las obras de rehabilitación de la estructura existente y siempre en colaboración con el Instituto de Cultura Puertorriqueña y la Oficina Estatal de Conservación Histórica (OECH).

Finalmente, promovemos y es nuestra opinión que el acervo cultural que será impactado por un nuevo proyecto de rehabilitación se conserven sus elementos identificados existentes sin alterar, ni demoler manteniéndolos en su estado actual, siempre considerando su huella originaria presente.



Recomendamos enfáticamente que se considere ampliar los usos propuestos del museo para que no solo atienda a una población local, visitante o turística. Es recomendable que el nuevo proyecto vincule otras iniciativas tanto privadas como municipales relacionadas al quehacer y desarrollo cultural colectivo. Que se incluyan y amplíen sus capacidades para actividades itinerantes de avance de las bellas artes en general, además de incorporar talleres para artesanos y conciencia comunitaria.

Al igual que todos los municipios de Puerto Rico, especialmente sus centros o cascos urbanos tradicionales cuentan con un cumulo de recursos naturales, patrimoniales, de historia y eventos que han brindado personalidad y carácter a cada pueblo en particular. Quebradillas tiene y preserva algunos de sus buenos ejemplos que han escrito su pasado. A estos fines recomendamos los siguientes:

1. Se deberá identificar y llevar a cabalidad un inventario de todas las estructuras que conforman lo que podremos llamar como la zona o distrito histórico. En la mayoría de los casos se encuentran agrupadas en el interior del centro del pueblo y cuyo origen puede ser la plaza principal. Muchos de ellos con el potencial de ser inscritos en el Registro Nacional. Hemos identificados algunas estructuras que conforman parte del vecindario urbano que incluye la bella iglesia católica y la plaza que comparten el proyecto de este estudio.
2. Los proyectos, como el que ha generado el actual estudio de reconocimiento patrimonial, no deberán desarrollarse aisladamente o como proyectos puntales, sino que se deben concatenar con otros proyectos de similar función y que acojan e integren funciones que se apoyen entre sí. Estos deben incluir, aunque no limitarse a rutas culturales, exhibiciones de las diferentes manifestaciones de la plástica, artesanías y especialmente ruta gastronómica.
3. No se deberá orientar estas actividades exclusivamente de índole turístico extranjero, ya que Puerto Rico cuenta con un fuerte turismo interno.
4. Se puede considerar la creación de hostales y paradores como parte del desarrollo de los centros tradicionales en un proceso de rehabilitación de estas antiguos edificaciones.

Es imperativo reconocer que, en esta cambiante economía de ajustes presupuestarios, escasez de recursos económicos y bienes, el acervo construido puede representar una ganancia de inversión concreta. No solo es conveniente reconocer el esfuerzo y tiempo de una obra construida, sino que resulta una gran economía de medios en llevar a cabo proyectos para su recuperación. Es una realidad que presenta un reto a la creatividad de brindar nuevos usos a antiguas estructuras y muy importantemente, manteniendo la identidad y continuidad histórica de nuestro país y nación.





DETALLE DE ESQUINA
EXPUESTA EN LA QUE SE
APRECIA CONSTRUCCIÓN
DE LADRILLO CON JUNTAS
DE MORTERO A BASE DE
CAL Y ARENA

Elementos Adicionales a Considerar



“La arquitectura es una expresión de valores”
Arquitecto Norman Foster, Reino Unido. (1935)

Arquitecto Carlos Ferrán

Julio del 2022

Final del Informe



Google Search

Google Earth

1961, Carta de Venecia, Italia

How to Apply the National Register Criteria
National Park Services, National Register Bulletin
Revised, 1995
Department of Interior, USA

Arquitectura, Historia y Patrimonio, 1965
Dr. Rafael Crespo
Dra. Arlen Pabón Charneco
Oficina Estatal de Preservación Histórica
Oficina del Gobernador

Archivo de Arquitectura y Construcción de la
Universidad de Puerto Rico, (AACUPR)
Universidad de Puerto Rico
Recinto de Río Piedras

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Instituto de Cultura Puertorriqueña

Diccionario- Manual Ilustrado de Arquitectura, 1977
Dora Ware
Betty Beatty
Editorial Gustavo Gili, S. A.
Barcelona



The Visual Dictionary of Buildings, 1992
Dorling Kindersley Limited, Reino Unido

Metodología de Conservación para Edificios Históricos
Puerto Rico y las Islas Vírgenes Norteamericanas
(Manuscrito sin publicar- 2007)
Beatriz del Cueto, FAIA

Puerto Rico 1990
Turn of the Century Architecture in the Hispanic Caribbean
Rizzoli, New York, 1992
Jorge Rigau, Architect

Esbozo de Arquitectura Histórica en Puerto Rico
(Ensayo analítico resumido), 2003
Oficina del Programa de Protección del Patrimonio-Región Sureste y Sur-Centro
Instituto de Cultura Puertorriqueña
Arquitecto Jorge Ortiz Colom



PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
Subrecipient: Quebradillas Municipal Government	
Program ID Number: PR-CRP-000554	
Project Name: Reconstrucción de edificio para uso de Museo Histórico	

Project Location: Honorio Hernández Street, Pueblo Ward, Quebradillas, PR	
Project Coordinates: Lat: 18.47394221; Lon: -66.93817961	
TPID (Cadastral Number): 008-080-009-06	
Type of Undertaking: ☒ Substantial Repair/Improvements ☐ New Construction	
Construction Date (AH est.): year 1918	Property Size: 0.0553 acres (223.9436 sq/m)

SOI-Qualified Archaeologist: Fernando Alvarado Muñoz
Date Reviewed: January, 2023
SOI-Qualified Architect/Architectural Historian: Carlos Ferrán Martínez
Date Reviewed: January, 2023

In compliance with Section 106 of the National Historic Preservation Act (NHPA), the Program is responsible for identifying historic properties listed in the NRHP and any properties not listed that would be considered eligible for listing that are located within the geographic area of potential effects (APE) of the proposed project and assessing the potential effects of its undertakings on these historic properties. Activities related to this project will be done in a manner that does not meet Stipulations outlined in the Programmatic Agreement.

Project Description (Undertaking)

The proposed project is intended to remodel and rehabilitate the existing building located in Honorio Hernández, in front of the main square of Quebradillas to become the “Quebradillas Historic Museum”. The project consists of the restoration and conditioning of the historic structure to become the Historical Museum of Quebradillas. At the present time the historic structure lacks a roof.

In general terms, it is proposed to use the existing old structure, repair it (including a new roof) to use the first floor as a Historical Museum and the second floor for an office and archives. The structure is in front of the Recreation Plaza of the Municipality of Quebradillas. In the back, a space used for a bathroom has well-deteriorated support columns. In addition, the existing flooring on the second floor has deteriorated. The floor of the first floor is in terrazzo and has been preserved.

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Project contemplates demolishing a portion of the existing building. This portion corresponds to an addition to the building to provide an additional bathroom on the second level. This portion of the structure has structural deterioration that requires demolition (see photos #14 & 15). Columns and beams have exposed and corroded structural steel. The process for the demolition of this portion will be carried out with manual tools. This is because there is no access to the rear to allow the use of mechanical equipment, such as a small backhoe.

Starting from the demolition, excavations will be carried out for the foundations of the proposed extension. The designed footings correspond to spread footing at a depth of 2 feet (0.6097 meters). The footings occupy a 100.875 sf (9.38 square meters) portion of the patio area. This includes utilizing the 132.25 sf (12.292 sm) area previously impacted by the construction of the second-floor bathroom years ago.

On the first floor, is proposed to demolish a portion of the existing wall (west side) to provide access from the existing structure to the proposed extension. Demolition consists of cutting out an area of 10.5 sf (0.9759 sm) under the existing window to create 25.333 sf (2.354 sm) doorway.

It is also proposed to demolish two interior walls at the back corresponding to the existing bathroom on the first floor. As part of the work required for the two new bathrooms, it will be necessary to cut the slab and the existing concrete floor to install the pipe for the sanitary sewer.

At the front of the first floor (main hall) it is proposed to demolish an interior step to create uniform steps at the required height. The step measures 3 ft by 1 ft.

On the second level, only the demolition of the bathroom is proposed.

Regarding the main façade, water at no more than 60 psi and a brush will be used to clean the surface. Starting from the cleaning, the painting works will be carried out, using the original colors (salmon color).

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The roof of the second level (existing portion, in the form of a hammer), will maintain the levels and discharges like the existing ones, according to the footprint in the boundary of the walls (see photos #7, #8, #9 & #11)

The new construction consists of a 23.25 ft (7.088 mts) by 10.25 ft (3.125 mts) concrete and block expansion to include a showroom on the first floor and provide access to the backyard. On the second floor there are two bathrooms and a hallway.

In addition, two new bathrooms will be created on the first level in the rear interior of the building. They will occupy an area of 11'-10" by 8'-0" (94.667 sf or 8.8 sm) and will have access only from the inside.

The existing building plumbing and electrical system will be replaced and/or upgraded. To bring the proper distribution of interior lighting, it is necessary to install a suspended acoustic ceiling.

In the second level, it is proposed to repair the door openings using mortar. A new metal ceiling will be installed with a suspended ceiling inside.

In the patio, it is proposed to build an L-shaped terrace that occupies a space of 206 sf (19.148 sm).

The lot where the project is located has a surface area of 233 square meters. The existing two-story structure has an occupancy area of 1,304 sf (121.2076 square meters). The new occupancy area will be 1,627 sf (151.2307 square meters)

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Area of Potential Effects

As defined in 36 CFR §800.16(d), the area of potential effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. Based on this definition and the nature and scope of the Undertaking, the Program has determined that the direct APE for this project is **0.05533 acres (223.9436 sq/m) (10.54 meters by 22.00 meters approximately)**, and the visual APE is the viewshed of the proposed project. The project is located within the boundaries of the Traditional Urban Center of Quebradillas town in front of the Main Square.

To the north it borders by a two-story structure with commercial facilities on the first floor and apartments on the second floor and the lot is owned by Mrs. Nilda Prieto, to the south by a two-story structure occupied by a Bank (BPPR) and the lot is owned by Mr. Longino Medina, to the west with the Plaza and to the east with a commercial structure owned by Mrs. Virginia Hernandez.

Identification of Historic Properties – Historic General Background

Back in 1805 existed a civil struggle between the residents of Camuy and Quebradillas to obtain authorization to populate the area of “Las Quebradillas”. In 1815, neighbors of Camuy Arriba and “Las Quebradillas”, gave authority to Francisco Jiménez to request authorization from the government to the foundation of a town on the site of “Las Quebradillas”. Las Quebradillas owes its name to the existence of numerous small streams that travel its territory. The town of Quebradillas was officially founded in 1823 by Don Felipe Ruiz and Francisco A Bravo. Ruiz and Bravo donated the land to build the town; Ruiz donated eight “cuerdas” of land and Bravo, one and a half “cuerdas” necessary to establish the urban area of the future village.

In that same year of 1823, began the municipal works surrounding the cemetery, and the King's House construction begins, finishing in 1824. The Church was completed in 1828, it was named “San Rafael Arcángel”. Manuel Valdez was its first Parish Priest. At the time of its foundation Quebradillas was formed by Cacao, Cocos and Sapo neighborhoods.

Twenty years later, in 1824, Quebradillas had 1,829 inhabitants. By that time, the town of Quebradillas consisted of only ten (10) houses and ten (10) bohios. In the neighborhood only 3 houses and 332 wooden, palm and straw bohios.¹ Ten years later, in 1836, the municipality had 1,500 neighbors, of which only 102 were native Creoles of Puerto Rico. In this initial stage the

¹ Sepúlveda Rivera, Aníbal, Puerto Rico Urbano, San Juan: CARIMAR, Vol.1, 2004. Page. 125.

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economy of Quebradillas was based on the cultivation of sugar cane, coffee, livestock, tobacco, and other minor fruits. There were eleven (11) cane mills and four “alambiques”. The Municipality produces sugar, “melao” and “aguardiente” (rum).

During the second half of the nineteenth century the cultivation of sugar cane was reduced but the agriculture of coffee and tobacco was increasing. In 1878 there were already about eight neighborhoods; Charcas, Guajataca, San Antonio and San José emerged.

Figure 1: Map of the town of Quebradillas in 1869. By Ramon Soler Tort.² In the Center the Plaza de San Rafael is identified. Undeveloped areas are identified in green.

² Sepúlveda Rivera, Aníbal, Puerto Rico Urbano, San Juan: CARIMAR, Vol.2, 2004. Page. 144.

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM

INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG)

Section 106 NHPA Effect Determination - Architecture

Subrecipient: Quebradillas Municipal Government

Program ID Number: PR-CRP-000554

Project Name: Reconstrucción de edificio para uso de Museo Histórico



GOVERNMENT OF PUERTO RICO
DEPARTMENT OF HOUSING



In 1902 the Legislative Assembly of Puerto Rico approved a law called for the Consolidation of Certain Municipal Terms that eliminated the municipality of Quebradillas and incorporated its neighborhoods and officials to those of Camuy. In the period between 1903 and 1908 the route of the railroad between San Juan and Ponce was finished with the erection of a bridge over Quebradas in Isabela and Quebradillas and the impressive viaduct based on steel beams crossing the canyon of the Guajataca River and its two access tunnels. The 1899 census

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gives the population of town 1,166 of whole district of 7,432. Manufactures consist in straw hats and cigars. In 1908, a new law returned Quebradillas its character as a municipality with the same boundaries and neighborhoods it had in 1902.

Synthesis of the Urban development of the town of Quebradillas

- Officially founded in 1823 in nine and a half “cuerdas” of land.
- In that same year of 1823, began the municipal works of the cemetery and the King's House construction begins, finishing in 1824.
- 1824, the town of Quebradillas consisted of **ten (10) houses and ten (10) bohios**.
- The Church was completed in 1828, devoted to “San Rafael Arcángel”.
- The 1869 plan (Figure 1) identifies 166 structures erected in the urban center including the Catholic Church.
- In 1869 the Catholic Church was the only masonry structure in the village.
- The Catholic Church was part of the Main Square (Figure 1 and Figure 2)).
- In 1878 in the village were 64 houses, 79 bohios, 261 families, 5 mixed shops and 12 grocery stores.
- In 1878 the village was form by five streets: Comercio, San Justo, California, San José, and Socorro and six “Callejones”.
- In 1878, the main square was the Plaza de San Rafael an a “Plazuela” name “Las Mercedes”.
- In 1878, the wooden Town Hall was in the “Plazuela de Las Mercedes”.
- Map of Quebradillas 1889, By Félix Ardanaz y Crespo, Corps of Military Engineers, Topographic Commission, shows an existing structure in the parcel under evaluation (Figure 2).
- Descriptions of William H. Armstrong In 1909, “The town, like all other towns in P.R., is built about the church and plaza where all the business is carried on and where the best residences are (Figure 3).
- “Most of the buildings are low single story wooden buildings although there are a number of old masonry buildings. The town hall is an old rickety two-story house opposite the south side of the church. The telegraph office is in the same building. Town has no hospital, fire department or

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factories. Town could easily be burned as most of its buildings are of wood.”³

- “The church is 40 X 100 feet.”
- “The streets are “Level but rough and rocky...”
- “Cigars are manufactured in four old buildings”.⁴

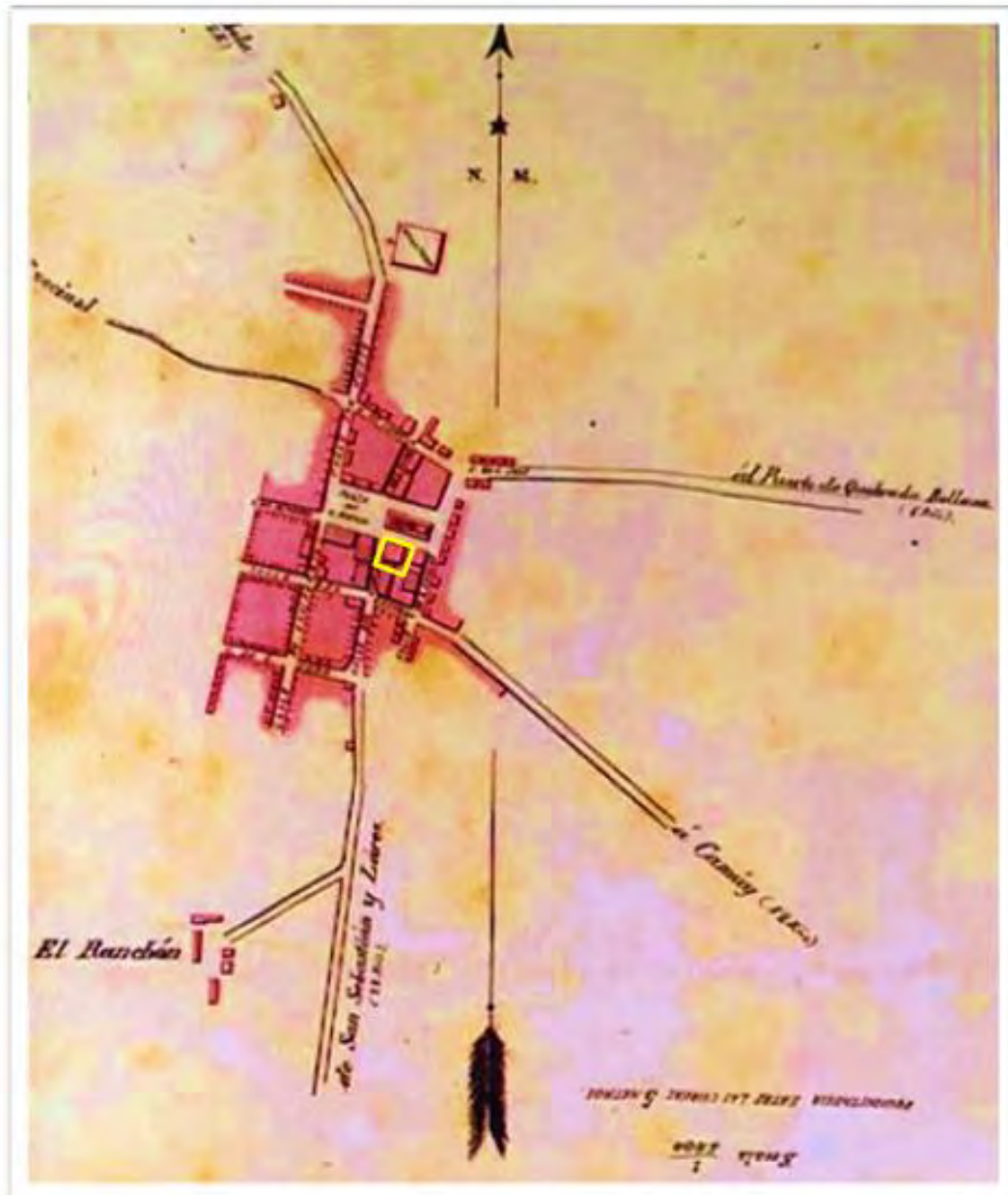
During the first half of the twenty century the Urban growth of Quebradillas remained slow. The aerial photograph of 1936 (Figure 4) shows that the urban center of Quebradillas developed basically to the North direction. During the second half of the twenty century the predominant industries of Quebradillas were agriculture, livestock, commerce, and tourism. The urban center of the town of Quebradillas developed to the North, South and West (Figure 5). In the 2010 Census, the town had an estimated population of 3,103 inhabitants.

³ Sepúlveda Rivera, Aníbal, Puerto Rico Urbano, San Juan: CARIMAR, Vol.3, 2004. Page. 320.

⁴ Ibid. Page 320.

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Figure 2: Section of the Map of Quebradillas 1889, By Félix Ardanaz y Crespo, Corps of Military Engineers. Topographic Commission.⁵



⁵ Sepúlveda Rivera, Aníbal, Puerto Rico Urbano, San Juan: CARIMAR, Vol.3, 2004. Page. 318.

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Figure 3: Quebradillas, 1898. Photograph of Walter Townsend. Our Island and Their People.⁶



⁶ Sepúlveda Rivera, Aníbal, Puerto Rico Urbano, San Juan: CARIMAR, Vol.3, 2004. Page. 319.

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Figure 4: Quebradillas Urban Center in 1936. Aerial photo, DTOP.



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Figure 5: Quebradillas Urban Center in 1999. Aerial Photo. DTOP.

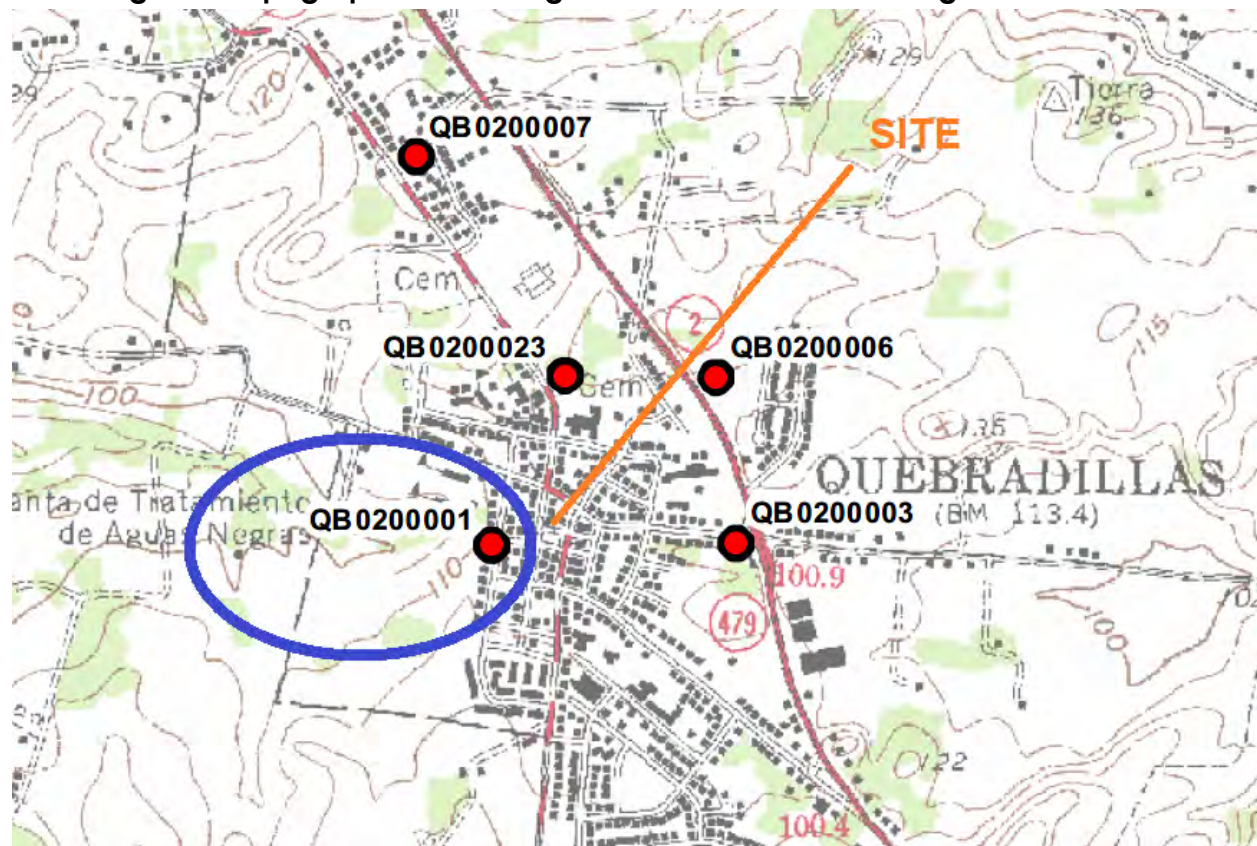


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Identification of Historic Properties-Archaeology

In the list of archaeological sites of the State Historic Preservation Office (SHPO) reports 33 sites of cultural value in Quebradillas. In the list of the 34 are included the pre-Hispanic and historical sites. There are 23 historical sites, 10 pre-Hispanic, (1 historical that is repeated). This repeated site is that of Puerto Hermida (formerly Qb1) appears in the urban area as QB0200001 and with the same numbering (QB0200001) on the northeast border between Quebradillas and Camuy. We understand it is a mistake (pointed out in blue) and everything indicates that the correct location is to the North on the border of the municipal territory of Quebradillas with the municipality of Camuy. The QB 0200003 its located at 0.21 miles at east, the QB0200006 at 0.26 miles to the east and, the QB0200007 is at the north at 0.32 miles, the QB 0200023 at 0.15 miles at north.

Figure 6: Topographic Quadrangle USGS with the archaeological sites' information.



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Based on the documented archaeological information, it seems that all the cultural resources near the Urban Center of Quebradillas and the parcel of the project under evaluation correspond to historical cultural resources. Among them; QB0200003, QB0200006, QB0200007 and QB0200023.

QB0200003 - Hacienda San Antonio; Hacienda Comulada

QB0200006- Hacienda Amador, it is the oldest house in Quebradillas. It was built before the founding of the town of Quebradillas in 1823. It is approximately 200 years old. At first it was a cotton and tobacco farm. Milk was also produced and then sent by train to Mayagüez. The house was built by the Rivera family that belonged to the region of Camuy. Then it belonged to the Marxuach and Babylon family. In 1902 Mr. Andrés Amador, grandfather of Carmen Milagros Amador, bought it. Doña Milagros Amador and her father were born in this house. Since 1972 the house has been owned by Carmen Milagros Amador and Ángel Luis Lugo. The house is made of stones and cement but has a wooden floor and ceiling. The roof is hipped. The residence is on two floors. On the first floor there is a library and a private chapel. In this chapel the first masses and novenas of Quebradillas were held. It was also used as an all-boys teaching college. The second floor has a hall, three bedrooms, two bathrooms, a large living room, dining room, kitchen, a balcony, and a terrace. It also had a cistern where the whole region came to fetch water.⁷

Figure 7: QB0200006- Hacienda Amador



⁷ https://www.facebook.com/MiOrgulloDeCorazon/posts/5122345054478639/?locale=hi_IN

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QB0200007- Horace Mann School Ruins

QB0200023- San Rafael de las Quebradillas Cemetery- Cemetery built in 1823 in Pueblo de Quebradillas neighborhood. It is said that due to the difficulty of the stretch to the cemetery of Isabela when the Guajataca River grew due to the rains, is that the San Rafael de las Quebradillas Cemetery was built. Its original fence was made of wooden sticks. At present the cemetery is not in use, but the pantheons and niches of the nineteenth century are still maintained.⁸

Historical Resources of the Municipality included in de NRHP

In the municipality of Quebradillas only has two historical records in the *National Register of Historical Sites*. The first was nominated in 1984. Registered as White Bridge, the Bridge built in 1922, and Encompassing the Quebrada Mala Canyon on Panoramic Street, in the Terranova neighborhood. The coordinates are 18°29'10" N 66°55' 34"W.



Photo 1: Puente Blanco

⁸ Archivos Digitales Oficina Estatal de Conservación Histórica.

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The second nomination corresponds to the Liberty Theatre in 1989. Located at number 157 Rafols Street, in the Pueblo neighborhood, it is a building from 1921, designed by Arcilio Rosa. The coordinates are 18°28'24" N 66°56'21"W.



Photo 2: Liberty Theatre

Table 1: Nearby archaeological reports within a 1 km (0.621371 miles) radius

Code	Phase	Title	Autor	Results	Distance
1. ICP/CAT-QB-90-01-04	Phase IA	Carr Water Supply Improvements. PR 113 and 485	Rossana Santos Emanuelli	Negative	0.1 miles east
2. ICP/CAT-QB-92-01-08	Phase IA-IB	Parque Industrial de Quebradillas	Antonio Daubón Vidal	Negative	0.40 miles south
3. ICP/CAT-QB-92-01-09	Phase IA-IB	Villas de Quebradillas	Juan González Colón	Negative	0.42 miles east

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4. ICP/CAT-QB-94-02-01	Phase IA	High School Construction	Adalberto Maurás Casillas	Negative	0.25 miles northeast
5. ICP/CAT-QB-98-02-05	Phase IA-IB	Urban of Social Interest	Juan J. Ortiz Aguilú	Negative	0.28 miles west
6. ICP/CAT-QB-08-04-02	Phase IA	Parque Urbano	Fernando Alvarado Muñoz	Negative	0.14 miles southwest
7. ICP/CAT-QB-10-04-04	Phase IA	La Ceiba	Roberto Martínez Torres	Negative	0.59 miles southeast

A total of eleven archaeological studies have been conducted within a radius of one kilometer (0.621371 miles) distance of the evaluated project plot. All studies show negative results. However, we certainly know that the most abundant cultural resources in the urban centers of the towns of Puerto Rico are architectural resources, historical ruins, elements of Spanish colonial infrastructure, domestic garbage dumps of the colonial era, “aljibes” etc. .

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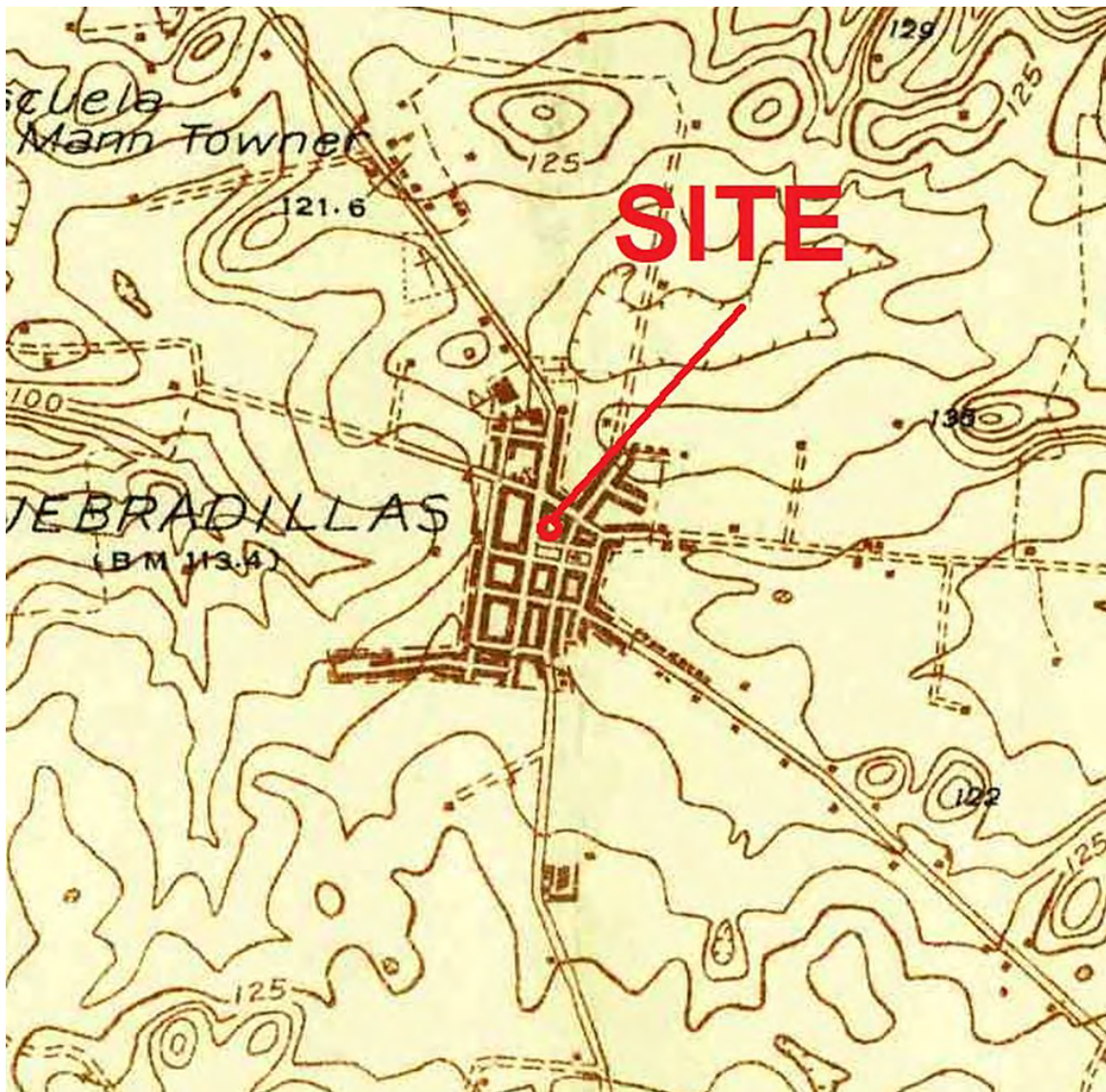


Figure 8: Topographic Quadrangle 1937-38 (Surveyed 1922)

In the quadrangle of 1937-1938, it can be observed the urban blocks built in the urban area of Quebradillas

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Figure 9: Topographic Quadrangle 1942

By 1942, Quebradillas urban grid remains almost the same as in 1938.

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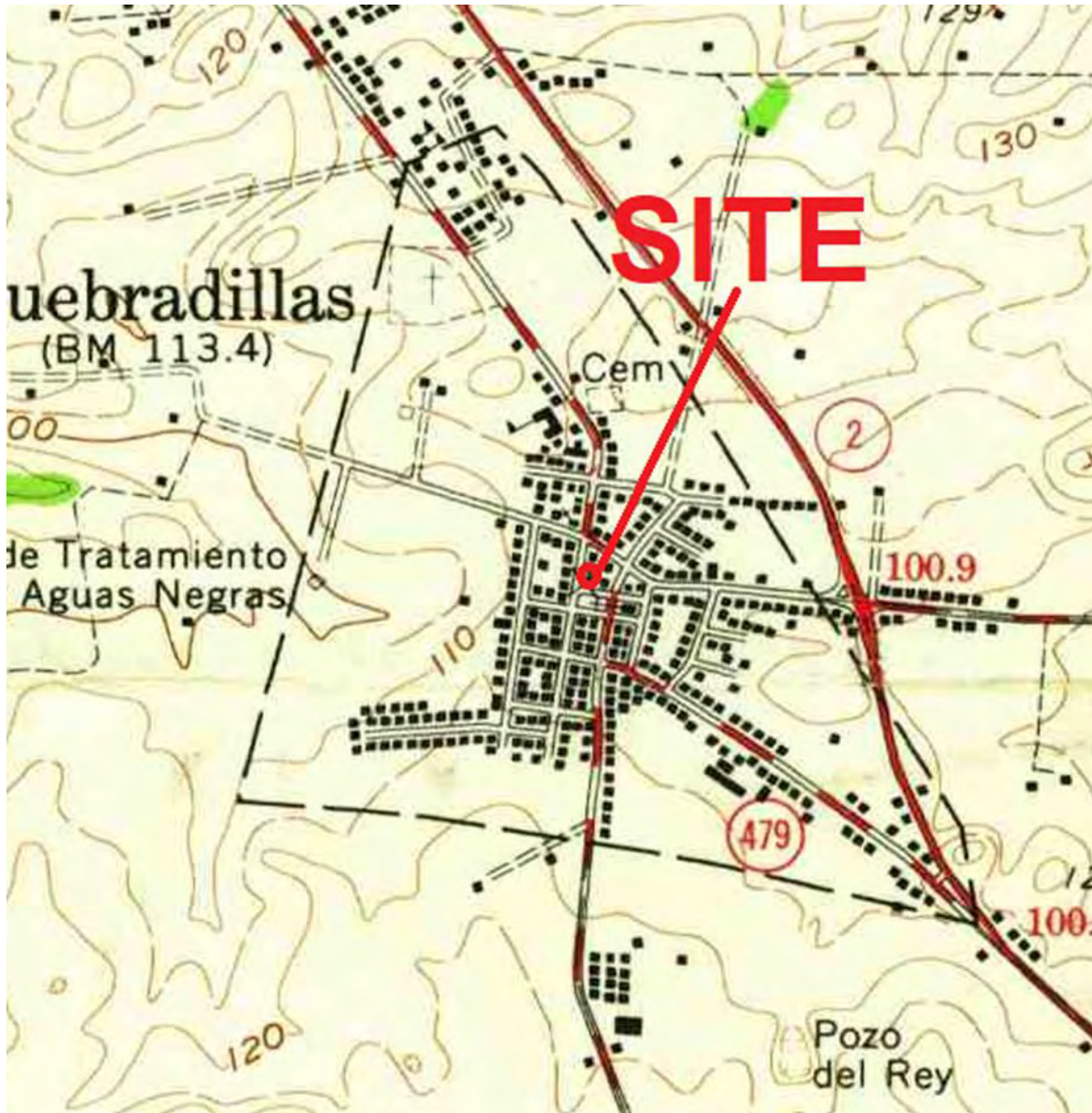


Figure 10: Topographic Quadrangle 1957-1961

Between 1942 and 1961 the urban grid of Quebradillas begins to extend to the east side of the town.

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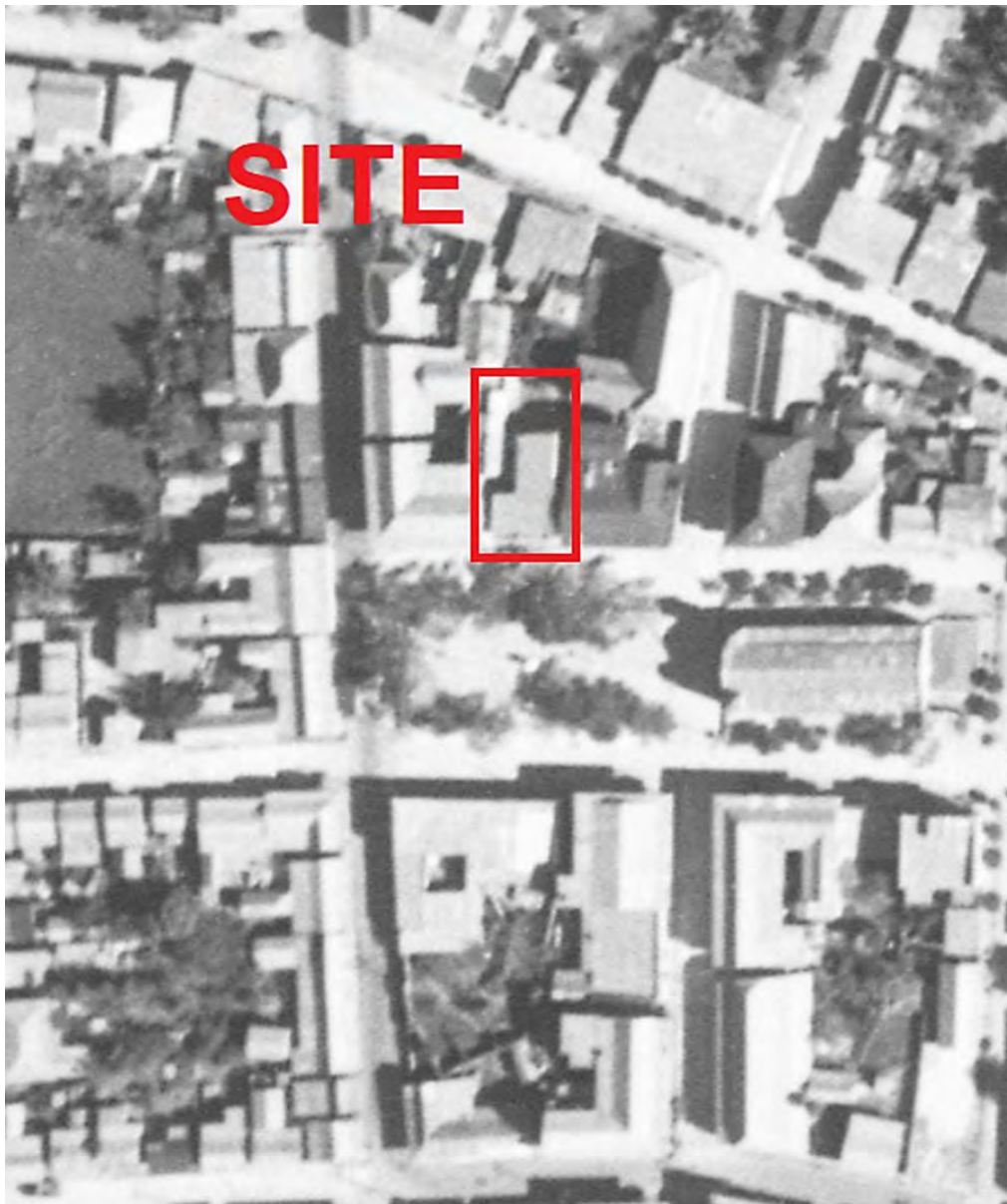


Figure 11: Quebradillas Urban Center Aerial photo in 1931, DTOP.

In 1931, the hammer-shaped building is observed in the parcel under evaluation.

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Figure 12: Quebradillas Urban Center Aerial Photo in 1985, DTOP. By 1985, no changes are observed in the area under study with respect to the 1976 photo.

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Figure 13: Quebradillas Urban Center in 2018. The project site identified in red.



Figure 14: Historical photograph of Honorio Hernández Street. The existing building in the project parcel is observed in good condition c. 1950.

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Identification of Historic Properties Conclusions

After conducting the archival research at the Institute of Puerto Rican Culture /Council for the Protection of Terrestrial Archaeological Resources of Puerto Rico (ICP/CAT) and in the State Historic Preservation Office (PR-SHPO), no evidence of pre-Hispanic resources is documented in the project area or in the historic Urban Center of Quebradillas.

The structure under evaluation is considered an architectural historical resource. The historical photograph of the building in the 1950s (Figure 14), gives us the information of its historical character and its original architectural style *Neoclassical-Colonial of the early twentieth century (1918)*. As part of the Phase I research for this project an architectural evaluation of the building was made by Conservationist Architect Carlos Ferrán. A technical report "**EVALUATIVE REPORT OF THE CULTURAL HERITAGE OF ARCHITECTURE... patrimonial resource in Quebradillas de Puerto Rico, July 2022**" was performed.

Architect Carlos Ferrán exposes this recommendation when he express:

*"Our recommendation has always been to motivate and encourage the protection and conservation of this and other cultural resources as far as possible. In addition, avoid a greater impact and acceleration of the detriment of the environment. The purpose of this report in compliance with current protection regulations is to recognize the patrimonial Assets and the historical footprint product of its time are part of our historical legacy that define us as a nation."*⁹

*"We promote considering the resource as an element that can and should be merged or integrated into new projects while maintaining their particular characteristics in the areas where they exist, occur and remain. Its reuse should always be motivated, either through a restoration as reliable as possible, properly for the uses that were originally developed or through other initiatives that provide the regulations governing interventions on the built heritage. We mention among which is the activities of Rehabilitation, which allows to incorporate new uses in old structures with the minimum of alteration to its original factory."*¹⁰

⁹ Ferran Carlos, "EVALUATIVE REPORT OF THE CULTURAL HERITAGE OF ARCHITECTURE... patrimonial resource in Quebradillas de Puerto Rico", July 2022.

¹⁰ Ibid.

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We support the recommendations of Architect Carlos Ferran in terms that the project for the Historical Museum of Quebradillas can be accepted as a contribution to the conservation of our architectural heritage. Based on the analysis of the historical plans and the aerial photographs we understand that, on the parcel where the project building is located, prior to 1918, there was a previous building, which can be seen on the map of Quebradillas "Map of Quebradillas 1889, By Félix Ardanaz y Crespo, Corps of Military Engineers, Topographic Commission (Figure 2). This possibility points to the necessity to conduct an Archaeological Monitoring during the construction Phase of the proposed project "Historical Museum of Quebradillas".

Identification of Historic Properties – Architecture¹¹

“Casa Criolla” Traditional Urban Settlements Architecture: The Creole Style.

This type of traditional urban center developments has its roots during the modernization of rural areas by which its genesis is due to the growth in the agriculture and transportation fields. These remote areas were slowly expanding into towns with stability and permanence of utilities. With these activities, the presence of more solid constructions were introduced which eventually led to the definition of permanent streets landscape of the eventually settlements.

The Casa Criolla or Creole Style were introduced between the years 1850 and 1925 and the first examples were built of wood with the exterior perimeter walls in rubblework or masonry. Most of them either one or two stories high. At the main façade, a balcony was projected towards the street. If the house was of two stories, the construction was stretched up to the sidewalk line and the balcony was placed on the second level, over the public way.

Most of these balconies were built across the entire façade and had several double-sided doors which opened towards this area. These fenestrations were oriented to the main living room spaces and sometimes to one of the dormitories. The roof usually was built in two or four gables with the main ridge parallel to the street. Also, a single gabled roof could be found with the inclination towards the posterior courtyard. The roof consisted in wood frame beams with paneled metal cover. In some cases, roof tyles were installed.

¹¹ Ferran Carlos, EVALUATIVE REPORT OF THE CULTURAL HERITAGE OF ARCHITECTURE... patrimonial resource in Quebradillas de Puerto Rico, July 2022.

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The plan consisted basically of one extended rectangular building, but in most cases a hammer plan shape was developed. The living room and sometimes a foyer was introduced towards the center. A decorative partition named “medio punto” could be found and it divided these two main spaces. This wall was decorated with fine carpentry and intricate wood craft. At the two sides of these centered areas, the dormitories were placed or mainly towards one of the sides. These dormitories communicated with each other through interior doors.

When a hammer shape plan was developed, an exterior gallery was introduced that was oriented towards an interior courtyard with service dormitories, kitchen and restroom were located at the end.

Usually, in the two-level Creole Style buildings, the first story was dedicated to the owner store, storage or both and the living quarters were on the second floor. This same style was also introduced in the development of state mansions of coffee and sugar cane companies’ owners.

Most of these Creole Residences were developed with the introduction of European traditions that were introduced in Puerto Rico especially during the 19th Century with the commercial trading that took place with other Caribbean Nations. English, French, Danish and North American influence could be found expressed in the plans and main façades designs.

Project General Information

The identified resource object of this study is a two-level building located on Honorio Hernández Street in the traditional center of the Municipality of Quebradillas in front of the main square and the Catholic church in which they share the urban space. The information about the property and the plot on which they are located is as follows:

1. Classification: C-I, (Intermediate Commercial)
2. Architectural Category: Spanish Colonial Revival
3. Number of Stories: Two
4. Materials: Structural Concrete with metal roof over wood beams (Non existing)
5. Building Description: The building is located within the commercial urban district in one of the streets (Honorio Hernandez Street) that surrounds the Quebradillas’ Luis Muñoz Rivera Main Square and Traditional Urban Center. Its use was mainly light commercial.

On the second floor the use was residential. The building is empty and sustained some damage that occurred during Irma and Maria hurricanes, which completely wrecked the remaining metal panels and wood beams roof.

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The architectural floor plan consisted of an " L" shape structure, typical of this kind of development on the traditional town centers. The same space distribution occurs on both levels, except for where the stairs are located. In this case, the stairs are situated on the East side, which permits independent access to the second floor.

The space distribution of the plan is defined by two main naves that form the **L or Hammer** shaped, as it is commonly known. The first volume is parallel to the street and the structural arrangement is the separation of equally interstices spaces, also known as "**crujias**". This can be defined by aligned columns or walls or a combination of both. This area accommodated the most public uses of the building.

The other nave or space volume is located perpendicular to the first one and is projected parallel to the rear boundary or property line. The commercial use on the first floor gathers the storage area, restrooms and offices.

For residential use, located on the second floor above the first-floor nave the living and dining were located. The kitchen, restrooms and dormitories were situated on the second nave perpendicular to the first one. As mentioned, it is accessed by a stair located in the East side courtyard.

The second-floor perpendicular nave was joined by a lateral corridor oriented towards an interior courtyard. It also provided better natural illumination and cross ventilation.

The existing roof was lost by the effects of the latest hurricanes that impacted Puerto Rico, during 2017. It was a wood beams structure covered with zinc metal panels. The roof reflected the Hammer or L shape of the main floor plan.

Overall condition of the Structure: The building enveloped area is structurally well preserved and in good condition. No visible structural damage observed. Metal zinc paneled roof with structural wood beams is non-existing. Some existing recent construction is considered negative intervention to the original floor plan and it's in precarious conditions.

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Architectural analysis

The building, due to its location, was eminently for commercial use and as in most of these types of structure, the combination of light commercial use with residence is not far from being evident. In all probability the owner of the shop resided on the second level. Originally, the floor plan of the building is expressed in the form of "L" or hammer very typical of this type of urban development. This typological expression regarding the spatial distribution inside occurs on the first level, although in many of the similar cases they are repeated in the upper levels with the exception that the arrival or rest of the staircase is added. This is usually located in a central or lateral hallway. In this case studied it is in the side courtyard and allows independent access from the first level. The spatial distribution of this plant is defined by two naves that form the hammer. One extends parallel to the street formed by the support elements that from the plane of the main elevation are almost always repeated equidistant inside and can be columns, walls, or load-bearing walls. These interceded or intercolonial spaces called bays are identifiable elements of the development of the architectural plan and housed the most public areas of the building. The other nave extends perpendicular with respect to the first and parallel to the line of the nearest adjacent. In these spaces of commercial use were the warehouses, sanitary services and the office of the owner. In the case of residences, the kitchen, dining room, rooms and sanitary services are distributed. It is usually accessed through a side corridor facing the inner courtyard. One of the reasons is accessibility to better natural lighting and ventilation.

This condition gives it a historical character since they are found in many of our old developments. We can cite the origins of the development in Antiguo San Juan prior to the construction of the urban blocks and later in the urban plots of the traditional centers in many of the municipalities of Puerto Rico. The roof above the second level is non-existent, although it can be determined that it was a wooden beam structure with a ribbed metal cover. The roof of the nave parallel to the street is a single water with inclination towards the lateral inner courtyard with a diagonal hole file starting with the highest point in the southeast corner. Here the roof of the second nave is joined, which is also in a single water and moves parallel to the adjoining line. The roof reflects the hammer shape seen in the original architectural plan. The main elevation can be identified as Neoclassical-Colonial of the early twentieth century (1918) and is identified in the shell ornament above the central door of the first level. We point out that the imposition

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of an eclectic style prevails in the way that decorative elements are combined on the plane of the façade. These are very well crafted and built in concrete. It is worth mentioning and listing that the following characteristics of the patrimonial resource stand out:

1. Elevation or Facade

a. Parapet or parapet with sling and continuous cornice on the side facing the street. On this coronation row urns were placed in the center and corners.

b. The parapet contains a frieze with rectangular decorations inserted in the centers of the “pañós”.

c. Coat of arms or “Cartuch” with a clear Masonic influence located in the center and articulating the parapet on two symmetrical sides. This presents an identifiable symbology such as the saber, axe, protection “adarga” and anchor. These are circumscribed within triangular geometric shapes, which visually create a square.

d. The whole parapet rests on the main cornice that is part of the entablature. and. It should be noted the influence of Italian architecture, especially the Neo-Renaissance in the expression and development of this parapet as a mainly decorative feature of the style. It also remembers, railings of which they were known as Paseo de las Viudas or Paseo del Capitan, especially in coastal places and whose origin is of North American influence.

2. Second Level

a. A continuously flown balcony with railing is projected whose tapestry are ornamental blocks type rosettes and articulated with posts separating into three areas. These units could be purchased commercially since they are modular pieces and have also been used in the same way in other residential buildings of the time.

b. The fenestrations of the doors are flanked with sashes on both sides of the gap and a sash-shaped wall in protruding box, at the top of the pillar.

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c. The openings of the doors have semicircular arch uprights with truncated suns and inserted stained glass. The doors were of two leaves made of wood and each of them integrated movable lattices in the central quarters possibly with shutters in the back.

3. Level One

a. The fenestrations of the doors are rectangular whose sashes on each side replaced by pilasters of half circumference and with grooves in their shaft, capital and on these the corbels.

b. The double doors and like the second level were made of wood and with fixed glass at the top. Although, without uprights, it possibly had central quarters in movable lattice windows, with shutters in the back and solid base quarters on the low cabio.

c. Above the doors are walls or ornamentations in the form of very stylized shells and served for identification. In the central shell is the year in Roman numerals of the construction of the building. (1918).

d. The whole building was raised in a basement and the bases of the columns that show a masonry finish in the plaster are integrated. The edges of the building in its main elevation show terminations in pads and occur on both levels. Also of neoclassical influence, in this case it is decorative elements in the corners.

Our recommendation has always been to motivate and encourage the protection and conservation of this and other cultural resources as much as possible. In addition, avoid a greater impact and acceleration of the detriment of the environment. The purpose of this report in compliance with current protection regulations is to recognize the heritage assets and the historical footprint product of their time are part of our historical legacy that defines us as a nation. We promote considering the resource as an element that can and should be merged or integrated into new projects while maintaining their particular characteristics in the areas where they exist, occur and remain. Its reuse must always be motivated, either through a restoration as reliable as possible, properly for the uses that were originally developed or through other initiatives that provide the regulations governing interventions on the built heritage.

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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We mention among which is the activities of Rehabilitation, which allows to incorporate new uses in old structures with the minimum of alteration to its original factory It is our responsibility to contribute with the analysis and present in conjunction with the regulatory agencies of Puerto Rico: Institute of Puerto Rican Culture (ICP) and the State Historic Preservation Office (SHPO) as well as the International Councils and Movements on the recovery and promotion of the protection of built heritage, express some guidelines or general regulations of intervention to resources:

1. It is imperative to maintain the structural genesis, character of the buildings and their environment, without alterations or destructive interventions or that modify too much the idiosyncrasy originating in complex.

2. The historical character of the buildings must be preserved. They must not remove materials, nor alter elements that affect their nature.

3. The entire enclosure must be recognized as a record and physical evidence of its time, place, and use. You should avoid adding elements based on assumptions, assumptions or coming from other buildings.

4. The elements, finishes, construction techniques and craftsmanship that contribute to the character of a heritage resource must be preserved.

5. Any component of a property resource that is deteriorated must be repaired and not replaced. If the damage is of magnitude that requires its replacement, the new element must be compatible with the original in terms of color, texture, design and especially materials. The reproduction of missing pieces must be based on evidence, documents, sketches or photographs.

6. Interventions involving extensions, alterations or new construction must not destroy or replace original or historical materials that add value to a heritage resource. The contemporary building must be distinguishable from the old, although it must be compatible in terms of volumetry, morphology, scale and architectural or decorative elements.

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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7. Interventions involving extensions, alterations or new construction must be carried out in such a way that, if demolished in the future, it does not affect the quality of the heritage resource and its whole.

8. If archaeological sites are found in the enclosure, they must be preserved and protected. If they are impacted by the intervention of a project, it is imperative to establish a protocol of mitigation measures and tasks. It is, therefore, that we emphasize the following recommendations based on the guidelines presented. As has been recognized, there is a proposal for Rehabilitation to establish uses for a museum in the building object of this study. Although this is an excellent possibility and we understand that no plans have been developed for its implementation, we endorse the proposal, although we suggest that the following suggestions be considered:

1. The original plant must be recognized in the form of a hammer. to. Eliminate any non-original and undue intervention that distorts the primary spatial distribution. We especially identify the part added that it invades the inner courtyard side of the plot and has been identified in this report. In addition, it is evident that it is structurally compromised in which fissures, products of differential settlements and exposure of steel reinforcements due to corrosion are observed next to the laminate of the concrete that covers them, especially in the columns.

2. The lateral inner courtyard must be recognized and can be incorporated into the architectural design proposal for museum use, avoiding its invasion by building structures that are visually permeable in terms of their basic construction for this space.

3. Increasing the amount of square footage of construction may be considered only if required by the proposed use: a. The expansion of the side nave towards the rear courtyard, although considering keeping the open space in a recognizable and considerable size. b. The increase to a third level of the lateral nave with the elevation that is oriented to the street set back, at least to be located after the second bay or the projection of the size of the second nave, only.

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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4. Any new construction must be recognized and differentiated from the original with the possibility that the original plant (hammer) can be recovered without affecting its shape if a new intervention occurs in the future.

5. The main façade must remain integrated and without interventions. It is recommended that no chemicals, corrosive cleaning components or systems, including pressurized water or sandblasting methods, be used. b. It has been included in the section of sketches, suggestion of the design of the doors and their components, for both levels. Likewise, proposals for the windows, which continue with the same pattern as the doors, according to the existing fenestration, should be considered. Although we recommend that doors and windows be constructed of wood, metal doors and windows are acceptable, if they maintain the design like the original, as suggested. We emphasize that you must have the endorsement or recommendation of the Built Heritage Protection Program attached to the Institute of Puerto Rican Culture (ICP). c. No new construction shall coincide with the plan of the main elevation.

The evaluation criteria for the Nomination of Historic Sites and Zones established by the Puerto Rican Institute (ICP) through the Joint Regulations, amended and approved in January 2020 and the State Historic Preservation Office (SHPO) who support and recommend the development of studies such as the present. Those concepts that apply to the resources identified to be protected as recommended in the report, are the following:

1. Criterion A: Associated with events that have contributed significantly to the patterns of our history.

2. Criterion B: Associated with the lives of significant people in our history.

3. Criterion C: Represent the distinguishing features of a type, period, or method of construction. Represents the Work of a Master, possesses great artistic or artisanal value, represents a significant and distinctive entity, whose components lack individual distinction. That constitutes an urban space of special relevance, beauty or meaning.

4. Criterion D: That they have meaning for history, architecture, art, archaeology, engineering, and that contribute to explaining the fundamentals of it.

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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We understand that all the four criteria presented apply to the case studied for the identified resource, especially Criteria C and D. Therefore, our recommendation is to begin the processes of registration of the identified resource in the National Registry. For these tasks, it is not required to begin the rehabilitation works of the existing structure and always in collaboration with the Institute of Puerto Rican Culture and the State Historic Preservation Office (SHPO).

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Determination

The following historic properties have been identified within the APE:

- Direct Effect:
In the project, a historical structure is located. The project proposes an internal restructuring of the property, to create the necessary spaces for the museum.
- Indirect Effect:
The existing historic building remains are part of the traditional Quebradillas historic core, facing the Historic Main Square and the catholic Church. The facade will not be affected by the project, therefore, there will be no indirect effect on the property or surrounding structures.

Based on the results of our historic property identification efforts, the Program has determined that project actions **have no adverse effect** the historic properties that compose the **Area of Potential Effect**. We promote, and it is our opinion that the cultural heritage that will be impacted by a new rehabilitation project preserve its existing identified elements without altering or demolishing them maintaining them in their current state, always considering their present original footprint.

Based on the analysis of the historical plans and the aerial photographs we recognize that, on the parcel where the project building is located, prior to 1918, there was a previous building, which can be seen on the map of Quebradillas "Map of Quebradillas 1889, By Félix Ardanaz y Crespo, Corps of Military Engineers, Topographic Commission (Figure 2). This possibility points to the necessity to conduct an **Archaeological Monitoring** during the construction Phase of the proposed project "Historical Museum of Quebradillas".

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Recommendation (Please keep on same page as SHPO Staff Section)

The Puerto Rico Department of Housing requests that the Puerto Rico SHPO concur that the following determination is appropriate for the undertaking (Choose One):

☐ No Historic Properties Affected

☒ No Adverse Effect

Condition (if applicable): **Only selective demolition** shall be permitted to remove recent interventions, that are considered unstable.

☐ Adverse Effect

Proposed Resolution (if applicable)

This Section is to be Completed by SHPO Staff Only

The Puerto Rico State Historic Preservation Office has reviewed the above information and:	
☐ Concurs with the information provided. ☐ Does not concur with the information provided.	
Comments: 	
Carlos Rubio-Cancela State Historic Preservation Officer	Date:

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM

INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG)

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GOVERNMENT OF PUERTO RICO
DEPARTMENT OF HOUSING

Project (Parcel) Location – Area of Potential Effect Map (Aerial)



**LUIS MUÑOZ
RIVERA MAIN SQUARE**

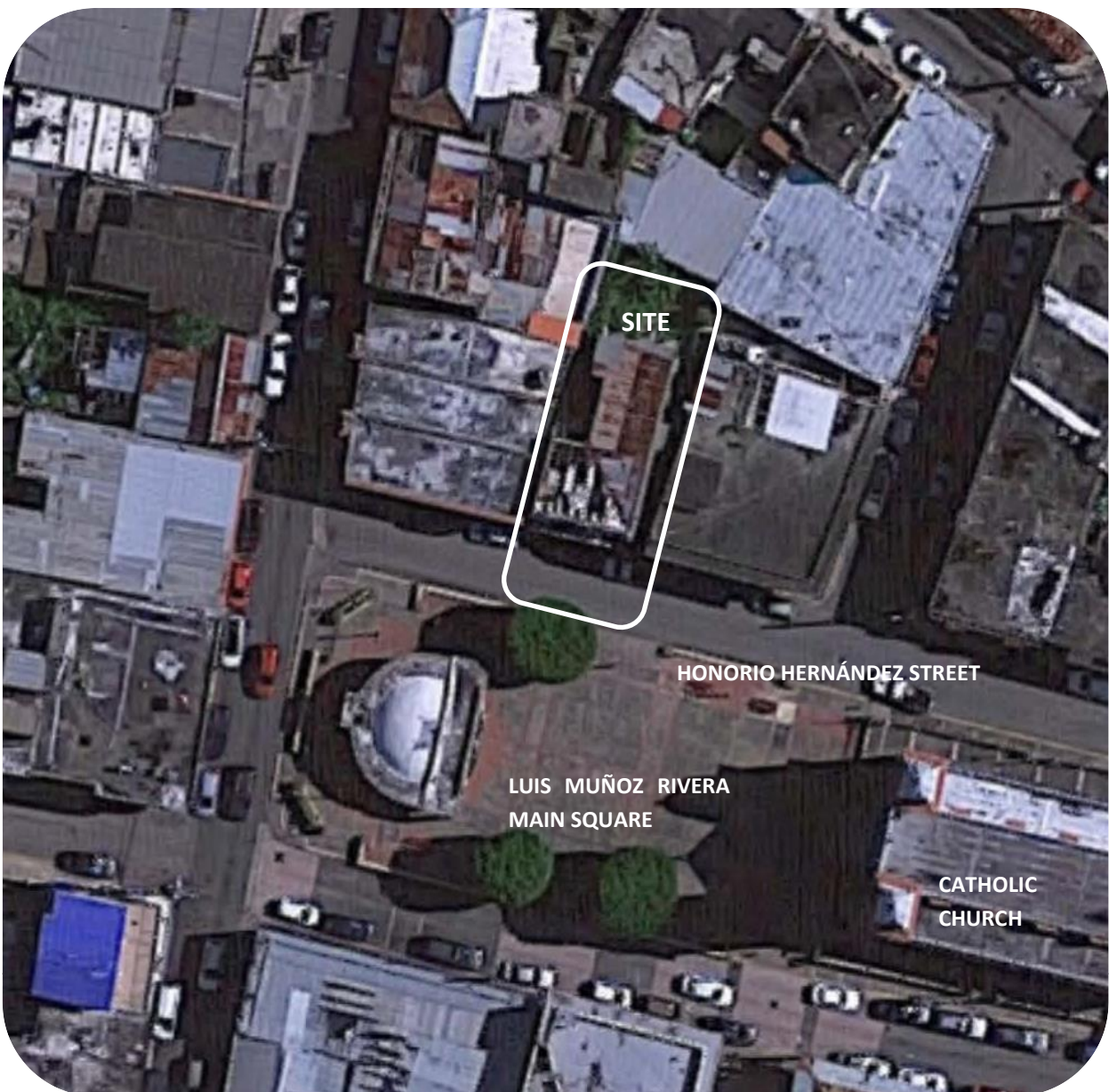
**CATHOLIC
CHURCH**

**TRADITIONAL URBAN
CENTER**



PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING	
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Project (Parcel) Location - Aerial Map



PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM

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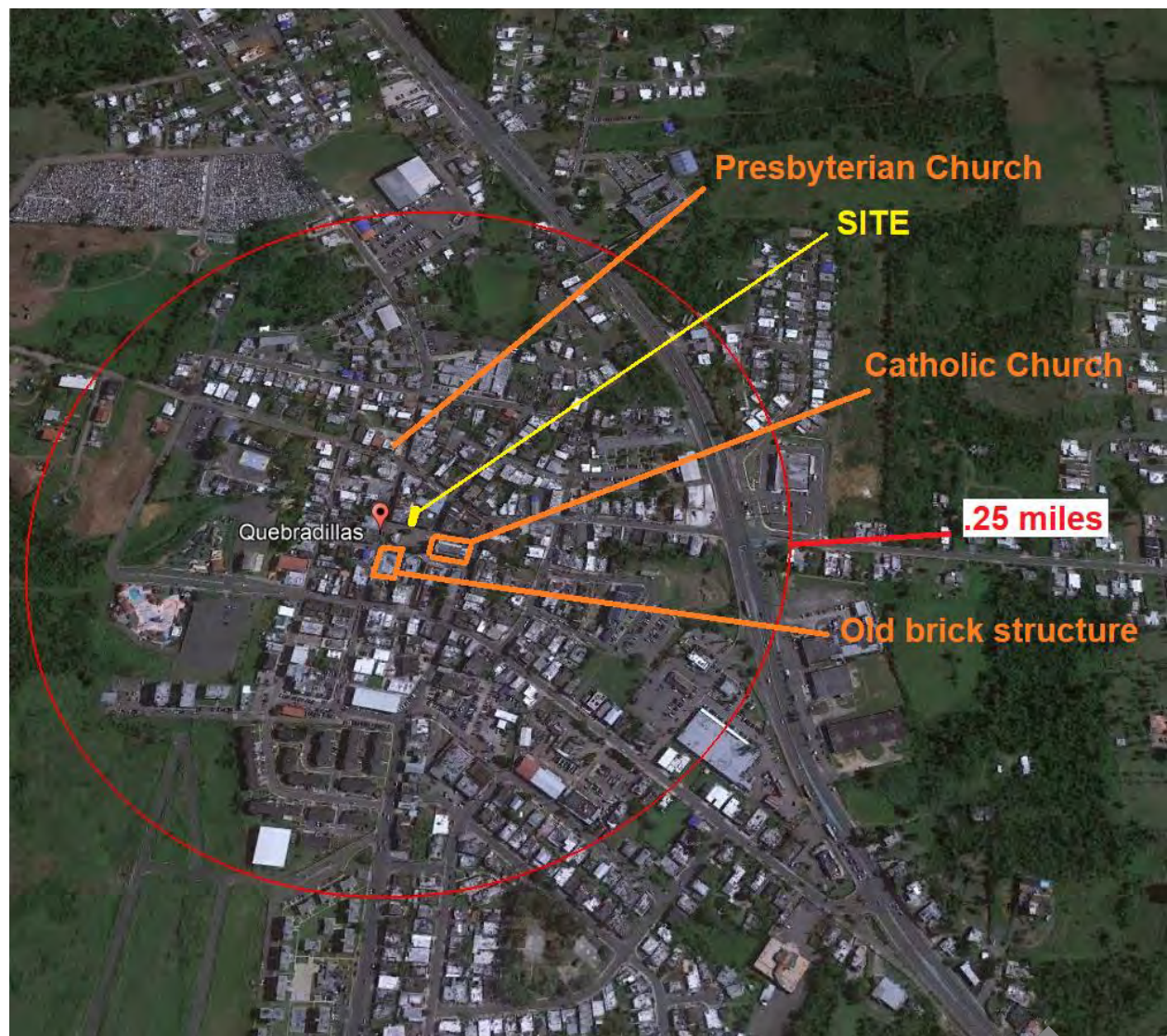
Program ID Number: PR-CRP-000554

Project Name: Reconstrucción de edificio para uso de Museo Histórico



GOVERNMENT OF PUERTO RICO
DEPARTMENT OF HOUSING

Project (Parcel) Location with Recorded Historic Properties - Aerial Map



PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM

INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG)

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GOVERNMENT OF PUERTO RICO
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Project (Parcel) Location - USGS Topographic Map



Project (Parcel) Location with Recorded Historic Properties – Topographic Map

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM

INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG)

Section 106 NHPA Effect Determination - Architecture

Subrecipient: Quebradillas Municipal Government

Program ID Number: PR-CRP-000554

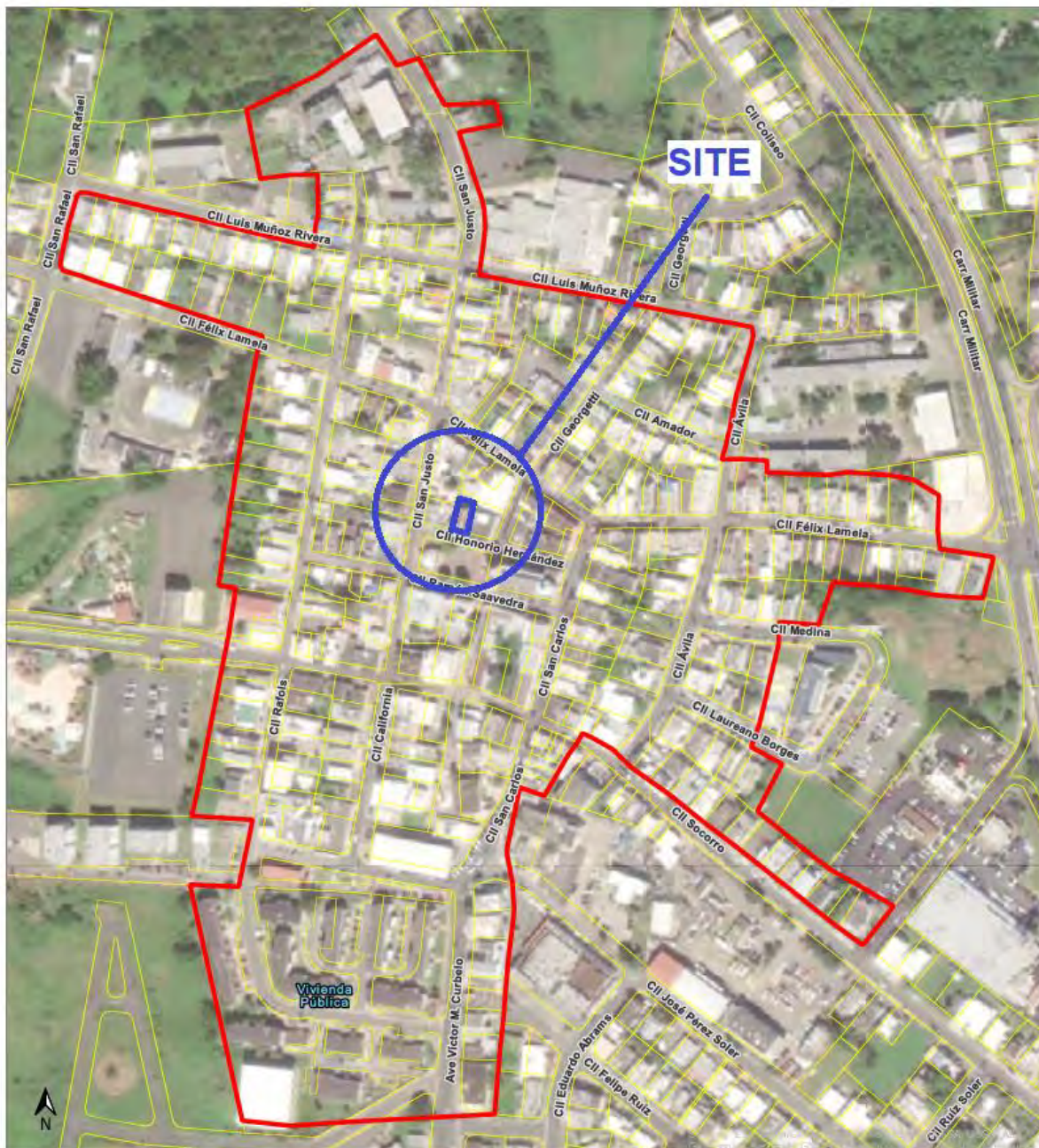
Project Name: Reconstrucción de edificio para uso de Museo Histórico



GOVERNMENT OF PUERTO RICO
DEPARTMENT OF HOUSING



QUEBRADILLAS



Survey area Parcels

Survey area acreage: 41

Total parcels within survey area: 318

PR State Historic Preservation Office
December 16, 2020

NORTH

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM

INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG)

Section 106 NHPA Effect Determination - Architecture

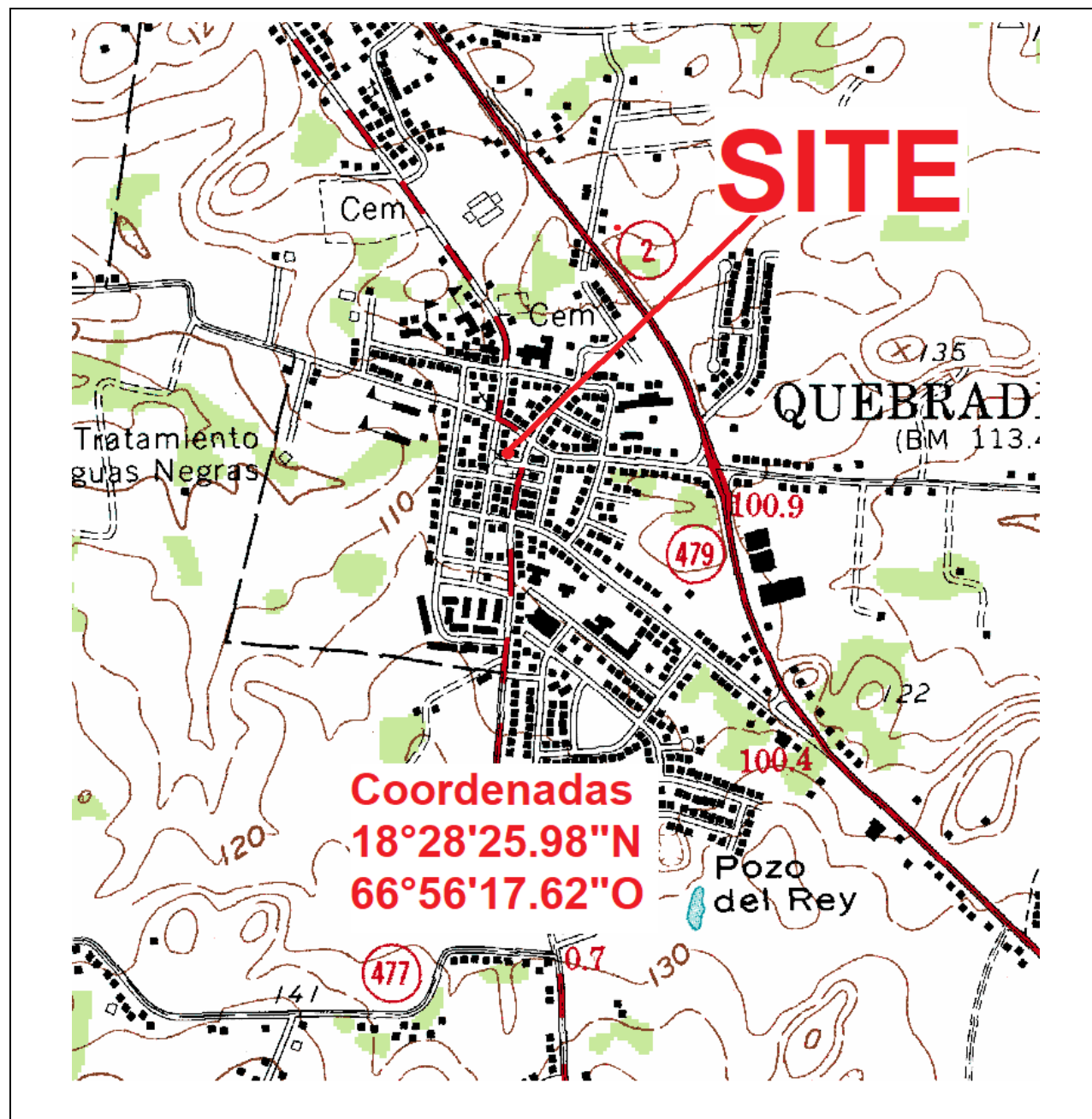


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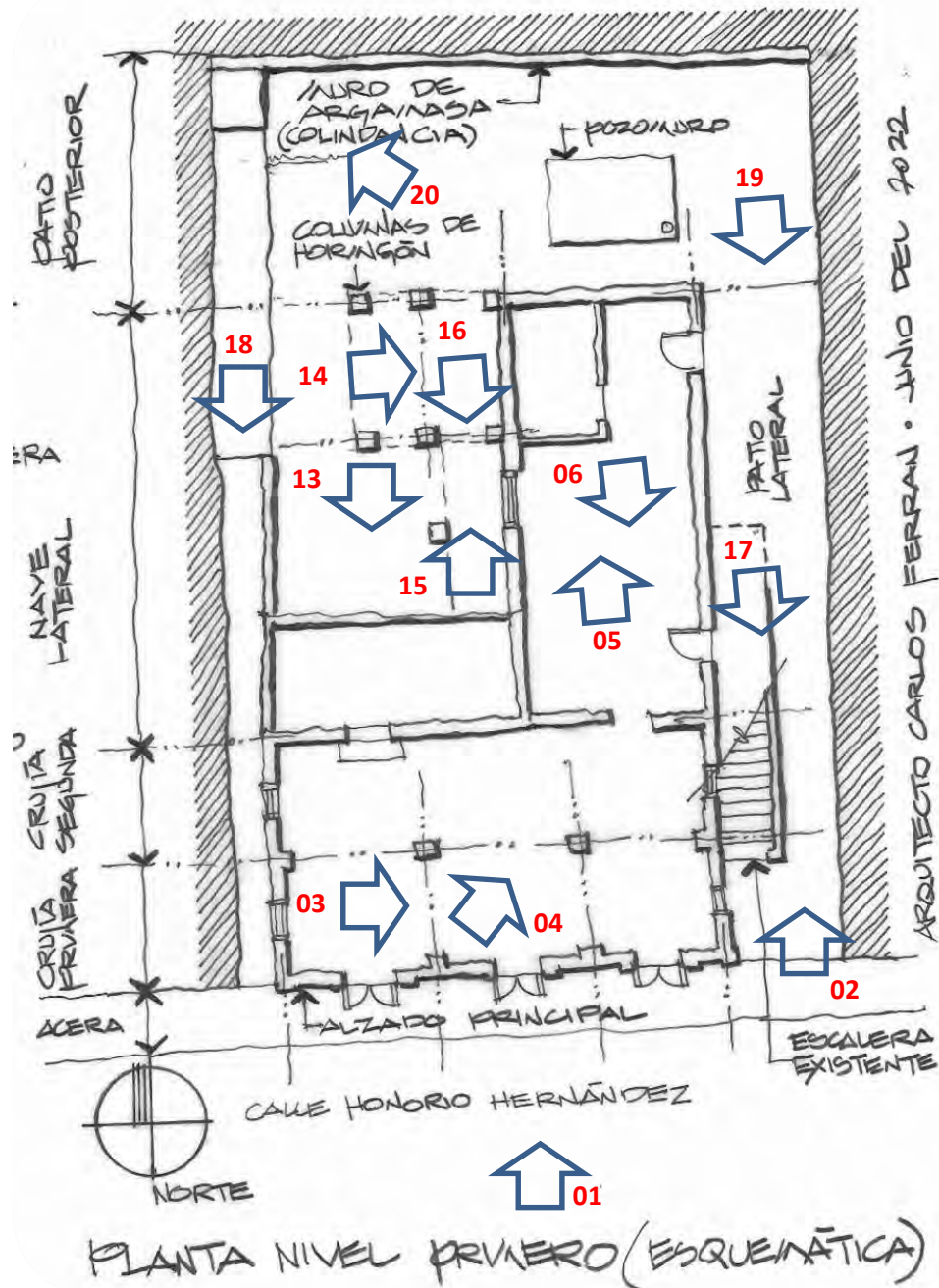
Program ID Number: PR-CRP-000554

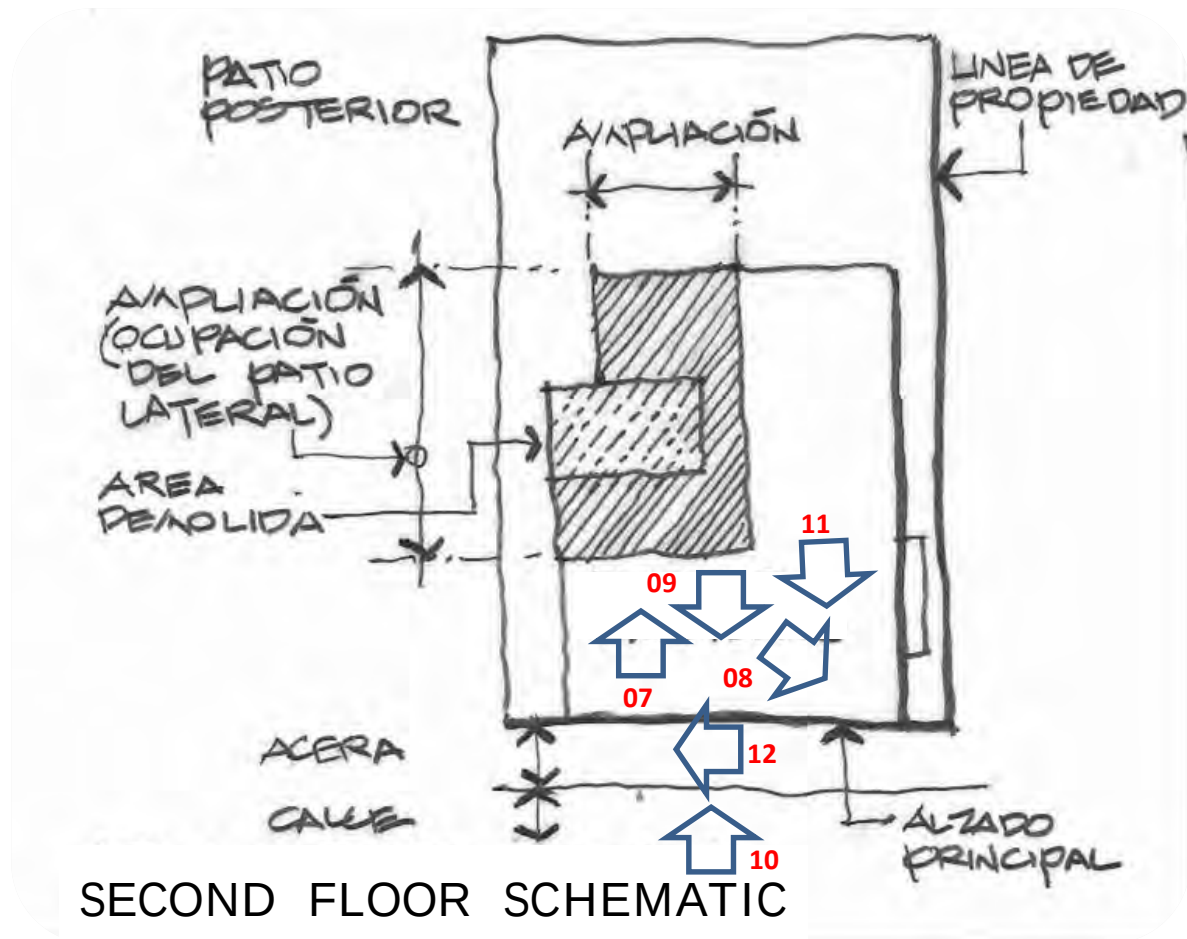
Project Name: Reconstrucción de edificio para uso de Museo Histórico





Photograph Key





SECOND FLOOR SCHEMATIC
PLAN



PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Photo: #01	Description: South view and main façade located at Honorario Hernández Street
Date: 07/22/22	



Photo: #02	Description: South-East view. Stairs on side courtyard to second floor.
Date: 07/22/22	

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Photo: #03

Description: South, entrance from main façade, interior view of building. Concrete columns and beams.

Date: 07/22/22



Photo: #04

Description: South, entrance from main façade, interior view of building. Concrete columns and beams.

Date: 07/22/22

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Photo: #05

Description: First floor level. South towards North side interior view of nave. Concrete roof walls and roof. Terrazzo tiles finished floor.

Date: 07/22/22



Photo: #06

Description: First floor level. North towards South, interior view of nave. Concrete roof, beams and walls. Terrazzo tiles finished floor.

Date: 07/22/22

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Photo: #07

Description: Second floor level interior. South view towards North. Concrete walls and floors with ceramic tiles over hydraulic concrete tiles finish. Roof is missing.

Date: 07/22/22



Photo: #08

Description: Second floor level interior. North view towards South and main façade balcony. Concrete walls and floors hydraulic. Roof is missing.

Date: 07/22/22

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Photo: #09	Description: Second floor level interior. South view and main façade posterior concrete wall with arched doors fenestrations. Coat of arms at center of parapet with urns.
Date: 07/22/22	



Photo: #10	Description: South view of second floor level main façade. Concrete wall with arched doors fenestrations and decorative elements on wall surface and balcony
Date: 07/22/22	

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING	
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Photo: #11	Description: Second floor level interior. South view and main façade posterior concrete wall with arched doors fenestrations. Roof's wood beams wall connection shown.
Date: 07/22/22	

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Photo: #12

Description: West view on second level's balcony area.

Date: 07/22/22



Photo: #13

Description: North towards south. Interior courtyard with existing concrete railings and partial stairs remains (recent construction)

Date: 07/22/22

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Photo: #14

Description: East view of second floor level façade, oriented towards interior courtyard.

Date: 07/22/22



Photo: #15

Description: North view. Interior courtyard. First floor level corridor. Existing concrete columns (recent construction)

Date: 07/22/22

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Photo: #16

Description: South view, interior courtyard corridor.

Date: 07/22/22



Photo: #17

Description: South view. Area under main stairs and first level access from backyard.

Date: 07/22/22

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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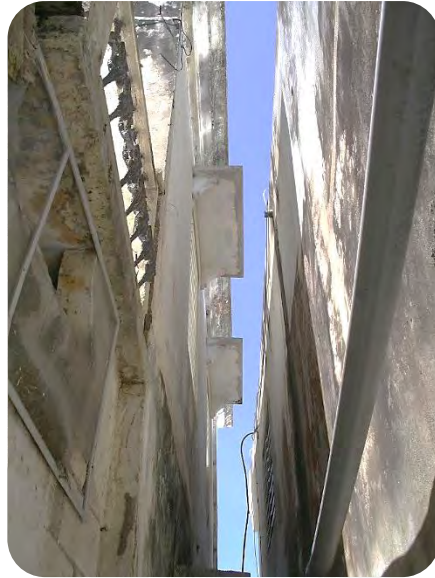


Photo: #18

Description: South view of West property line area and façade.

Date: 07/22/22



Photo: #19

Description: South view from posterior courtyard. East side property line.

Date: 07/22/22

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG) Section 106 NHPA Effect Determination - Architecture	 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
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Photo: #20	Description: North and West property line at the posterior courtyard. Cyclopean wall construction (bricks and mortar) with some rough plastered finished areas. Remanent of old fence
Date: 07/22/22	



GOVERNMENT OF PUERTO RICO
STATE HISTORIC PRESERVATION OFFICE

Executive Director | Carlos A. Rubio-Cancela | carubio@prshpo.pr.gov

September 27, 2023

Lauren Bair Poche

HORNE

10000 Perkins Rowe, Suite 610, Bldg G
Baton Rouge, LA 70810

SHPO 05-11-23-02 CDBG-DR CITY REVITALIZATION (CITY-REV) PROGRAM,
PROPOSED ARCHAEOLOGICAL MONITORING WORK PLAN FOR PR-CRP-
000554, RECONSTRUCCIÓN DE EDIFICIO PARA USO DE MUSEO HISTÓRICO
PROJECT, QUEBRADILLAS, PUERTO RICO

Dear Ms. Bair,

We have reviewed the new archaeological monitoring plan, dated September 11, 2023, submitted for the above referenced project. The new plan is deemed acceptable.

If you have any questions regarding our comments, please do not hesitate to contact our Office.

Sincerely,

Carlos A. Rubio-Cancela
State Historic Preservation Officer

CARC/GMO/EVR/MB



September 18, 2023

Carlos A. Rubio Cancela
State Historic Preservation Officer
Puerto Rico State Historic Preservation Office
Cuartel de Ballajá (Tercer Piso)
San Juan, PR 00902-3935

Puerto Rico Disaster Recovery, CDBG-DR City Revitalization (City-Rev) Program

**Re: SHPO ID: 05-11-23-02; Revised Archaeological Monitoring Work Plan for PR-CRP-000554,
Reconstrucción de Edificio Para Uso de Museo Histórico Project, Quebradillas, Puerto Rico**

Dear Architect Rubio Cancela,

We thank you and acknowledge receipt of your letter dated September 6, 2023, which stated that the implementation of the plan as submitted, could present procedural problems regarding federal professional qualification standards and project review among the consulting parties. The letter also stated that the plan contained procedures that extend beyond the consultation parameters established in the programmatic agreement. Lastly, it was pointed out that the role of the archaeological monitor in determining the National Register of Historic Places eligibility should that of applying the National Register Criteria and providing recommendations regarding said eligibility, instead of making the determinations. It was requested that the plan be revised.

To proactively address these concerns HORNE Puerto Rico has prepared a new monitoring plan as the Grant Manager for the CDBG-DR and CDBG-MIT funded programs on behalf of the Puerto Rico Department of Housing (PRDOH) and the Municipality of Quebradillas. We are confident that the new plan, prepared by Archaeologist Sharon Meléndez Ortiz, M.A., addresses the concerns issued in the September 6, 2023 letter. We look forward to your response and concurrence that the prepared plan is appropriate for this undertaking.

Please contact me by email at lauren.poche@horne.com or phone at 225-405-7676, or Ms. Sharon Meléndez Ortiz at sharon.melendez@hornepr.com.

Kindest regards,



Lauren Bair Poche, M.A.
Architectural Historian, Historic Preservation Senior Manager

Attachments

PRDOH CDBG-DR CITY REVITALIZATION PROGRAM
Reconstrucción de Edificio Para Uso de Museo
Histórico, Quebradillas, Puerto Rico
PR-CRP-000554 / SHPO 05-11-23-02

Archaeological Monitoring and Protection Plan



Prepared by:

Sharon Meléndez Ortiz
Archaeologist – **Horne PR**

September 11, 2023

I. PREAMBLE

The Municipality of Quebradillas is seeking Community Development Block Grant disaster recovery funds financed by the federal Department of Housing and Urban Development due to damage received by the 2017 Hurricanes Irma and Maria. The Puerto Rico Department of Housing (PRDOH) has established an Agreement between PRDOH and the Municipality of Quebradillas for the City Revitalization Program as part of the Community Development Block Grant for Disaster Recovery (CDBG-DR) Program. The municipality proposes the rehabilitation of a building located on Honorio Hernández Street, in front of the main square, to house the Quebradillas Historical Museum (Figure 1). This building, which is potentially eligible to the National Register of Historic Places (NRHP) under Criteria C and D, is located within the Traditional Urban Center of Quebradillas.

Figure 1: Project Location in the Satellite Image

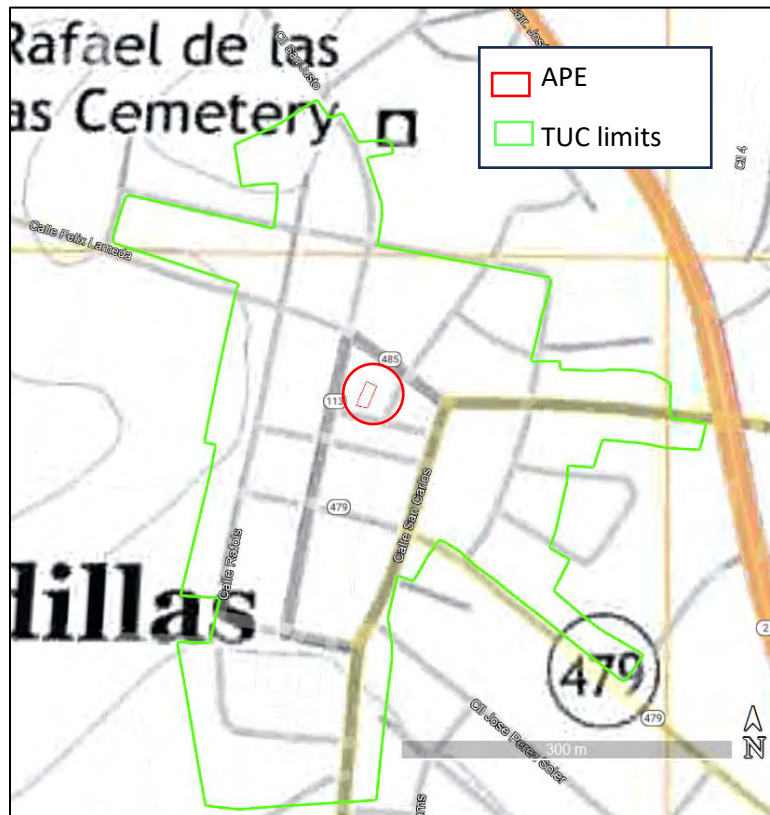


The Puerto Rico State Historic Preservation Office (PRSHPO), in a letter dated June 26, 2023, concurred with a finding of No Adverse Effect for this undertaking conditioned to the implementation of an archaeological monitoring during ground disturbing activities and only selective demolition will be permitted to remove recent interventions.

The objectives of this archaeological monitoring and protection plan are: (1) to establish measures to prevent indirect adverse effects to the historic property; (2) to establish the protocol to be followed in archaeological monitoring; (3) to establish the protocol to be followed if previously unknown resources are identified; (4) to establish the protocol to be followed if there are any unexpected or previously unanticipated adverse effects; (5) to locate, evaluate and document archaeological resources during project development; (6) to recover as much archaeological information as possible during excavation and

construction; (7) to conserve and enhance the value of the archaeological resources located and documented; and (8) in the event that the archaeological resource cannot be conserved in situ, to conserve it through documentation (preservation by record).

Figure 2: Project Location in the 2013 Topographic Quadrangle



This document complies with applicable federal and state laws, regulations, and guidelines, and is consistent with the Secretary of the Interior's (SOI) Guidelines for Archeological Documentation, the Advisory Council on Historic Preservation's (ACHP) recommendations on the recovery of significant information from archaeological sites as updated in 2009, and Regulation #8932 of the Institute of Puerto Rican Culture (ICP). The plan was prepared by archaeologist Sharon Meléndez Ortiz, who meets the Professional Qualifications Standards set forth in 36 CFR Part 61 and is listed as an archaeologist by the Council for the Protection of Earth Archaeological Heritage (Council) to conduct Phase I, Phase II, and Phase III studies.

This scope of work is divided into six (6) sections and one (1) appendix. The section following this preamble includes a brief description of the building and discusses the proposed construction works. In the third section the archaeological potential of the project area is discussed. The fourth section provides a detailed description of the archaeological monitoring procedure to be carried out before, during and after the construction works. Section IV includes the professional qualifications of the team that will implement this monitoring plan and the last section includes the references cited. The plan closes with an appendix with a model of a monitoring daily activity sheet.

II. PROJECT DESCRIPTION

The building to be rehabilitated was built in 1918. It is a two-story Spanish Colonial Revival style building, which had a mixed use; commercial on the first level and residential on the second level (Figure 3). The building is "L" shaped, with stairs located on the exterior of the east side. The structure is currently vacant, having suffered significant damage during Hurricanes Irma and Maria, the most significant being the loss of the roof of the second floor. In contrast, the walls are structurally well preserved and in good condition. There is some existing recent construction in the lateral inner courtyard that is considered a negative intervention to the original floor plan.

Figure 3: Frontal façade (left) and posterior façade (right) (Ingenieros del Oeste C.S.P 2022)

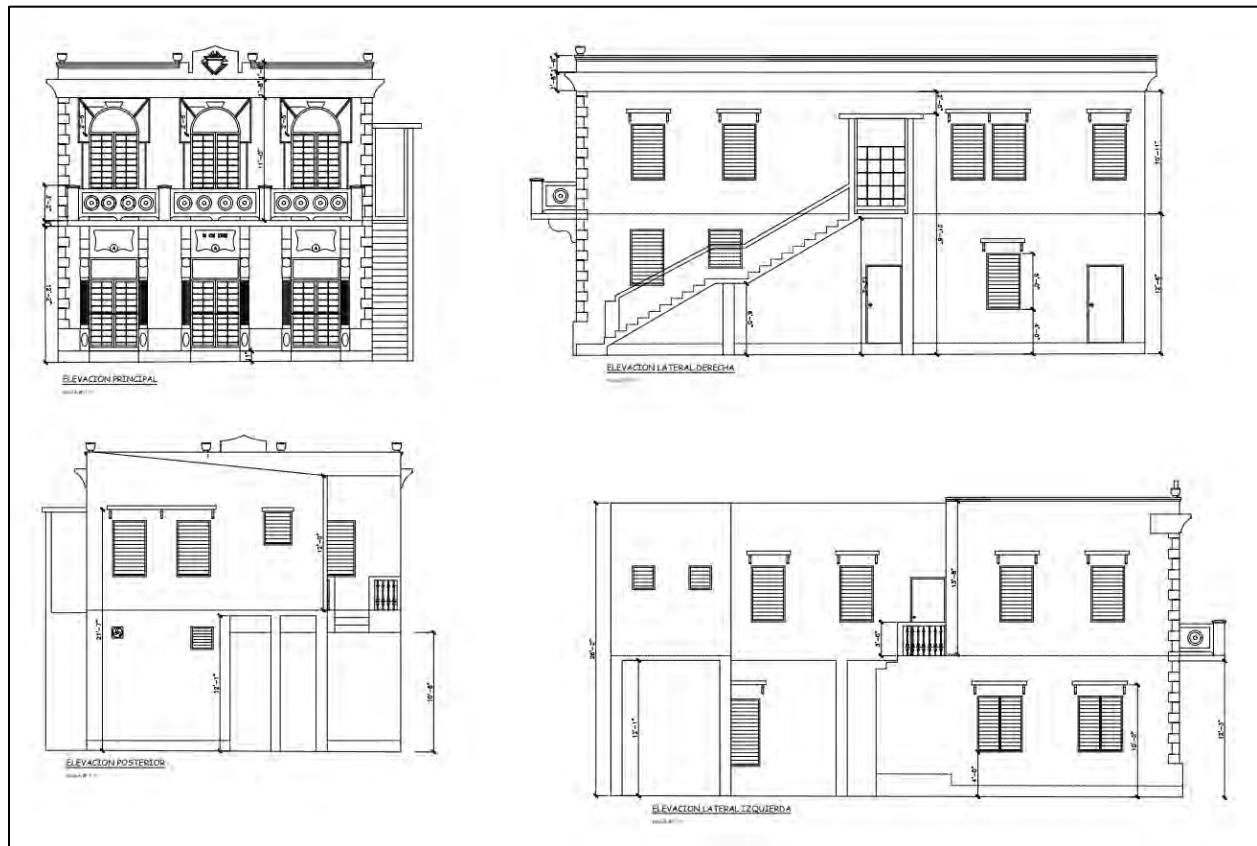


According to architect Carlos Ferrán Martínez, who completed the Section 106 NHPA Effect Determination Form for this case, the building is distinguished by the presence of a shield or "Cartuch" with a clear Masonic influence in the center of the front façade. It has a continuous balcony with railing on the second level. Above the doors there are walls or ornamentations in the form of very stylized shells. The central shell bears the year of construction of the building in Roman numerals. The presence of a cyclopean wall of brick and mortar in the north and west boundary of the 0.0553-acres lot is noteworthy (Figure 4). The project plans also mention the existence of a septic tank in the backyard.

Figure 4: Bricks and mortar masonry wall at the posterior courtyard (from Alvarado and Ferrán 2023)



Figure 5: Elevations (Ingenieros del Oeste C.S.P 2022)



The proposed project includes selective demolition, new construction, and rehabilitation activities, all with the goal of giving a new use to this property without affecting its historic character.

The selective demolition works include the demolition of the bathroom located at the rear of the first floor and the bathroom located at the rear of the second floor. On the first level, the columns located at the rear (which are new additions), interior partitions and a segment of floor will be demolished to create a step. On the second level the concrete railings will also be demolished. All doors and windows will be replaced (Figures 6 and 7).

The new construction in the first level entails an addition at the rear, which includes new concrete walls, roof and floor, and an addition for a patio terrace with a galvalume roof. The new construction requires excavation for footings 3'6" x 3'6" and 12" deep. In addition, door and window openings will be closed at the rear, window openings will be reduced, and a handrail will be installed on the stairway. On the second level, the new construction includes the construction of block walls and concrete floor of a new bathroom at the back, completing walls to the roof, and tapping doors and windows. A new roof will also be built. (Figures 8, 9 and 10)

The rehabilitation works include repairing the plaster of the existing walls to remain, installation of new windows and doors, electric works, plumbing works, installation of lighting, telecommunications, and sound systems, and other miscellaneous activities.

Figure 6: Demolition Plan (Ingenieros del Oeste C.S.P 2022)

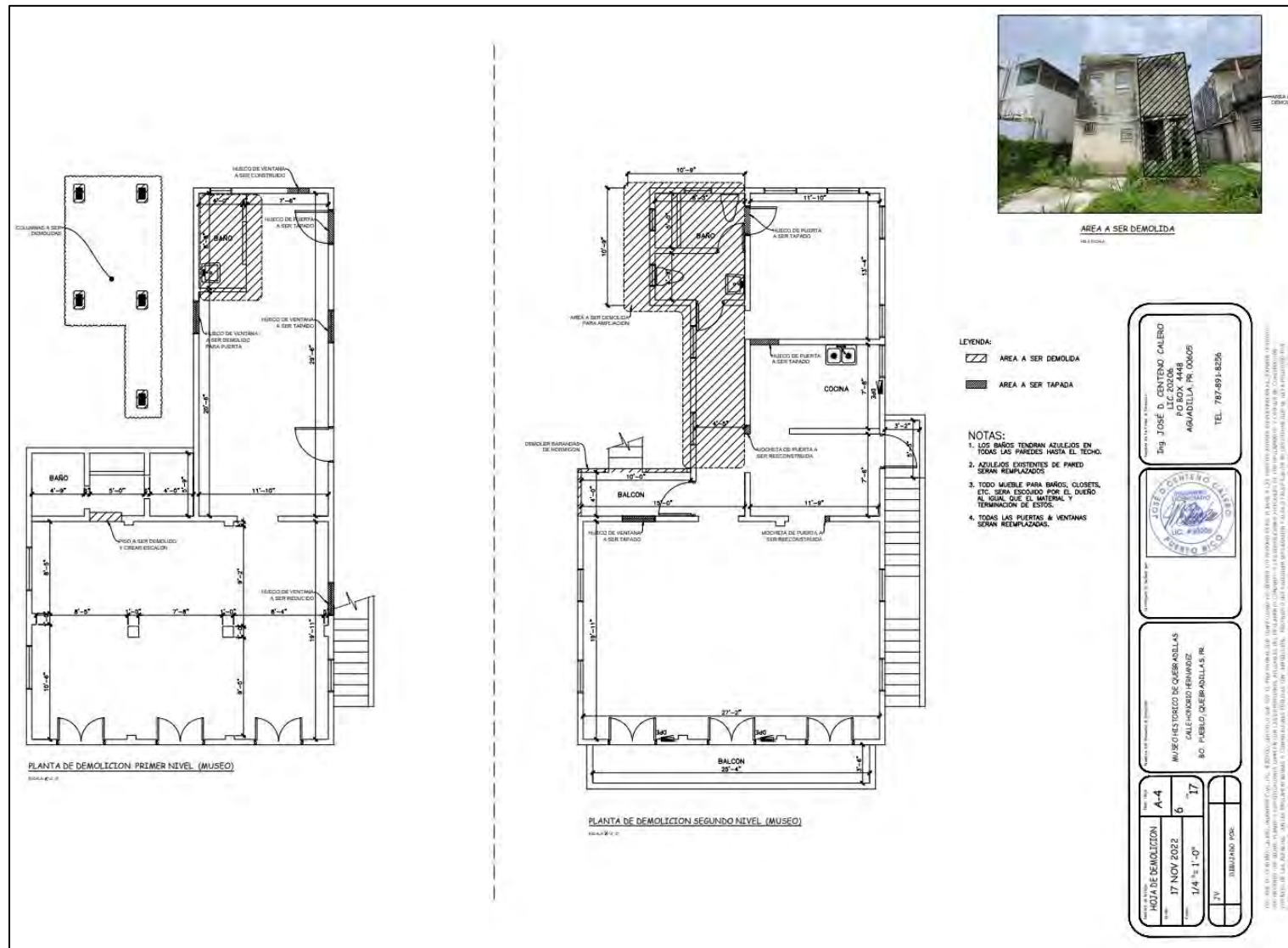


Figure 7: Demolition Plan – Elevations (Ingenieros del Oeste C.S.P 2022)

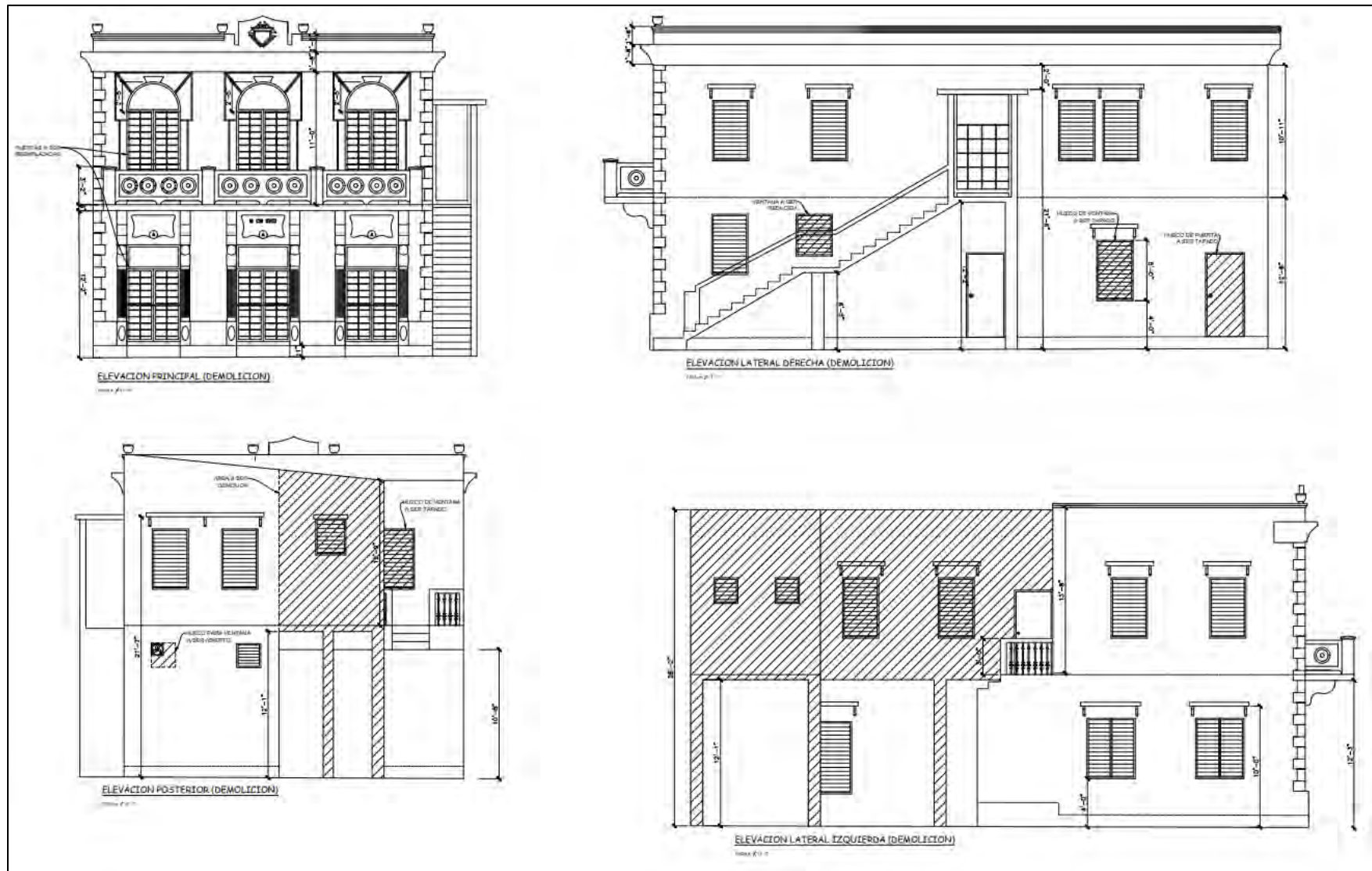


Figure 8: Preliminary Floor Plan (Ingenieros del Oeste C.S.P 2022)

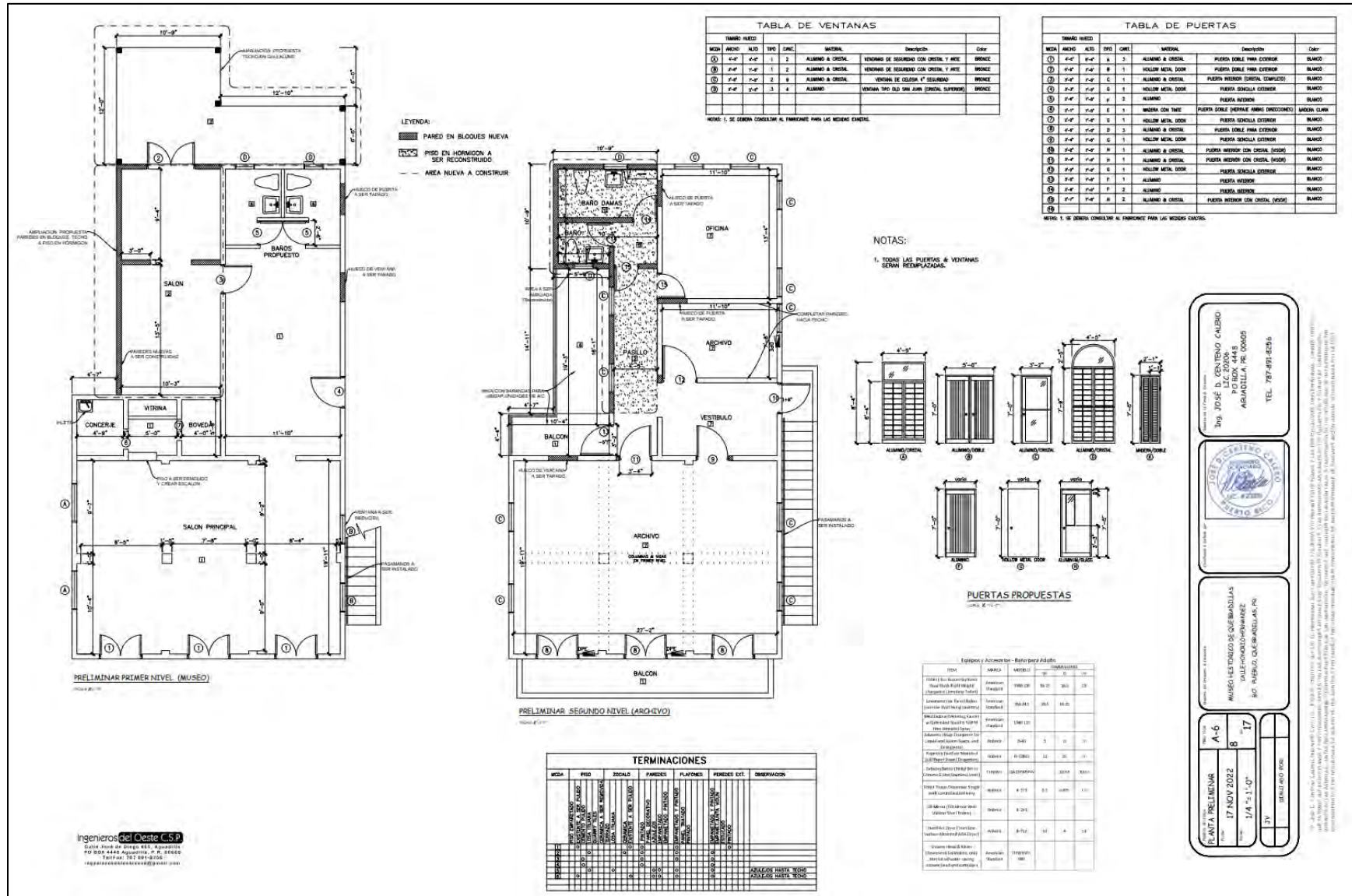
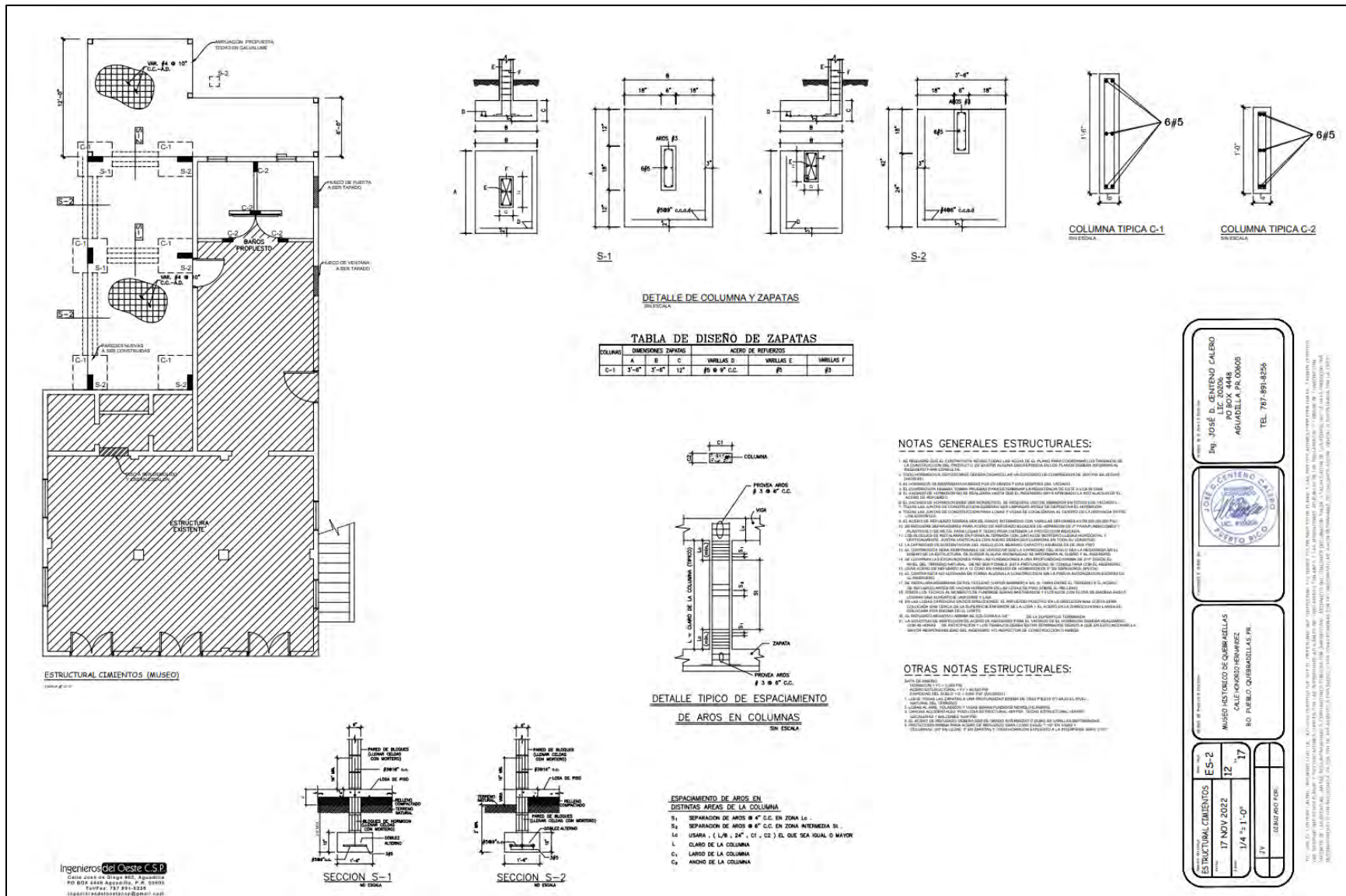


Figure 9: Proposed Elevations (Ingenieros del Oeste C.S.P 2022)



Figure 10: Structural Foundations (Ingenieros del Oeste C.S.P 2022)



III. ARCHAEOLOGICAL POTENTIAL

The proposed project involves rehabilitation work on a historic property that was built in 1918. The work includes the selective demolition of some areas that were added at a later date, located on the first and second levels. However, this structure was not the first to occupy this plot of land, located in front of the town square, an undoubtedly privileged location. The town of Quebradillas was officially founded in 1823. In that same year, construction began on the cemetery, the Casa del Rey and the church. It is understood that by this founding time the plaza was already delineated, and very possibly there were buildings around it. These buildings must have been made of wood, because by 1869, of the 166 buildings in the town, only the church was built of masonry.

A map of the town of Quebradillas from 1869 shows the urban blocks already formed around the plaza (Figure 11). The block in question has two "entrances" that suggest that there were at least two buildings.

Figure 11: Map of the Town of Quebradillas, 1869 (Ramón Soler Tort in Sepúlveda 2004-2: 144)



A later map, dated 1889, shows a structure within the APE. It was rectangular in shape and is shown at the front of the lot, next to the street (Figure 12). The way it is represented on the map suggests that it was already in "fabrica", in other words, a brick and stone masonry structure.

According to the description of the town by U.S. military officer William H. Armstrong in 1909, businesses and the best residences were located around the plaza. Most of the buildings were one-story wooden, although he mentions several "old masonry buildings", probably ours being one of them (Sepúlveda 2004-3: 320).

Figure 12: Map of Quebradillas, 1889 (Félix Ardanaz y Crespo, Corps of Military Engineers, Topographic Commission, in Sepúlveda 2004-3: 318) (Blue arrow shows the approximate location of the APE)



This building must have been demolished at some point in the early 20th century, being replaced by the existing one. The 1931 aerial photo already shows the building under study, with its characteristic "L" shape (Figure 13).

Figure 13: Quebradillas Urban Center Aerial photo, 1931
(DTOP, from Alvarado and Ferrán 2023: 21)



It can be concluded that the project's APE has potential for the presence of archaeological resources from colonial times, associated with the urban development of the town of Quebradillas during the last two centuries. Beneath the surface of the front of the area under study there is the potential to find remnants of earlier buildings, such as post molds, masonry foundations and various surfaces. At the rear of the site there is the potential to find courtyard features, such as cisterns, latrines, domestic and commercial artifactual deposits, and other activity areas. There is also potential to find cultural strata associated with demolitions and reconstructions, and historic infrastructure. Finally, with the selective demolition that will take place there is the potential to expose walls, floors, and other components of the original 1918 building.

IV. ARCHAEOLOGICAL MONITORING PROCEDURE

The monitoring activities can be divided into three groups: activities before the project begins, activities during construction, and post-construction activities. Monitoring is limited to activities that entail demolition (of walls, columns, floors, etc.), excavations (for new foundations, utilities, etc.), and earth movements. Those construction activities that do not entail excavations or earth movements do not require an archaeological monitor. However, if there are activities with heavy equipment taking place in the vicinity or within the historic building, there should be a monitor present to prevent or respond to accidents and indirect impacts.

A. Before Construction Begins

1. The Construction Manager (CM) will notify the Project Manager (PM), Grant Manager (GM), and Monitor of the proposed activities' start date. The PM is responsible for coordination between the CM and the SOI-qualified archaeologist who will oversee the monitoring (Monitor).
2. Before any demolition or construction begins, the PM, CM, GM, and Monitor will have a kickoff meeting to discuss the procedure for archaeological monitoring, including the coordination protocol between the Monitor and the Contractor. The Monitor will provide an orientation on the area's cultural resources and potential resources and their proper treatment. The Monitor will also explain which project activities require archaeological monitoring.
3. The CM, PM, and construction crew will complete and sign a statement outlining the activities that may not be performed without the Monitor's presence, demonstrating their understanding and commitment to following the archaeological monitoring procedures.
4. The Monitor shall document the historic building through detailed descriptions and photos. This data must be included in the final report and should be compared with the conditions of the building after the project is completed.

B. During Demolition and Construction

1. The Monitor shall be in the field during all project activities involving demolition and ground disturbance, and activities with heavy machinery in the vicinity or within the historic building; access and clear sightlines to all demolition and excavation activities and debris removal will be provided to the Monitor.
2. The Monitor shall provide instructions directly to the construction field personnel concerning how to proceed when there is a potential to impact an archaeological resource. The construction field personnel will abide by these requests: excavate slowly, stop the excavation work to evaluate a finding, etc.
3. The Monitor shall keep a record of monitored activities. The Monitor shall fill out the Daily Record of Activities Form (see **Error! Reference source not found.**). These Forms will be attached to the final report as an appendix. These forms should be sent weekly to the GM for review.
4. After the demolition and removal of surfaces, the Monitor shall document any exposed subsurface feature and shall complete a scale plan drawing. The amount, size, and placement of excavation units needed to document the features, if any, shall depend on the size and complexity of the feature being documented.
5. After the demolition of walls and fenestrations, the Monitor shall document any component associated with the original building. The documentation shall include verbal description, photographs, and drawings, if needed.

6. The Monitor shall document all other archaeological remains identified during construction activities, except for previously unidentified historically significant findings (refer to B-8 below). The documentation shall include a detailed description of the discovery, context, horizontal and vertical provenience, photos, and a plan drawing. This documentation shall be done within a reasonable amount of time, trying as much as possible, not to impact the project schedule.
7. Any subsurface feature may be demolished and removed after being documented by the Monitor and approved by the GM. The information recorded will be included in the final report.
8. If the identified archaeological remains are considered historically significant– i.e., complex structures, precolonial remains or stratified deposits – the Monitor shall instruct the construction crew to (1) immediately cease work in the vicinity of the discovery, (2) take all reasonable measures to avoid or minimize harm to the property, and (3) notify the PM, CM, and GM. The GM shall immediately notify the SHPO, as per stipulation III.B.1.b. of the PA. The following protocol shall be followed:
 - a. The Monitor shall make a preliminary assessment of the finding. The assessment shall include a description of the discovery, location, horizontal and vertical extent (if known) depicted in a scaled plan drawing, context, and photographs. Additional drawings of features should be completed, as deemed necessary. The assessment shall also include a work plan for implementing a National Register of Historic Places' eligibility evaluation of the exceptional remains.
 - b. The assessment and NRHP-eligibility evaluation work plan shall be submitted via email to the PM and GM within 24 hours of the discovery. The GM will comment on the work plan within 24 hours of receiving it.
 - c. The Monitor shall implement the work plan after receiving the GM's authorization to proceed. After completing the fieldwork, the Monitor shall prepare an End of Field Report, summarizing the results. Said report should include an NRHP-eligibility determination. The End of Field Report shall be submitted via email to the PM and GM within 48 hours after completing the fieldwork.
 - d. The GM shall notify the SHPO of the NRHP-eligibility determination.
 - i. If the finding is **not eligible** to the NRHP, the GM shall notify the SHPO and provide supporting documentation. Construction activities may resume under archaeological monitoring unless the SHPO disagrees with the NRHP determination and makes a timely objection within 48 hours of the notification.
 - ii. If the finding is **eligible** to the NRHP, the criteria of adverse effect shall be applied. If the project activities do not adversely affect the finding, the GM shall notify the SHPO and provide supporting documentation. Construction activities may resume under archaeological monitoring unless the SHPO makes a timely objection within 48 hours of the notification.
 - iii. If the project activities have an **adverse effect** on the NRHP-eligible finding, a Data Recovery will be implemented as a Treatment Measure per Appendix F of the PA. The Monitor shall develop a data recovery plan with a research design consistent with the Secretary of the Interior's Guidelines for Archeological Documentation (http://www.nps.gov/history/locallaw/arch_stnds 7.htm) and the Advisory Council on Historic Preservation's (ACHP) recommendations on the recovery of significant information from archaeological sites as updated in 2009, at https://www.achp.gov/protectinghistoricproperties/Section_106_Archaeology_Guidance. The data recovery plan shall be submitted via email to the GM for comments. The GM shall be responsible for submitting the data recovery plan to

the SHPO for comments and approval. This treatment measure does not apply to burials or human remains (refer to IV.D of this work plan).

9. If any additional construction activities are added or design changes are made after the project has begun, the CM and PM, prior to performing the work, shall inform the GM and the Monitor. The Monitor, in conjunction with GM, shall evaluate these activities and apply the adverse effect criteria. If it is determined that the effect is adverse, the archaeologist will provide recommendations on how to avoid, minimize, or mitigate the adverse effect. These recommendations will be consulted with the SHPO prior to implementation. The SHPO will have 15 days to comment on the recommendations. If no communication is received within that time frame it will be assumed that the SHPO has no objection and concurs with the recommendations outlined.
10. If during construction activities a historic property is affected in an unanticipated manner, the CM shall stop work immediately, and inform the PM, GM, and Monitor. The Monitor, in conjunction with GM, shall evaluate the unanticipated effects and apply the adverse effect criteria within no more than 24 hours. If the effect is determined to be adverse, the Monitor and GM will provide recommendations on how to avoid, minimize, or mitigate such adverse effects. The GM shall consult with the SHPO on the recommendations prior to implementation. The SHPO will have 48 hours to comment on the recommendations. If no communication is received within that timeframe, it will be understood that the SHPO has no objection and concurs with the recommendations outlined.

C. After Construction Ends

1. Upon the completion of archaeological monitoring, the PM and GM shall be notified. The estimated date of delivery of the final report shall be indicated in the said notification.
2. A technical report shall be prepared detailing monitored construction activities, documentary research (if any), documentation archaeological features and other findings, and analysis and interpretation of the results. The report must include visual information, such as drawings and photos, and a sketch plan of all the documented findings. The report shall be submitted to the GM no later than two (2) weeks after completing the archaeological monitoring work. The GM shall submit the report to the SHPO no later than one (1) week after receiving it.

D. Human Remains

If human remains are discovered, the protocol established in Stipulation III.B.1.c. of the PA must be followed:

1. Stop work immediately.
2. Notify the local law enforcement office and coroner/medical examiner following applicable Commonwealth statute(s).
3. Protect the remains from any harm.
4. The GM shall be responsible for notifying the SHPO within twenty-four (24) hours of identifying human remains.

V. PROFESSIONAL QUALIFICATIONS

The Monitor must meet the minimum Secretary of the Interior Professional Qualifications Standards for Archaeology established in 36CFR Part 61. These are: a graduate degree in archaeology, anthropology, or closely related field, plus at least one (1) year of full-time professional experience or equivalent specialized training in archaeological research, administration, or management; at least four (4) months of supervised field and analytic experience in general Puerto Rican archaeology; the demonstrated ability to carry research to completion; and at least one (1) year of full-time professional experience at a supervisory level in the study of archaeological resources of the pre-Columbian and colonial periods. Please see https://www.nps.gov/history/local-law/arch_stnds_9.htm for more information.

The SOI-qualified archaeologist shall not defer their monitoring responsibilities to any other person who does not meet the minimum professional qualifications. Any additional personnel to intervene in monitoring efforts shall have vast experience in historic archaeology, in working in evaluation (Phase II), documentation (Phase III), and monitoring projects dealing with colonial period properties.

The Principal Investigator may not transfer his or her duties, obligations, and responsibilities to subordinates or other technicians who are not professionally trained in archaeology. In the case of hiring archaeologists and trained technicians to assist in archaeological monitoring, the Principal Investigator must be present for at least 25 percent of the duration of the fieldwork to supervise them.

VI. CITED REFERENCES

Advisory Council on Historic Preservation

2009 ACHP recommendations on the recovery of significant information from archaeological sites
https://www.achp.gov/protectinghistoricproperties/Section_106_Archaeology_Guidance.

Alvarado Muñoz, Fernando and Ferrán Martínez, Carlos

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2017 *Reglamento para la radicación y evaluación arqueológica de proyectos de construcción y desarrollo*. San Juan: ICP. Reglamento #8932 del 8 de febrero de 2017.

Ingenieros del Oeste C.S.P

2022 Diseño 90% Museo histórico propiedad del Municipio de Quebradillas. Calle Honorio Hernández
del Bo. Pueblo, Quebradillas.

National Park Service

s/f "Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines [As
Amended and Annotated] Professional Qualification Standards".
https://www.nps.gov/history/local-law/arch_stnds_9.htm

s/f "Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines for
Archeological Documentation". http://www.cr.nps.gov/local-law/arch_stnds_7.htm

Sepúlveda Rivera, Aníbal

2004 Puerto Rico Urbano. San Juan: CARIMAR. 4 volumes.

United States Geological Survey

2013 Topographic Quadrangle of Quebradillas, PR.

APPENDIX A: MONITORING DAILY ACTIVITY SHEET

 GOVERNMENT OF PUERTO RICO GOVERNMENT OF PUERTO RICO GOVERNMENT OF PUERTO RICO	PUERTO RICO 2017 DISASTER RECOVERY City Revitalization Program ARCHAEOLOGICAL MONITORING DAILY RECORD OF ACTIVITIES
Case ID:	Project Location:
Municipality:	Project Coordinates (lat/long):

Site Photos	
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Direction of Photo: Click here to enter text. Description: Click here to enter text.	

ESCALA: 1:100

 ACERA

ESCALA: 1:100

NILDA PRIETO
HC-5 BOX 52501
AGUADILLA, PR 00603

⊕ ACER

VALVULA POTABLE

Ingenieros del Oeste C.S.P.
Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com



PO BOX 4448
AGUADILLA, PR. 00605
TEL. (787) 891-8256

Nombre de la Firma & Direccion



Nombre del Proyecto & Dirección:

DIBUJADO POR:[illegible]

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ENCUENTRAN EN EL PLANO.

← HACIA PR 107

LOS SIGUIENTES SIMBOLOS SE ENCUENTRAN EN EL PLANO.

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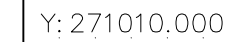
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MAPA DE CALIFICACION



FOTO AEREA DEL CRIM



ESTACION	(Y) NORTE	(X) ESTE	ELEVACION	DESCRIPCION
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VIRGINIA HERNANDEZ
A3 URB AMADOR
QUEBRADILLAS, PR 00678-1710

NILDA PRIETO
HC-5 BOX 52501
AGUADILLA, PR 00603

MUSEO LONGINO MEDINA
1022 CALLE TEGULIGALPA
SAN JUAN, PR 00921-2346

PLAZA PUBLICA

IGLESIA CATOLICA

DATOS DE FINCA
NO CONSTA INSCRITA
QUEBRADILLAS, P.R.

COORDENADAS NAD 83
N = 270,974.580
E = 146,679.606

FECHA: 15 JUNIO 2022
ARCHIVO: PL2022-06-08

PLANO DE MENSURA Y NIVELES:

DONDE UBICA EL MUSEO
HISTORICO PROPIEDAD DEL
MUNICIPIO DE QUEBRADILLAS

SITA: CALLE HONORIO HERNANDEZ
BO. PUEBLO
QUEBRADILLAS, PUERTO RICO

RESUMEN DE AREA

NOTAS

1. TODAS LAS DISTANCIAS SON EN METROS A MENOS QUE SE INDIQUE OTRA UNIDAD
2. ESTE PLANO ESTA REFERENCIADO EN COORDENADAS LAMBERT NA083 (NA2011)
EPOCA 2010
3. SE ESTABLECIO EN LAS ESTACIONES UNA ANTENA "TRIMBLE RB GNSS RTK ROVER"
PARA GEOREFERENCIAR EL PREDIO.
4. ESTA FINCA FUE MENSURADA EL 14 DE JUNIO DEL 2022
5. LOS PUNTOS DE COLINDANCIAS FUERON INDICADOS POR EL DUEÑO
6. PARA ESTE TRABAJO NO SE HA CITADO COLINDANTES PARA CONFORMAR COLINDANCIAS
7. LAS DIRECCIONES DE COLINDANTES FUERON PROVISTOS POR EL DUEÑO
8. ESTA PROPIEDAD SE ENCUENTRA EN ZONA INUNDABILIDAD "X"
9. CERTIFICO QUE ESTA PROPIEDAD NO SE ENCUENTRA AFECTADA POR SERVIDUMBRE DE
AGENCIAS DE GOBIERNO
10. ESTE PREDIO SE ENCUENTRA EN CALIFICACION "C-I"
11. ESTE TRABAJO FUE SOLICITADO POR EL ING. JOSE CENTENO

NUMERO CATASTRO
008-080-009-06



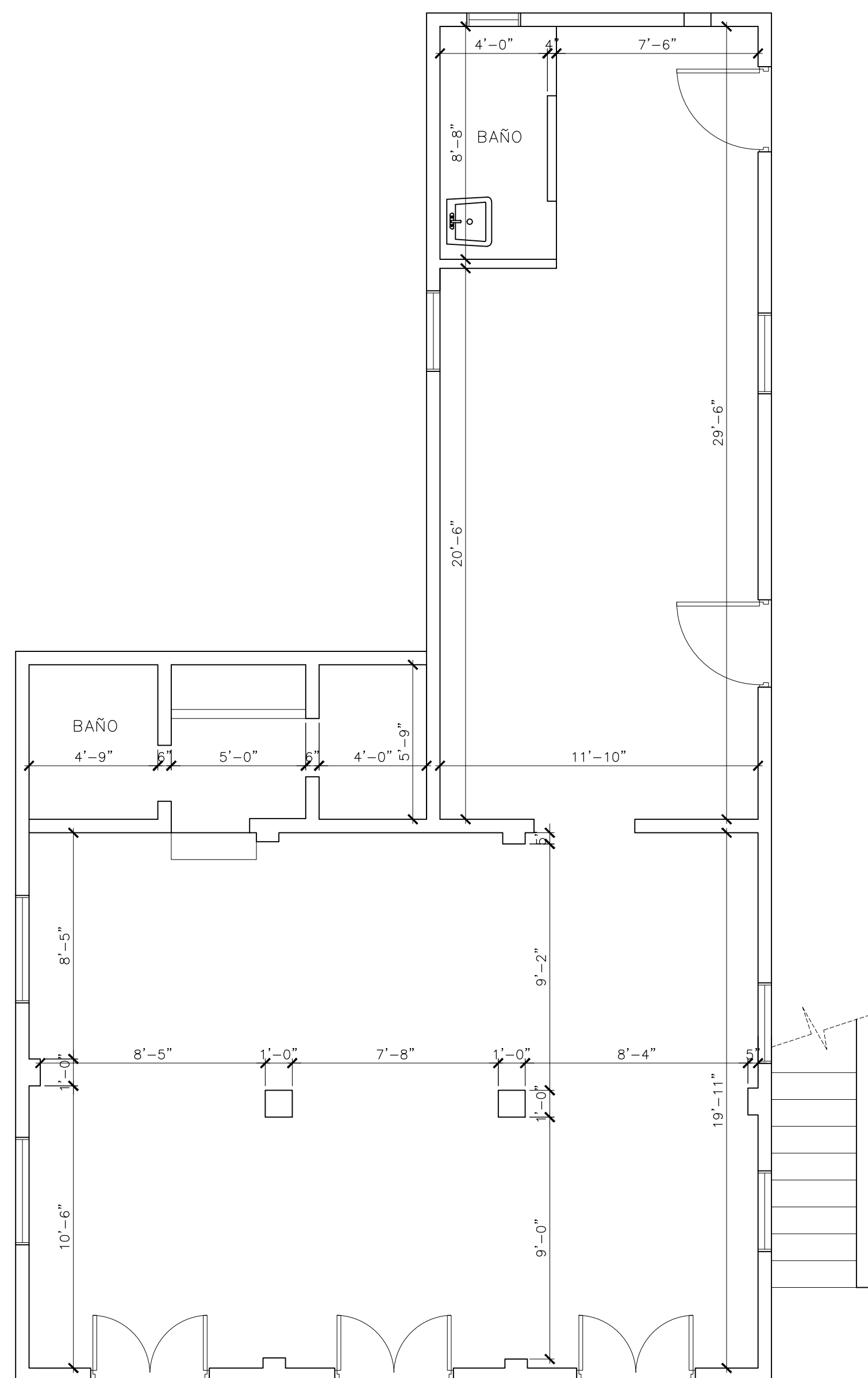
CASOS :

DELINEANTE
PROFESIONAL:
CARLOS VALENTIN
LIC. 2565

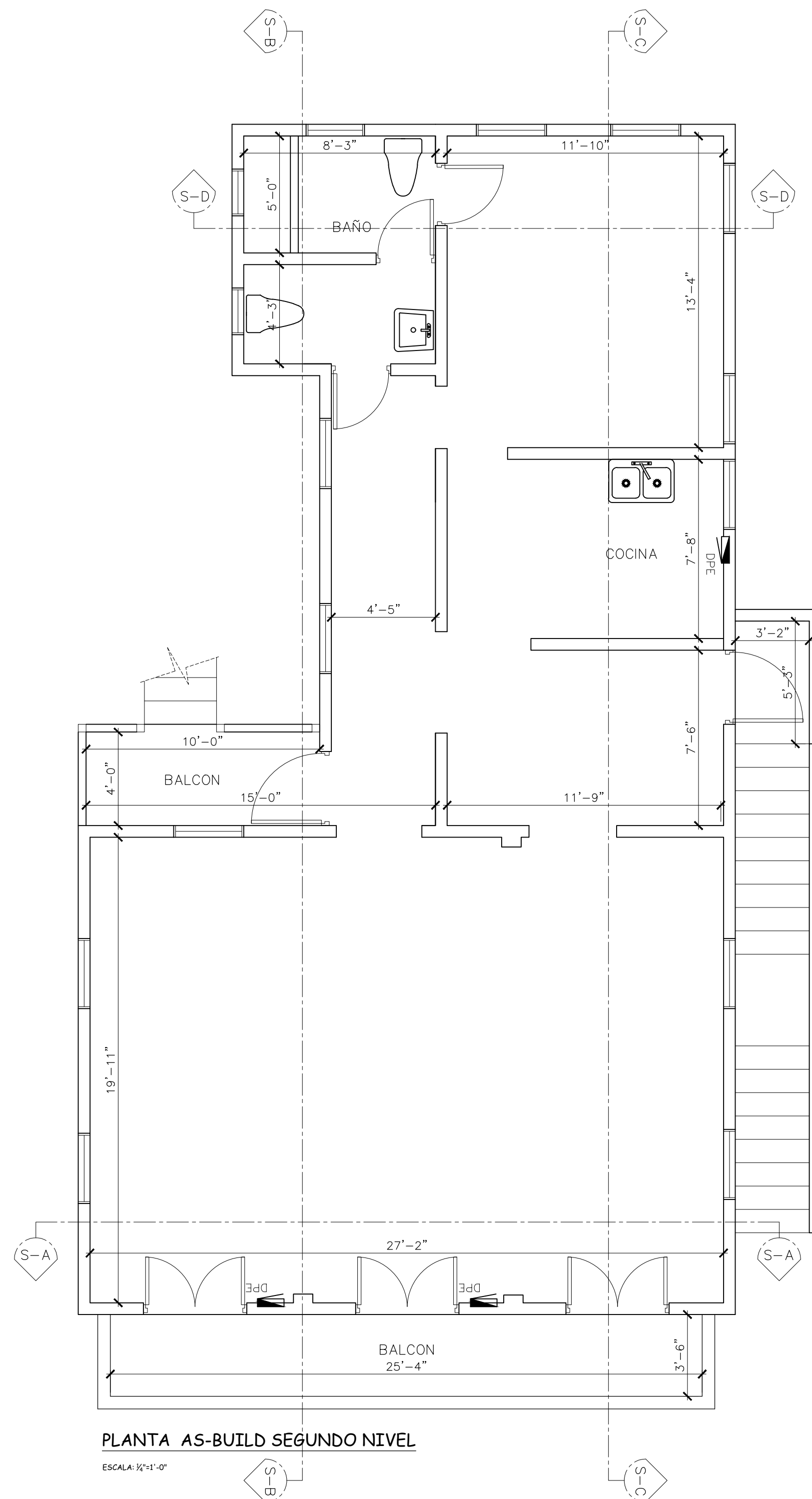
DENNIS O VARGAS GONZALEZ
AGRIMENSOR LICENCIADO
LIC. 21581
PO BOX 250660
AGUADILLA, PR 00604
CEL.939-579-2246

S-1

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PLANTA AS-BUILD PRIMER NIVEL (MUSEO)



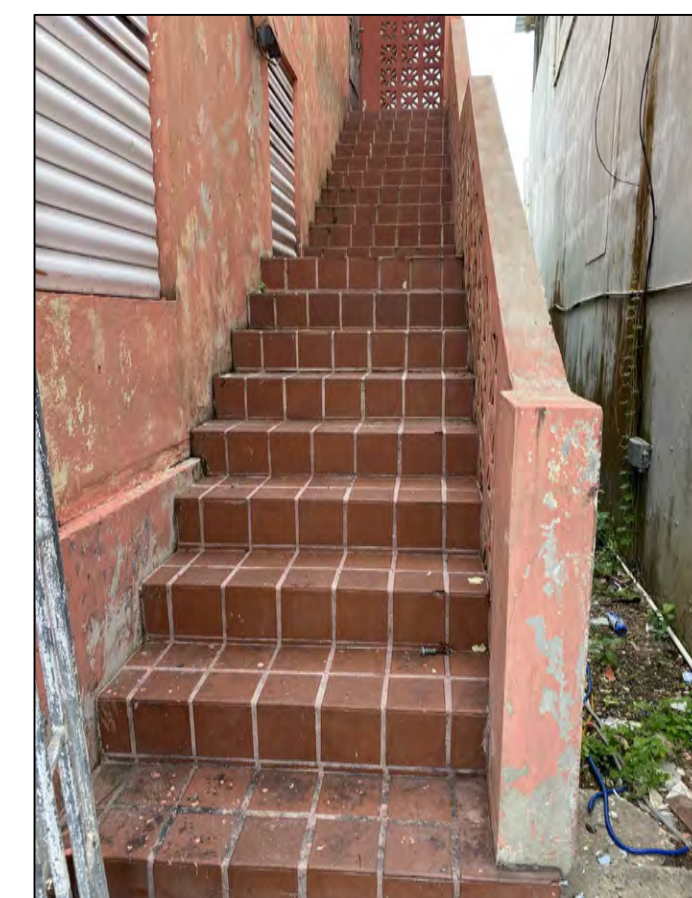
PLANTA AS-BUILD SEGUNDO NIVEL



AREA DELANTERA



AREA POSTERIOR



AREA DE ESCALERA

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Fecha: 17 NOV 2022		de 17
Estado: 1/4 " = 1'-0"		
JV		DIBUJADO POR:

MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Certificado de Sello por:



Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605

TEL. 787-891-8256

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL, LIC. #20216, CERTIFICO QUE SOY EL PROFESIONAL QUE ENTREGUÉ Y/O PREPARÉ ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIÓ QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APPLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APPLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTARIAS O CORPORACIONES PÚBLICAS CON JURISDICCIÓN. RECONOZCO QUE CUALQUIER DECLARACIÓN TALSA O FALSIFICACIÓN DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA, YA SEA POR MÍ, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCIÓN JUDICIAL Y/O DISCIPLINARIA POR LA OGF.

ELEVACION PRINCIPAL

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ELEVACION POSTERIOR

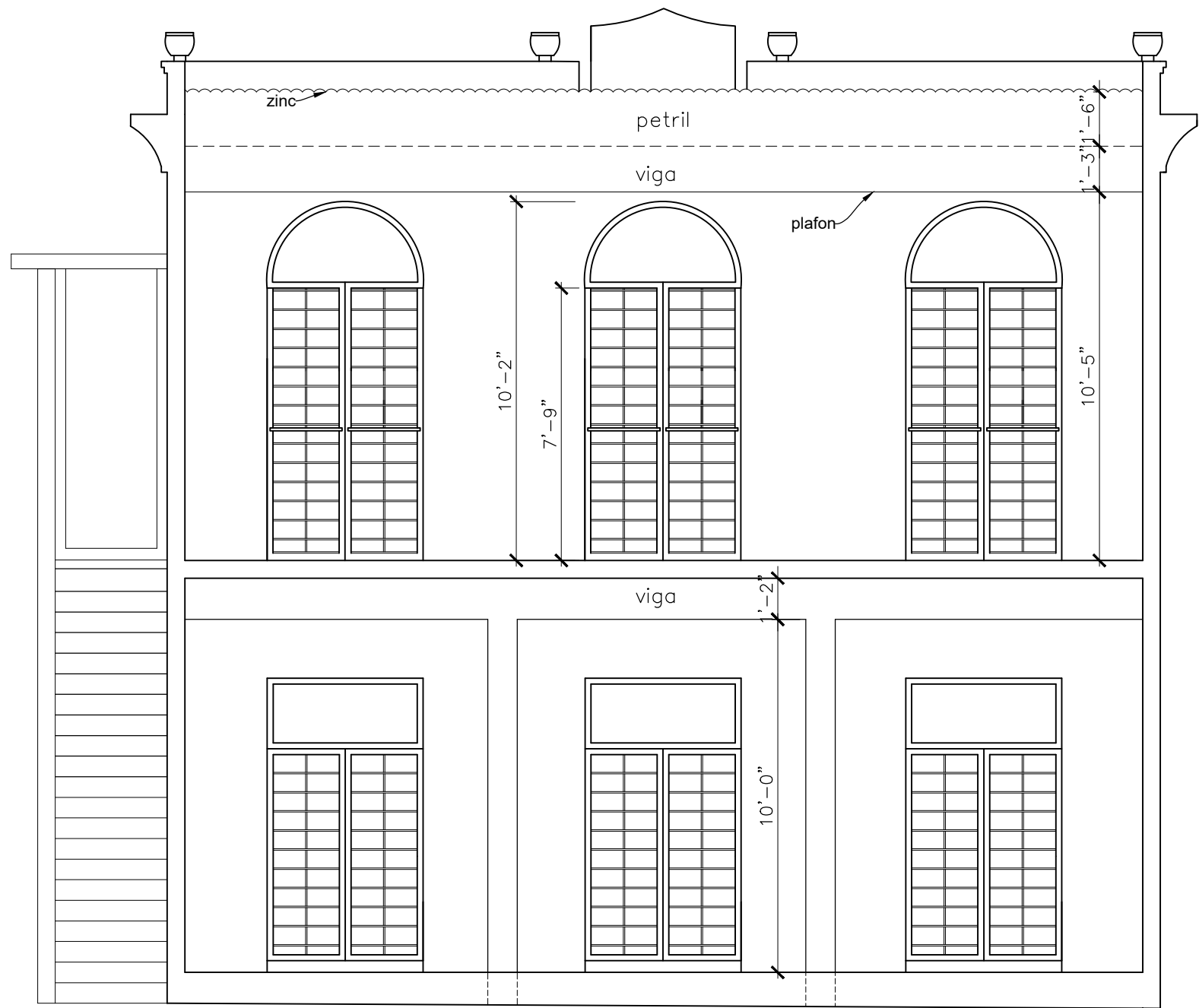
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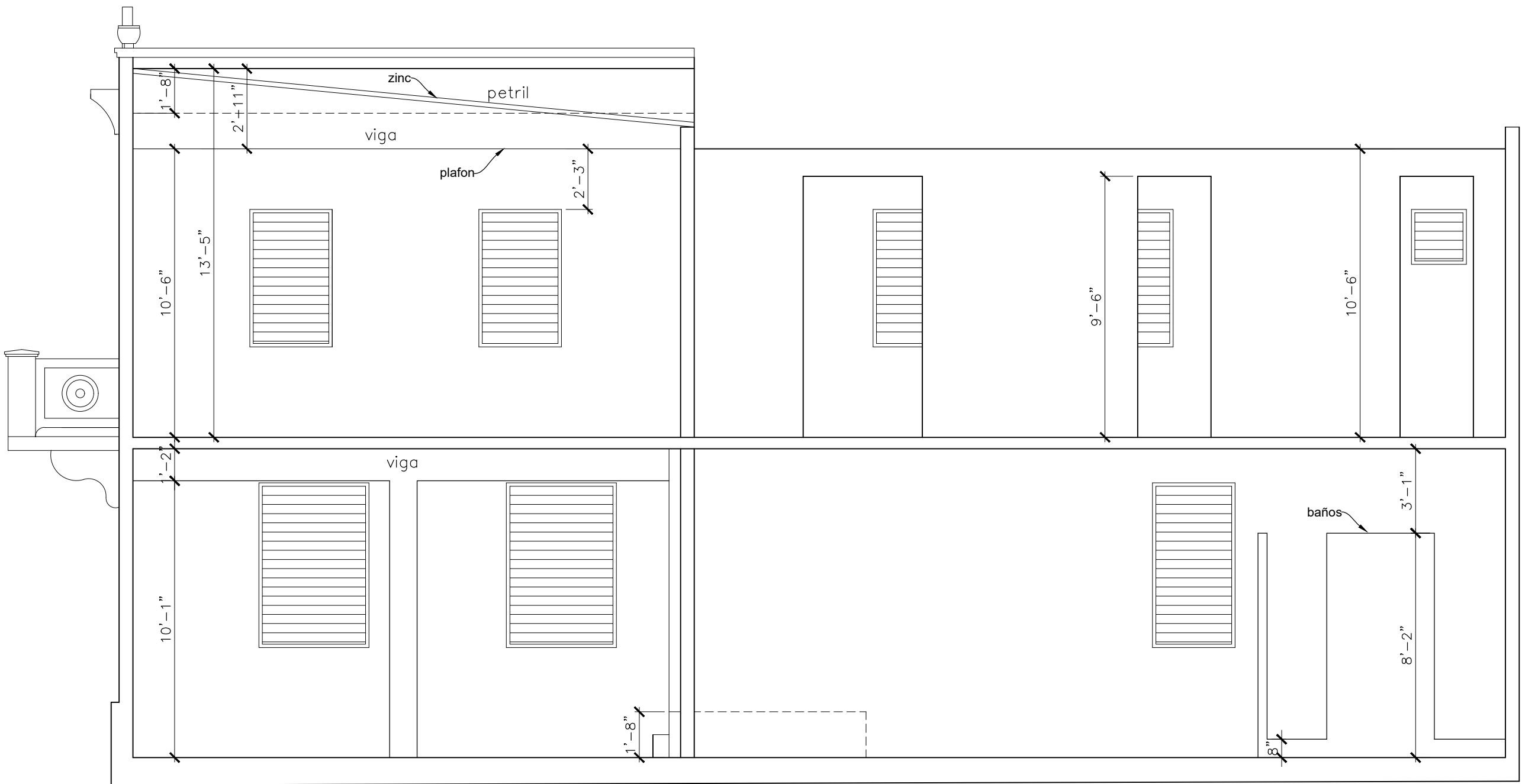
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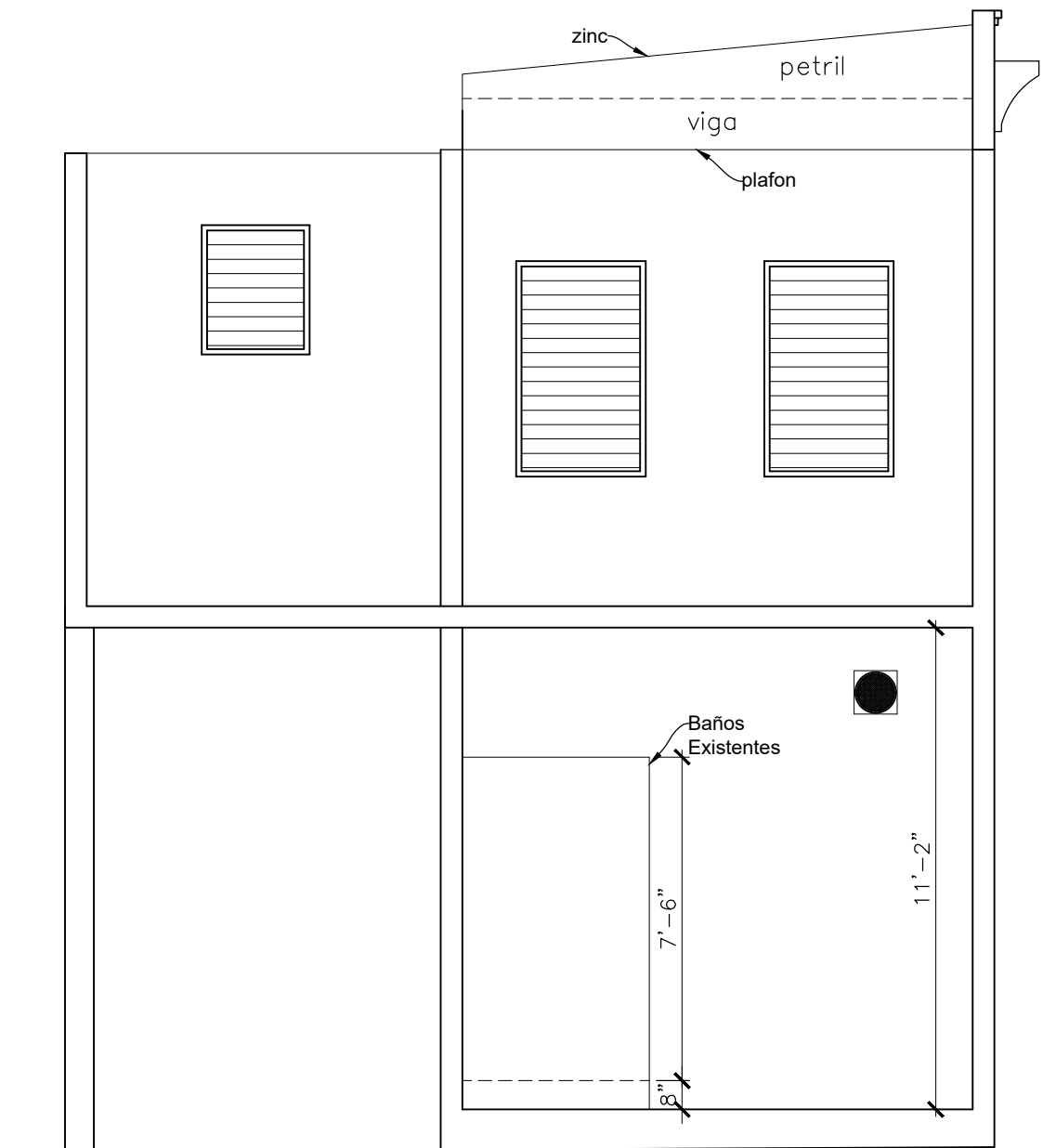
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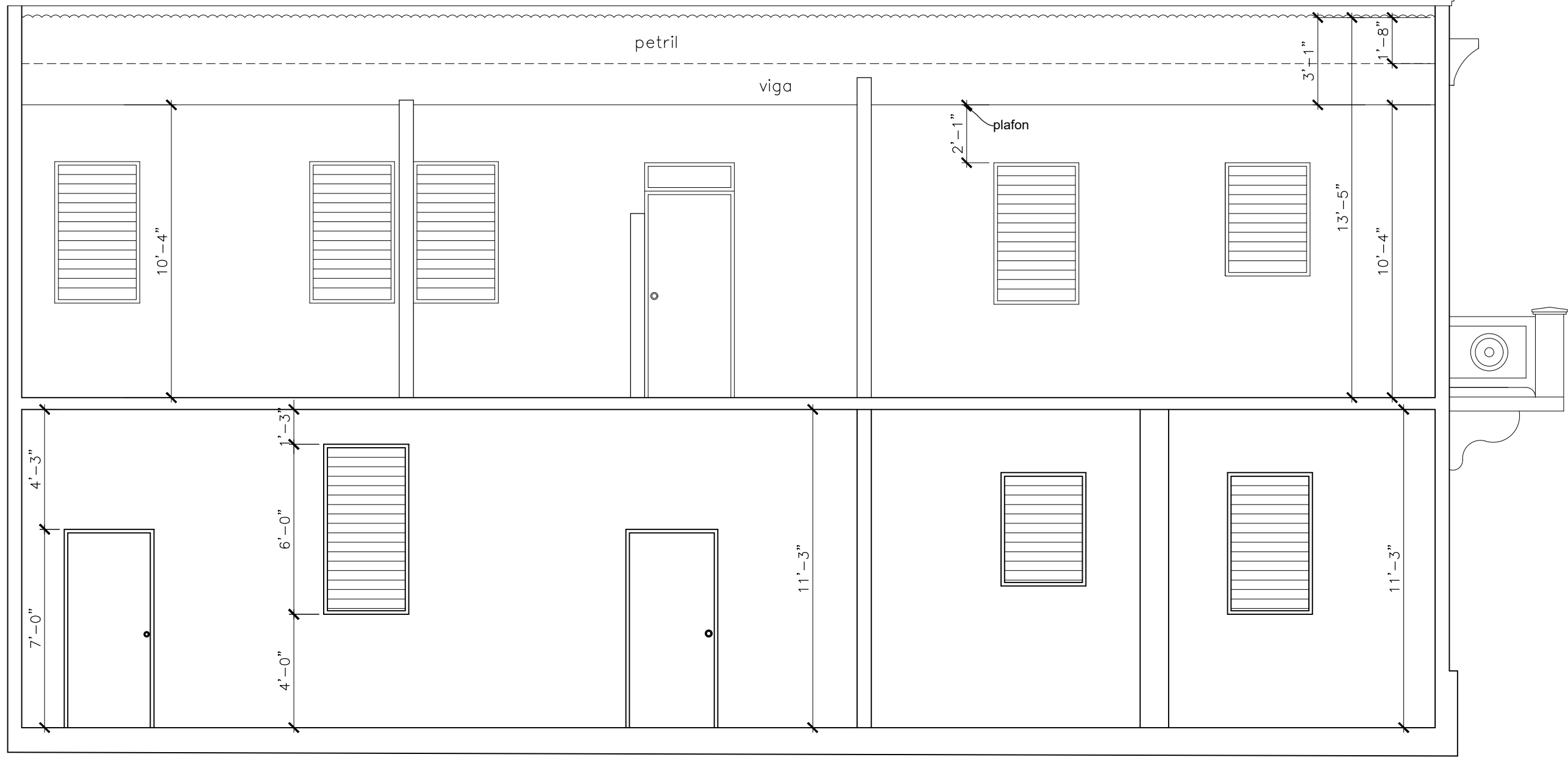
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SECCION B-B
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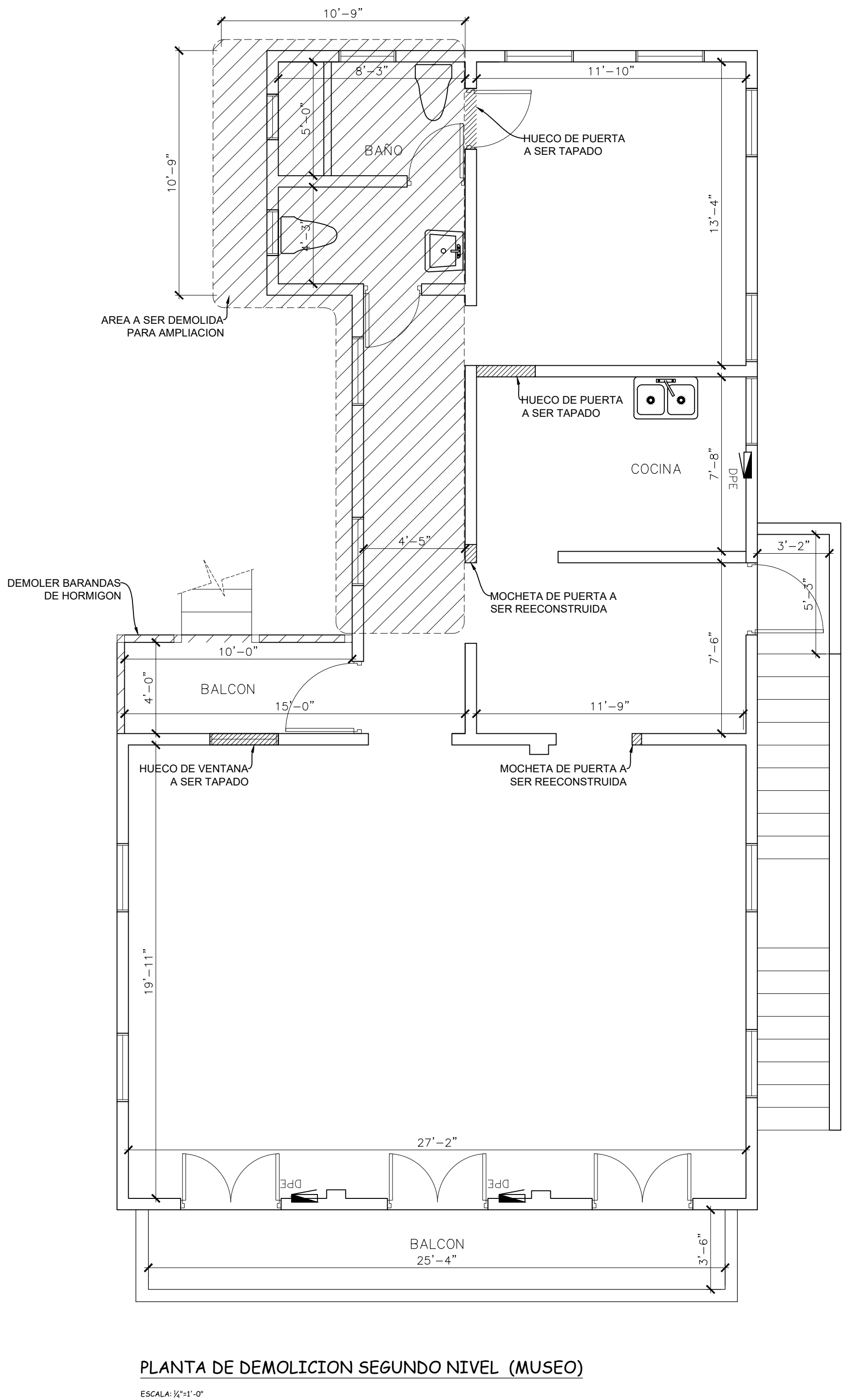
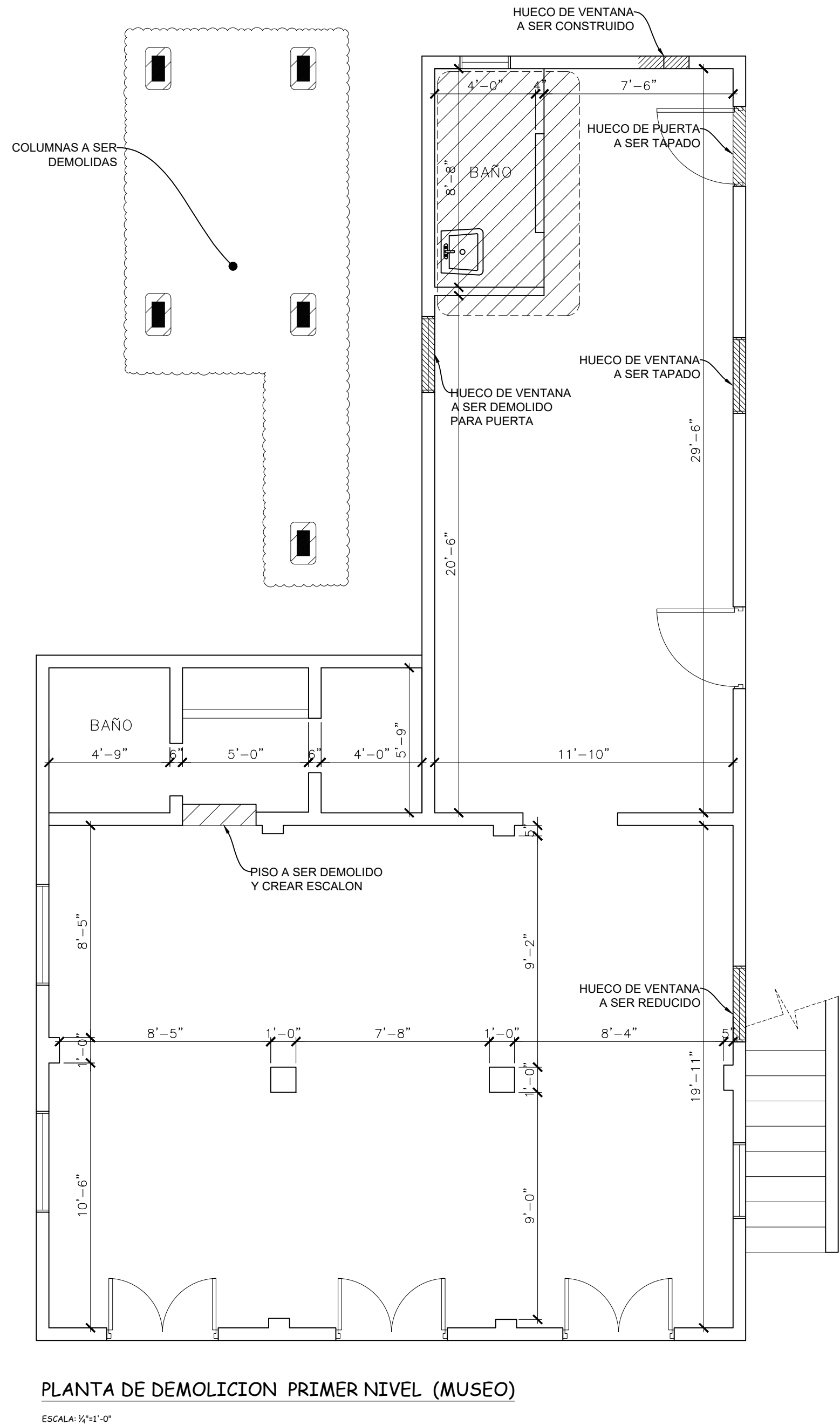
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SECCION C-C
ESCALA: 1/4"=1'-0"

Nombre de la Firma & Dirección Ing. JOSÉ D. CENTENO CALERO LIC. 20206 PO BOX 4448 AGUADILLA, PR. 00605 TEL. 787-891-8256	
	
Certificado & Sello de 	
Nombre del Proyecto & Dirección MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.	
Nombre del Proyecto & Dirección MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.	Num. Hoja A-3
Fecha 17 NOV 2022	Hoja 5
Escala 1/4" = 1'-0"	As 17
JV	DEBUTADO POR:

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONO Y/O DISEÑO Y/O PREPARO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTARIAS O CORPORACIONES PÚBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONCONCIEMENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA UGPE.



LEYENDA:

- AREA A SER DEMOLIDA
- AREA A SER TAPADA

NOTAS:

1. LOS BAÑOS TENDRAN AZULEJOS EN TODAS LAS PAREDES HASTA EL TECHO.
2. AZULEJOS EXISTENTES DE PARED SERAN REMPLAZADOS
3. TODO MUEBLE PARA BAÑOS, CLOSETS, ETC. SERA ESCOJIDO POR EL DUEÑO AL IGUAL QUE EL MATERIAL Y TERMINACION DE ESTOS.
4. TODAS LAS PUERTAS & VENTANAS SERAN REEMPLAZADAS.

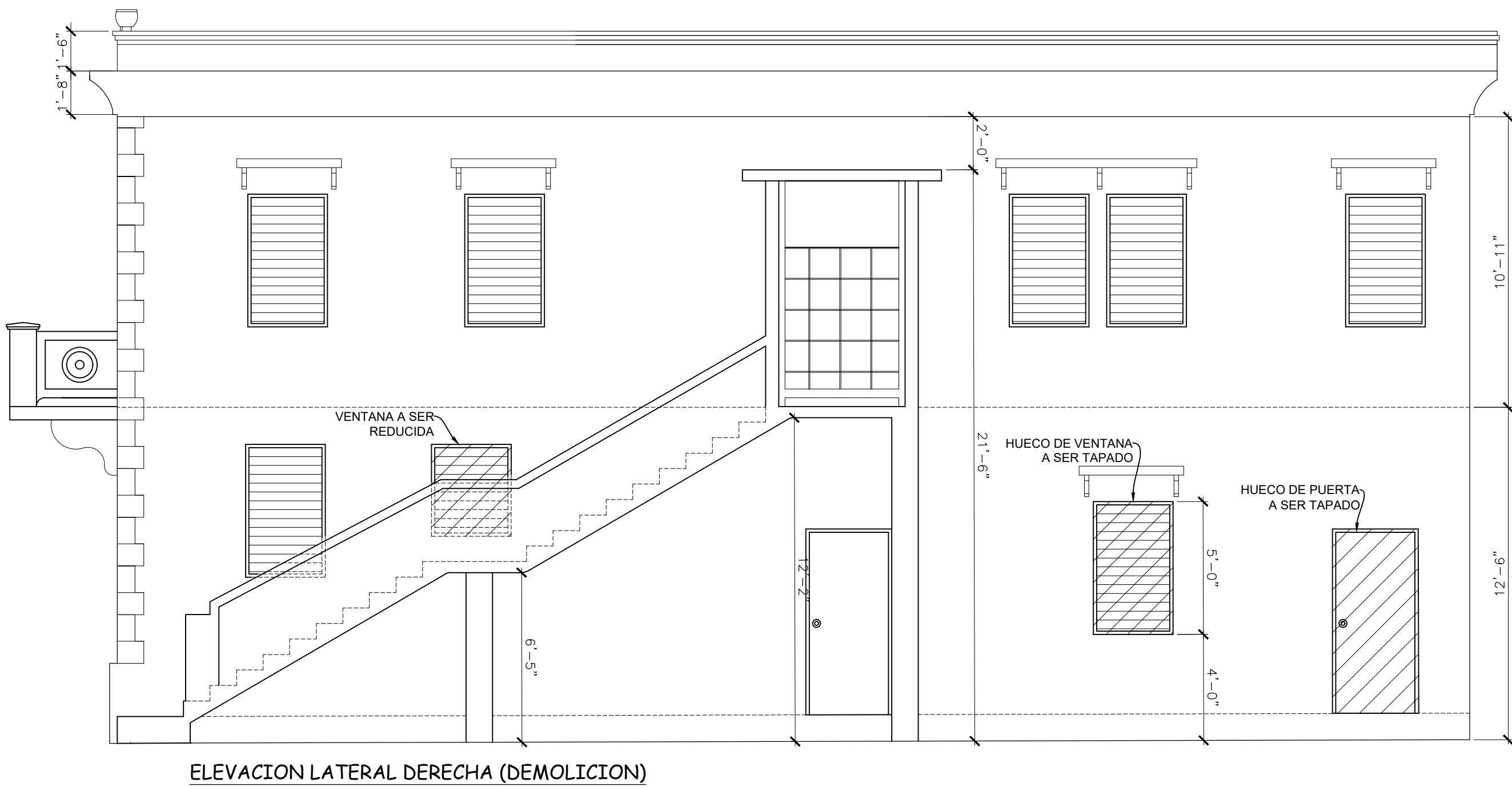
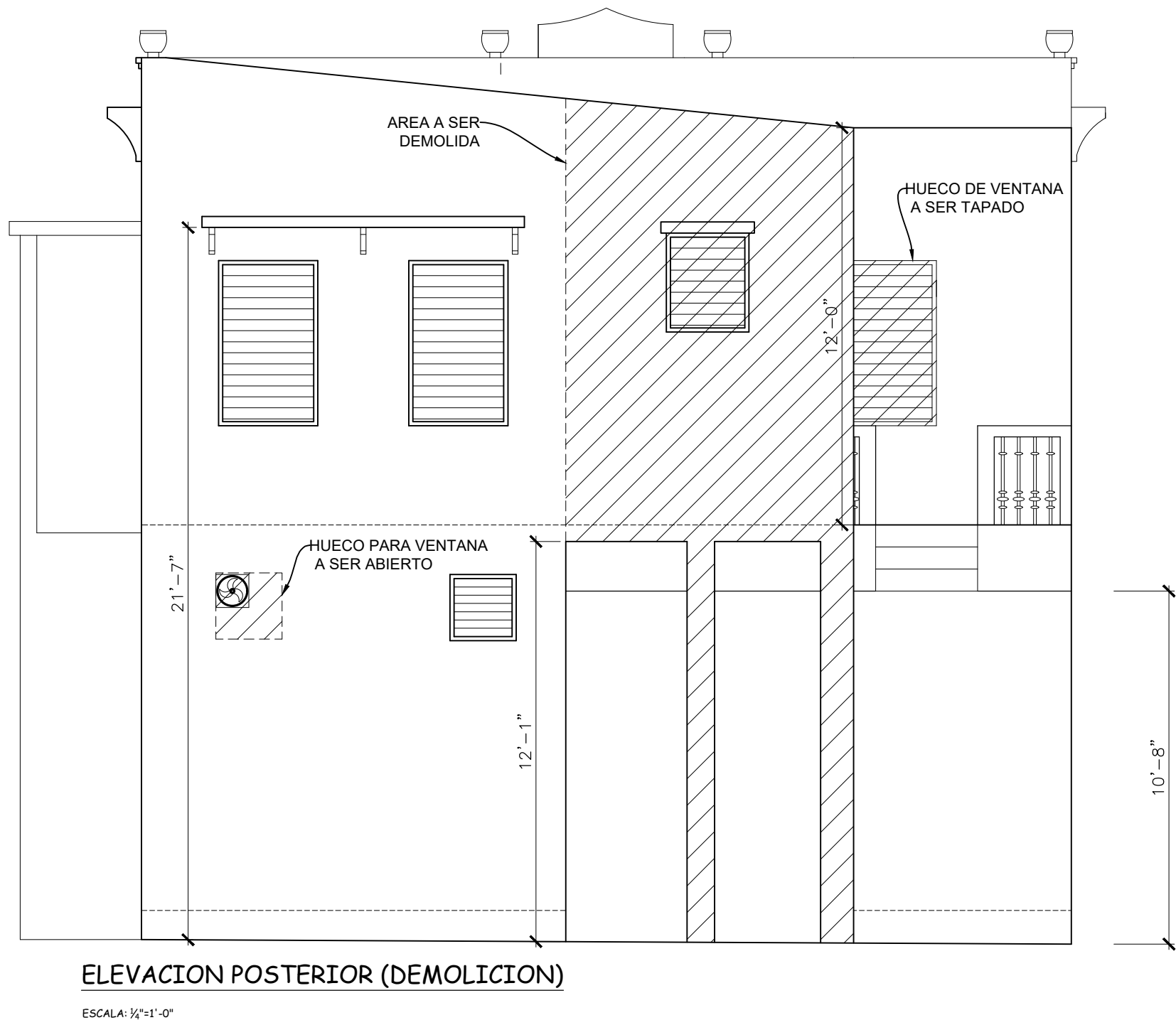
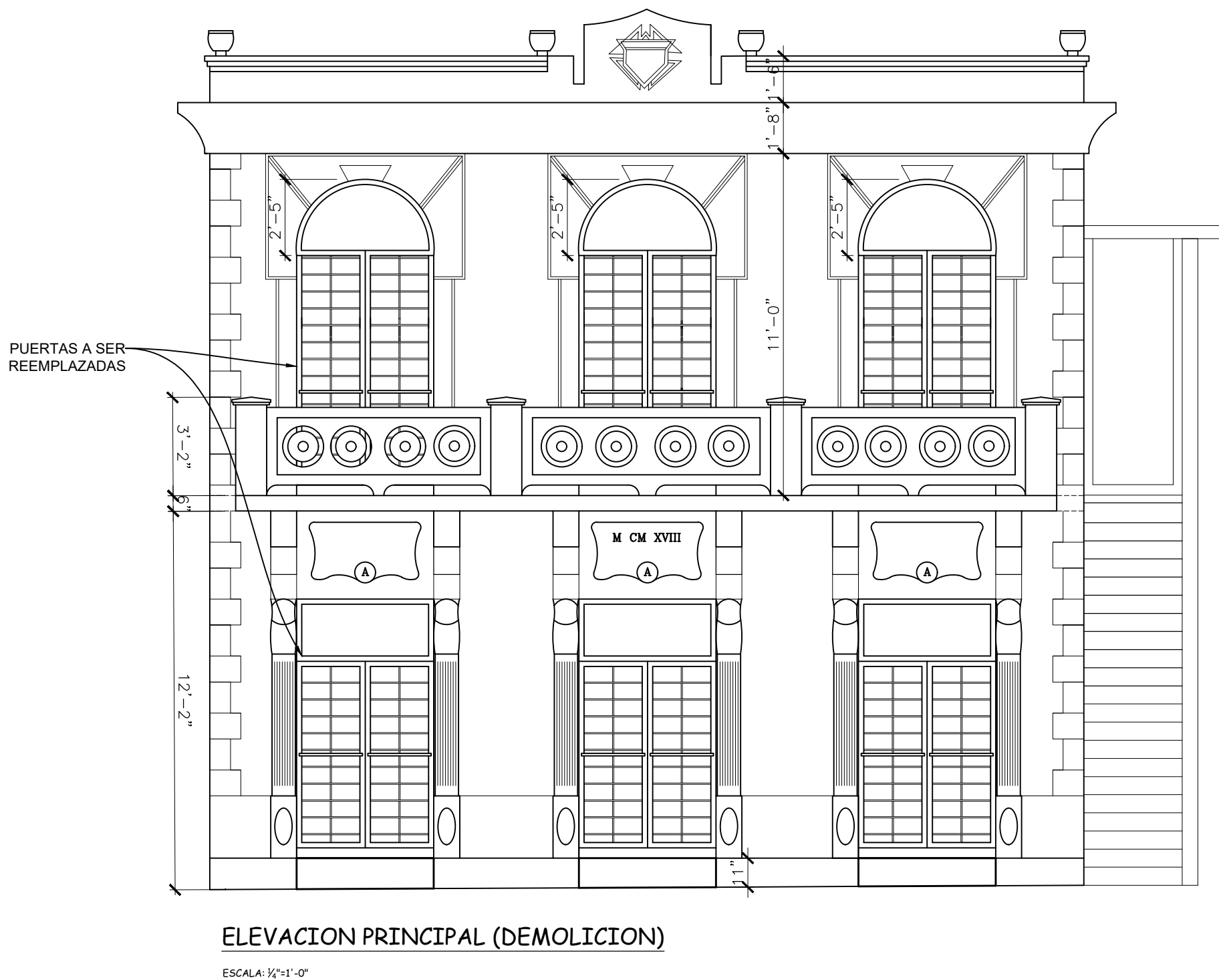


AREA A SER DEMOLIDA

NO A ESCALA

Nombre de la Firma & Direccion Ing. JOSÉ D. CENTENO CALERO LIC. 20206 PO BOX 4448 AGUADILLA, PR. 00605 TEL. 787-891-8256	
Certificado & Sello por 	
Nombre del Proyecto & Direccion MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.	
Nombre de la Hoja HOJA DE DEMOLICION	Num. Hoja A-4
Fecha 17 NOV 2022	6 ^{ta} 17
Escala 1/4" = 1'-0"	
JV	DIBUJADO POR:

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONO Y/O DISEÑO Y/O PREPARO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA OCFE.



NOTAS:

1. TODAS LAS PUERTAS & VENTANAS SERAN REEMPLAZADAS.

Nombre de la Firma & Dirección
Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256

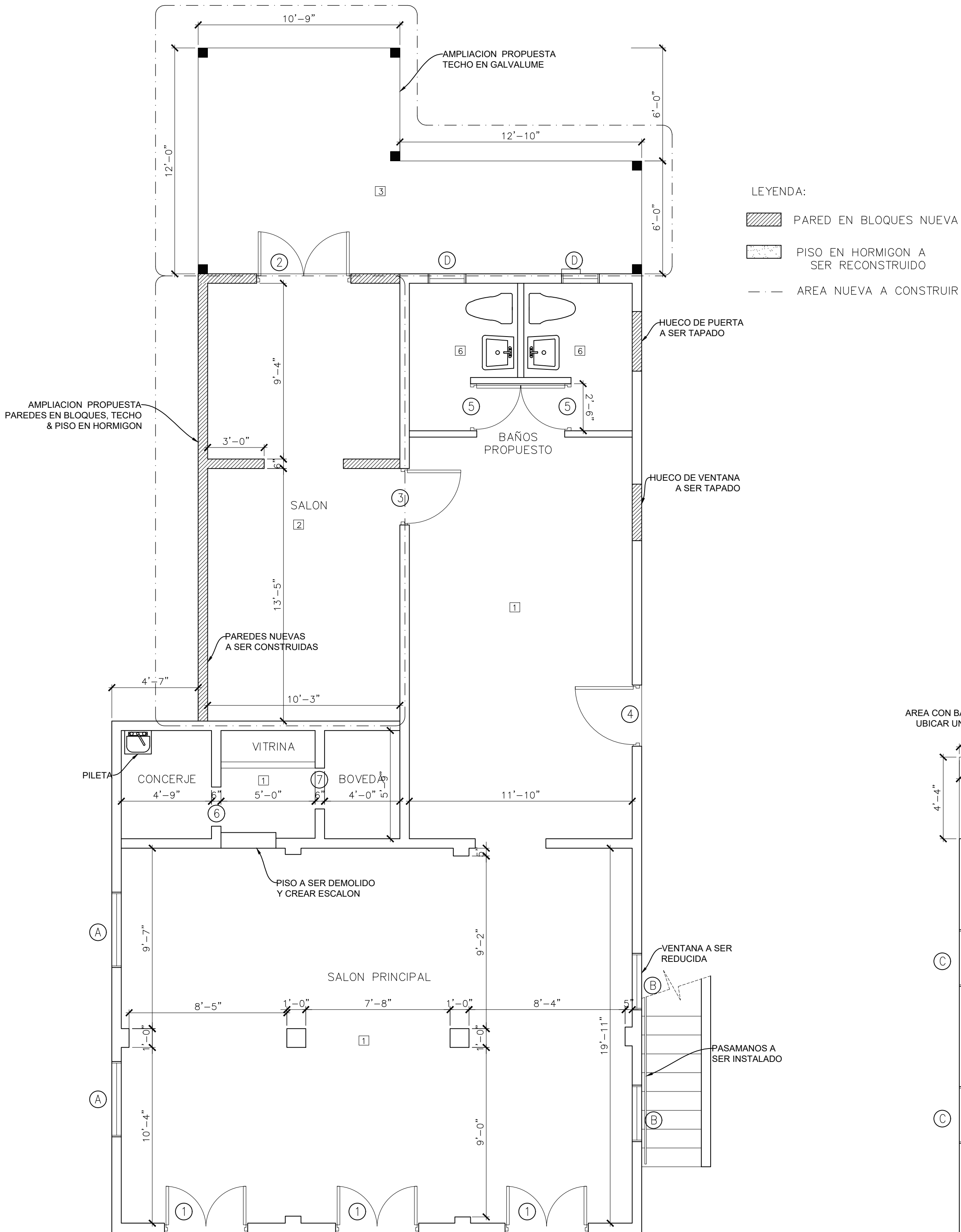


Nombre del Proyecto & Dirección
MUSEO HISTORICO DE QUEBRADILLAS
CALE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Nombre de la Hoja
ELEVACIONES (DEMOLICION)
Fecha: **17 NOV 2022**
Escala: **1/4"= 1'-0"**

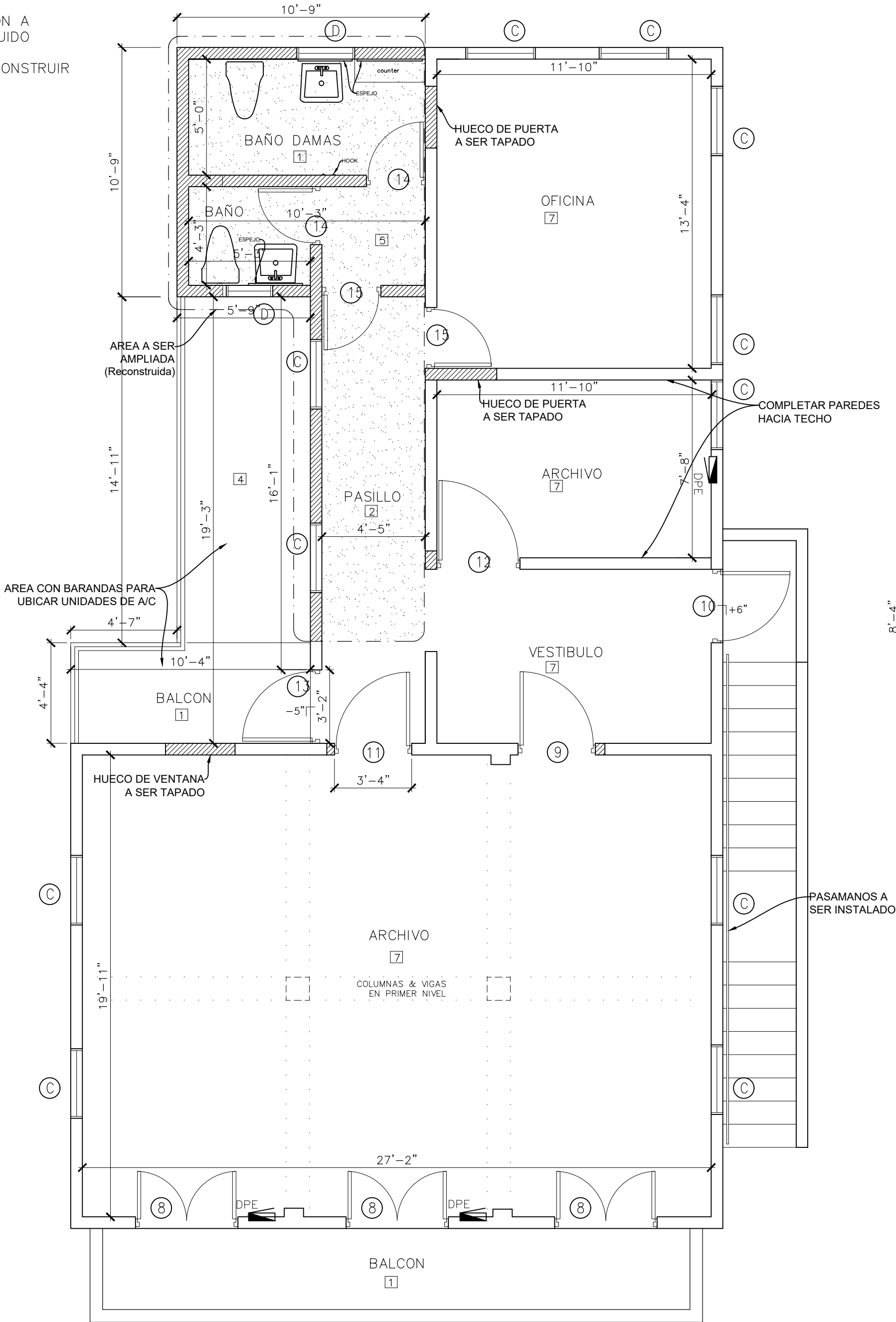
Num. Hoja
A-5
7 de **17**

DIBUJADO POR:
JV



PRELIMINAR PRIMER NIVEL (MUSEO)

ESCALA: 1/4"=1'-0"



PRELIMINAR SEGUNDO NIVEL (ARCHIVO)

ESCALA: 1/4"=1'-0"

TERMINACIONES									
MCD	PISO	ZOCALO	PAREDES	PLAFONES	PEREDES EXT.	OBSERVACION			
1	0	0	0	0	0				
2	0	0	0	0	0				
3	0	0	0	0	0				
4	0	0	0	0	0				
5	0	0	0	0	0				
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99	0	0	0	0	0				
100	0	0	0	0	0				

TABLA DE VENTANAS									
TAMAÑO HUECO									
MODA	ANCHO	ALTO	TIPO	CANT.	MATERIAL		Descripción		Color
Ⓐ	4'-0"	4'-0"	1	2	ALUMINIO & CRISTAL		VENTANAS DE SEGURIDAD CON CRISTAL Y ARTE		BRONCE
Ⓑ	3'-0"	7'-0"	1	2	ALUMINIO & CRISTAL		VENTANAS DE SEGURIDAD CON CRISTAL Y ARTE		BRONCE
Ⓒ	3'-0"	7'-0"	2	9	ALUMINIO & CRISTAL		VENTANA DE CELOSA 4" SEGURIDAD		BRONCE
Ⓓ	2'-0"	2'-0"	3	4	ALUMINIO		VENTANA TIPO OLD SAN JUAN (CRISTAL SUPERIOR)		BRONCE

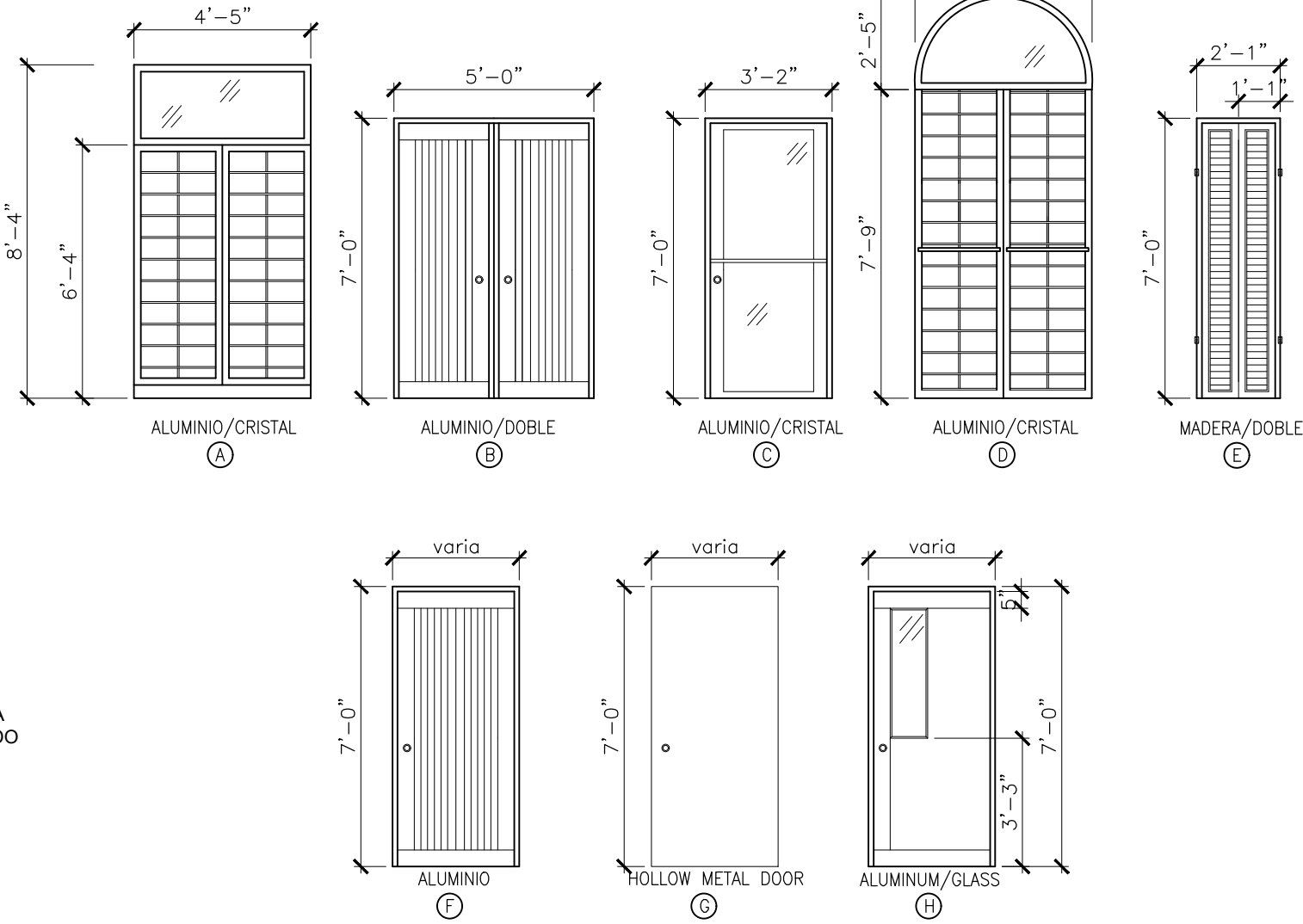
NOTAS: 1. SE DEBERA CONSULTAR AL FABRICANTE PARA LAS MEDIDAS EXACTAS.

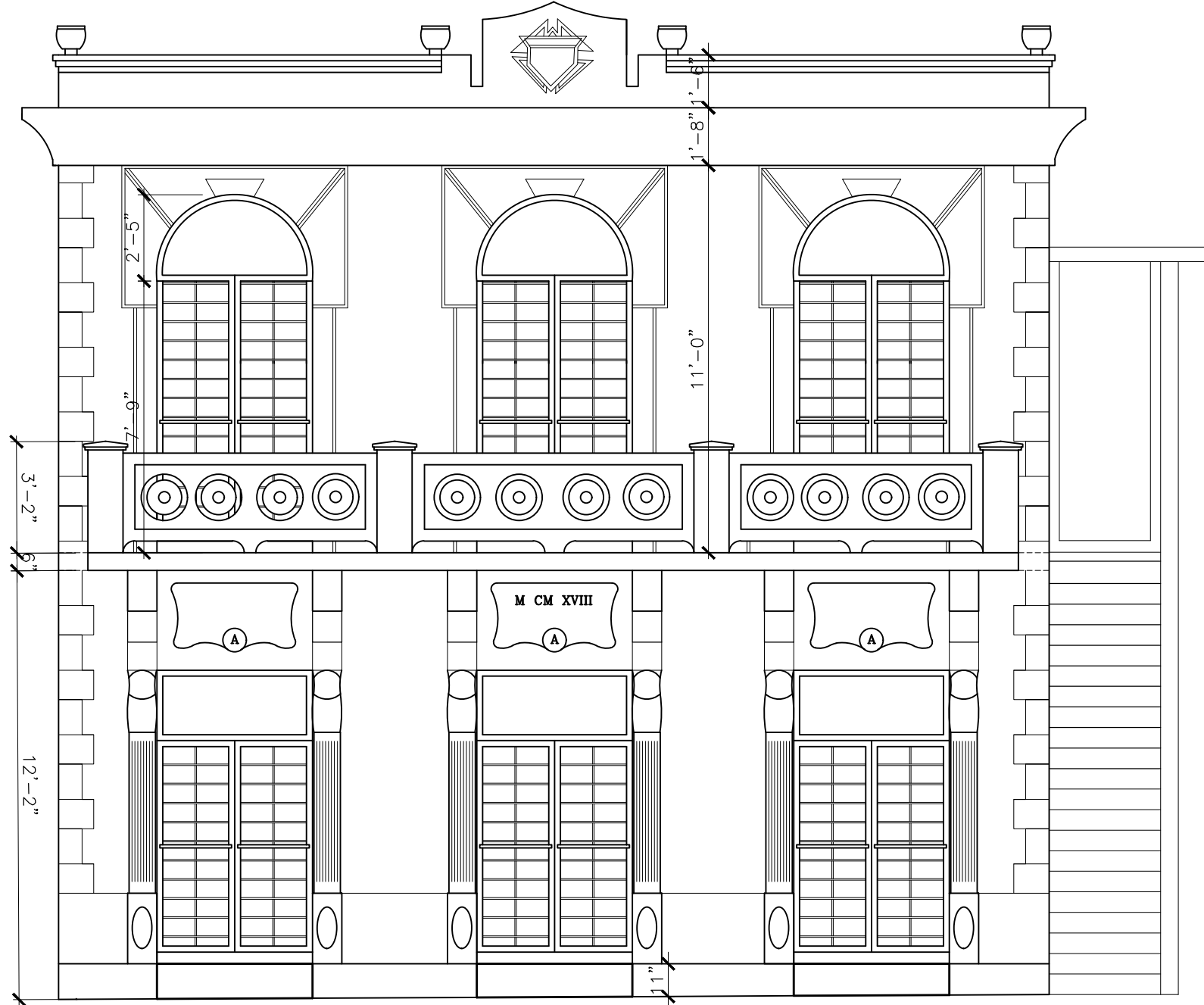
TABLA DE PUERTAS							
TAMARO HUECO							
MCD	ANCHO	ALTO	TIPO	CANT.	MATERIAL	Descripción	Color
①	4'-5"	8'-4"	A	3	ALUMINIO & CRISTAL	PUERTA DOBLE PARA EXTERIOR	BLANCO
②	5'-0"	7'-0"	B	1	HOLLOW METAL DOOR	PUERTA DOBLE PARA EXTERIOR	BLANCO
③	5'-0"	7'-0"	C	1	ALUMINIO & CRISTAL	PUERTA INTERIOR (CRISTAL COMPLETO)	BLANCO
④	3'-3"	7'-0"	G	1	HOLLOW METAL DOOR	PUERTA SENCILLA EXTERIOR	BLANCO
⑤	2'-4"	7'-0"	F	2	ALUMINIO	PUERTA INTERIOR	BLANCO
⑥	2'-1"	7'-0"	E	1	MADERA CON TINTE	PUERTA DOBLE (HERRAJE AMBAS DIRECCIONES)	MADERA CLARA
⑦	2'-2"	7'-0"	G	1	HOLLOW METAL DOOR	PUERTA SENCILLA EXTERIOR	BLANCO
⑧	4'-5"	7'-0"	D	3	ALUMINIO & CRISTAL	PUERTA DOBLE PARA EXTERIOR	BLANCO
⑨	3'-4"	7'-0"	G	1	HOLLOW METAL DOOR	PUERTA SENCILLA EXTERIOR	BLANCO
⑩	3'-2"	7'-0"	H	1	ALUMINIO & CRISTAL	PUERTA INTERIOR CON CRISTAL (VISOR)	BLANCO
⑪	3'-4"	7'-0"	H	1	ALUMINIO & CRISTAL	PUERTA INTERIOR CON CRISTAL (VISOR)	BLANCO
⑫	3'-2"	7'-0"	G	1	HOLLOW METAL DOOR	PUERTA SENCILLA EXTERIOR	BLANCO
⑬	3'-2"	7'-0"	F	1	ALUMINIO	PUERTA INTERIOR	BLANCO
⑭	2'-4"	7'-0"	F	2	ALUMINIO	PUERTA INTERIOR	BLANCO
⑮	2'-2"	7'-0"	H	2	ALUMINIO & CRISTAL	PUERTA INTERIOR CON CRISTAL (VISOR)	BLANCO
⑯							

NOTAS: 1. SE DEBERA CONSULTAR AL FABRICANTE PARA LAS MEDIDAS EXACTAS.

NOTAS:

1. TODAS LAS PUERTAS & VENTANAS SERAN REEMPLAZADAS.





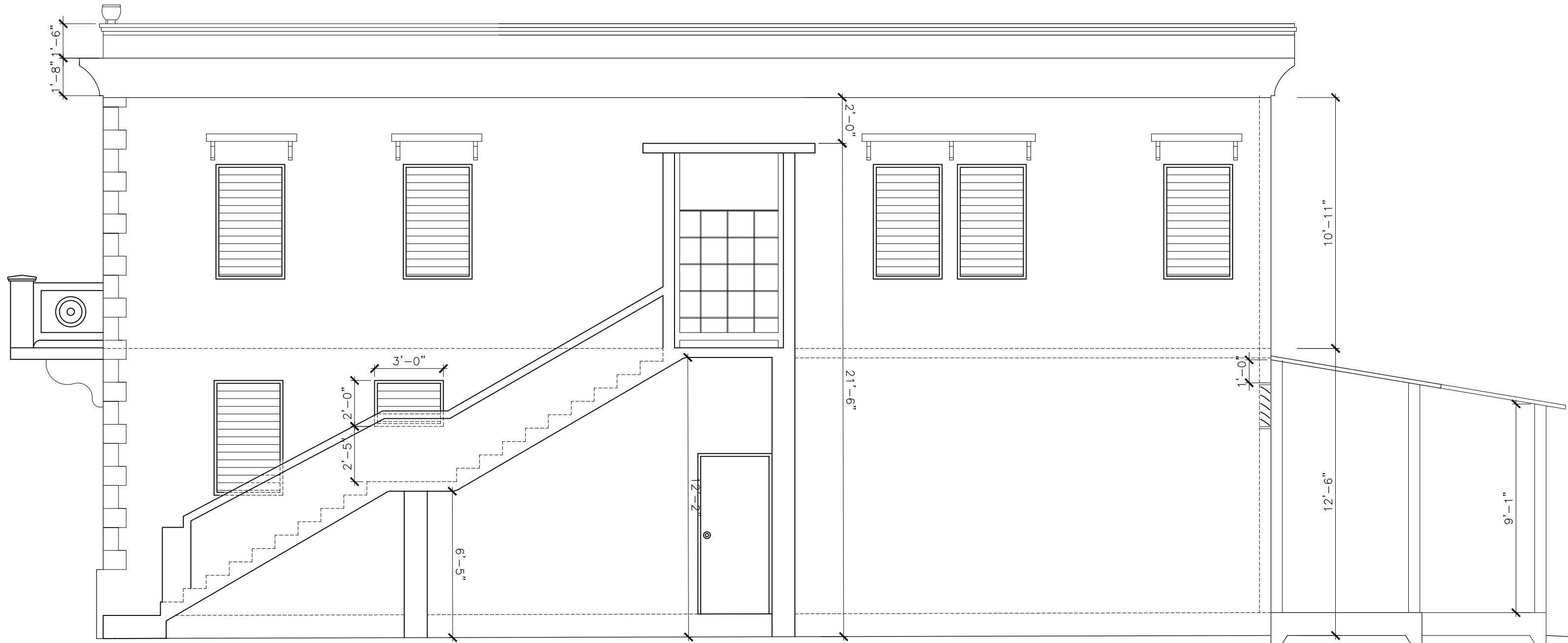
ELEVACION PRINCIPAL

ESCALA: 1/4"=1'-0"



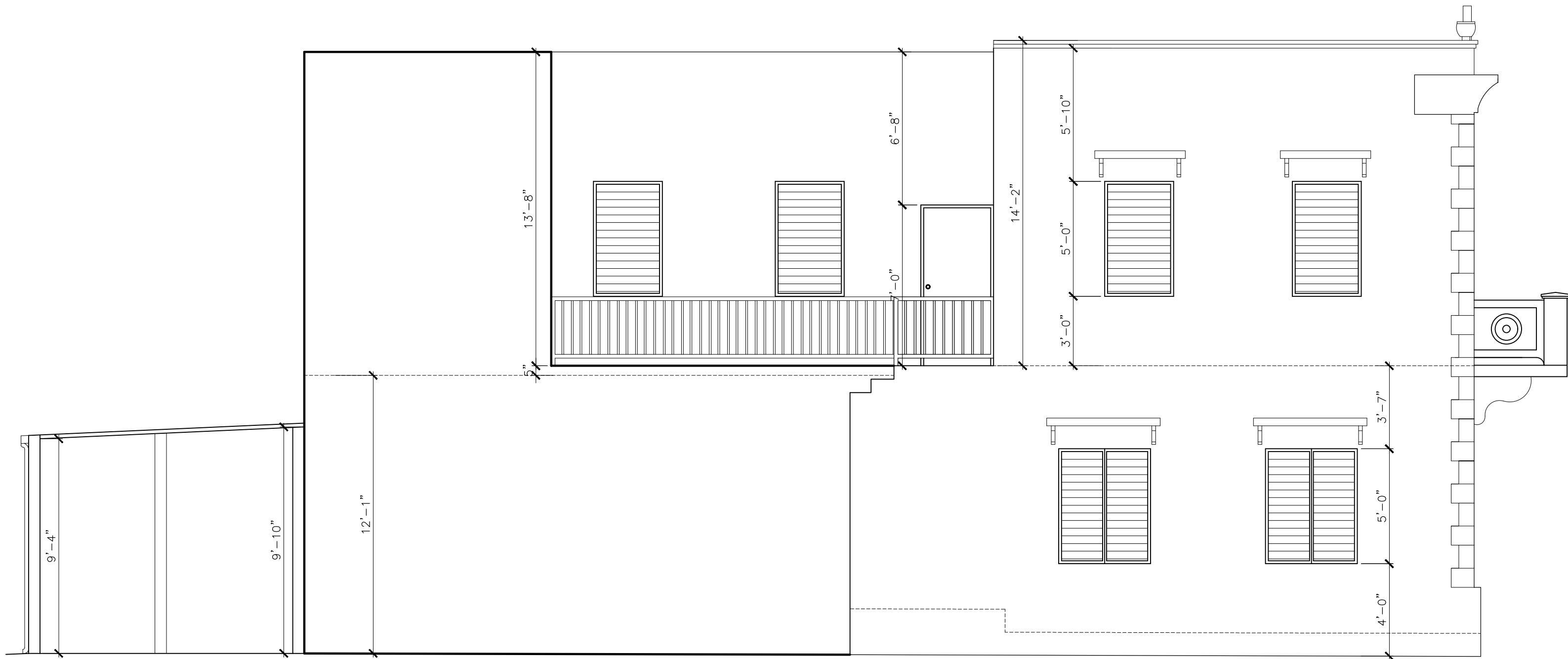
ELEVACION POSTERIOR

ESCALA: 1/4"=1'-0"



ELEVACION LATERAL DERECHA

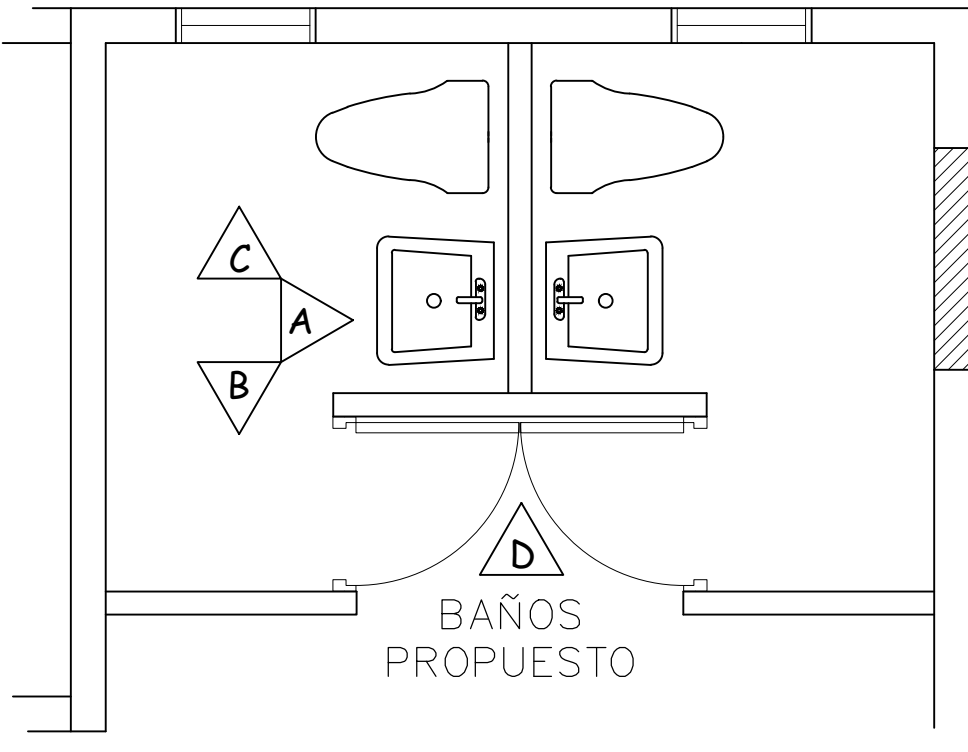
ESCALA: 1/4"=1'-0"



ELEVACION LATERAL IZQUIERDA

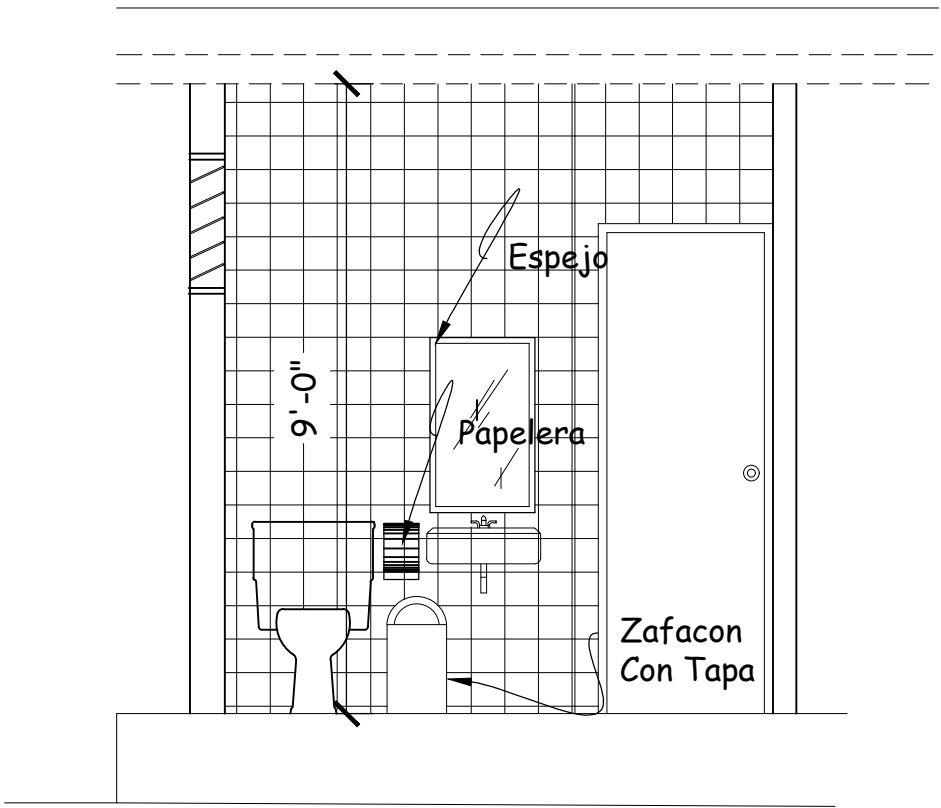
ESCALA: 1/4"=1'-0"

Nombre de la Hoja: ELEVACIONES PROPUESTAS		Num. Hoja: A-7	
Fecha: 17 NOV 2022		Hoja: 9	
Escala: 1/4" = 1'-0"		Página: 17	
Nombre del Proyecto & Dirección: MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.		Nombre de la Firma & Dirección: Ing. JOSÉ D. CENTENO CALERO LIC. 20206 PO BOX 4448 AGUADILLA, PR. 00605	
DIBUJADO POR: JV		TEL. 787-891-8256	



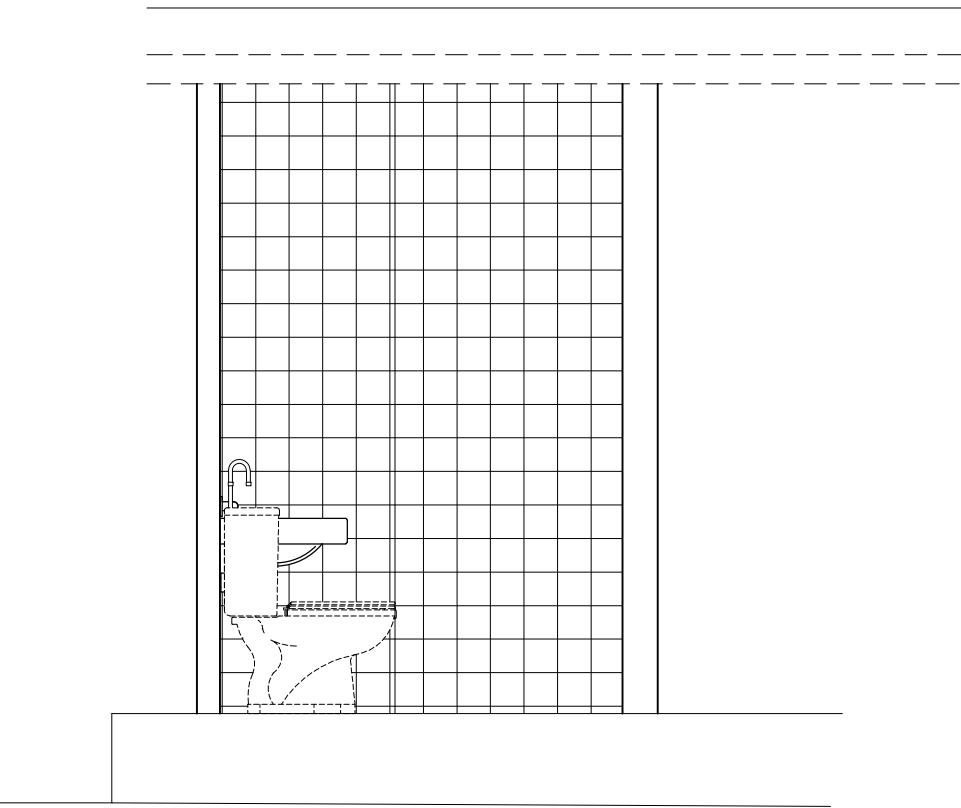
BAÑOS PROPUESTOS (PRIMER NIVEL)

ESCALA: 3/8"=1'-0"



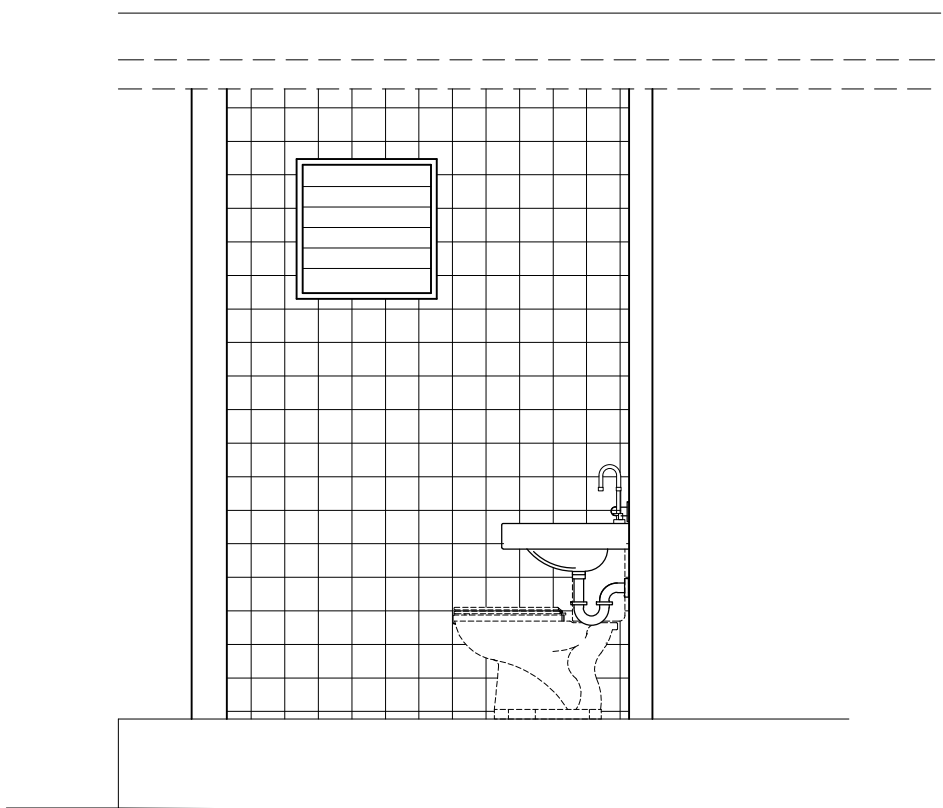
SECCION A

ESCALA: 3/8"=1'-0"



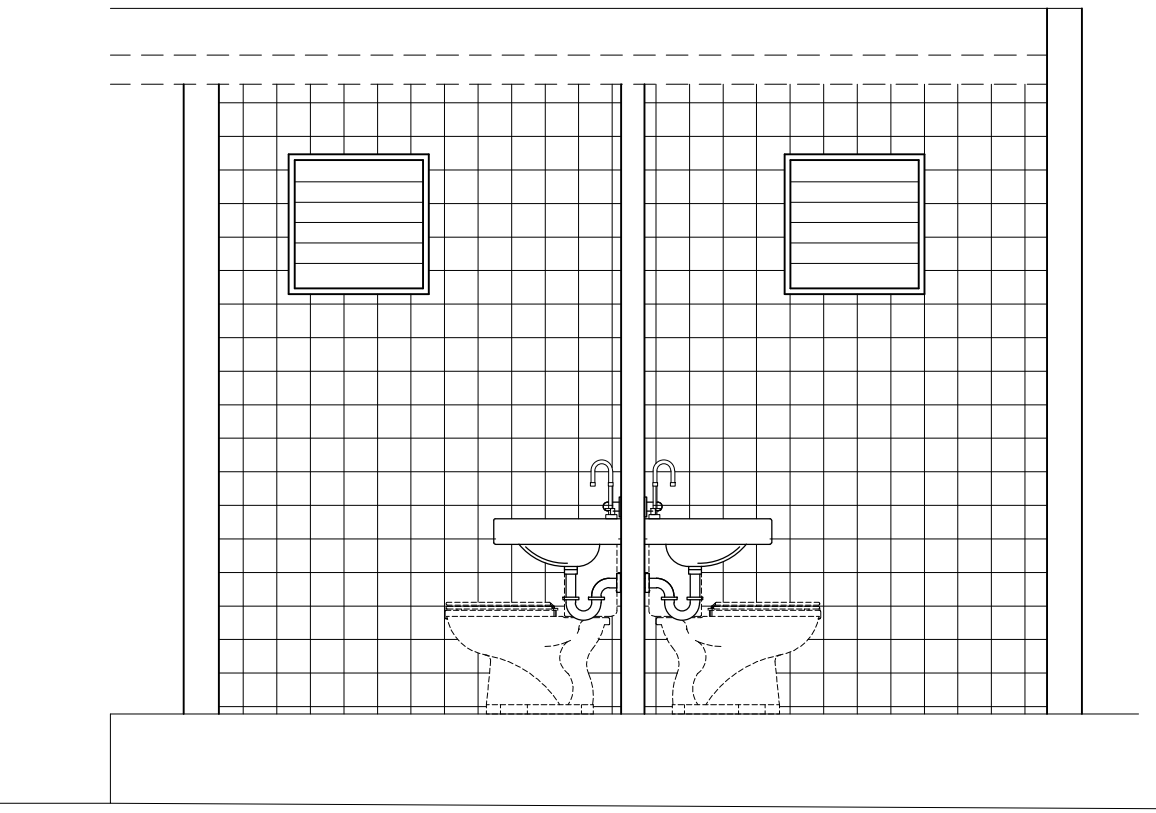
SECCION B

ESCALA: 3/8"=1'-0"



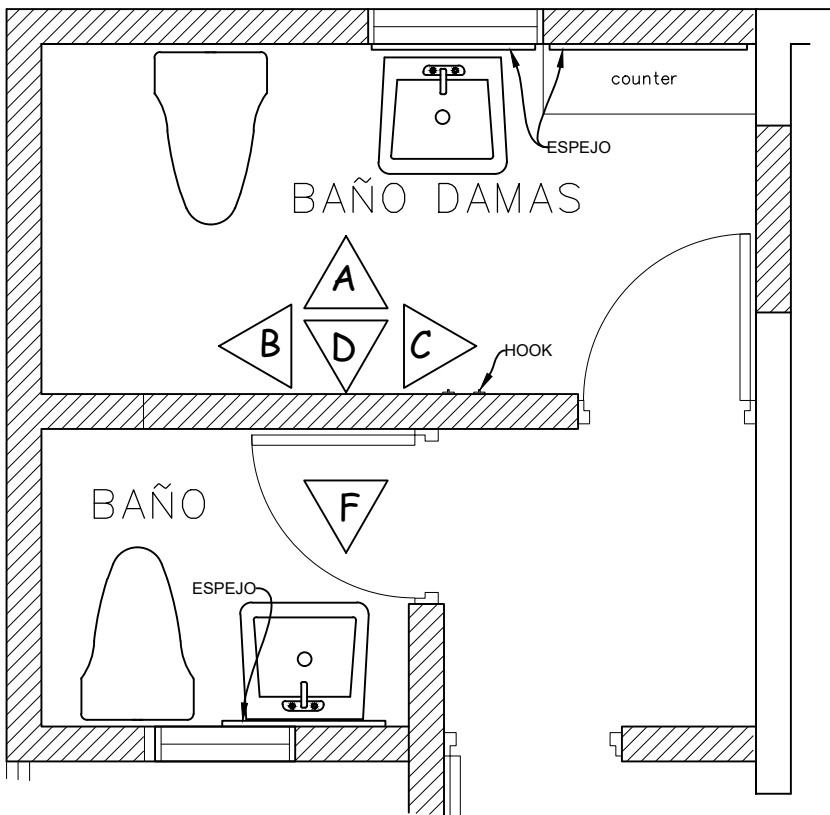
SECCION C

ESCALA: 3/8"=1'-0"



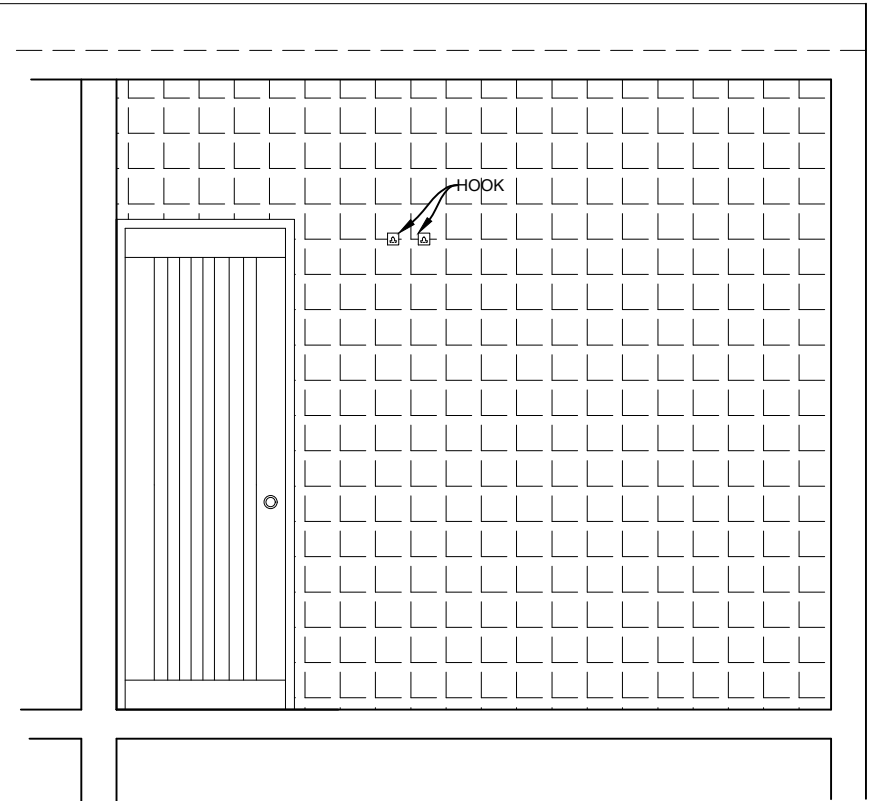
SECCION D

ESCALA: 3/8"=1'-0"



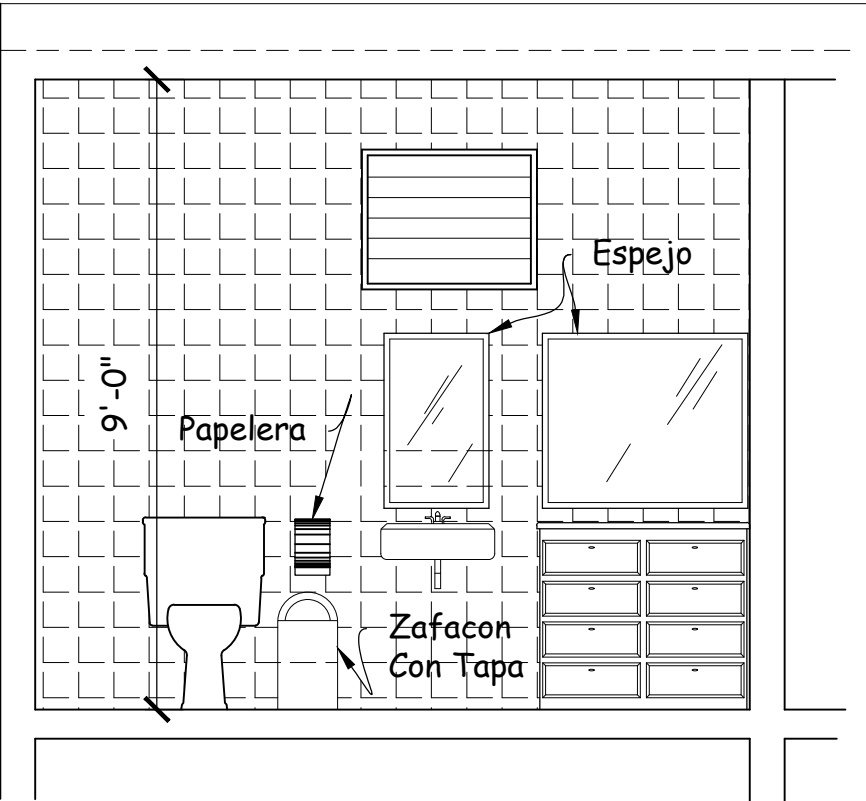
BAÑOS PROPUESTOS (SEGUNDO NIVEL)

ESCALA: 3/8"=1'-0"



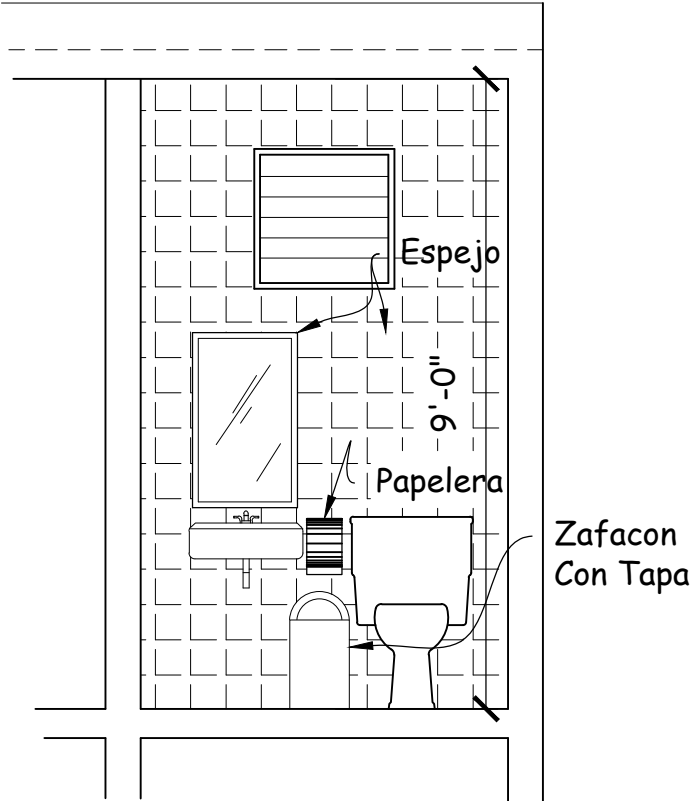
SECCION D

ESCALA: 3/8"=1'-0"



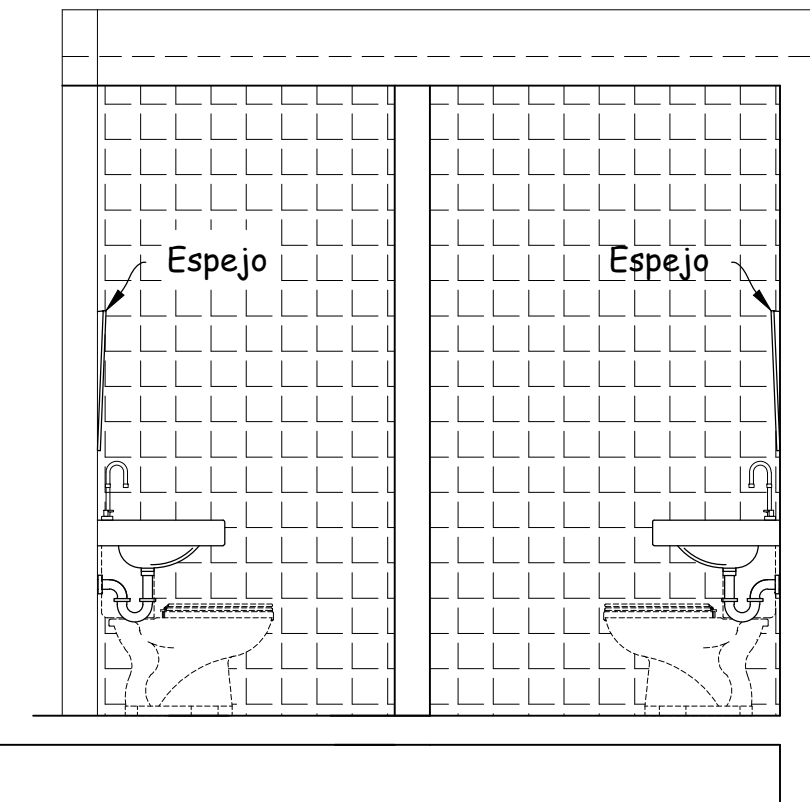
SECCION A

ESCALA: 3/8"=1'-0"



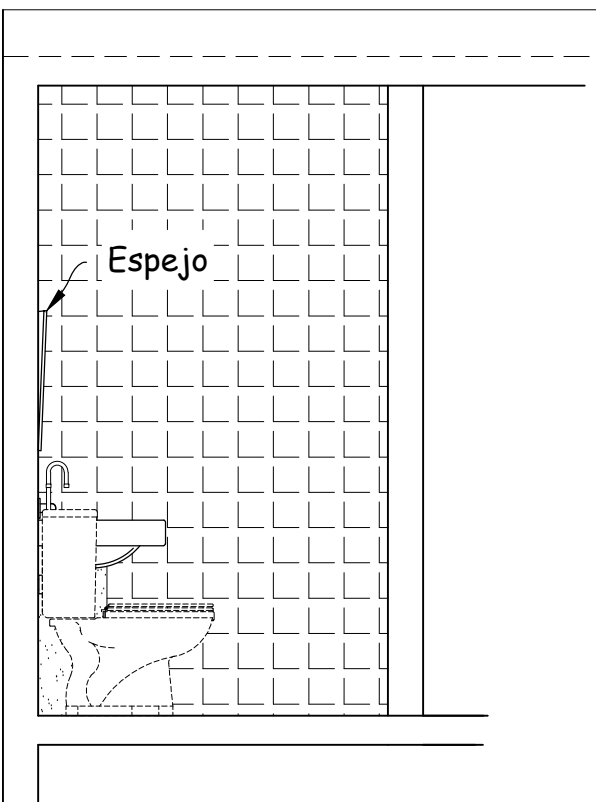
SECCION F

ESCALA: 3/8"=1'-0"



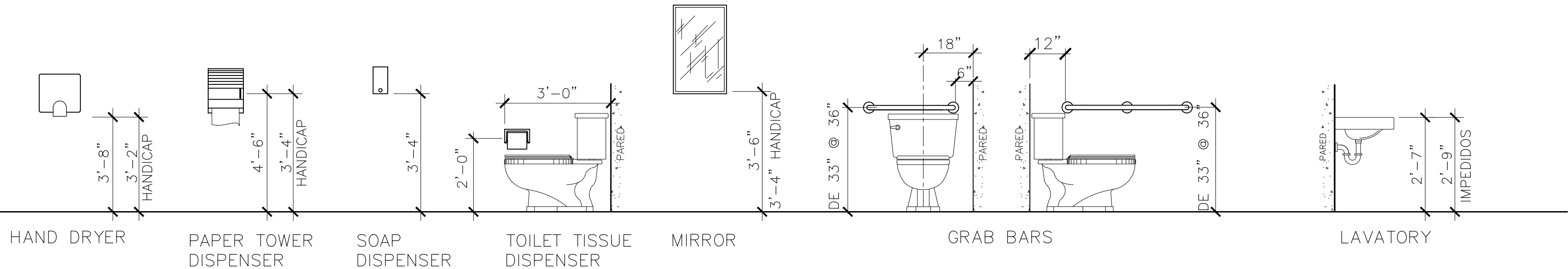
SECCION B

ESCALA: 3/8"=1'-0"



SECCION C

ESCALA: 3/8"=1'-0"



SUGGESTED ACCESSORIES INSTALLATION HEIGHTS

Ingenierosdel Oeste C.S.P.
Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com

Nombre de la Firma & Dirección
Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256

Nombre del Proyecto & Dirección
MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Nombre de la Hoja
SECCIONES BAÑO

Fecha
17 NOV 2022

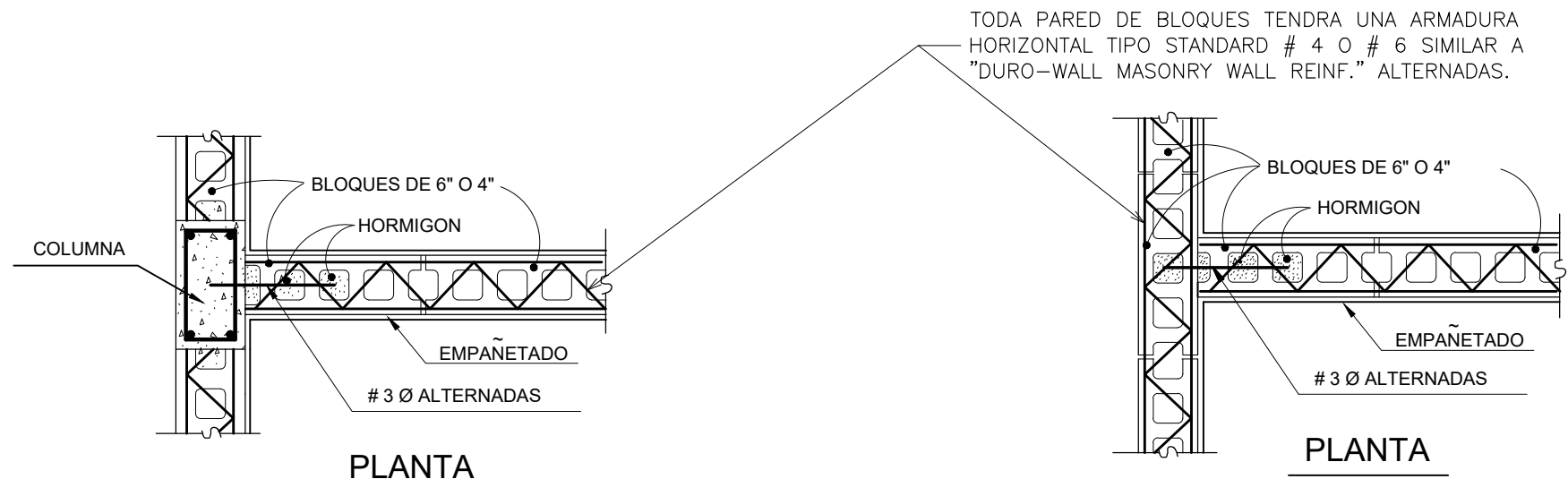
Escala
3/8"= 1'-0"

Num. Hoja
A-8

10 de 17

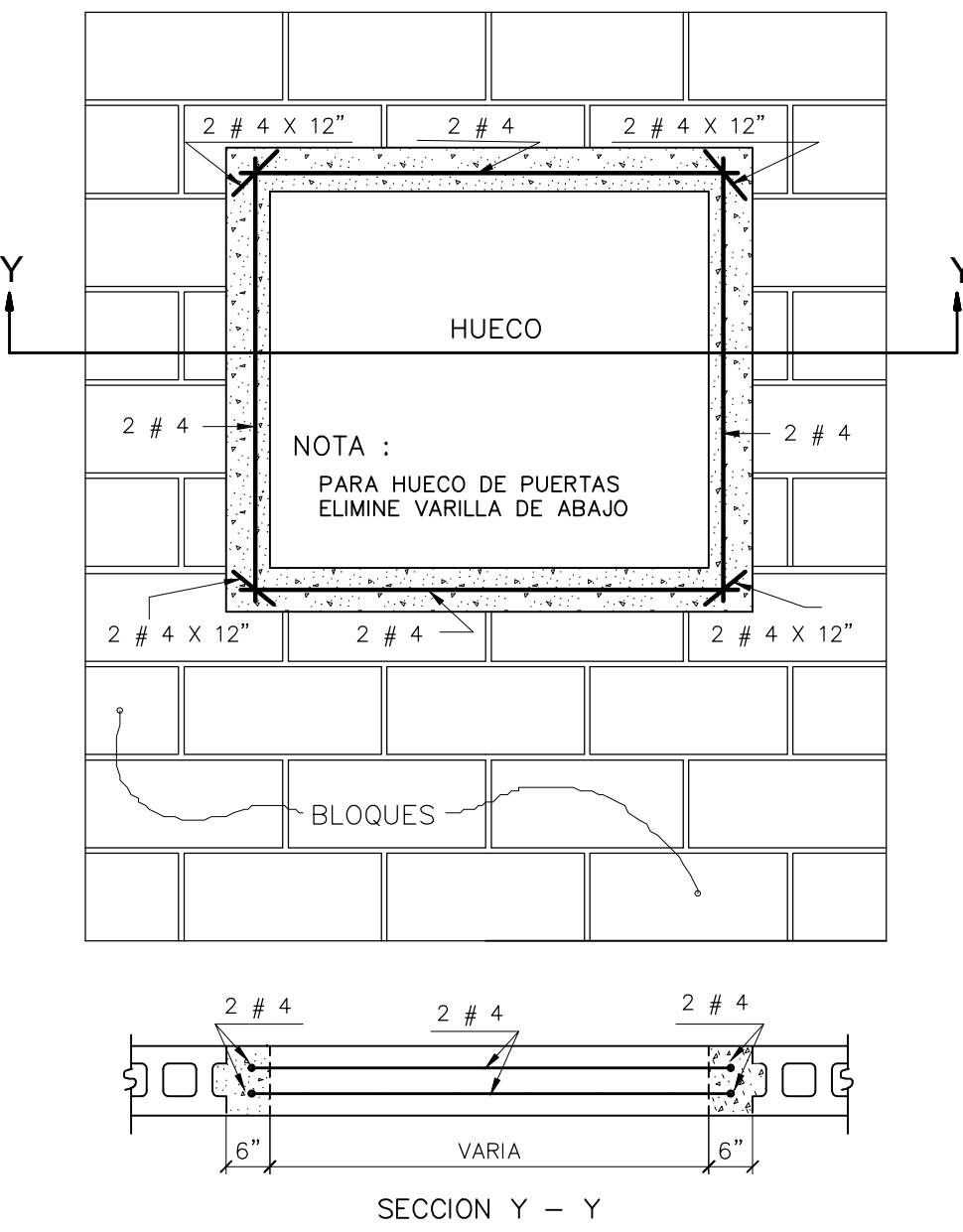
DIBUJADO POR:
JV

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONÉ Y/O DISEÑÉ Y/O PREPARÉ ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCION, RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA OGPE.



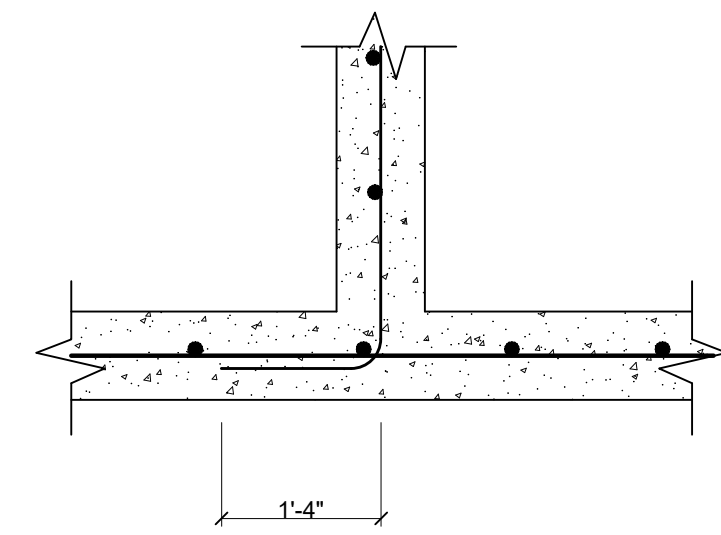
DET. INTERSECCIÓN ENTRE
COLUMNA Y PARED DE BLOQUES

ESC. 3/4"=1'-0"



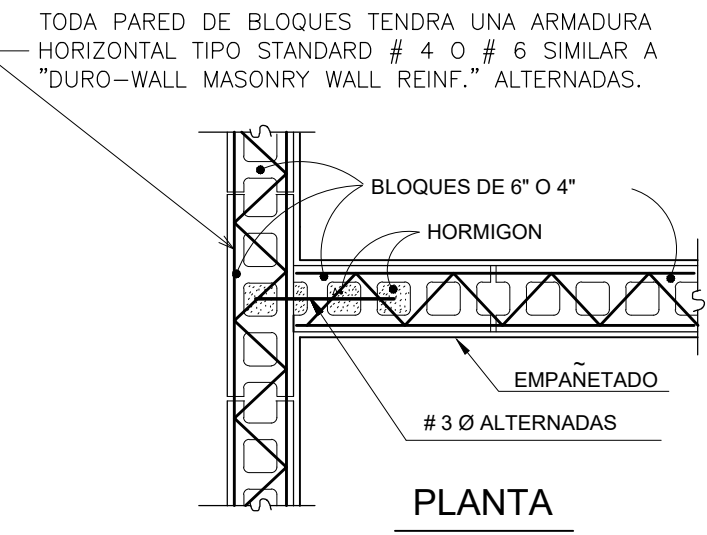
DET. REFUERZO EN HUECOS

NO A ESCALA



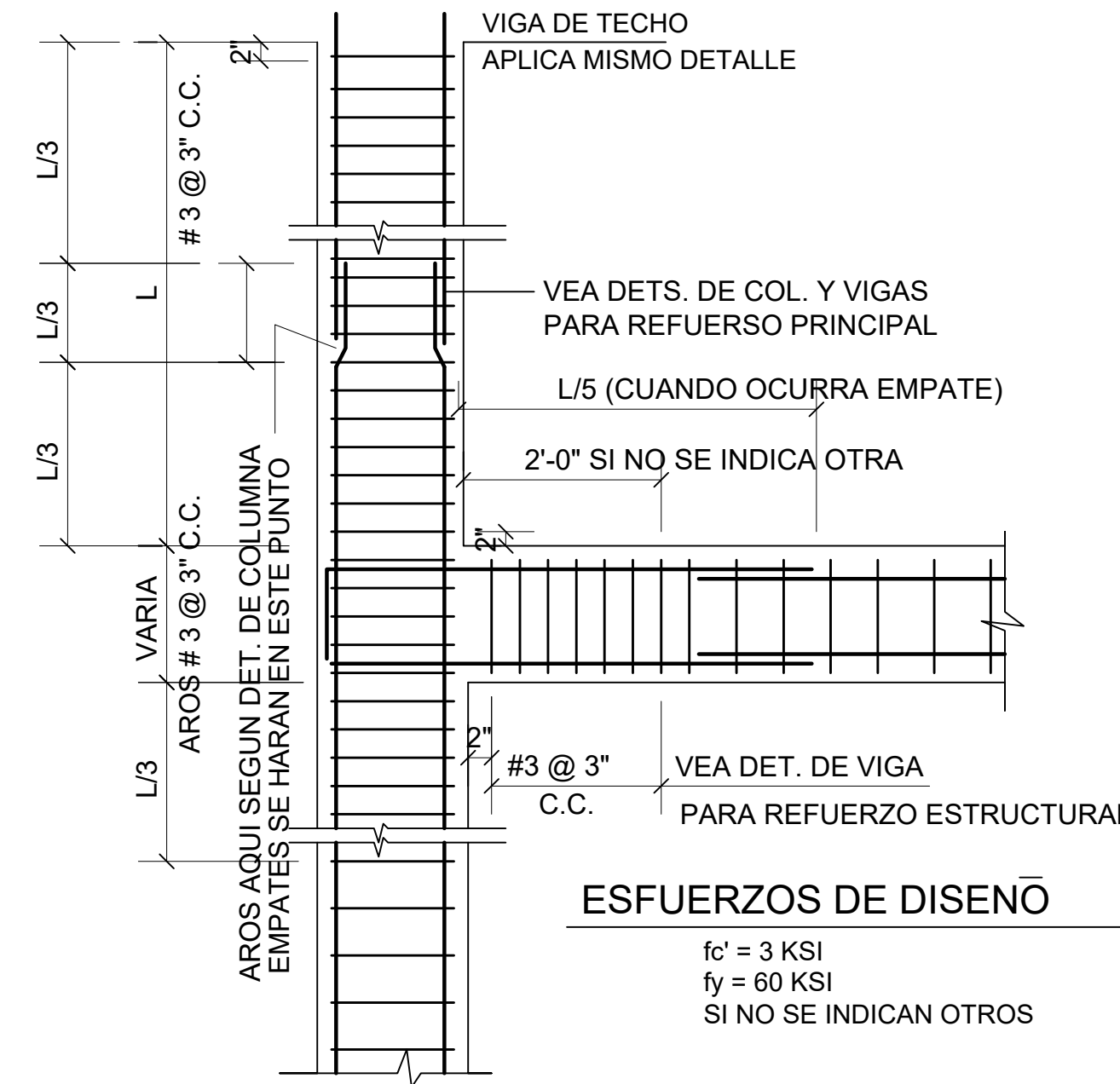
PLANTA

DET. TÍPICO , INTERSECCIONES
DE PAREDES DE HORMIGÓN



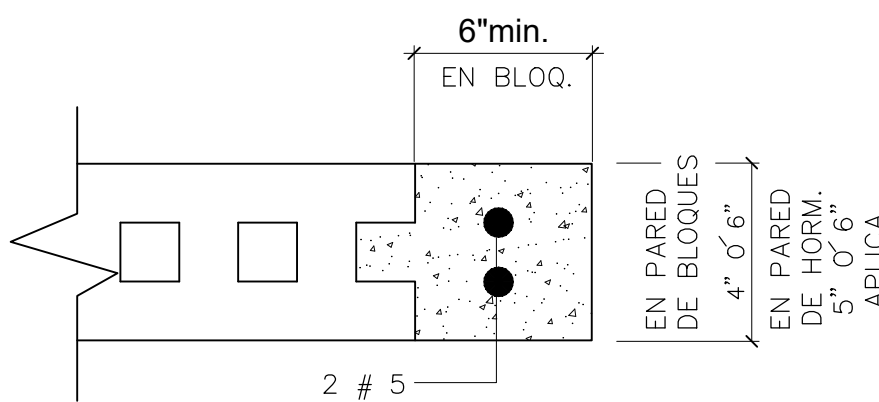
DET. INTERSECCIÓN ENTRE
PAREDES DE BLOQUES

ESC. 3/4"=1'-0"

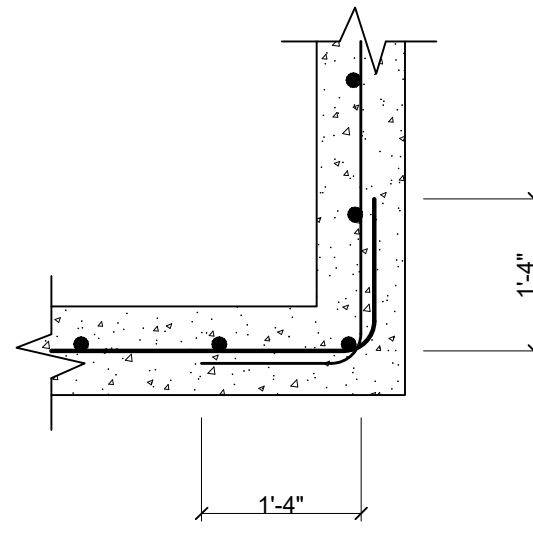


DETALLE DE CONFINAMIENTO
APLICABLE A COLUMNAS Y VIGAS

NO A ESCALA



DET. TÍPICO EN
FINAL DE PAREDES



PLANTA

DET. TÍPICO EN
ESQUINAS DE PAREDES

NOTAS GENERALES

A MENOS QUE SE INDIQUE LO CONTRARIO , LAS SIGUIENTES NOTAS APLICARAN EN TODOS
LOS PLANOS ESTRUCTURALES.

1) ANTES Y DURANTE LA CONSTRUCCIÓN EL CONTRATISTA DEBERA VERIFICAR LOS PLANOS
ESTRUTURALES , ARQUITECTONICOS , MECANICOS , ELECTRICOS , EQUIPOS Y TODOS LOS
DEMÁS PLANOS RELACIONADOS PARA ASI PODER COORDINAR LAS DIMENSIONES , ABERTURAS ,
ANCLAJES , ETC.

2) DETALLES Y CONSTRUCCIÓN INCLUYENDO CURADO Y REMOCIÓN DE LA FORMAleta DEBERA
CUMPLIR CON LOS REQUERIMIENTOS DE LA ÚLTIMA EDICIÓN DE LAS SIGUIENTES PUBLICACIONES:

- A) PARA ESTRUCTURAS DE HORMIGÓN
1) MANUAL OF STANDARD PRACTICE FOR DETAILG OF CONCRETE
STRUCTURES (ACI-315)
2) BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE. (ACI-318)
3) SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDING. (ACI-301)

- B) PARA ESTRUCTURAS DE ACERO
1) AISC SPECIFICATIONS FOR THE DESIGN , FABRICATION AND ERECTION OF
STRUCTURAL STEEL BUILDING.

3) LOS CIMENTOS DEBERAN SER COLOCADOS EN EL SUELO Y A LA PROFUNDIDAD INDICADA
EN EL ESTUDIO DE SUELO DE ACUERDO A LA CAPACIDAD DE SUSTENTACION DEL MISMO.
INFORMACION DEL SUB-SUELO , BORING LOGS Y RECOMENDACIONES SERAN REQUERIDAS POR
EL CONTRATISTA AL CONSULTOR DE SUELOS.

4) APUNTALAMIENTOS EN SOTANOS Y EN OTRAS PAREDES DE RETENCIÓN NO SERAN REMOVIDOS
HASTA QUE LAS LOSAS QUE LO SOPORTAN HAYAN SIDO FUNDIDAS Y EL HORMIGÓN HAYA
ALCANZADO SUFICIENTE FORTALEZA.

5) EXCEPTO PARA CIMENTOS SOBRE PILOTES TODO TERRENO LIMITADO POR PLANOS DESDE
EL FONDO DEL PERIMETRO DEL CIMIENTO CON UNA PENDIENTE DE 1 VERTICAL A
2 HORIZONTAL , SERA UN SUELO SIN PERTURBAR.

6) CORTES ABIERTOS EN SOTANOS Y EN OTRAS PAREDES DE RETENCIÓN NO SERAN REMOVIDOS
HASTA QUE LAS LOSAS QUE LO SOPORTAN HAYAN SIDO FUNDIDAS Y EL HORMIGÓN HAYA
ALCANZADO SUFICIENTE FORTALEZA.

7) EL ACERO DE REFUERZO DEBERA CUMPLIR CON UNA DE LAS SIGUIENTES ESPECIFICACIONES
DEL ASTM (SOCIEDAD AMERICANA DE PRUEBAS DE MATERIALES.)

VARILLAS A-615 GREDO 60
WIRE MESH A-185
ALAMBRE DE ACERO A-82
ACERO ESTRUCTURAL A-36

8) A MENOS QUE SE INDIQUE LO CONTRARIO , LOS HORMIGONES DEBERAN TENER A LOS 28 DIAS
UNA FORTALEZA A LA COMPRESION DE ACUERDO A LO SIGUIENTE:
CIMENTOS 3,000 P.S.I. LOSAS ESTRUCTURALES 3,000 P.S.I.
VIGAS 3,000 P.S.I. PAREDES 3,000 P.S.I.
COLUMNAS 3,000 P.S.I. OTROS 3,000 P.S.I.

9) LA PROTECCIÓN NETA PARA EL REFUERZO DEL ACERO SERA COMO SIGUE:
CIMENTO 3" A LOS LADOS Y EN EL FONDO.
PAREDES FUNDIDAS CONTRA EL
TERRENO 2" PARA VARILLAS # 6 Y MAYORES
EXPUESTAS 1 1/2" HASTA VARILLAS # 5
OTRAS 3/4"
LOSAS Y VICETAS 3/4"
VIGAS Y COLUMNASI 1/2"

EN TODOS LOS CASOS LA PROTECCIÓN SERA POR LOMENOS IGUAL AL DIAMETRO DE LAS
VARILLAS EXCEPTO PARA LAS LOSAS Y LAS VIGUETAS.

10) EL REFUERZO DE TEMPERATURA EN LOSAS , NORMAL AL REFUERZO PRINCIPAL DEBERA
SER COMO SIGUE:

ESPEJOR DE LA LOSA	REFUERZO TEMPERATURA
3"	# 3 @ 14"
4"	# 3 @ 12"
5"	# 3 @ 11"
6"	# 3 @ 9" O # 4 @ 16"
7"	# 4 @ 14"
8"	# 4 @ 14"

11) EL EMPALME PARA EL REFUERZO SERA COMO SIGUE:
LARGO DE EMPALME 12" 14" 18" 22" 25" 30" 39" 49" 61"
TAMANO DE VARILLA #3 #4 #5 #6 #7 #8 #9 #10 #11

VARILLAS # 14 & # 18 DEBERAN SER EMPALMADAS POR SOLDADURA O POR MEDIOS MECANICOS.

12) PROVEA ARRIMOS EN LOS CIMENTOS IGUAL EN TAMANO Y NUMERO AL REFUERZO VERTICAL
EN PAREDES Y COLUMNAS. EMPATE SOBRE EL CIMIENTO DE ACUERDO A LA NOTA #11 Y
EXTIENDA DENTRO DEL CIMIENTO CON UN GANCHO ESTANDAR AMARRADO A LA BASE DEL
CIMIENTO (6" MIN. EN LA PATA HORIZONTAL).

13) PAREDES DE HORMIGÓN NO DETALLADAS (EXCEPTUANDO LOS MUROS DE RETENCION) LLEVARAN
EL SIGUIENTE REFUERZO:

GRUEZO DE LA PARED	REFUERZO HORIZONTAL	REFUERZO VERTICAL
5"	# 3 @ 9" C.C.	# 3 @ 12" C.C.
6"	# 3 @ 7" C.C. o	# 3 @ 12" C.C.
7"	# 4 @ 12" C.C.	
8"	# 3 @ 11" C.C. A.D.	# 3 @ 12" C.C. A.D.

14) PROVEA A TODAS LAS PAREDES DE HORMIGÓN:
2 VAR. # 5 VERTICALES AL FINAL DE CADA PARED.

2 VAR. # 5 ALREDEDOR DE TODO HUECO EXTENDIENDOLAS 2'-0" MAS ALLA DE LOS
BORDES DEL HUECO HACIA AFUERA.

1 VAR. # 6 DIAGONAL (45 GRADOS) A 3" DE CADA ESQUINA DEL HUECO CON UN
LARGO DE 3'-0" .

15) DOBLE EN LAS ESQUINAS DE LAS PAREDES DE HORMIGÓN, EL RÉFUERZO SOBREPONIENDOLO
AL DEL OTRO LADO DE LA ESQUINA POR 24 DIAMETRO O 1'-0" MINIMO.

16) TODAS LAS VIGAS SERAN FUNDIDAS MONOLITICAMENTE CON LAS LOSAS.

17) NO SE PERMITIRAN JUNTAS, ABERTURAS, HUECOS O RANURAS QUE NO SEAN LAS MOSTRADAS
EN LOS PLANOS SIN LA PREVIA AUTORIZACION DEL DISENADOR. TODAS LAS SUPERFICIES DE LAS
JUNTAS DE CONSTRUCCION DEBEN ESTAR LIBRES DE ESCOMBROS Y LIMPIAS INMEDIATAMENTE ANTES
DE VACIARSE EL HORMIGÓN Y TRATADAS SEGUN LAS INSTRUCCIONES DE LA NOTA NUMERO 2.

18) NO SE PERMITIRAN JUNTAS HORIZONTALES EN VIGAS Y LOSAS. CUALQUIER PARADA EN EL
VACIADO DE HORMIGÓN DEBERA HACERSE EN EL CENTRO DE LOS TRAMOS CON DIVISION VERTICAL.

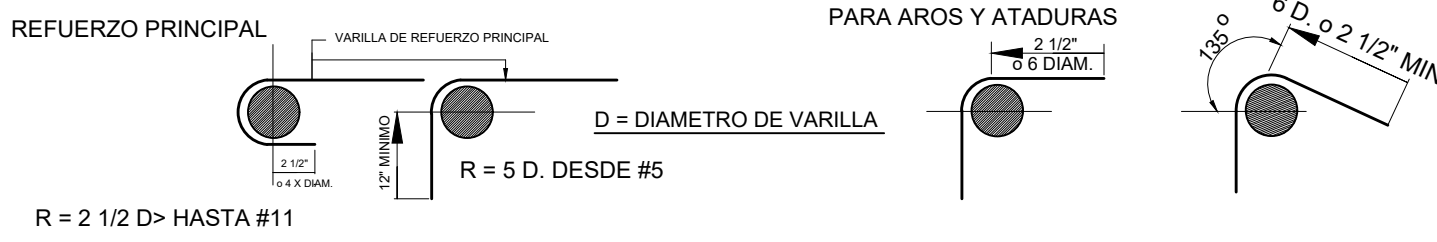
19) TODO RELLENO SERA COMPACTADO AL 95% DE SU "MODIFIED PROCTOR DENSITY" (ASTM D1557).

20) NINGUNA LOSA ESTRUCTURAL DESCANSARA SOBRE TERRENO PERTURBADO O SOBRE RELLENO
COMPACTADO Y TENDRA UN ESPESOR MINIMO DE 4" Y REFUERZO DE 4" X 6" 4/6 "WELDED WIRE MESH".
JUNTAS DE CONSTRUCCION SERAN ESPACIADAS A UN MAXIMO DE 20'-0" EN AMBAS DIRECCIONES.

21) TODA PARED DE BLOQUES SERA REFORZADA HORIZONTALMENTE CADA DOS LINEAS CON 2-VARILLAS
#5 CONTINUAS O CON REFUERZO IGUAL O SIMILAR AL "DUR-O-WALL" .

22) PAREDES DE BLOQUES SERAN ANCLADAS A LA ESTRUCTURA CON ARRIMOS VERTICALES Y HORIZONTALES
#3 @ 16" C.C. EXTENDIENDOSE 1'-0" A CADA LADO. DISENOS ALTERNOS PODRAN SER USADOS PREVIA
AUTORIZACION DEL DISENADOR. LINTELES SOBRE HUECOS EN PAREDES DE BLOQUES TENDRAN EL MISMO
ANCHO DE LA PARED Y ESTARAN REFORZADOS CON 2 VAR. #5 ARRIBA Y ABAJO EXTENDIENDOSE 1'-0"
DENTRO DE LA PARED.

23) ANCLAJES TÍPICOS, EXCEPTO CUANDO SE INDIQUE OTRA COSA SERAN COMO SIGUE:



24) EMPALMES EN EL REFUERZO VERTICAL DE PAREDES DE CARGA SERA ALTERNADO A DIFERENTES
NIVELES DE MANERA QUE NO QUEDEN DOS VARILLAS ADYACENTES EMPATADAS.

25) DISEÑO PARA PRESION DE VIENTOS: 70 PSF PARA ALTURAS DE MAS DE 100'-0"
55 PSF PARA ALTURAS DE 50'-0" @ 100'-0"
45 PSF PARA ALTURAS ENTRE 10'-0" @ 50'-0"
35 PSF PARA ALTURAS DE 0" @ 10'-0"

CARGAS DE DISEÑO :

CARGA VIVA DE TECHO - 20 PSF
CARGA VIVA DE PISO - 40 PSF
CARGA DE SISMO V = ZIKCSW
DONDE Z = 0.60

26) SOLDADURAS SERAN HECHAS DE ACUERDO A LAS ESPECIFICACIONES DE
"THE AMERICAN WELDING SOCIETY" .

27) LEYENDA ESTRUCTURAL :

(T) INDICA ACERO ARRIBA ("TOP")

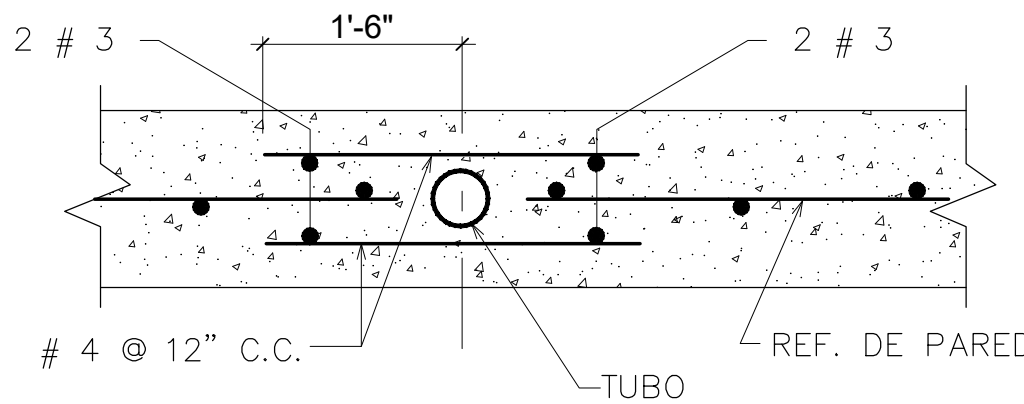
(B) INDICA ACERO ABAJO ("BOTTOM")

C.C. INDICA CENTRO A CENTRO

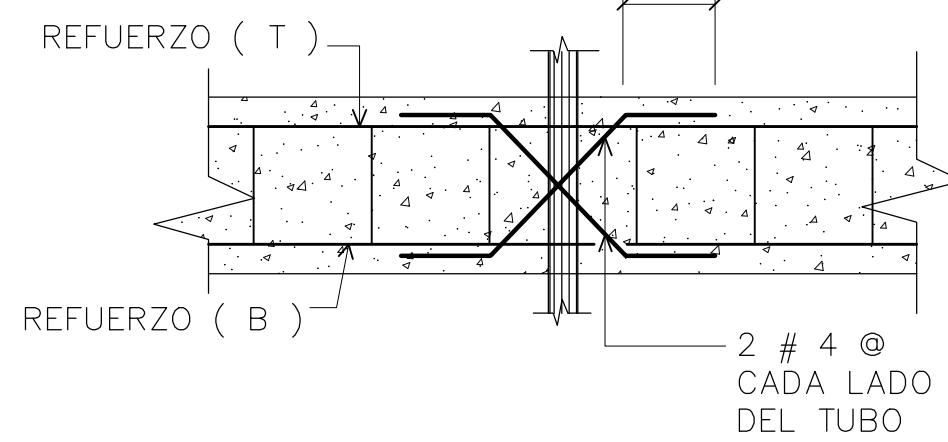
A.D. INDICA AMBAS DIRECCIONES

28) EL CONTRATISTA NO ALTERARA EN FORMA ALGUNA LA CONSTRUCCION SALVO PREVIA
AUTORIZACION ESCRITA POR EL INGENIERO PROYECTISTA.

29) LA CAPACIDAD DEL SUELO PRESUMIDA DE 1,500 PST. ESTE DEBE SER COMPROBADO
POR EL CONTRATISTA PARA REDISEÑO DE SER NECESARIO.



DET. DE TUBO EMBUTIDO DENTRO DE
PAREDES DE HORMIGÓN



DET. DE REFUERZO EN
PERFORACION VIGA POR TUBO

Nombre de la Firma & Direccion
Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256



Certificado & Sellado por:

Nombre del Proyecto & Direccion

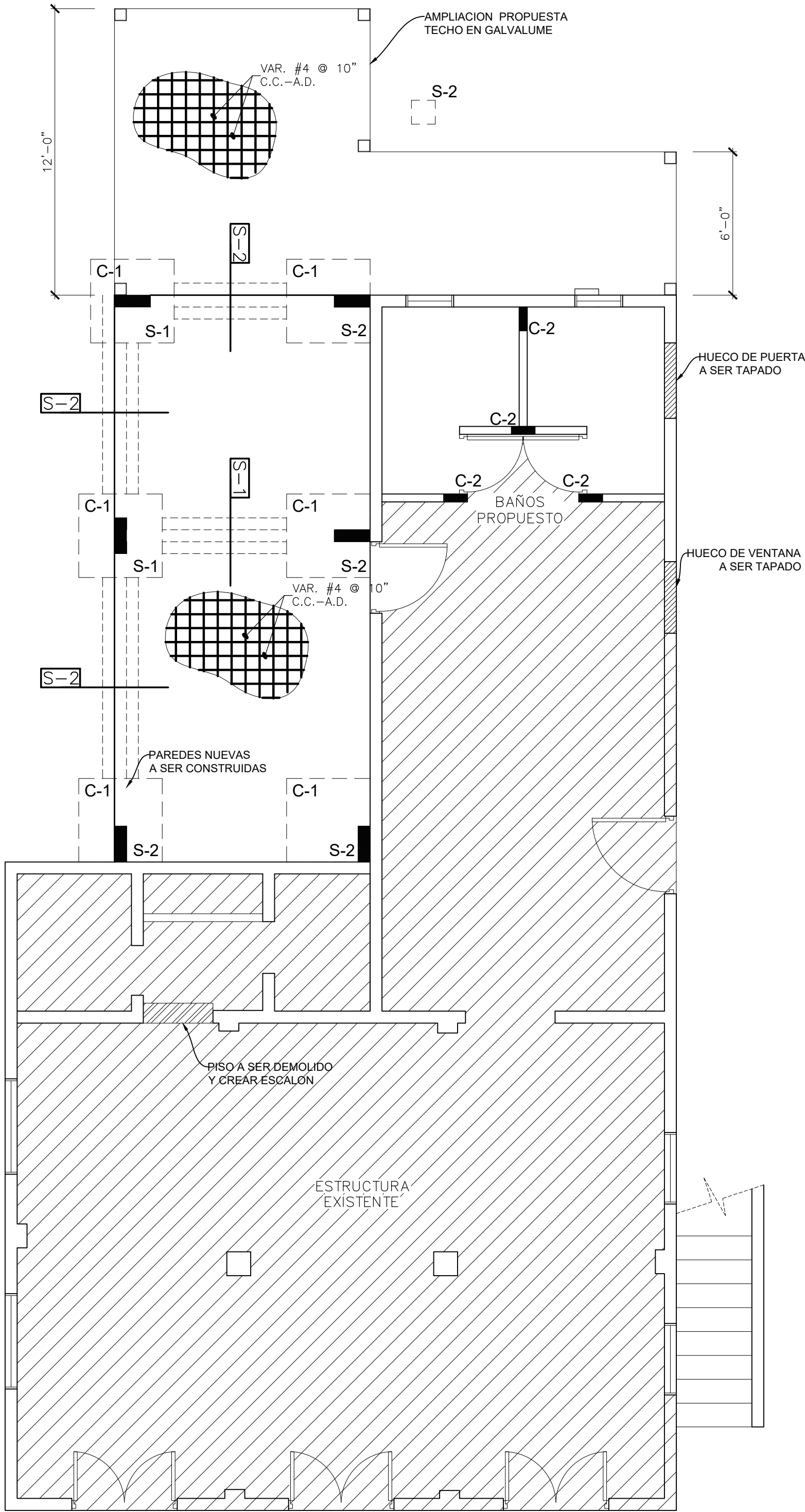
MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Nombre de la Firma
NOTAS ESTRUCTURALES
ES-1
17 NOV 2022
11
1/4" = 1'-0"
17

DIBUJADO POR:

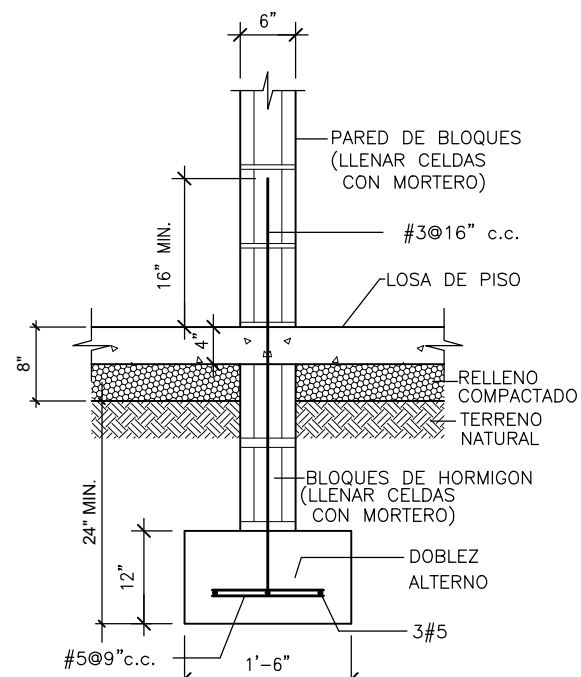
JTV

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONO Y/O DISEÑO Y/O PREPARO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA DQFE.



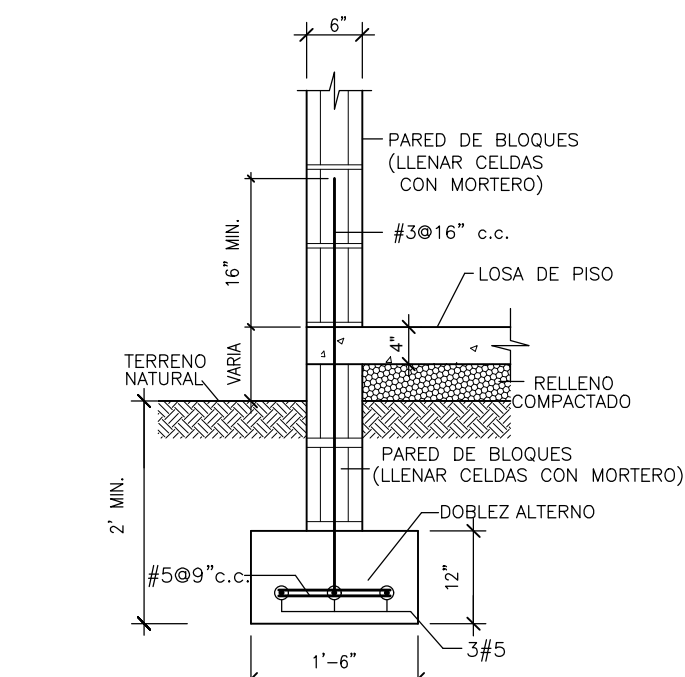
ESTRUCTURAL CIMIENTOS (MUSEO)

ESCALA: 1/4\"/>



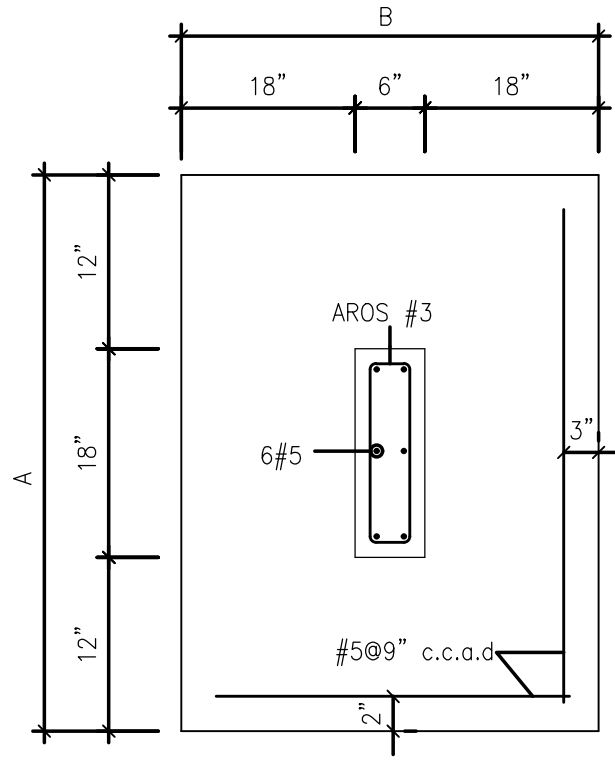
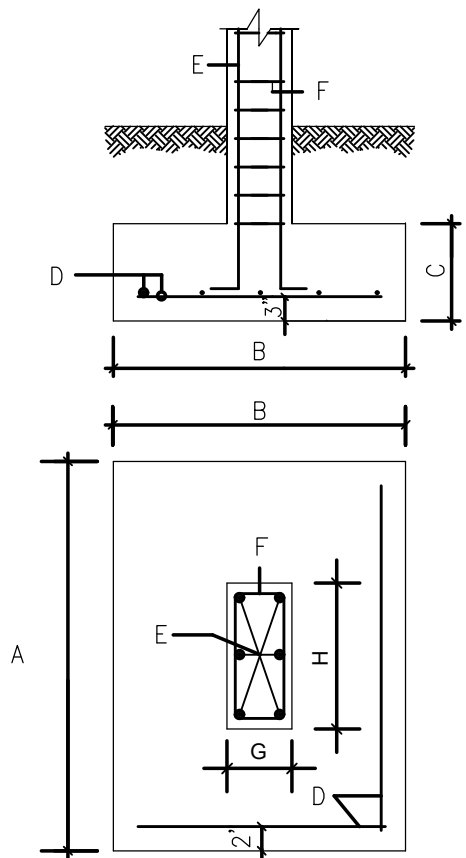
SECCION S-1

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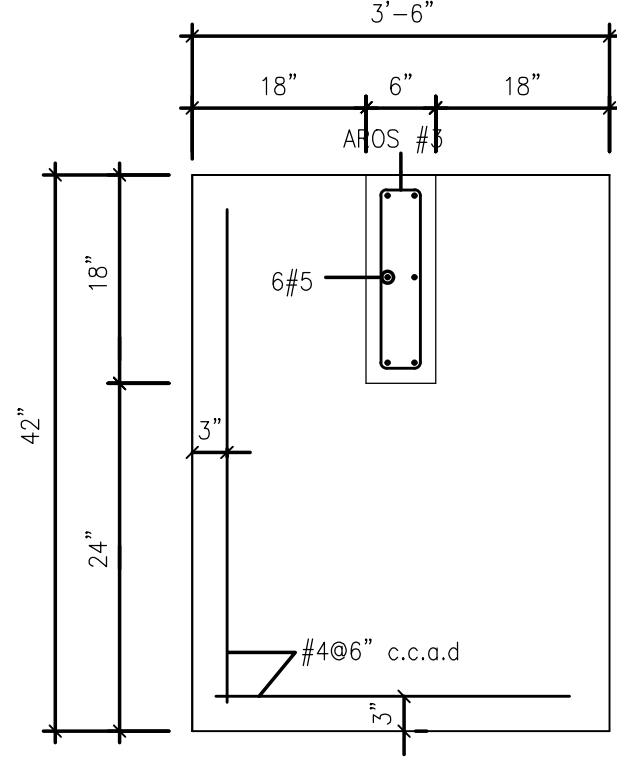
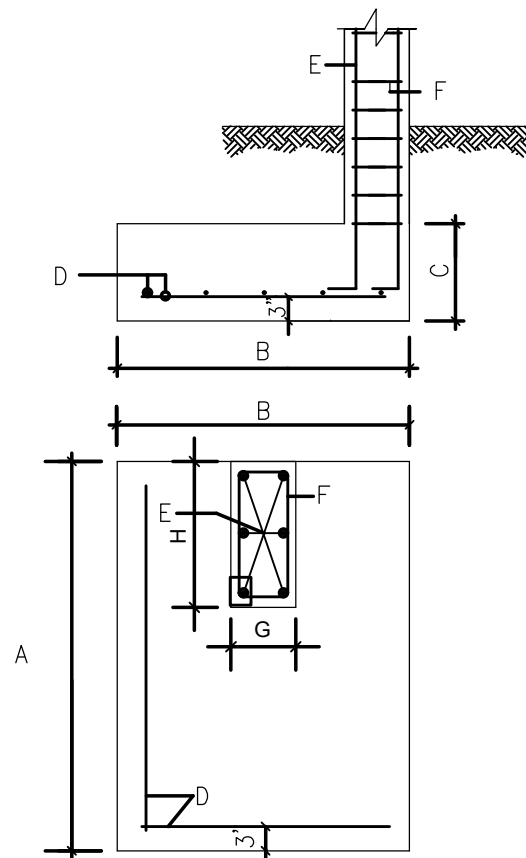


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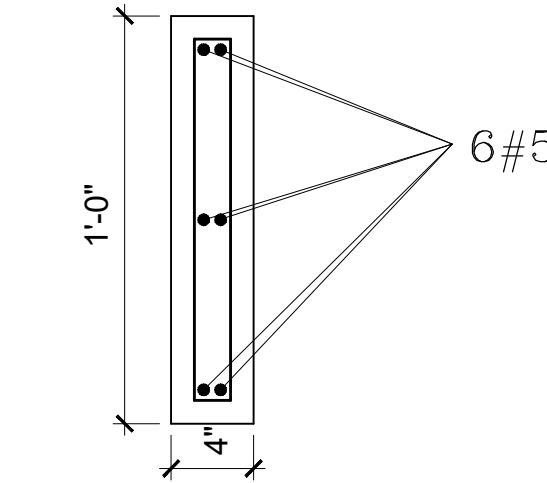
S-1



S-2

COLUMNA TIPICA C-1
SIN ESCALA

SIN ESCALA



COLUMNA TIPICA C-2
SIN ESCALA

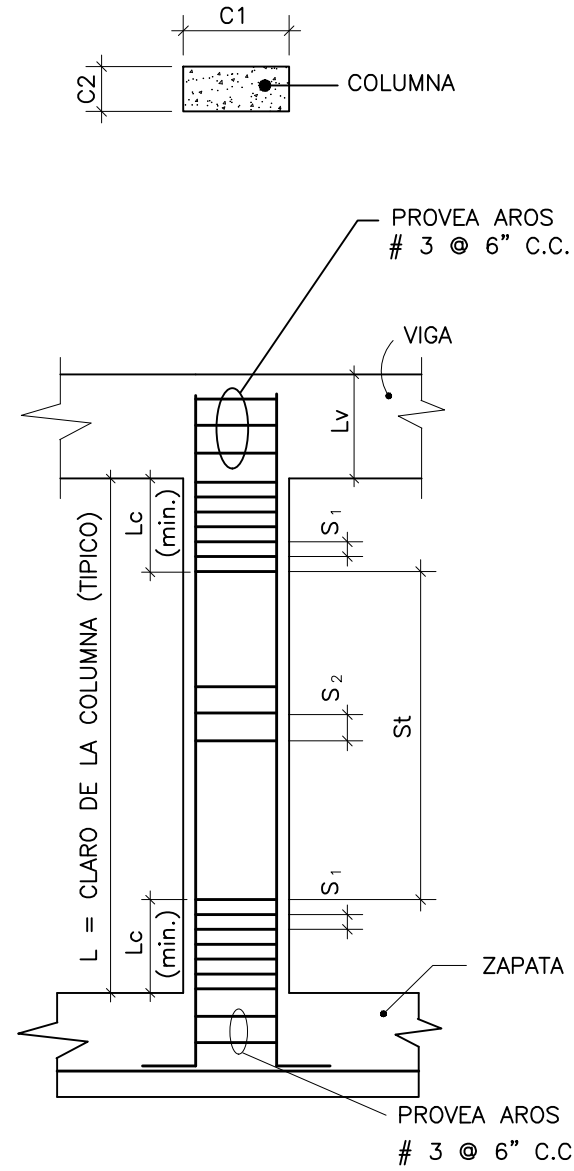
SIN ESCALA

DETALLE DE COLUMNA Y ZAPATAS

SIN ESCALA

TABLA DE DISEÑO DE ZAPATAS

COLUMNAS	DIMENSIONES ZAPATAS			ACERO DE REFUERZOS		
	A	B	C	VARILLAS D	VARILLAS E	VARILLAS F
C-1	3'-6"	3'-6"	12"	#5 @ 9" C.C.	#5	#3



DETALLE TIPICO DE ESPACIAMIENTO

DE AROS EN COLUMNAS

SIN ESCALA

ESPACIAMIENTO DE AROS EN DISTINTAS AREAS DE LA COLUMNA

- S₁ SEPARACION DE AROS @ 4" C.C. EN ZONA L_c.
- S₂ SEPARACION DE AROS @ 6" C.C. EN ZONA INTERMEDIA S₁.
- USARA, (L/6 , 24" , C₁ , C₂) EL QUE SEA IGUAL O MAYOR
- L CLARO DE LA COLUMNA
- C₁ LARGO DE LA COLUMNA
- C₂ ANCHO DE LA COLUMNA

NOTAS GENERALES ESTRUCTURALES:

- SE REQUIERE QUE EL CONTRATISTA REVISE TODAS LAS HOJAS DE EL PLANO PARA COORDINAR LOS TRABAJOS DE LA CONSTRUCCION DEL PROYECTO. DE EXISTIR ALGUNA DISCREPANCIA EN LOS PLANOS DEBERA INFORMAR AL INGENIERO PARA CONSULTA.
- TODO HORMIGON A DEPOSITARSE DEBERA DESARROLLAR UN ESFUERZO DE COMPRESION DE 3000 PSI EN 28 DIAS (ASTM M61).
- EL HORMIGON SE MANTENDRA HUMEDO POR LO MENOS 7 DIAS DESPUES DEL VACIADO.
- EL CONTRATISTA DEBERA TOMAR PRUEBAS PARA DETERMINAR LA RESISTENCIA DE ESTE A LOS 28 DIAS.
- EL VACIADO DE HORMIGON NO SE REALIZARA HASTA QUE EL INGENIERO HAYA APROBADO LA INSTALACION DE EL ACERO DE REFUERZO.
- EL VACIADO DE HORMIGON DEBE SER MONOLITICO. SE REQUIERE USO DE VIBRADOR EN TODOS LOS VACIADOS.
- TODAS LAS JUNTAS DE CONSTRUCCION DEBERAN SER LIMPIADAS ANTES DE DEPOSITAR EL HORMIGON.
- TODAS LAS JUNTAS DE CONSTRUCCION PARA LOSAS Y VIGAS SE LOCALIZARAN AL CENTRO DE LA DISTANCIA ENTRE LOS SOPORTES.
- EL ACERO DE REFUERZO DEBERA SER DE GRADO INTERMEDIO CON VARILLAS DEFORMES ASTM 305 (60,000 PSI) VERTICALMENTE. JUNTAS VERTICALES CON ACERO DEBEN SER LLENADAS EN TODA SU LONGITUD.
- LOS BLOQUES SE INSTALARAN EN FORMA ALTERNADA CON JUNTAS DE MORTERO LLENAS HORIZONTAL Y VERTICALMENTE. JUNTAS VERTICALES CON ACERO DEBEN SER LLENADAS EN TODA SU LONGITUD.
- LA CAPACIDAD DE SUSTENTACION DEL SUELO (SOIL BEARING CAPACITY) ASUMIDA ES DE 2000 PSF.
- EL CONTRATISTA SERA RESPONSABLE DE VERIFICAR QUE LA CAPACIDAD DEL SUELO SEA LA REQUERIDA EN EL DISEÑO DE LA ESTRUCTURA. DE SURTIR ALGUNA ANOMALIA SE INFORMARA AL DUERO Y AL INGENIERO.
- SE LLEVARAN LAS EXCAVACIONES PARA LAS FUNDACIONES A UNA PROFUNDIDAD MINIMA DE 3'-0" DESDE EL NIVEL DEL TERRENO NATURAL. DE NO SER POSIBLE, ESTA PROFUNDIDAD SE CONSULTARA CON EL INGENIERO.
- USAR ACERO DE REFUERZO #4 A 12 CCAD EN PAREDES DE HORMIGON DE 6" DE ESPESOR(S) APLICA.
- EL CONTRATISTA NO ALTERARA EN FORMA ALGUNA LA CONSTRUCCION SIN LA PREVIA AUTORIZACION ESCRITA DE EL INGENIERO.
- SE INSTALARA MEMBRANA DE POLYETILENO (VAPOR BARRIER) 6 MIL (0.15MM) ENTRE EL TERRENO Y EL ACERO DE REFUERZO ANTES DE VACIAR HORMIGON EN LAS LOSAS DE PISO SOBRE EL RELLENO.
- TODOS LOS TECHOS AL MOMENTO DE FUNDIRSE SERAN RASTRADOS Y FLOTADOS CON FLOTA DE MADERA HASTA LOGRAR UNA SUPERFICIE UNIFORME Y LISA.
- EN LAS LOSAS CARGADAS EN DOS DIRECCIONES, EL REFUERZO POSITIVO EN LA DIRECCION MAS CORTA SERA COLOCADA MAS CERCA DE LA SUPERFICIE INFERIOR DE LA LOSA Y EL ACERO EN LA DIRECCION MAS LARGA SE COLOCARA POR ENCIMA DE EL CORTO.
- EL REFUERZO NEGATIVO ARRIBA SE COLOCARA A 3/4" DE LA SUPERFICIE TERMINADA.
- LA SOLICITUD DE INSPECCION DE ACERO DE REFUERZO PARA EL VACIADO DE EL HORMIGON DEBERA REALIZARSE CON 48 HORAS DE ANTICIPACION Y LOS TRABAJOS DEBEN ESTAR TERMINADOS DEBIDO A QUE EN ESTO INCURIRIA LA MAYOR RESPONSABILIDAD DEL INGENIERO Y/O INSPECTOR DE CONSTRUCCION O AMBOS.

OTRAS NOTAS ESTRUCTURALES:

- DATA DE DISEÑO:
HORMIGON = FC = 3,000 PSI
ACERO ESTRUCTURAL = FY = 60,000 PSI
CAPACIDAD DEL SUELO = Q = 2,000 PSF (ASUMIDO)
- LLEVE TODAS LAS ZAPATAS A UNA PROFUNDIDAD MINIMA DE TRES PIES (3'-0") BAJO EL NIVEL NATURAL DEL TERRENO.
 - LOSAS AL AIRE, VOLADIZOS Y VIGAS SERAN FUNDIDOS MONOLITICAMENTE.
 - CARGAS ACCIDENTALES: PISO LOSA ESTRUCTURAL 40# PSF, TECHO ESTRUCTURAL 40# PSF, ESCALERAS Y BALCONES 100# PSF.
 - EL ACERO DE REFUERZO DEBERA SER DE GRADO INTERMEDIO O DURO EN VARILLAS DEFORMADAS.
 - PROTECCION MINIMA PARA ACERO DE REFUERZO SERA COMO SIGUE: 1 1/2" EN VIGAS Y COLUMNAS, 3/4" EN LOSAS, 3" EN ZAPATAS Y TODO HORMIGON EXPUESTO A LA INTERERIE SERA 1 1/2".

Ingenierosdel Oeste C.S.P.
Calle José de Diego #65, Aguadilla, P.R. 00605
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com

Nombre de la Firma & Dirección

Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256

Certificado & Sello por

JOSÉ D. CENTENO CALERO
INGENIERO
LIC. #20206
PUERTO RICO

Nombre del Proyecto & Dirección

MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Num. Hoja

ES-2

Fecha

17 NOV 2022

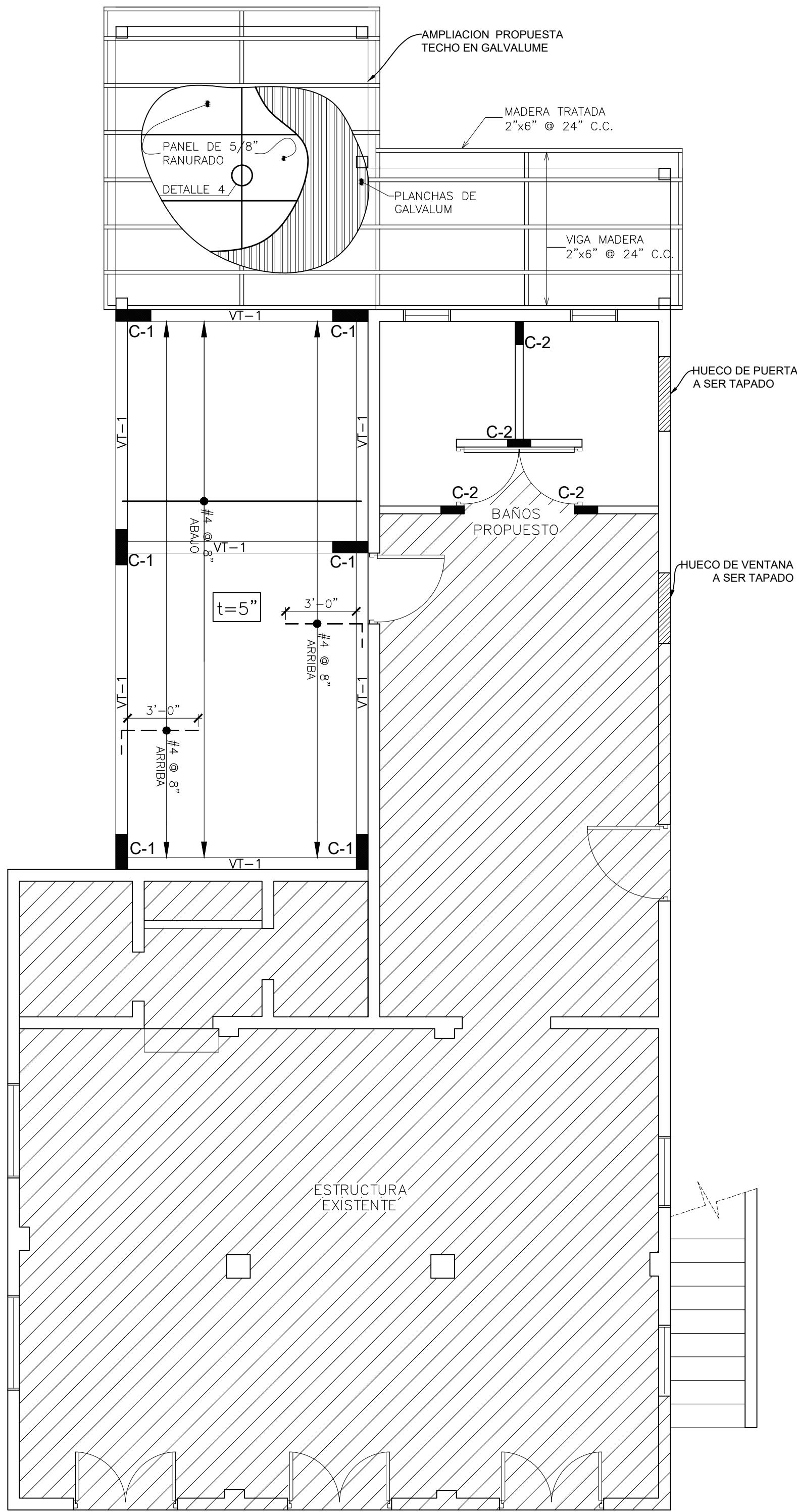
Escala

1/4" = 1'-0"

DIBUJADO POR:

JV

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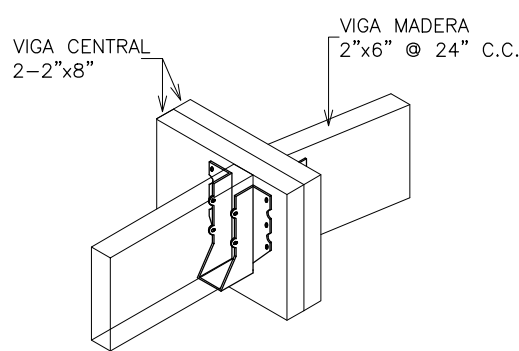


ESTRUCTURAL PISO SEGUNDO NIVEL (MUSEO)

ESCALA: 1/8"=1'-0"

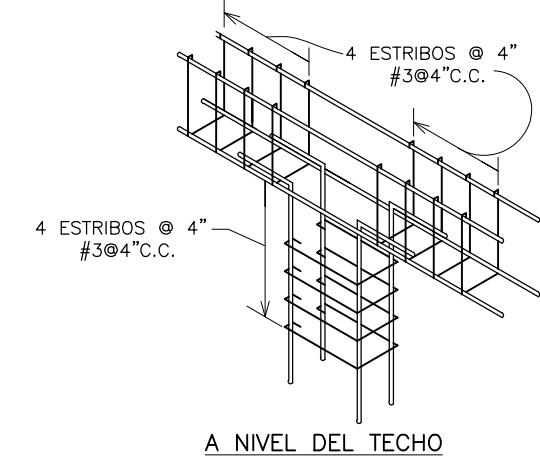
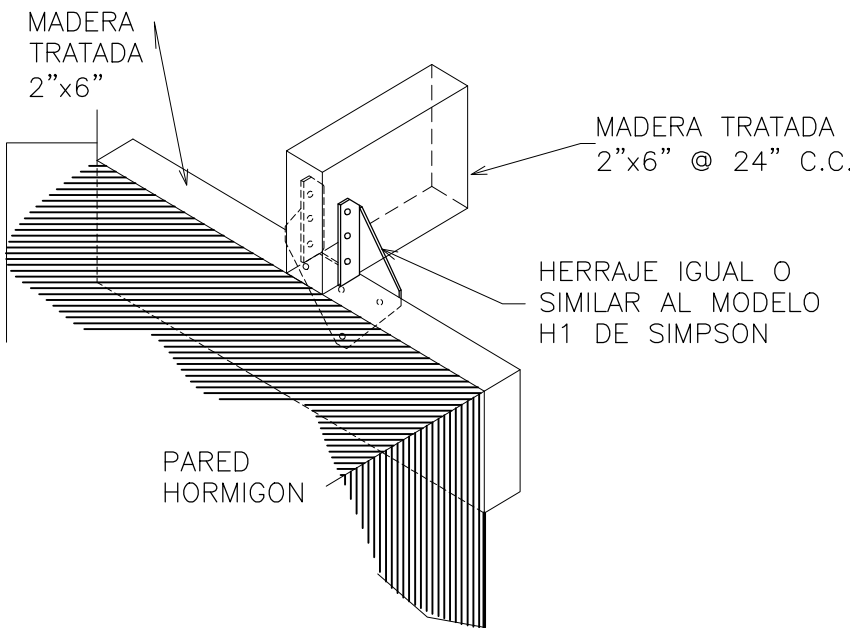
DETALLE 1—ANCLAJES ENTRE VIGAS DE MADERA

SIN ESCALA



DETALLE 2

SIN ESCALA



DETALLE AMARE PARA DISEÑO SISMICO ENTRE VIGAS Y COLUMNAS

SIN ESCALA

NOTAS GENERALES ESTRUCTURALES:

- SE REQUIERE QUE EL CONTRATISTA REVISE TODAS LAS HOJAS DE EL PLANO PARA COORDINAR LOS TRABAJOS DE LA CONSTRUCCION DEL PROYECTO. DE EXISTIR ALGUNA DISCREPANCIA EN LOS PLANOS DEBERA INFORMAR AL INGENIERO PARA CONSULTA.
- TODO HORMIGON A DEPOSITARSE DEBERA DESARROLLAR UN ESFUERZO DE COMPRESION DE 3000 PSI EN 28 DIAS (ASTM 34).
- EL HORMIGON SE MANTENDRA HUMEDO POR LO MENOS 7 DIAS DESPUES DEL VACIADO.
- EL CONTRATISTA DEBERA TOMAR PRUEBAS PARA DETERMINAR LA RESISTENCIA DE ESTE A LOS 28 DIAS.
- EL VACIADO DE HORMIGON NO SE REALIZARA HASTA QUE EL INGENIERO HAYA APROBADO LA INSTALACION DE EL ACERO DE REFUERZO.
- EL VACIADO DE HORMIGON DEBE SER MONOLITICO, SE REQUIERE USO DE VIBRADOR EN TODOS LOS VACIADOS.
- TODAS LAS JUNTAS DE CONSTRUCCION DEBERAN SER LIMPIADAS ANTES DE DEPOSITAR EL HORMIGON.
- TODAS LAS JUNTAS DE CONSTRUCCION PARA LOSAS Y VIGAS SE LOCALIZARAN AL CENTRO DE LA DISTANCIA ENTRE LOS SOPORTES.
- EL ACERO DE REFUERZO DEBERA SER DE GRADO INTERMEDIO CON VARILLAS DEFORMES ASTM 305 (60,000 PSI).
- SE REQUIERE SEPARADORES PARA ACERO DE REFUERZO BLOQUES DE HORMIGON DE 3" PARA FUNDACIONES Y PLASTICOS O DE METAL PARA LOSAS Y TECHO PARA OBTENER LA PROTECCION INDICADA.
- LOS BLOQUES SE INSTALARAN EN FORMA ALTERNADA CON JUNTAS DE MORTERO LLENAS HORIZONTAL Y VERTICALMENTE, JUNTAS VERTICALES CON ACERO DEBEN SER LLENADAS EN TODA SU LONGITUD.
- LA CAPACIDAD DE SUSTENTACION DEL SUELO (SOIL BEARING CAPACITY) ASUMIDA ES DE 2000 PSF.
- EL CONTRATISTA SERA RESPONSABLE DE VERIFICAR QUE LA CAPACIDAD DEL SUELO SEA LA REQUERIDA EN EL DISEÑO DE LA ESTRUCTURA, DE SURGIR ALGUNA ANOMALIA SE INFORMARA AL DUEÑO Y AL INGENIERO.
- SE LLEVARAN LAS EXCAVACIONES PARA LAS FUNDACIONES A UNA PROFUNDIDAD MINIMA DE 3'-0" DESDE EL NIVEL DEL TERRENO NATURAL. DE NO SER POSIBLE, ESTA PROFUNDIDAD SE CONSULTARA CON EL INGENIERO.
- USAR ACERO DE REFUERZO #4 A 12 OCAD EN PAREDES DE HORMIGON DE 6" DE ESPESOR(SI APLICA).
- EL CONTRATISTA NO ALTERARA EN FORMA ALGUNA LA CONSTRUCCION SIN LA PREVIA AUTORIZACION ESCRITA DE EL INGENIERO.
- SE INSTALARA MEMBRANA DE POLYETILENO (VAPOR BARRIER) 6 MIL (0.15MM) ENTRE EL TERRENO Y EL ACERO DE REFUERZO ANTES DE VACIAR HORMIGON EN LAS LOSAS DE PISO SOBRE EL RELLENO.
- TODOS LOS TECHOS AL MOMENTO DE FUNDIRSE SERAN RASTREADOS Y FLOTADOS CON FLOTA DE MADERA HASTA LOGRAR UNA SUPERFICIE UNIFORME Y LISA.
- EN LAS LOSAS CARGADAS EN DOS DIRECCIONES, EL REFUERZO POSITIVO EN LA DIRECCION MAS CORTA SERA COLOCADA MAS CERCA DE LA SUPERFICIE ENFERIOR DE LA LOSA Y EL ACERO EN LA DIRECCION MAS LARGA SE COLOCARA POR ENCIMA DE EL CORTO.
- EL REFUERZO NEGATIVO ARRIBA SE COLOCARA A 3/4" DE LA SUPERFICIE TERMINADA.
- LA SOLICITUD DE INSPECCION DE ACERO DE REFUERZO PARA EL VACIADO DE EL HORMIGON DEBERA REALIZARSE CON 48 HORAS Y LOS TRABAJOS DEBEN ESTAR TERMINADOS DEBIDO A QUE EN ESTO INCURIRA LA MAYOR RESPONSABILIDAD DEL INGENIERO Y/O INSPECTOR DE CONSTRUCCION O AMBOS.

OTRAS NOTAS ESTRUCTURALES:

- DATA DE DISEÑO:
HORMIGON = FC = 3,000 PSI
ACERO ESTRUCTURAL = FY = 60,000 PSI
CAPACIDAD DEL SUELO = Q = 2,000 PSF (ASUMIDO)
- LEVANTE TODAS LAS ZAPATAS A UNA PROFUNDIDAD MINIMA DE TRES PIES (3'-0") BAJO EL NIVEL NATURAL DEL TERRENO.
 - LOSAS AL AIRE, VOLADIZOS Y VIGAS SERAN FUNDIDOS MONOLITICAMENTE.
 - CARGAS ACCIDENTALES: PISO LOSA ESTRUCTURAL 40# PSF, TECHO ESTRUCTURAL 40# PSF, ESCALERAS Y BALCONES 100# PSF.
 - EL ACERO DE REFUERZO DEBERA SER DE GRADO INTERMEDIO O DURO EN VARILLAS DEFORMADAS.
 - PROTECCION MINIMA PARA ACERO DE REFUERZO SERA COMO SIGUE: 1 1/2" EN VIGAS Y COLUMNAS, 3/4" EN LOSAS, 3" EN ZAPATAS Y TODO HORMIGON EXPUESTO A LA INTERPERIE SERA 1 1/2".

NOTAS IMPORTANTES

- TODO EL REFUERZO DE TEMPERATURA SERA # 3 @ 12" C.C. (ABAJO) PERPENDICULAR AL ACERO DE REFUERZO EXCEPTO DONDE SE INDIQUE LO CONTRARIO.
- EL ESPESOR DE LA LOSA DE TECHO SERA DE 5".
- LAS LOSAS Y VIGAS DEBERAN FUNDIRSE MONOLITICAMENTE.
- SIGA LAS INSTRUCCIONES DE LA HOJA DE NOTAS ESTRUCTURALES.
- VIGAS DE PISO INTERMEDIO SERAN DE 8" DE ANCHO.

Ingenieros del Oeste C.S.P.
Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com

Nombre de la Firma & Dirección

Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605

TEL. 787-891-8256

Certificado & Sello de per

Nombre del Proyecto & Dirección

MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Num. Hoja

ES-3

13

de 17

Fecha

17 NOV 2022

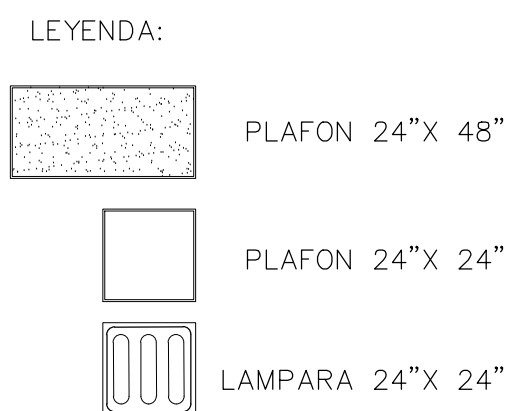
Estado

1/4" = 1'-0"

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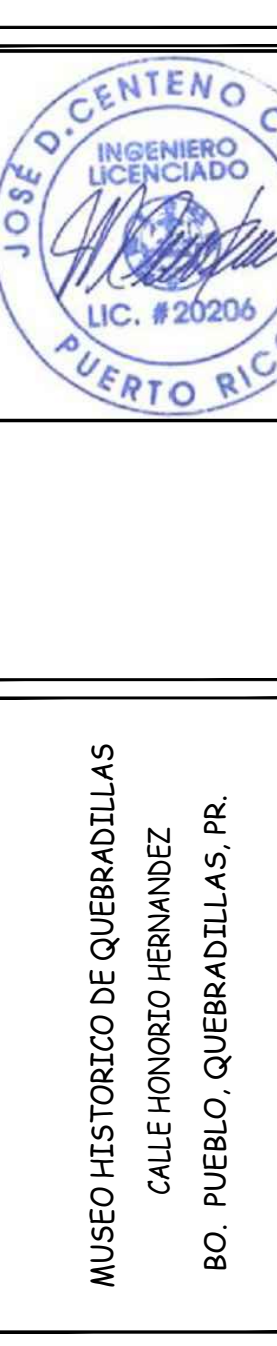
JV

Y/O, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONO Y/O DISEÑO Y/O PREPARO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PUBLICAS CON JURISDICCION, RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MÍ, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCIÓN JUDICIAL O DISCIPLINARIA POR LA OGP.

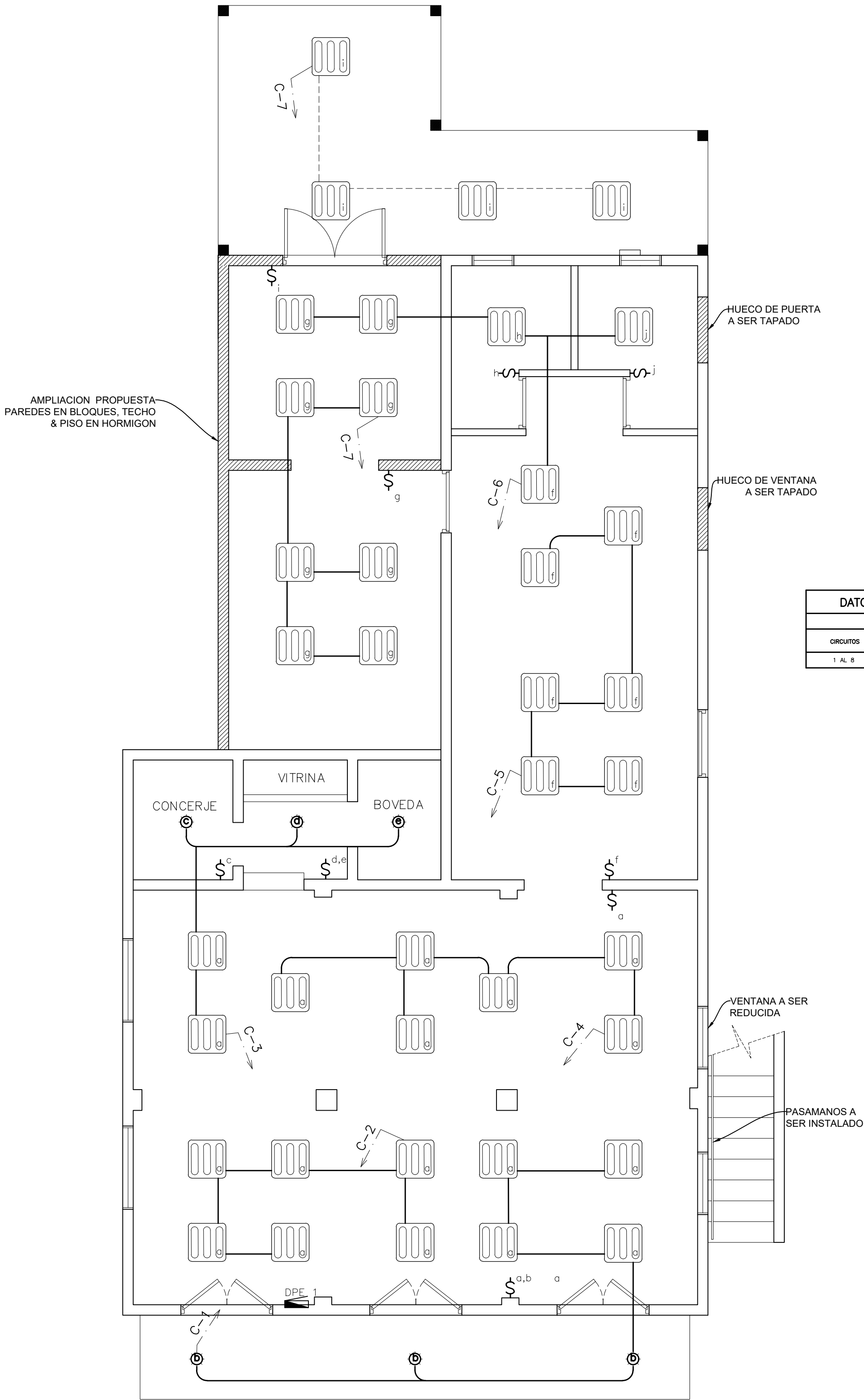


ESCALA: $\frac{3}{4}"=1'-0"$



Nombre de la Firma y Dirección Ing. JOSÉ D. CENTENO CALERO LIC. 20206 PO BOX 4448 AGUADILLA, PR. 00605		TEL. 787-891-8256	
			
Certificado y Sellado por:			
Nombre del Proyecto y Dirección: MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.			
Nombre de la Firma TECHO SUSPENDIDO		Num. Hoja PF-1	
Fecha: 17 NOV 2022		14 de 17	
Escala: 1/4" = 1'-0"			
J.V.		DIBUJADO POR:	

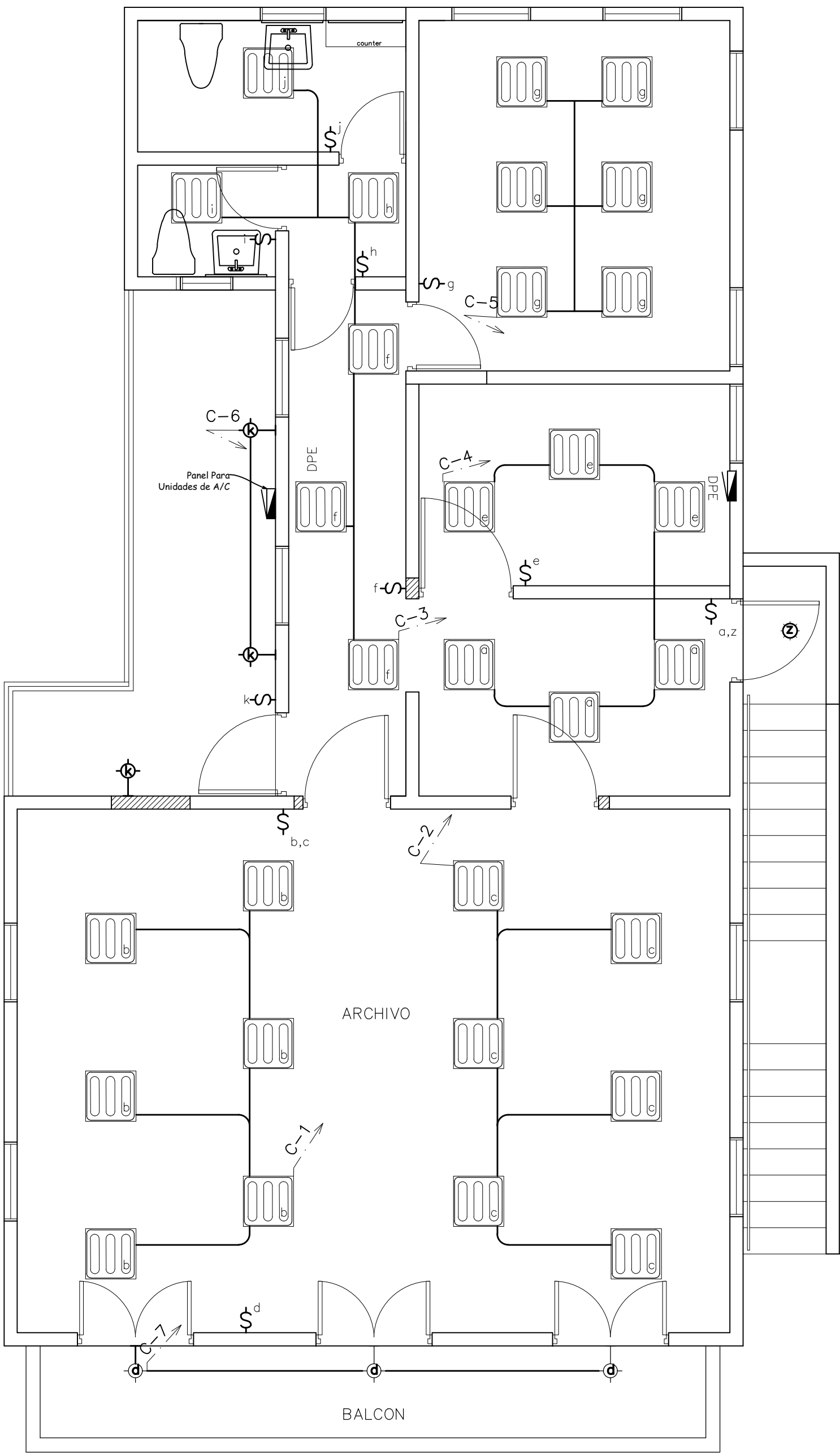
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ELECTRICIDAD PRIMER NIVEL (LUMINARIAS)

ESCALA: 1/8"=1'-0"

DATOS DE CIRCUITOS PANEL DE DISTRIBUCION (DPE 1)						
PANEL 120/240 V. - 125 AMP. (MAIN PLUG ONLY)						
CIRCUITOS	USOS	ALAMBRES		PROTECTORES		TUBO
		NOM.	CAL.	POLOS	CAPPA	
1 AL 6	LUCES	3	12	1	20	120 3/4"x9



ELECTRICIDAD SEGUNDO NIVEL (LUMINARIAS)

ESCALA: 1/8"=1'-0"

LEYENDA

- TOMA LUZ DE PLAFON (ROSETA)
- TOMA LUZ DE PARED
- LUZ 2'-0" X 2'-0" EN PLAFON

DATOS DE CIRCUITOS PANEL DE DISTRIBUCION (DPE 2)						
PANEL 120/240 V. - 125 AMP. (MAIN PLUG ONLY)						
CIRCUITOS	USOS	ALAMBRES		PROTECTORES		TUBO
		NOM.	CAL.	POLOS	CAPPA	
1 AL 7	LUCES	3	12	1	20	120 3/4"x9

NOTAS ELECTRICAS

- TODOS LOS TRABAJOS DE ELECTRICIDAD SE HARAN DE ACUERDO A LOS REQUERIMIENTOS Y REGLAMENTACIONES DE A.E.E., A.R.P.E. Y EL C.E.N. DE PUERTO RICO.
- TODOS LOS TRABAJOS EN LINEAS ELECTRICAS PRIMARIAS O SECUNDARIAS EXISTENTES LO HARA LA A.E.E. CON CARGO AL CONTRATISTA.
- EL CONTRATISTA COORDINARA CON LA OFICINA LOCAL DE LA A.E.E. PARA LA LOCALIZACION EXACTA Y PUNTO DESDE DONDE SE DARA EL SERVICIO.
- TODOS LOS CONDUCTOS SOTERRADOS O NO EXPUESTO PODRA SER P.V.C. DEL TIPO APROBADO POR LA A.E.E. PERO TODO CONDUCTO EXPUESTO SERA RIGIDO GALVANIZADO.
- LA LOCALIZACION DE CAJAS DE REGISTRO O DE EMPALMES SE COORDINARAN CON EL INGENIERO ELECTRICISTA.
- EL SISTEMA ELECTRICO SE CONECTARA A TIERRA DE ACUERDO A LOS REQUERIMIENTOS DE LA A.E.E. Y DEL C.E.N. DE PUERTO RICO.
- HABRA EN ESTRICTA COORDINACION CON EL CONTRATISTA GENERAL, EL INGENIERO ESTRUCTURAL Y EL INGENIERO ELECTRICISTA.
- DONDE NO SE INDICA TAMAÑO DEL CONDUCTO SE ENTENDERA QUE ES 3/4" Y DONDE NO SE INDICA TAMAÑO DEL CABLE SE ENTENDERA 12 TW.
- PROVEASE LISTA DE IDENTIFICACION PARA TODOS LOS PANELES ELECTRICOS, IDENTIFICANDO EL USO DEL CIRCUITO O CIRCUITOS DE CADA INTERRUPTOR AUTOMATICO.
- TODA IDENTIFICACION DE CIRCUITO O EQUIPO SE HARA DE ACUERDO AL ARTICULO 110-22 DEL C.E.N. DE PUERTO RICO.
- CUANDO SE USE CONDUCTO NO METALICO, UN CONDUCTOR DE TIERRA SEPARADO SE INSTALARA DE ACUERDO CON LOS ARTS. 250-1 Y 547 (KY) DEL N.E.C.
- EL TERMINAL DE TIERRA DE LOS RECEPTACULOS SE CONECTARA, POR MEDIO DE UN NUMERO (12 TW) VERDE, AL TORNILLO DE TIERRA DE LA CAJA, O SE HARA ESTA CONEXION EN FORMA EQUIVALENTE.
- TODOS LOS CONDUCTOS SERAN DE COBRE A MENOS QUE SE INDIQUE LO CONTRARIO.
- TAMANO MINIMO DE CONDUCTO A UTILIZARSE SERA 1/2" EMT.
- EL SISTEMA DE TIERRA DE LA ANTENA SE CONECTARA AL SISTEMA DE TIERRA DEL SERVICIO ELECTRICO DE ACUERDO A LOS ARTICULOS 250, 800.810 & 820 DEL CODIGO ELECTRICO NACIONAL.
- INTERCONECTESE TODA LAS SALIDAS PARA ANTENA DE TV, CON CONDUCTO PVC DE 3/4" Y PROVEASE UN CONDUCTO PVC 3/4" HACIA LA FAJA DE SEMBRADO PARA CABLE TV. INSTALARSE UN ALAMBRE PESCADOR NUMERO 14 AWG EN LOS CONDUCTOS.
- SE USARAN LAS SALIDAS ELECTRICAS "RECEPTACULOS Y LUCES" EXISTENTES EN LUGARES DONDE SEA POSIBLE. CONTRATISTA DEBERA HACER INVENTARIO.

NOTAS:

- TODO TRABAJO ELECTRICO SERA HECHO POR UN PERITO ELECTRICISTA LICENCIADO. ESTOS TRABAJOS SE HARAN DE ACUERDO CON LOS ULTIMOS REGLAMENTOS Y NORMAS DE LA AUTORIDAD DE ENERGIA ELECTRICA.

-TODAS LAS MEDIDAS SERAN DESDE EL PISO TERMINADO.

-EL CONTRATISTA DETERMINARA LA LOCALIZACION EXACTA DE LAS TUBERIAS DE MANERA QUE NO INTERFIERAN CON OTRAS TUBERIAS O EQUIPOS A INSTALARSE.

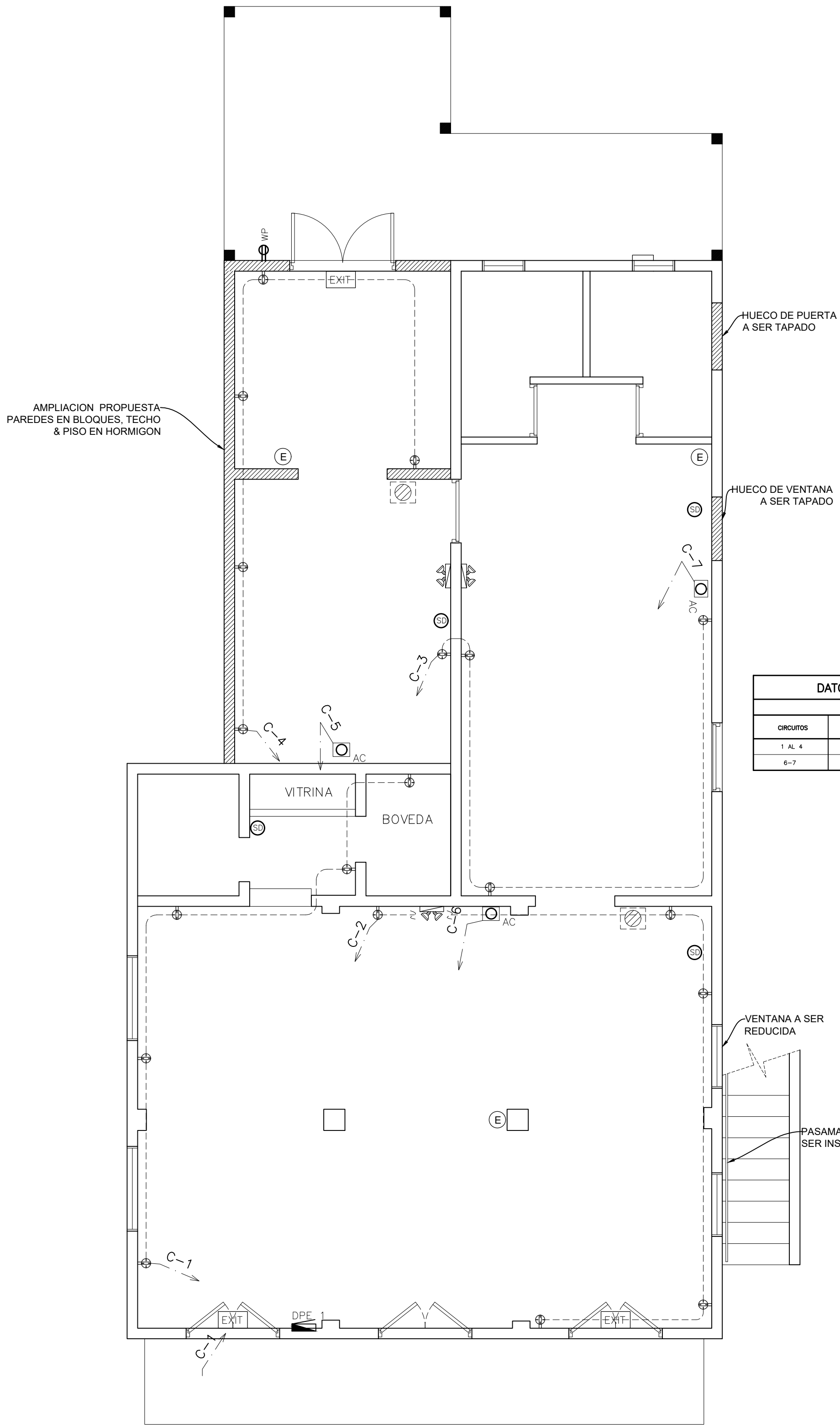
-PROVEASE LISTA DE IDENTIFICACION PARA TODOS LOS PANELES ELECTRICOS, IDENTIFICANDO EL USO DEL CIRCUITO DE CADA INTERRUPTOR AUTOMATICO.

Ing. José D. Centeno Calero
LIC. 20206
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AGUADILLA, PR. 00605
TEL. 787-891-8256



MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO QUEBRADILLAS, PR.

Electricidad Luminarias	Num. Hoja: EL-1
Fecha: 17 NOV 2022	15 de 17
Escala: 1/4" = 1'-0"	
JV	DIBUJADO POR:

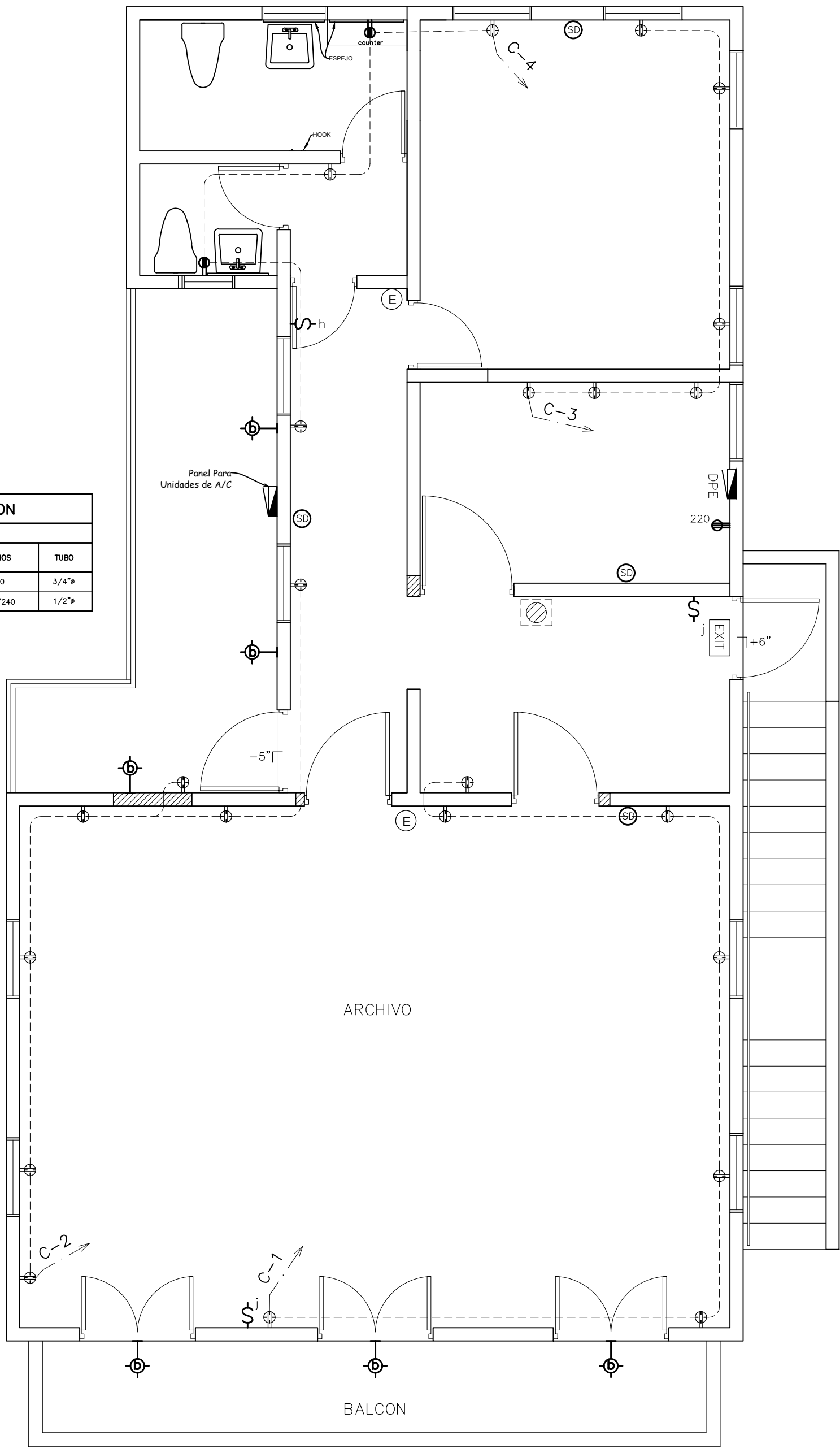


ELECTRICIDAD PRIMER NIVEL (LUMINARIAS)

ESCALA: 3/4"=1'-0"

LEYENDA SISTEMA DE EMERGENCIA:

- ⬆ LUCES DE EMERGENCIA 8'-6" SOBRE PISO TERMINADO
- (E) EXTINTOR
- EXIT ROTULO DE SALIDA
- (SD) DETECTOR DE HUMO
- (E) EXTINTOR
- (S) SISTEMA DE SPEAKERS



ELECTRICIDAD SEGUNDO NIVEL (RECEPTACULOS)

ESCALA: 3/4"=1'-0"

LEYENDA

- ⬆ INTERRUPTOR DE CORRIENTE SENCILLO
- ⬆ INTERRUPTOR DE CORRIENTE DOBLE
- ⬆ INTERRUPTOR DE CORRIENTE DE DOS DIRECCIONES
- ⬆ RECEPTACULO DOBLE A 18" DEL PISO
- ⬆ RECEPTACULO DOBLE A 42" DEL PISO (ANIELECTROCUION)
- ⬆ RECEPTACULO DOBLE A 52" DEL PISO (BAÑOS) ANIELECTROCUION
- ⬆ RECEPTACULO DOBLE A PRUEBA DE INTERPERIE (GF) (CON TAPA)
- ⬆ RECEPTACULO DE ESTUFA A 18" DEL PISO
- ⬆ RECEPTACULO NEVERA A 18" DEL PISO
- ⬆ RECEPTACULO SECADORA A 18" DEL PISO
- ⬆ RECEPTACULO LAVADORA A 18" DEL PISO
- ⬆ RECEPTACULO PARA CALENTADOR DE LINEA A 18"DEL PISO.
- ⬆ RECEPTACULO 220 A 18" DEL PISO.
- ⬆ CAJA 4X4 CON TUBO DE 3/4" PARA AIRE ACONDICIONADO A 18" DEL TECHO.
- ⬆ PANEL DE DISTRIBUCION ELECTRICA
- ⬆ TUBERIA EMT PARA LUCES E INTERRUPTORES
- ⬆ TUBERIA EMT ENTRE RECEPTACULOS
- ⬆ SALIDA PARA TELEVISION A 18"DEL PISO. (TUBO DE 3/4")
- ⬆ SALIDA PARA TELEFONO O INTERNET A 18" DEL PISO. (TUBO DE 3/4")

DATOS DE CIRCUITOS PANEL DE DISTRIBUCION						
PANEL 120/240 V. - 125 AMP. (MAIN PLUG ONLY)						
CIRCUITOS	USOS	ALAMBRES	PROTECTORES	VOLTIOS	TUBO	
		NUM.	CAL.	POLOS	CAPIA	
1 AL 4	LUCES	3	12	1	20	100
6-7	AIRE ACONDICIONADO	3	12	1	20	120/240

NOTAS ELECTRICAS

- 1 - TODOS LOS TRABAJOS DE ELECTRICIDAD SE HARAN DE ACUERDO A LOS REQUERIMIENTOS Y REGlamentACIONES DE A.E.E., A.R.P.E. Y EL C.E.N. DE PUERTO RICO.
- 2 - TODO TRABAJO EN LINEAS ELECTRICAS PRIMARIAS O SECUNDARIAS EXISTENTES LO HARA LA A.E.E. CON CARGO AL CONTRATISTA.
- 3 - EL CONTRATISTA COORDINARA CON LA OFICINA LOCAL DE LA A.E.E. PARA LA LOCALIZACION EXACTA Y PUNTO DESDE DONDE SE DARA EL SERVICIO.
- 4 - TODO CONDUCTO SOTERRADO O NO EXPUESTO PODRA SER P.V.C. DEL TIPO APROBADO POR LA A.E.E. PERO TODO CONDUCTO EXPUESTO SERA RIGIDO GALVANIZADO.
- 5 - LA LOCALIZACION DE CAJAS DE REGISTRO O DE EMPALMES SE COORDINARAN CON EL INGENIERO ELECTRICISTA.
- 6 - EL SISTEMA ELECTRICO SE CONECTARA A TIERRA DE ACUERDO A LOS REQUERIMIENTOS DE LA A.E.E. Y DEL C.E.N. DE PUERTO RICO.
- 7 - LA LOCALIZACION DE CONDUCTOS IGUALES O MAYORES A 1/4" SE HARA EN ESTRICTA COORDINACION CON EL CONTRATISTA GENERAL.
- 8 - EL INGENIERO ESTRUCTURAL Y EL INGENIERO ELECTRICISTA.
- 9 - DONDE NO SE INDICA TAMAÑO DEL CONDUCTO SE ENTENDERA QUE ES 3/4" Y DONDE NO SE INDICA TAMAÑO DEL CABLE SE ENTENDERA 12 TW.
- 10 - PROVEASE LISTA DE IDENTIFICACION PARA TODOS LOS PANELES ELECTRICOS, IDENTIFICANDO EL USO DEL CIRCUITO O CIRCUITOS DE CADA INTERRUPTOR AUTOMATICO.
- 11 - TODA IDENTIFICACION DE CIRCUITO O EQUIPO SE HARA DE ACUERDO AL ARTICULO 110-22 DEL C.E.N. DE PUERTO RICO.
- 12 - CUANDO SE USE CONDUCTO NO METALICO, UN CONDUCTOR DE TIERRA SEPARADO SE INSTALARA DE ACUERDO CON LOS ARTS. 250-J Y 347 (K) DEL N.E.C.
- 13 - EL TERMINAL DE TIERRA DE LOS RECEPTACULOS SE CONECTARA, POR MEDIO DE UN NUMERO 12 TW VERDE, AL TORNILLO DE TIERRA DE LA CAJA, O SE HARA ESTA CONEXION EN FORMA EQUIVALENTE.
- 14 - TODO CONDUCTOR SERA DE COBRE A MENOS QUE SE INDIQUE LO CONTRARIO.
- 15 - TAMAÑO MINIMO DE CONDUCTO A UTILIZARSE SERA 1/2" EMT.
- 16 - EL SISTEMA DE TIERRA DE LA ANTENA SE CONECTARA AL SISTEMA DE TIERRA DEL SERVICIO ELECTRICO DE ACUERDO A LOS ARTICULOS 250, 800.810.8 820 DEL CODIGO ELECTRICO NACIONAL.
- 17 - INTERCONECTESE TODA LAS SALIDAS PARA ANTENA DE TV, CON CONDUCTO PVC DE 3/4" Y PROVEASE UN CONDUCTO PVC 3/4" HACIA LA FAJA DE SOMBREADO PARA CABLE TV. INSTALARESE UN ALAMBRE PESCADOR NUMERO 14 AWG EN LOS CONDUCTOS.

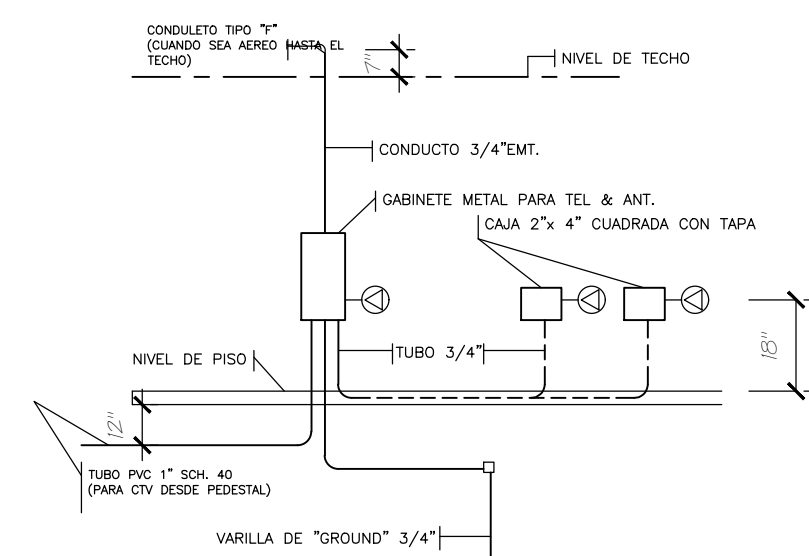


DIAGRAMA ANTENA O CTV.

NOTAS:

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-TODAS LAS MEDIDAS SERAN DESDE EL PISO TERMINADO.

-EL CONTRATISTA DETERMINARA LA LOCALIZACION EXACTA DE LAS TUBERIAS DE MANERA QUE NO INTERFIERAN CON OTRAS TUBERIAS O EQUIPOS A INSTALARSE.

-PROVEASE LISTA DE IDENTIFICACION PARA TODOS LOS PANELES ELECTRICOS, IDENTIFICANDO EL USO DEL CIRCUITO DE CADA INTERRUPTOR AUTOMATICO.

Nombre de la Firma & Direccion
Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256



Certificado & Sello por

Nombre del Proyecto & Direccion:

MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Nombre de la Empresa
ELECTRICIDAD LUMINARIAS

Núm. Hoja
EL-1

Fecha
17 NOV 2022

Edición
16

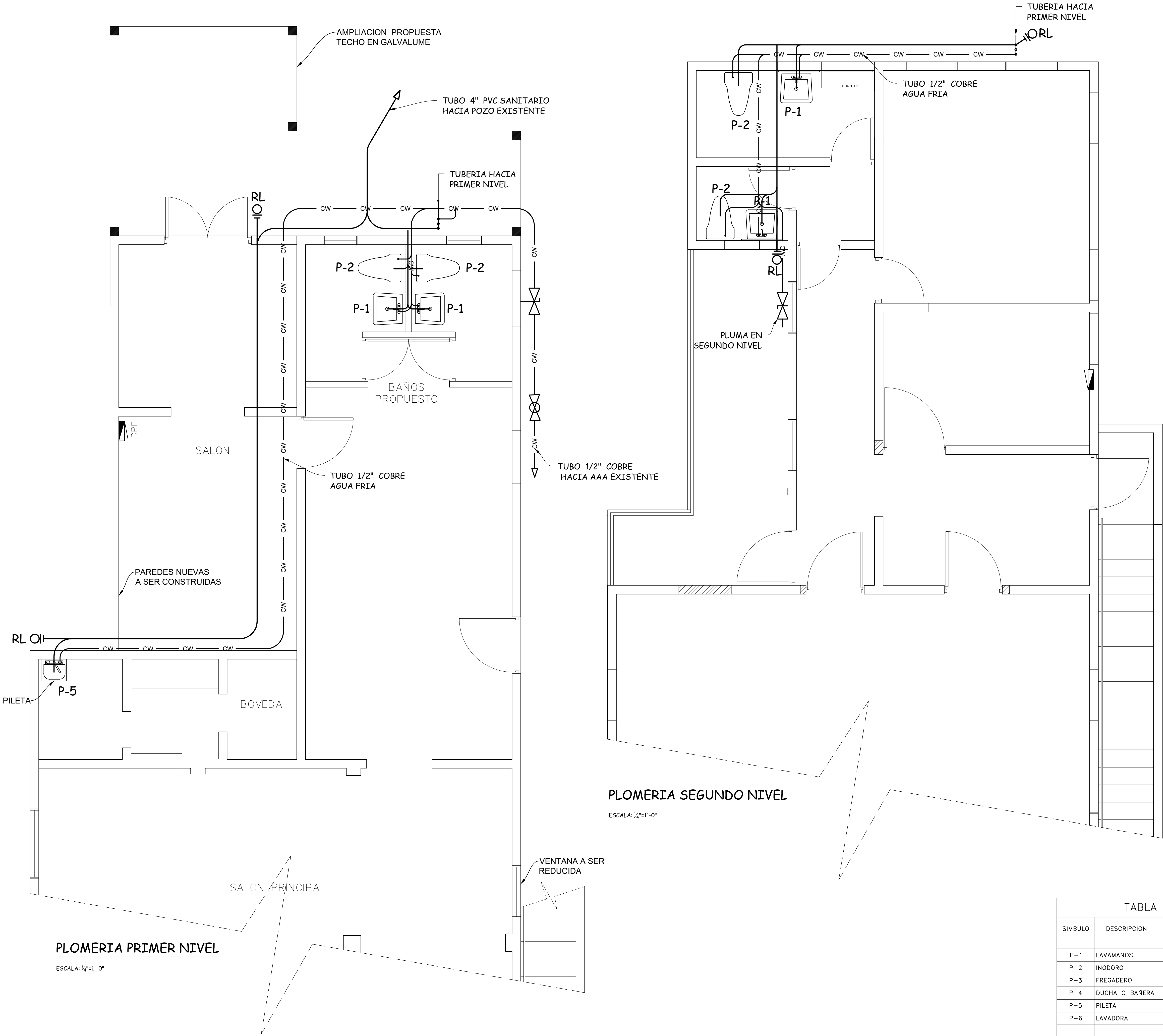
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JV

DIBUJADO POR:

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LEYENDA:

SIMBOLO	DESCRIPCION		
	TUBERIA 1/2" COBRE -- AGUA FRIA		LLAVE DE PASO
	TUBERIA 1/2" COBRE -- AGUA CALIENTE		PLUMA CON ROSCA
	TUBERIA 1 1/2" PVC -- VENTILACION		VALVULA DE RETENCION
	TUBERIA 1 1/2" PVC --SANTARIA		VALVULAS
	TUBERIA 3" y 4" PVC -- SANITARIA		FLUJO AGUA DESAGUE -- SANITARIA
	REGISTRO DE LIMPIEZA		TUBERIA VERTICAL
	UNIONES EN COBRE y PVC		P-1 IDENTIFICACION APARATOS SANITARIOS

NOTAS SANITARIAS :

1. TODA LA TUBERIA SANITARIA SERA PLASTICA P.V.C.
2. TODA LA TUBERIA DE AGUA FRIA SERA DE COBRE 1/2" TIPO "K"
3. TODOS LOS APARATOS SANITARIOS SERAN DE MARCA "KOHLER" O "AMERICAN STANDARD"-- DUENO ESCOJE
4. DECLIVE: 1/8" POR PIE LINEAL TUBERIA DE 4"Ø O MAS.
5. DECLIVE: 1/4" POR PIE LINEAL TUBERIA DE 3"Ø O MENOS.
6. SE PUEDE USAR LA TUBERIA EXISTENTE DONDE NO CAMBIA LA DISTRIBUCION PERO LOS CONECTORES, LLAVES ANGULARES, Y FITTING SERAN NUEVOS.

TABLA APARATOS SANITARIO					
SIMBULO	DESCRIPCION	AGUA CALIENTE	AGUA FRIA	TUBERIA SANITARIA	ALTURA LLAVES
P-1	LAVAMANOS	1/2"	1/2"	1 1/2"	24"
P-2	INODORO	—	1/2"	1 1/2"	8"
P-3	FREGADERO	1/2"	1/2"	1 1/2"	24"
P-4	DUCHA O BAÑERA	1/2"	1/2"	1 1/2"	30"
P-5	PILETA	1/2"	1/2"	1 1/2"	30"
P-6	LAVADORA	1/2"	1/2"	1 1/2"	30"

Nombre de la Firma & Direccion

Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256



Certificado & Sellado por

Nombre del Proyecto & Dirección:

MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Nombre de la Hoja	PL-1	Num. Hoja	17
Fecha	17 NOV 2022	Edici	17
Escala	1/4" = 1'-0"		
JV	DIBUJADO POR:		

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONÉ Y/O DISEÑÉ Y/O PREPARÉ ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA OGRE.



October 20, 2022

Arch. Carlos A. Rubio Cancela

Executive Director

State Historic Preservation Officer

Cuartel de Ballajá Bldg.

San Juan, Puerto Rico

Re: Authorization to Submit Documents

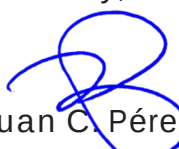
Dear Arch. Rubio Cancela:

The U.S. Department of Housing (HUD) approved the allocations of Community Development Block Grant (CDBG-DR) funds on February 9, 2018. It also approved the allocation of Community Development Block Grant Mitigation (CDBG-MIT) funds on January 27, 2020. The purpose of these allocations is to address unsatisfied needs as a result of Hurricanes Irma and Maria in September 2017; and to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses.

To comply with the environmental requirements established by HUD, the Department of Housing of Puerto Rico (PRDOH) contracted Horne Federal LLC to provide environmental registry review services, among others, that will support the objectives of the agenda for both CDBG-DR and CDBG -MIT Programs.

In line to expedite the processes, Horne Federal LLC, is authorized to submit to the State Historic Preservation Officer, documentation of projects related to both the CDBG-DR and CDBG-MIT on behalf of PRDOH.

Cordially,


Juan C. Pérez Bofill, P.E. M.Eng
Director of Disaster Recovery
CDBG DR-MIT



GOVERNMENT OF PUERTO RICO

STATE HISTORIC PRESERVATION OFFICE

Executive Director | Carlos A. Rubio-Cancela | carubio@prshpo.pr.gov

September 6, 2023

Lauren Bair Poche

HORNE

10000 Perkins Rowe, Suite 610, Bldg G
Baton Rouge, LA 70810

SHPO 05-11-23-02 CDBG-DR CITY REVITALIZATION (CITY-REV) PROGRAM,
PROPOSED ARCHAEOLOGICAL MONITORING WORK PLAN FOR PR-CRP-
000554, RECONSTRUCCIÓN DE EDIFICIO PARA USO DE MUSEO HISTÓRICO
PROJECT, QUEBRADILLAS, PUERTO RICO

Dear Ms. Bair,

We have reviewed the archaeological monitoring plan submitted for the above referenced project. It is our opinion that implementation of this plan, in its current form, may present procedural problems regarding federal professional qualification standards and project review among its consulting parties. The plan presents procedures that extend beyond the consultation parameters established in the programmatic agreement, executed to fulfill the requirements of Section 106 of the National Historic Preservation Act and its implementing regulations. Furthermore, the archaeological monitor's role in determining National Register of Historic Places (National Register) eligibility should be that of applying the National Register Criteria and providing recommendations regarding eligibility, instead of making the determinations. The plan should be revised accordingly.

If you have any questions regarding our comments, please do not hesitate to contact our Office.

Sincerely,

Carlos A. Rubio-Cancela
State Historic Preservation Officer

CARC/GMO/EVR/MB



August 18, 2023

Carlos A. Rubio Cancela
State Historic Preservation Officer
Puerto Rico State Historic Preservation Office
Cuartel de Ballajá (Tercer Piso)
San Juan, PR 00902-3935

Puerto Rico Disaster Recovery, CDBG-DR City Revitalization (City-Rev) Program

Re: SHPO ID: 05-11-23-02; Proposed Archaeological Monitoring Work Plan for PR-CRP-000554, Reconstrucción de Edificio Para Uso de Museo Histórico Project, Quebradillas, Puerto Rico

Dear Architect Rubio Cancela,

We thank you and acknowledge receipt of your letter dated June 26, 2023, where you concurred that a finding of **no adverse effect** would be appropriate for the proposed project conditioned to an archaeological monitoring during ground disturbing activities and that only selective demolition is permitted to remove recent interventions. It was requested that an archaeology work plan be submitted for review and concurrence.

On behalf of PRDOH and the subrecipient, the Municipality of Quebradilla, we are submitting the requested archaeological work plan, prepared by Archaeologist Fernando Alvarado for your review. We look forward to your response and concurrence that the prepared plan is appropriate for this undertaking.

Please contact me by email at lauren.poche@horne.com or phone at 225-405-7676, or Ms. Sharon Meléndez Ortiz at sharon.melendez@hornepr.com.

Kindest regards,



Lauren Bair Poche, M.A.
Architectural Historian, Historic Preservation Senior Manager
Attachments

Plan de Trabajo de una
Monitoria arqueológica
Museo Histórico de Quebradillas

Calle Honorio Hernández
Bo. Pueblo
Quebradillas, Puerto Rico 00678
OGPE: 2022-446339-SRA-057312

Sometida a:

Ingenieros **del Oeste C.S.P.**

Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla PR 00605
ingenierosdeloestecsp@gmail.com
Tel. / Fax. (787) 891-8256

Realizado por:



AM GROUP

SERVICIOS DE CONSULTORIA ARQUEOLOGICA

HC 3 Box 10608

Juana Díaz, PR 00795-9501

Celular 787-637-9807

amgrouppr@gmail.com

Arql. Fernando Alvarado Muñoz
Investigador Principal

31 de julio del 2023

I. Introducción

El presente documento es la Propuesta Técnica para un Plan de Trabajo de Protección Arqueológico e inspección de Monitoreo Arqueológico (El Plan) cumpliendo con la sección 106 del National Historic Preservation Act of 1966 y con la ley 112 y con el Reglamento para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico (Reglamento 8932) para el proyecto denominado Museo Histórico de Quebradillas, localizado en el barrio Pueblo de Quebradillas

Este Plan fue recomendado de acuerdo a los resultados del estudio Fase IA realizado por los arqueólogos Andrés Príncipe y Fernando Alvarado en abril del 2022 y del formulario PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM, INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG), section 106 NHPA Effect Determination, presentado para este proyecto.

Durante la inspección de la superficie realizada en el estudio Fase IA, se pudo observar una estructura histórica (el proyecto) localizada en el casco urbano de Quebradillas y en la parte posterior, se localizó un piso en cemento que resulta ser la parte superior de un pozo séptico de la propia estructura. Teniendo en cuenta la localización del proyecto y la alta probabilidad de evidenciar recursos históricos en el subsuelo en contraste con las obras propuestas. El Plan de Trabajo dentro de la monitoria, estará enfocado en velar, documentar, proteger cualquier recurso identificable en los límites del proyecto durante las obras de excavación y demolición propuestas.

La monitoria cumplirá con los requerimientos del proyecto durante los movimientos de terreno, demoliciones y/o excavaciones propuestas. El Plan de Protección de Recursos Arqueológicos es necesario para ser efectuado durante las obras de demolición del proyecto, movimientos de terrenos, o mientras existan posibilidades de impacto a las estructuras históricas aledañas y/o en el subsuelo. Teniendo en perspectiva lo anteriormente mencionado, y con el propósito de documentar y proteger cualquier elemento prehistórico o histórico que existiese en el área. Este plan de monitoria arqueológica vendrá a complementar los trabajos que allí se ejecuten, con el fin de recobrar toda la información histórica relevante.

II. Descripción del Proyecto

El proyecto propuesto tiene por objeto la remodelación y rehabilitación del edificio existente ubicado en Honorio Hernández, frente a la plaza principal de Quebradillas para convertirse en el “Quebradillas Museo Histórico”. El proyecto consiste en la restauración y acondicionamiento de un edificio histórico para convertirse en el Museo Histórico de Quebradillas. En la actualidad el edificio carece de techo.

En términos generales, se propone utilizar el antiguo edificio existente, repararla (incluyendo un techo nuevo) destinar el primer piso a Museo Histórico y el segundo piso a oficina y archivo. La propiedad se encuentra frente a la Plaza de Recreación del Municipio de Quebradillas. En la parte de atrás, un espacio destinado a baño tiene columnas de sustentación muy deterioradas, incluyendo el piso del segundo piso esta deteriorado. El suelo de la primera planta es de terrazo y serán conservados.

El proyecto contempla la demolición de una parte del edificio existente. Esta porción corresponde a una adición al edificio para proporcionar un baño adicional en el segundo nivel. Esta porción de la estructura tiene deterioro estructural que requiere demolición. Las columnas y las vigas tienen acero estructural expuesto y corroído. El proceso para la demolición de esta porción será realizado con herramientas manuales. Esto se debe a que no hay acceso a la parte trasera para permitir el uso de equipo mecánico, como una retroexcavadora pequeña.

A partir de la demolición, se realizarán las excavaciones para los cimientos de la extensión propuesta. Las zapatas diseñadas corresponden a zapatas extendidas a una profundidad de 2 pies (0,6097 metros). Los cimientos ocupan una parte del patio de 100.875 pies cuadrados (9,38 metros cuadrados). área. Esto incluye utilizar el área de 132,25 pies cuadrados (12,292 m²) previamente impactada por el construcción del baño del segundo piso hace años.

En el primer piso, se propone demoler una parte del muro existente (lado oeste) para dotar acceso desde la estructura existente a la ampliación propuesta. La demolición consiste en cortar un área de 10,5 pies cuadrados (0,9759 m²) debajo de la ventana existente para crear 25,333 pies cuadrados (2,354 m²).

También se propone derribar dos muros interiores por la parte posterior correspondientes a los baños existentes en el primer piso. Como parte del trabajo requerido para los dos nuevos baños, será necesario cortar la losa y el piso de concreto existente para instalar la tubería para el sanitario alcantarillado.

En el frente del primer piso (salón principal) se propone demoler un escalón interior para crear escalones uniformes a la altura requerida. El escalón mide 3 pies por 1 pie. En el segundo nivel solo se propone la demolición del baño. En cuanto a la fachada principal, se utilizará agua a no más de 60 psi y cepillo para limpiar la superficie. A partir de la limpieza se realizarán los trabajos de pintura, utilizando el color original (color salmón). El techo del segundo nivel (porción existente, en forma de martillo), mantendrá los niveles y descargas como las existentes, según la huella en el límite de los muros.

La nueva construcción consta de un bloque de concreto de 23.25 pies (7.088 m) por 10.25 pies (3.125 m) y expansión del bloque para incluir una sala de exposición en el primer piso y proporcionar acceso al patio trasero. En el segundo piso hay dos baños y un pasillo. Además, se crearán dos nuevos baños en el primer nivel en la parte trasera del edificio. Ocuparán un área de 11'-10" por 8'-0" (94.667 pies cuadrados o 8.8 m²) y tendrán acceso solo desde adentro. El sistema eléctrico y de plomería del edificio existente será reemplazado y/o actualizado. Se sustituirán o modernizarán las instalaciones eléctricas y de fontanería del edificio y se instalará un techo acústico suspendido. En el segundo nivel se propone reparar los huecos de las puertas con mortero y un nuevo metal. En el patio se propone construir una terraza en forma de L que ocupa un espacio de 206 pies cuadrados (19.148 m²). El lote donde se ubica el proyecto tiene una superficie de 233 metros cuadrados. Los dos pisos de la estructura existente tiene un área de ocupación de 1,304 pies cuadrados (121,2076 metros cuadrados). El nuevo el área de ocupación será de 1,627 pies cuadrados (151,2307 metros cuadrados).

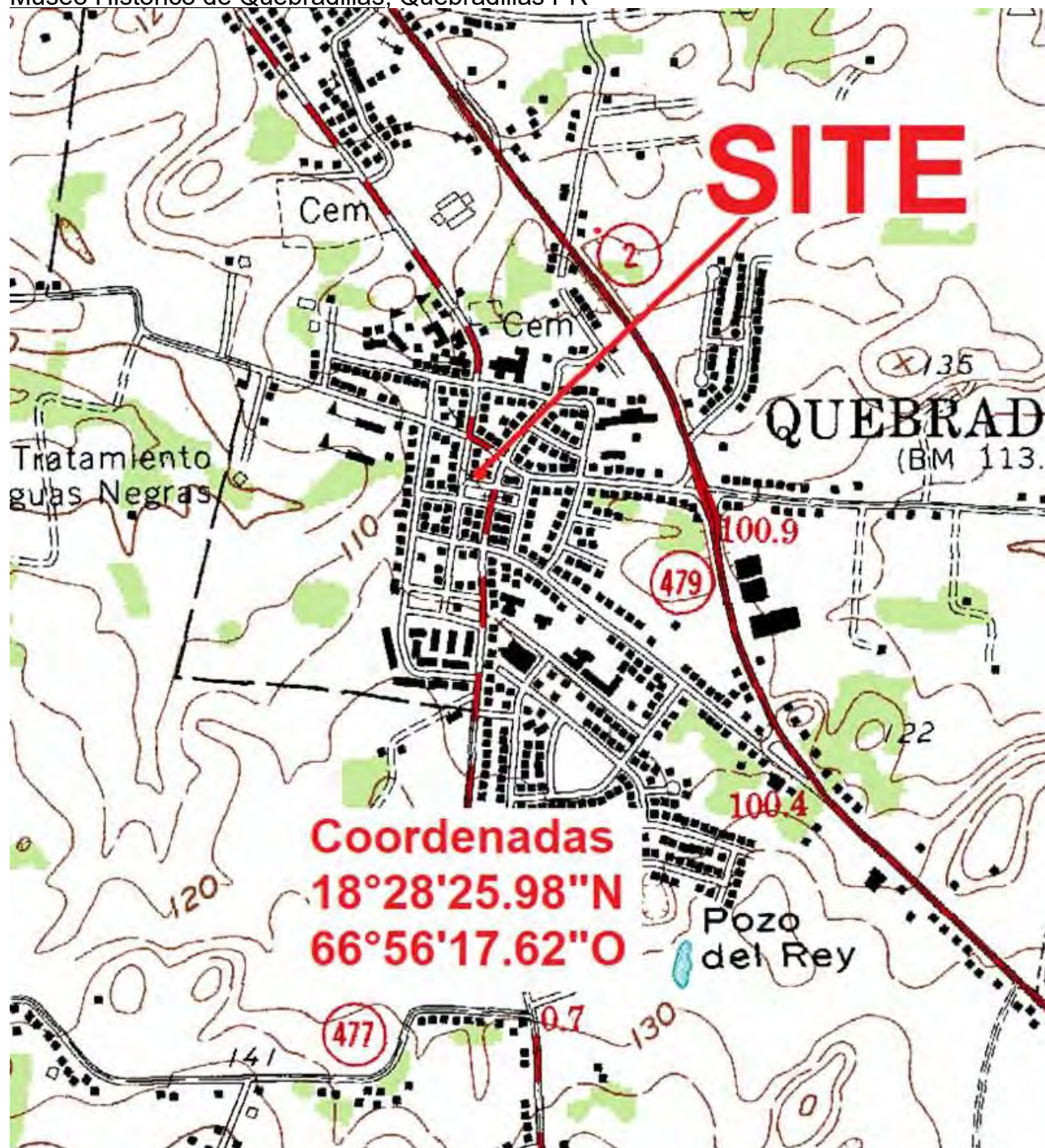


Figura #1
Localización del proyecto y Recursos culturales identificados.

III. Descripción general de la Monitoría Arqueológica. (Reglamento 8932, ICP)

A. Consiste en una supervisión continua por parte de un arqueólogo durante trabajos de excavación, remoción de pisos y demolición de estructuras, en áreas donde existen recursos arqueológicos o hay la posibilidad de encontrarlos. Por lo general se realiza en áreas urbanizadas como calles y carreteras o al interior de estructuras, que no permiten realizar excavaciones arqueológicas sistemáticas previas a la demolición o construcción del proyecto, por lo que se aprovechan las excavaciones que realiza el contratista como parte del proyecto, para identificar, evaluar y documentar cualquier hallazgo de naturaleza arqueológica.

B. La supervisión también pretende evitar impactos negativos a los recursos arqueológicos identificados y documentados en fases previas de investigación.

C. La supervisión arqueológica debe ser realizada por un Investigador Principal cualificado por el Consejo y que sea SOI-qualified, o sea, que cumpla con Secretary of the Interior Professional Qualifications Standards for Archaeology established in 36CFR Part 61, para realizar estudios arqueológicos.

D. El desarrollo efectivo de una supervisión arqueológica exige un entendimiento y acuerdo claro entre el Gerente de Construcción (Construction Manager (CM), Gerente del proyecto (Project Manager o PM), Administrador de subvenciones (Grant Manager o GM), el Arqueólogo Monitor (Archaeologist Monitor (AM), ICP/OECH y cualquier otro organismo público o privado que requiera su involucramiento:

1. No deberán llevarse a cabo excavaciones, demoliciones o movimientos de terreno sin la presencia de un arqueólogo cualificado.
2. En caso de haber excavaciones simultáneas en diferentes áreas del proyecto, se deberá contar con un arqueólogo en cada área.
3. Cuando se detecte algún elemento arqueológico, deberán detenerse los trabajos de excavación o construcción en esa área inmediatamente, hasta tanto, el arqueólogo encargado realice la documentación del hallazgo y dé el visto bueno para continuar con los trabajos.

4. La documentación de los hallazgos podría requerir que se extiendan las excavaciones para exponer y definir completamente el hallazgo.
5. Se deberá, en la medida de lo posible, conservar y proteger el hallazgo.
6. En el caso de elementos inmuebles o sus remanentes, deberá hacerse todo el esfuerzo posible por adaptar el diseño del proyecto y evitar el impacto negativo al hallazgo. Este deberá ser protegido y conservado *in situ*. Es deseable que el mismo sea integrado al proyecto y puesto en valor de algún modo, en coordinación con el investigador principal y el ICP/OECH

IV. Objetivos de la monitoría arqueológica.

La monitoría arqueológica deberá realizarse teniendo en cuenta los siguientes objetivos:

- A. Localizar, evaluar y documentar los recursos arqueológicos durante el desarrollo del proyecto.
- B. Recuperar la mayor información y materiales arqueológicos posibles durante los trabajos de excavación y construcción.
- C. Conservar y poner en valor los recursos arqueológicos localizados y documentados.
- D. En el caso que el recurso arqueológico no pueda ser conservado *in situ*, conservarlo mediante la documentación.

V. Alcance de Servicios

El Plan de Protección de Recursos Arqueológico persigue cumplir con la Sección 106 del “U.S. National Historic Preservation Act” del 1966, modificación (36 CFR, Part 800) (SHPO), y con las disposiciones la Ley 112 del Consejo de Arqueología Terrestre y la *Guía oficial para investigaciones arqueológicas* del Programa de Arqueología del Instituto de Cultura Puertorriqueña del 2017, según enmendado.

El requerimiento de los estudios de monitoría arqueológica es ordenado con el objetivo de cumplir con las leyes federales y estatales con respecto al patrimonio arqueológico terrestre. Este tipo de estudio y metodología de campo se practica, usualmente, para proteger recursos culturales que se infiere pudiesen estar localizados en el subsuelo que será removido por obras de construcción.

El trabajo de campo y la presencia de un arqueólogo calificado dentro de la monitoria es requerido cuando se realicen tareas de demolición, excavación y movimiento de terreno, según requeridas por el proyecto. Los resultados de la supervisión arqueológica deben ser presentados en Informes de Progreso Mensuales, al PM y GM. El GM será responsable de entregar los informes a las agencias concernientes. El resultado final será expuesto en un Informe Final, posterior al fin de las labores en el campo. Ese Informe Final incluirá el resultado de las excavaciones en el campo, el análisis de material recuperado, si alguno, y la investigación histórica, entre otros. El Informe Final incluirá los comentarios y recomendaciones del GM y de las agencias concernientes que sean necesarios, de acuerdo con el Reglamento 8932 del ICP, incluyendo a SHPO.

El estudio arqueológico propuesto debe ser hecho de acuerdo a los parámetros establecidos por las agencias reguladoras. El trabajo de campo a realizarse tiene, como propósito principal, localizar todos los sitios arqueológicos relacionados a culturas prehispánicas o coloniales que existan dentro del área del proyecto, que pudiesen ser impactados, afectados o destruidos por el desarrollo propuesto.

VI. Método y ejecución de los trabajos de campo

A. Antes de que comience la demolición, excavación o movimiento de terreno

1. El Gerente de Construcción (Construction Manager (CM) notificará al Gerente del proyecto (Project Manager o PM), y al Administrador de subvenciones (Grant Manager o GM), la fecha de inicio de las actividades propuestas. El PM, es responsable de la coordinación entre el CM y el Monitor Arqueológico (Archaeologist Monitor (AM)).

2. Antes de que comience cualquier demolición o construcción, el PM, CM, GM y el AM tendrán una reunión inicial para discutir el procedimiento para seguimiento arqueológico, incluido el protocolo de coordinación entre el AM y el Contratista. El AM proporcionará una orientación sobre los recursos culturales y los recursos potenciales y su tratamiento adecuado. El AM explicará qué actividades de demolición requieren de monitoría arqueológica.
3. El PM, CM, GM y el AM completarán y firmarán una declaración que describa las actividades que no podrán realizarse sin la presencia del AM, demostrando su comprensión y compromiso de seguir los procedimientos de seguimiento arqueológico.
4. Antes de comenzar las labores de construcción, el Monitor debe documentar el estado del edificio histórico por medio de descripciones verbales y fotos. Se debe dar atención particular a las etapas constructivas de la propiedad y a cualquier otra estructura asociada que pueda existir. Se debe verificar que el dibujo de planta esté correcto y que incluya todo lo que se observa. Esta data se incluirá en el informe final.

B. Durante la construcción

Dentro de los parámetros anteriormente descritos, y para poder cumplir con el ámbito de los requerimientos especificados, se deberá realizar los siguientes procesos, que representan el marco metodológico de la presente propuesta.

1. El AM llevará un diario con el registro de las actividades realizadas: actividades realizadas, ubicación de hallazgos arqueológicos, presencia de materiales arqueológicos, presencia de elementos estructurales, estratigrafía, etc. Su tarea principal será velar por que las actividades del contratista no impactan los recursos arqueológicos. El AM completará el formulario de registro diario de actividades y un registro fotográfico. Estos formularios se adjuntarán al informe final como apéndice.

2. El AM tendrá la autoridad para dirigir la excavación del contratista. En otras palabras, el arqueólogo tendrá el poder de instruir al operador del contratista sobre cómo proceder cuando entienda que existe la posibilidad de impactar un recurso arqueológico. El operador de la excavadora debe cumplir con las solicitudes del arqueólogo, como excavar lentamente, remover poca tierra a la vez y detener la excavación para evaluar un hallazgo.

3. Luego de las labores de demolición y del levantamiento de pisos, el Monitor documentará cualquier elemento asociado a la ocupación anterior del edificio histórico, como cimientos de muros, trincheras de construcción y depósitos artefactuales. La cantidad, el tamaño y la ubicación de las unidades de excavación dependerán del tamaño y la complejidad del elemento que se esté documentando. La documentación incluirá una descripción detallada del hallazgo, el contexto, la procedencia horizontal y vertical, fotografías y dibujos, si fuera necesario. Esta documentación se realizará en un plazo razonable, procurando no afectar en lo posible al calendario del proyecto. Cualquier elemento podrá ser demolido y retirado una vez la documentación realizada por el Monitor sea aprobada por el GM. La información registrada se incluirá en el informe final.

4. Si se identifica un hallazgo arqueológico inesperado o significativo, el arqueólogo informará inmediatamente al CM, al PM y al GM. El GM notificará a SHPO y al ICP en un periodo de 24 horas luego de recibir la evaluación preliminar del AM.

a. En estos casos el procedimiento sugerido es el siguiente:

1. El monitor debe hacer una evaluación preliminar del hallazgo, donde incluya ubicación, extensión vertical y horizontal, contexto, fotos y dibujos, y un plan de trabajo de cómo se debe implementar una evaluación del hallazgo (tipo, cantidad y ubicación de unidades de excavación, por ejemplo).

2. El Monitor debe enviar este documento al PM y GM en un periodo de 24 horas de hacer el descubrimiento. El GM deberá comentar el plan de trabajo en un periodo similar luego de recibido.
 3. El Monitor implementará el plan de trabajo tras recibir el visto bueno del GM. Luego de completar el trabajo de campo, el Monitor deberá preparar un Informe de fin de campo resumiendo los resultados, determinando la elegibilidad al RNLH del recurso y con una recomendación de cómo evitar, minimizar o mitigar el efecto adverso.
 4. El GM notificará a SHPO y al ICP de la determinación de elegibilidad. Si no es elegible, las actividades de construcción podrán comenzar con los trabajos a menos que SHPO o el ICP no estén de acuerdo con la determinación y así lo notifiquen en un periodo de 48 horas. Si se determina que el recurso es elegible, se deberá aplicar los criterios de efectos adverso. Si no hay un efecto adverso, se seguirá el mismo proceso indicado arriba. Si hay un efecto adverso se deberá implementar una Documentación arqueológica (Fase II). El Monitor deberá elaborar un plan de investigación, el cual será sometido al GM para comentarios. Éste se podrá implementar una vez recibido el visto bueno de las agencias pertinentes.
- b. En caso de que se encuentre un enterramiento humano.
1. Se deben detener los trabajos inmediatamente.
 2. Se notificará al CM, PM y GM de inmediato, y a la Policía y Forense de ser necesario.
 3. Se deben proteger los restos de cualquier daño.
 4. El GM notificará a SHPO y al ICP dentro de las 24 horas siguientes a la identificación de los restos.

5. Durante la documentación arqueológica, el procesamiento de artefactos arqueológicos, si los hubiera, será realizado simultáneamente con el trabajo de campo. Los artefactos serán lavados, clasificados, analizados y documentados gráficamente. Si es necesario, se llevará a cabo una investigación documental para analizar e interpretar los hallazgos. Se incluirá un resumen de estas actividades en el informe mensual. Los artefactos deben curarse y procesarse de acuerdo con los estándares establecidos.
6. Si durante la construcción, una propiedad histórica se ve afectada de manera imprevista, el CM deberá detener el trabajo de inmediato, e informar al PM, GM y al AM. El AM, junto con el GM, evaluarán los efectos imprevistos y aplicarán los criterios de efecto adverso en un plazo no superior a 24 horas. Si se determina que el efecto es adverso, el AM y el GM proporcionarán recomendaciones sobre cómo evitar, minimizar o mitigar dichos efectos adversos. El GM consultará al ICP/SHPO sobre las recomendaciones antes de su implementación.
7. El AM deberá presentar informes mensuales al PM y GM desde la ejecución de esta documentación hasta que se completen los trabajos de construcción dentro de los 10 días siguientes al último día calendario del mes. Se preparará un informe de visitas mensuales, incluyendo fotografías del área de interés. El GM será responsable de entregar a las agencias concernientes.
8. Si luego del inicio del proyecto se agrega alguna obra adicional de construcción o se realiza algún cambio en los planos constructivos, el CM y PM, antes de realizar las obras, deberá informar al equipo de arqueología. El AM y el GM, evaluarán estos trabajos y aplicarán los criterios de efectos adversos. En caso de que se determine que el efecto es adverso, el AM brindará recomendaciones para evitar, minimizar o mitigar dicho efecto adverso. Estas recomendaciones serán consultadas con el ICP/ SHPO antes de su implementación.

C. Luego de la construcción, demolición, excavación y/o movimiento de terreno

Finalmente se redactará un informe final, el cual incluirá todo lo sucedido en el proyecto, incluyendo los trabajos realizados, planos dibujos de perfiles, fotografías, los hallazgos (si alguno) documentado y los procesos de conservación. Todo según dispuesto en la Sección 106 y este Plan de Trabajo.

Se notificará al ICP/SHPO cuando se completen las obras de construcción. Esta comunicación indicará la fecha estimada de entrega del informe. Una vez finalizadas las obras de construcción, el AM realizará una inspección final, donde documentará fotográficamente las condiciones finales.

Se debe preparar un informe final técnico. Este informe debe incluir una descripción del trabajo realizado, los trabajos de construcción que fueron supervisados arqueológicamente y la documentación de cualquier hallazgo inesperado, si lo hubiera. También debe incluir la documentación final del estado de la propiedad junto con una comparación del estado final del edificio con el estado inicial. Se enviará una copia digital del borrador del informe a al GM dentro de los 60 días calendario posteriores a la finalización del trabajo. El GM evaluará el informe y luego de ser aprobado será enviado al ICP/SHPO para su evaluación.

VII. Cualificación profesional

El AM para cumplir satisfactoriamente con los trabajos de la monitoría debe cumplir con los requisitos del Reglamento 8932 Consejo para la Protección del Patrimonio Arqueológico Terrestre del ICP y con Secretary of the Interior Professional Qualifications Standards for Archaeology established in 36CFR Part 61.

VIII. Bibliografía

Alvarado, Fernando, Andrés Príncipe

Informe Fase IA

Museo Histórico de Quebradillas, Quebradillas PR,

ICP abril 2022

Alvarado, Fernando. Norma Medina, Carlos Ferran

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM, INVESTMENT PORTFOLIO
FOR GROWTH PROGRAM (IPG), section 106 NHPA Effect Determination
Enero, 2023

Consejo para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico,
Instituto de Cultura 2017 *Reglamento para la radicación y evaluación arqueológica
de proyectos de construcción y desarrollo* #8932.

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Junta de Planificación

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Washington D.C.

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Washington.

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Register of Historical Places.



October 20, 2022

Arch. Carlos A. Rubio Cancela

Executive Director

State Historic Preservation Officer

Cuartel de Ballajá Bldg.

San Juan, Puerto Rico

Re: Authorization to Submit Documents

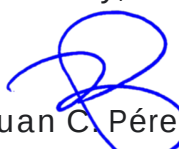
Dear Arch. Rubio Cancela:

The U.S. Department of Housing (HUD) approved the allocations of Community Development Block Grant (CDBG-DR) funds on February 9, 2018. It also approved the allocation of Community Development Block Grant Mitigation (CDBG-MIT) funds on January 27, 2020. The purpose of these allocations is to address unsatisfied needs as a result of Hurricanes Irma and Maria in September 2017; and to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses.

To comply with the environmental requirements established by HUD, the Department of Housing of Puerto Rico (PRDOH) contracted Horne Federal LLC to provide environmental registry review services, among others, that will support the objectives of the agenda for both CDBG-DR and CDBG -MIT Programs.

In line to expedite the processes, Horne Federal LLC, is authorized to submit to the State Historic Preservation Officer, documentation of projects related to both the CDBG-DR and CDBG-MIT on behalf of PRDOH.

Cordially,


Juan C. Pérez Bofill, P.E. M.Eng
Director of Disaster Recovery
CDBG DR-MIT



GOVERNMENT OF PUERTO RICO
STATE HISTORIC PRESERVATION OFFICE

Executive Director | Carlos A. Rubio-Cancela | carubio@prshpo.pr.gov

Friday, June 2, 2023

Lauren Bair Poche

HORNE - Architectural Historian Manager
10000 Perkins Rowe, Suite 610 Bldg. G
Baton Rouge, LA 70810

SHPO: 05-11-23-02 QUEBRADILLAS, PUERTO RICO DISASTER RECOVERY, CDBG-DR CITY REVITALIZATION PROGRAM (CRP), PR-CRP-000554, RECONSTRUCCIÓN DE EDIFICIO PARA USO DE MUSEO HISTÓRICO PROJECT, QUEBRADILLAS, PUERTO RICO

Dear Ms. Poche,

Our Office has received and reviewed the above referenced project in accordance with 54 USC 306108 (commonly known as Section 106 of the *National Historic Preservation Act, as amended*) and 36 CFR Part 800: *Protection of Historic Properties* from the Advisory Council on Historic Preservation. The State Historic Preservation Officer (SHPO) is to advise and assist federal agencies and other responsible entities when identifying historic properties, assessing effects upon them, and considering alternatives to avoid or reduce the project's effects.

After a review of all the documentation, the PRSHPO concurs with your determination that the proposed project will have **no adverse effect** for this undertaking **conditioned to** archaeological monitoring during ground disturbing activities and that only selective demolition is permitted to remove recent interventions. We, therefore, request an archaeology work plan, for our review and concurrence.

Please note that should the Agency discover other historic properties at any point during project implementation, you should notify the SHPO immediately. If you have any questions concerning our comments, do not hesitate to contact our Office.

Sincerely,

Carlos A. Rubio-Cancela
State Historic Preservation Officer
CARC/GMO/LGC/EVR



May 12, 2023

Carlos A. Rubio Cancela
State Historic Preservation Officer
Puerto Rico State Historic Preservation Office
Cuartel de Ballajá (Tercer Piso)
San Juan, PR 00902-3935

Puerto Rico Disaster Recovery, CDBG-DR City Revitalization (City-Rev) Program

Section 106 NHPA Effect Determination Submittal for PR-CRP-000554, Reconstrucción de Edificio Para Uso de Museo Histórico Project, Quebradillas, Puerto Rico

Dear Architect Rubio Cancela,

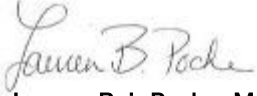
On February 9, 2018, an allocation of Community Development Block Grant - Disaster Recovery (CDBG-DR) funds was approved by the United States Department of Housing and Urban Development (HUD) under the Federal Register Volume 83, No. 28, 83 FR 5844, to assist the Commonwealth of Puerto Rico in meeting unmet needs in the wake of Hurricanes Irma and Maria. On August 14, 2018, an additional \$8.22 billion recovery allocation was allocated to Puerto Rico under the Federal Register Volume 83, No. 157, 83 FR 40314. With these funding allocations, the Puerto Rico Department of Housing (PRDOH) aims to lead a comprehensive and transparent recovery for the benefit of Puerto Rico residents. To faithfully comply with HUD's environmental requirements, the Puerto Rico Department of Housing contracted Horne Federal, LLC (HORNE) to provide environmental records review services that will support the Department's objectives Puerto Rico Housing (PRDOH) for CDBG-DR.

On behalf of PRDOH and the subrecipient, the Municipality of Quebradillas, we are submitting documentation for the proposed Reconstrucción de Edificio Para Uso de Museo Histórico Project. The proposed undertaking includes the rehabilitation of the circa 1918 two-story historic building located along Honorio Hernández Street on the north side of the Plaza Pública de Quebradillas Luis Muñoz Rivera within the Quebradillas Traditional Urban Center. This building has been determined to be eligible for the National Register of Historic Places. The full scope of the project is described in the submitted documentation, which includes mapping, photographs, the 90% construction plans, the asbestos containing materials report, and the lead based paint report.

Based on the provided documentation, the Program requests a concurrence with a determination that "No Adverse Effect" is appropriate for this undertaking, conditioned to archaeological monitoring during ground disturbing activities and that only selective demolition is permitted to remove recent interventions.

Please contact me by email at lauren.poche@horne.com or phone at 225-405-7676, or Ms. Sharon Meléndez Ortiz at sharon.melendez@horne.com.

Kindest regards,



Lauren Bair Poche. M.A.

Architectural Historian, Historic Preservation Senior Manager

Attachments

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM CITY REVITALIZATION PROGRAM (CITY-REV) Section 106 NHPA Effect Determination		 GOVERNMENT OF PUERTO RICO DEPARTMENT OF HOUSING
Subrecipient: Municipio de Quebradillas		
Project Name: Reconstrucción de edificio para uso de Museo Histórico		Project ID: PR-CRP-000554

Project Location: Honorio Hernández Street, Pueblo Ward, Quebradillas, PR	
Project Coordinates: Lat: 18.47394221; Lon: -66.93817961	
TPID (Cadastre Number): 008-080-009-06	
Type of Undertaking: ☒ Substantial Repair/Improvements ☐ New Construction	
Construction Date (AH est.): year 1918	Property Size: 0.0553 acres (223.9436 sq/m)

SOI-Qualified Archaeologist: Fernando Alvarado Muñoz
Date Reviewed: January, 2023
SOI-Qualified Architect/Architectural Historian: Carlos Ferrán Martínez
Date Reviewed: January, 2023

In compliance with Section 106 of the National Historic Preservation Act (NHPA), the Program is responsible for identifying historic properties listed in the NRHP and any properties not listed that would be considered eligible for listing that are located within the geographic area of potential effects (APE) of the proposed project and assessing the potential effects of its undertakings on these historic properties. Activities related to this project will be done in a manner that does not meet Stipulations outlined in the Programmatic Agreement.

Project Description (Undertaking)

The proposed project is intended to remodel and rehabilitate the existing 1918 building located in Honorio Hernández, in front of the main square of Quebradillas to become the “Quebradillas Historic Museum”. The project consists of the restoration and conditioning of the historic structure to become the Historical Museum of Quebradillas. At the present time the historic structure lacks a roof.

In general terms, it is proposed to use the existing old structure, repair it (including a new roof) to use the first floor as a Historical Museum and the second floor for an office and archives. The structure is in front of the Recreation Plaza of the Municipality of Quebradillas. In the back, a space used for a bathroom has well-deteriorated support columns. In addition, the existing flooring on the second floor has deteriorated. The floor of the first floor is in terrazzo and has been preserved.

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Project contemplates demolishing a portion of the existing building. This portion corresponds to an addition to the building to provide an additional bathroom on the second level. This portion of the structure has structural deterioration that requires demolition (see photos #14 & 15). Columns and beams have exposed and corroded structural steel. The process for the demolition of this portion will be carried out with manual tools. This is because there is no access to the rear to allow the use of mechanical equipment, such as a small backhoe.

Starting from the demolition, excavations will be carried out for the foundations of the proposed extension. The designed footings correspond to spread footing at a depth of 2 feet (0.6097 meters). The footings occupy a 100.875 sf (9.38 square meters) portion of the patio area. This includes utilizing the 132.25 sf (12.292 sm) area previously impacted by the construction of the second-floor bathroom years ago.

On the first floor, is proposed to demolish a portion of the existing wall (west side) to provide access from the existing structure to the proposed extension. Demolition consists of cutting out an area of 10.5 sf (0.9759 sm) under the existing window to create 25.333 sf (2.354 sm) doorway.

It is also proposed to demolish two interior walls at the back corresponding to the existing bathroom on the first floor. As part of the work required for the two new bathrooms, it will be necessary to cut the slab and the existing concrete floor to install the pipe for the sanitary sewer.

At the front of the first floor (main hall) it is proposed to demolish an interior step to create uniform steps at the required height. The step measures 3 ft by 1 ft.

On the second level, only the demolition of the bathroom is proposed.

Regarding the main façade, water at no more than 60 psi and a brush will be used to clean the surface. Starting from the cleaning, the painting works will be carried out, using the original colors (salmon color).

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The roof of the second level (existing portion, in the form of a hammer), will maintain the levels and discharges like the existing ones, according to the footprint in the boundary of the walls (see photos #7, #8, #9 & #11)

The new construction consists of a 23.25 ft (7.088 mts) by 10.25 ft (3.125 mts) concrete and block expansion to include a showroom on the first floor and provide access to the backyard. On the second floor there are two bathrooms and a hallway.

In addition, two new bathrooms will be created on the first level in the rear interior of the building. They will occupy an area of 11'-10" by 8'-0" (94.667 sf or 8.8 sm) and will have access only from the inside.

The existing building plumbing and electrical system will be replaced and/or upgraded. To bring the proper distribution of interior lighting, it is necessary to install a suspended acoustic ceiling.

In the second level, it is proposed to repair the door openings using mortar. A new metal ceiling will be installed with a suspended ceiling inside.

In the patio, it is proposed to build an L-shaped terrace that occupies a space of 206 sf (19.148 sm).

The lot where the project is located has a surface area of 233 square meters. The existing two-story structure has an occupancy area of 1,304 sf (121.2076 square meters). The new occupancy area will be 1,627 sf (151.2307 square meters)

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Area of Potential Effects

As defined in 36 CFR §800.16(d), the area of potential effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. Based on this definition and the nature and scope of the Undertaking, the Program has determined that the direct APE for this project is **0.05533 acres (223.9436 sq/m)(10.54 meters by 22.00 meters approximately)**, and the visual APE is the viewshed of the proposed project. The project is located within the boundaries of the Traditional Urban Center of Quebradillas town in front of the Main Square.

To the north it borders by a two-story structure with commercial facilities on the first floor and apartments on the second floor and the lot is owned by Mrs. Nilda Prieto, to the south by a two-story structure occupied by a Bank (BPPR) and the lot is owned by Mr. Longino Medina, to the west with the Plaza and to the east with a commercial structure owned by Mrs. Virginia Hernandez.

Identification of Historic Properties – Historic General Background

Back in 1805 existed a civil struggle between the residents of Camuy and Quebradillas to obtain authorization to populate the area of “Las Quebradillas”. In 1815, neighbors of Camuy Arriba and “Las Quebradillas”, gave authority to Francisco Jiménez to request authorization from the government to the foundation of a town on the site of “Las Quebradillas”. Las Quebradillas owes its name to the existence of numerous small streams that travel its territory. The town of Quebradillas was officially founded in 1823 by Don Felipe Ruiz and Francisco A Bravo. Ruiz and Bravo donated the land to build the town; Ruiz donated eight “cuerdas” of land and Bravo, one and a half “cuerdas” necessary to establish the urban area of the future village.

In that same year of 1823, began the municipal works surrounding the cemetery, and the King's House construction begins, finishing in 1824. The Church was completed in 1828, it was named “San Rafael Arcángel”. Manuel Valdez was its first Parish Priest. At the time of its foundation Quebradillas was formed by Cacao, Cocos and Sapo neighborhoods.

Twenty years later, in 1824, Quebradillas had 1,829 inhabitants. By that time, the town of Quebradillas consisted of only ten (10) houses and ten (10) bohios. In the neighborhood only 3 houses and 332 wooden, palm and straw bohios.¹ Ten years later, in 1836, the municipality had 1,500 neighbors, of which only 102 were native Creoles of Puerto Rico. In this initial stage the economy of Quebradillas was based on the cultivation of sugar cane, coffee, livestock, tobacco, and other minor fruits. There were eleven (11) cane mills and four “alambiques”. The Municipality produces sugar, “melao” and “aguardiente” (rum).

¹ Sepúlveda Rivera, Aníbal, Puerto Rico Urbano, San Juan: CARIMAR, Vol.1, 2004. Page. 125.

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During the second half of the nineteenth century the cultivation of sugar cane was reduced but the agriculture of coffee and tobacco was increasing. In 1878 there were already about eight neighborhoods; Charcas, Guajataca, San Antonio and San José emerged.

Figure 1: Map of the town of Quebradillas in 1869. By Ramon Soler Tort.² In the Center the Plaza de San Rafael is identified. Undeveloped areas are identified in green.

² Sepúlveda Rivera, Aníbal, Puerto Rico Urbano, San Juan: CARIMAR, Vol.2, 2004. Page. 144.



In 1902 the Legislative Assembly of Puerto Rico approved a law called for the Consolidation of Certain Municipal Terms that eliminated the municipality of Quebradillas and incorporated its neighborhoods and officials to those of Camuy. In the period between 1903 and 1908 the route of the railroad between San Juan and Ponce was finished with the erection of a bridge over Quebradas in Isabela and Quebradillas and the impressive viaduct based on steel beams crossing the canyon of the Guajataca River and its two access tunnels. The 1899 census gives the population of town 1,166 of whole district of 7,432. Manufactures consist in straw hats and cigars. In 1908, a new law returned Quebradillas its character as a municipality with the same boundaries and neighborhoods it had in 1902.

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Synthesis of the Urban development of the town of Quebradillas

- Officially founded in 1823 in nine and a half “cuerdas” of land.
- In that same year of 1823, began the municipal works of the cemetery and the King's House construction begins, finishing in 1824.
- 1824, the town of Quebradillas consisted of **ten (10) houses and ten (10) bohios**.
- The Church was completed in 1828, devoted to “San Rafael Arcángel”.
- The 1869 plan (Figure 1) identifies 166 structures erected in the urban center including the Catholic Church.
- In 1869 the Catholic Church was the only masonry structure in the village.
- The Catholic Church was part of the Main Square (Figure 1 and Figure 2)).
- In 1878 in the village were 64 houses, 79 bohios, 261 families, 5 mixed shops and 12 grocery stores.
- In 1878 the village was form by five streets: Comercio, San Justo, California, San José, and Socorro and six “Callejones”.
- In 1878, the main square was the Plaza de San Rafael an a “Plazuela” name “Las Mercedes”.
- In 1878, the wooden Town Hall was in the “Plazuela de Las Mercedes”.
- Map of Quebradillas 1889, By Félix Ardanaz y Crespo, Corps of Military Engineers, Topographic Commission, shows an existing structure in the parcel under evaluation (Figure 2).
- Descriptions of William H. Amstrong In 1909, “The town, like all other towns in P.R., is built about the church and plaza where all the business is carried on and where the best residences are (Figure 3).
- “Most of the buildings are low single story wooden buildings although there are a number of old masonry buildings. The town hall is an old rickety two-story house opposite the south side of the church. The telegraph office is in the same building. Town has no hospital, fire department or factories. Town could easily be burned as most of its buildings are of wood.”³
- “The church is 40 X 100 feet.”
- “The streets are “Level but rough and rocky...”
- “Cigars are manufactured in four old buildings”.⁴

³ Sepúlveda Rivera, Aníbal, Puerto Rico Urbano, San Juan: CARIMAR, Vol.3, 2004. Page. 320.

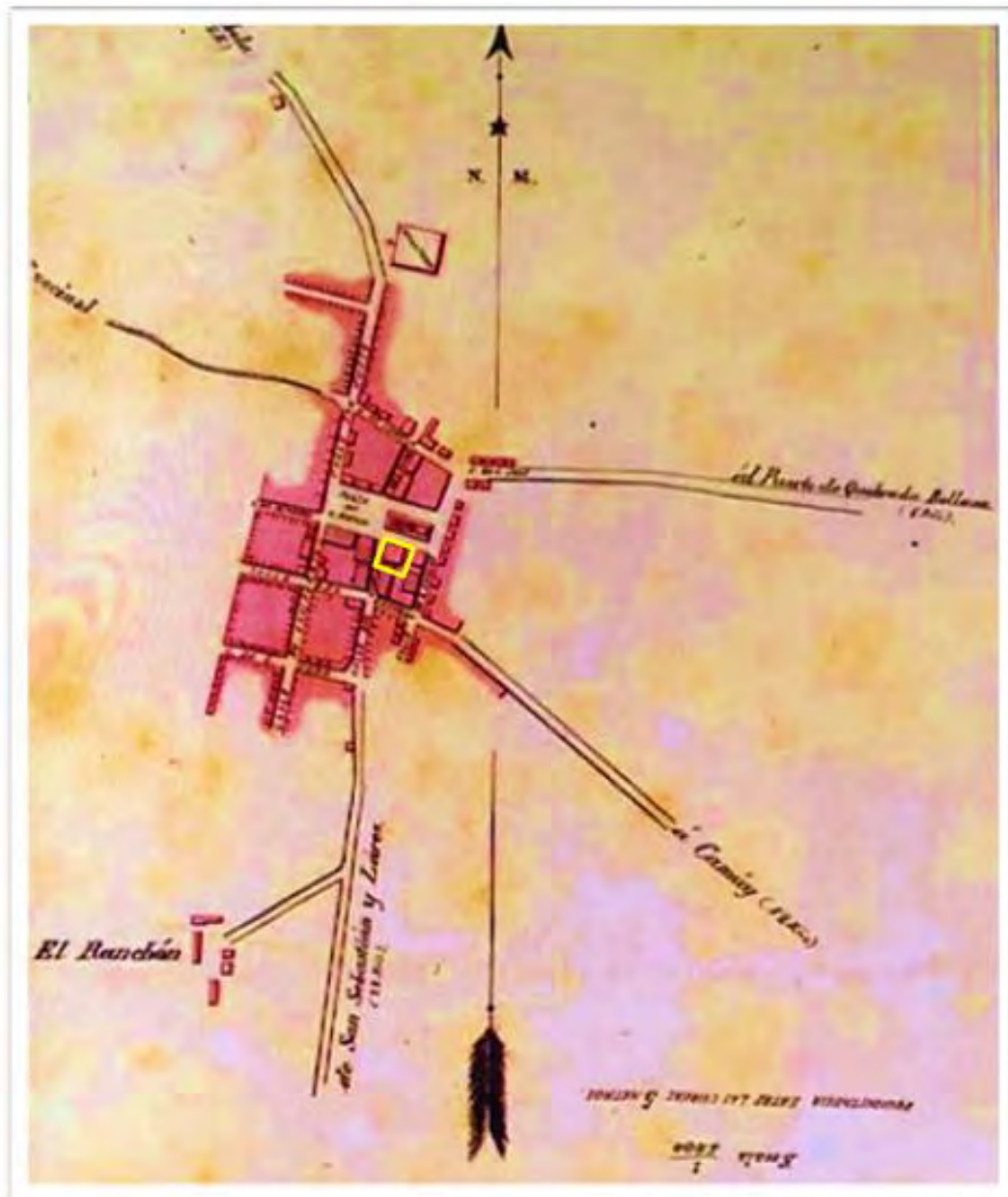
⁴ Ibid. Page 320.

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During the first half of the twenty century the Urban growth of Quebradillas remained slow. The aerial photograph of 1936 (Figure 4) shows that the urban center of Quebradillas developed basically to the North direction. During the second half of the twenty century the predominant industries of Quebradillas were agriculture, livestock, commerce, and tourism. The urban center of the town of Quebradillas developed to the North, South and West (Figure 5). In the 2010 Census, the town had an estimated population of 3,103 inhabitants.

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Figure 2: Section of the Map of Quebradillas 1889, By Félix Ardanaz y Crespo, Corps of Military Engineers. Topographic Commission.⁵



⁵ Sepúlveda Rivera, Aníbal, Puerto Rico Urbano, San Juan: CARIMAR, Vol.3, 2004. Page. 318.



Figure 3: Quebradillas, 1898. Photograph of Walter Townsend. Our Island and Their People.⁶



⁶ Sepúlveda Rivera, Aníbal, Puerto Rico Urbano, San Juan: CARIMAR, Vol.3, 2004. Page. 319.

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Figure 4: Quebradillas Urban Center in 1936. Aerial photo, DTOP.



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Figure 5: Quebradillas Urban Center in 1999. Aerial Photo. DTOP.

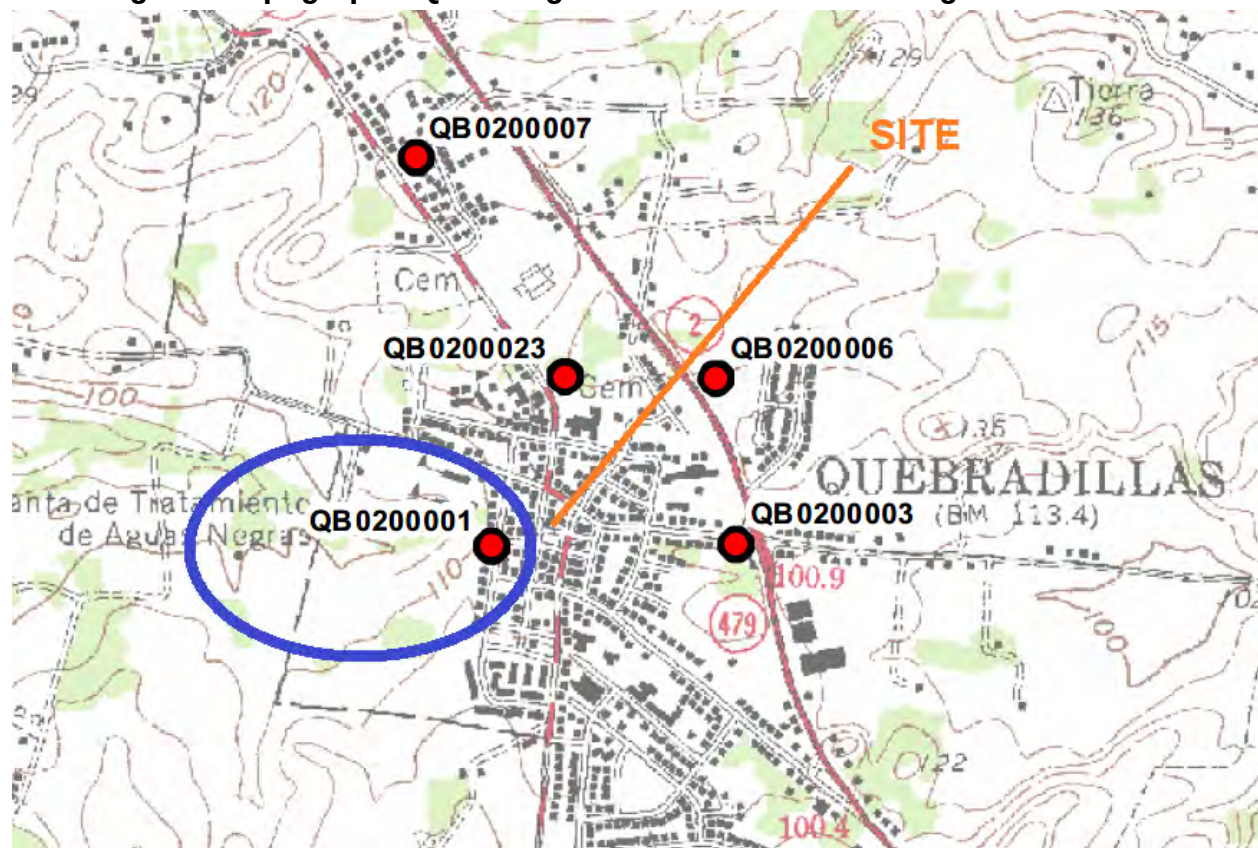


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Identification of Historic Properties-Archaeology

In the list of archaeological sites of the State Historic Preservation Office (SHPO) reports 33 sites of cultural value in Quebradillas. In the list of the 34 are included the pre-Hispanic and historical sites. There are 23 historical sites, 10 pre-Hispanic, (1 historical that is repeated). This repeated site is that of Puerto Hermida (formerly Qb1) appears in the urban area as QB0200001 and with the same numbering (QB0200001) on the northeast border between Quebradillas and Camuy. We understand it is a mistake (pointed out in blue) and everything indicates that the correct location is to the North on the border of the municipal territory of Quebradillas with the municipality of Camuy. The QB 0200003 is located at 0.21 miles at east, the QB0200006 at 0.26 miles to the east and, the QB0200007 is at the north at 0.32 miles, the QB 0200023 at 0.15 miles at north.

Figure 6: Topographic Quadrangle USGS with the archaeological sites' information.



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Based on the documented archaeological information, it seems that all the cultural resources near the Urban Center of Quebradillas and the parcel of the project under evaluation correspond to historical cultural resources. Among them; QB0200003, QB0200006, QB0200007 and QB0200023.

QB0200003 - Hacienda San Antonio; Hacienda Comulada

QB0200006- Hacienda Amador, it is the oldest house in Quebradillas. It was built before the founding of the town of Quebradillas in 1823. It is approximately 200 years old. At first it was a cotton and tobacco farm. Milk was also produced and then sent by train to Mayagüez. The house was built by the Rivera family that belonged to the region of Camuy. Then it belonged to the Marxuach and Babylon family. In 1902 Mr. Andrés Amador, grandfather of Carmen Milagros Amador, bought it. Doña Milagros Amador and her father were born in this house. Since 1972 the house has been owned by Carmen Milagros Amador and Ángel Luis Lugo. The house is made of stones and cement but has a wooden floor and ceiling. The roof is hipped. The residence is on two floors. On the first floor there is a library and a private chapel. In this chapel the first masses and novenas of Quebradillas were held. It was also used as an all-boys teaching college. The second floor has a hall, three bedrooms, two bathrooms, a large living room, dining room, kitchen, a balcony, and a terrace. It also had a cistern where the whole region came to fetch water.⁷

Figure 7: QB0200006-
Hacienda Amador



⁷ https://www.facebook.com/MiOrgulloDeCorazon/posts/5122345054478639/?locale=hi_IN

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QB0200007- Horace Mann School Ruins

QB0200023- San Rafael de las Quebradillas Cemetery- Cemetery built in 1823 in Pueblo de Quebradillas neighborhood. It is said that due to the difficulty of the stretch to the cemetery of Isabela when the Guajataca River grew due to the rains, is that the San Rafael de las Quebradillas Cemetery was built. Its original fence was made of wooden sticks. At present the cemetery is not in use, but the pantheons and niches of the nineteenth century are still maintained.⁸

Historical Resources of the Municipality included in de NRHP

In the municipality of Quebradillas only has two historical records in the *National Register of Historical Sites*. The first was nominated in 1984. Registered as White Bridge, the Bridge built in 1922, and Encompassing the Quebrada Mala Canyon on Panoramic Street, in the Terranova neighborhood. The coordinates are 18°29'10" N 66°55' 34"W.



Photo 1: Puente Blanco

⁸ Archivos Digitales Oficina Estatal de Conservación Histórica.

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The second nomination corresponds to the Liberty Theatre in 1989. Located at number 157 Rafols Street, in the Pueblo neighborhood, it is a building from 1921, designed by Arcilio Rosa. The coordinates are 18°28'24" N 66°56'21"W.



Photo 2: Liberty Theatre

Table 1: Nearby archaeological reports within a 1 km (0.621371 miles) radius

Code	Phase	Title	Autor	Results	Distance
1. ICP/CAT-QB-90-01-04	Phase IA	Carr Water Supply Improvements. PR 113 and 485	Rossana Santos Emanuelli	Negative	0.1 miles east
2. ICP/CAT-QB-92-01-08	Phase IA-IB	Parque Industrial de Quebradillas	Antonio Daubón Vidal	Negative	0.40 miles south
3. ICP/CAT-QB-92-01-09	Phase IA-IB	Villas de Quebradillas	Juan González Colón	Negative	0.42 miles east

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4. ICP/CAT-QB-94-02-01	Phase IA	High School Construction	Adalberto Maurás Casillas	Negative	0.25 miles northeast
5. ICP/CAT-QB-98-02-05	Phase IA-IB	Urban of Social Interest	Juan J. Ortiz Aguilú	Negative	0.28 miles west
6. ICP/CAT-QB-08-04-02	Phase IA	Parque Urbano	Fernando Alvarado Muñoz	Negative	0.14 miles southwest
7. ICP/CAT-QB-10-04-04	Phase IA	La Ceiba	Roberto Martínez Torres	Negative	0.59 miles southeast

A total of eleven archaeological studies have been conducted within a radius of one kilometer (0.621371 miles) distance of the evaluated project plot. All studies show negative results. However, we certainly know that the most abundant cultural resources in the urban centers of the towns of Puerto Rico are architectural resources, historical ruins, elements of Spanish colonial infrastructure, domestic garbage dumps of the colonial era, “aljibes” etc. .

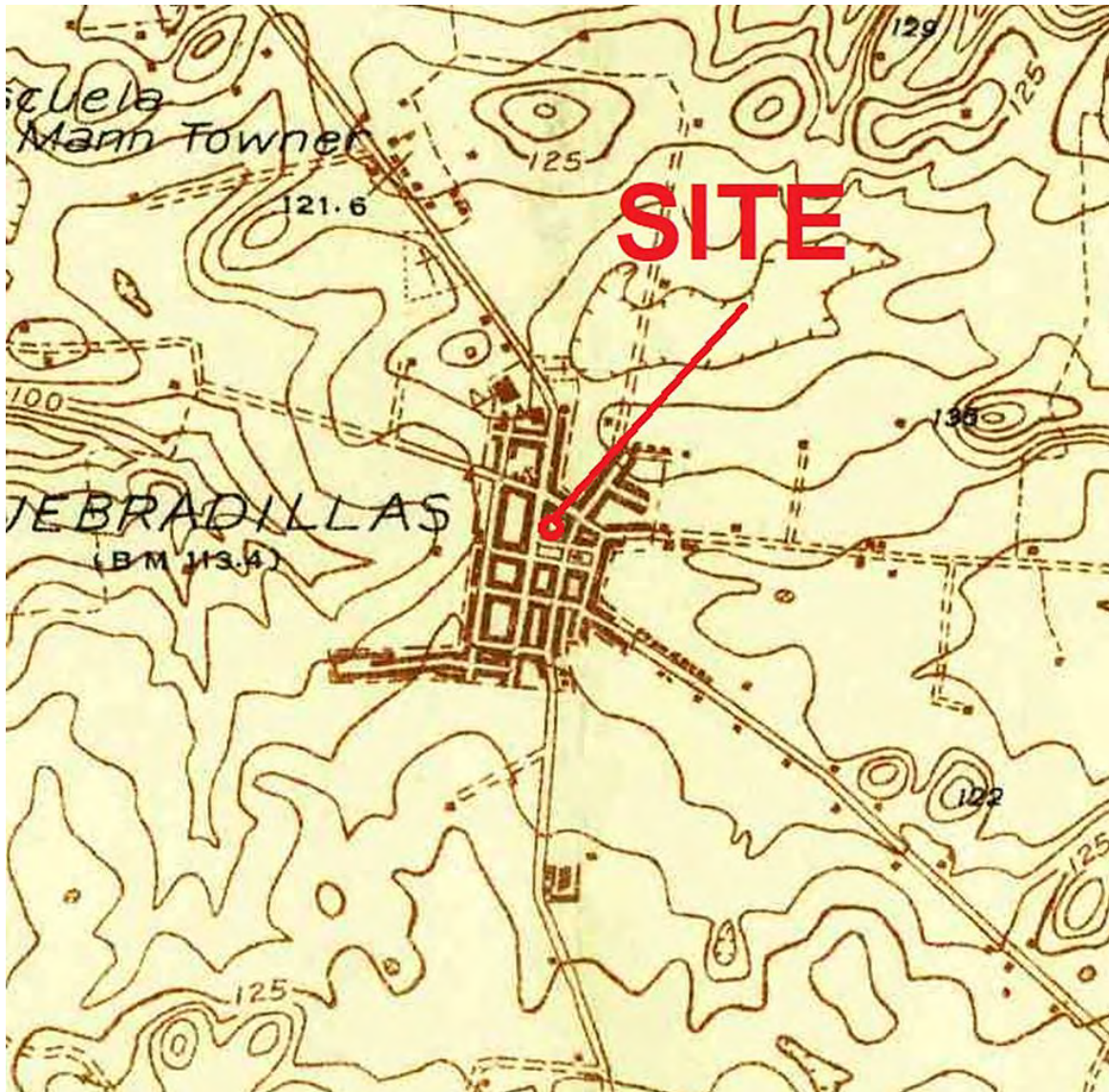


Figure 8: Topographic Quadrangle 1937-38 (Surveyed 1922)

In the quadrangle of 1937-1938, it can be observed the urban blocks built in the urban area of Quebradillas



Figure 9: Topographic Quadrangle 1942

By 1942, Quebradillas urban grid remains almost the same as in 1938.

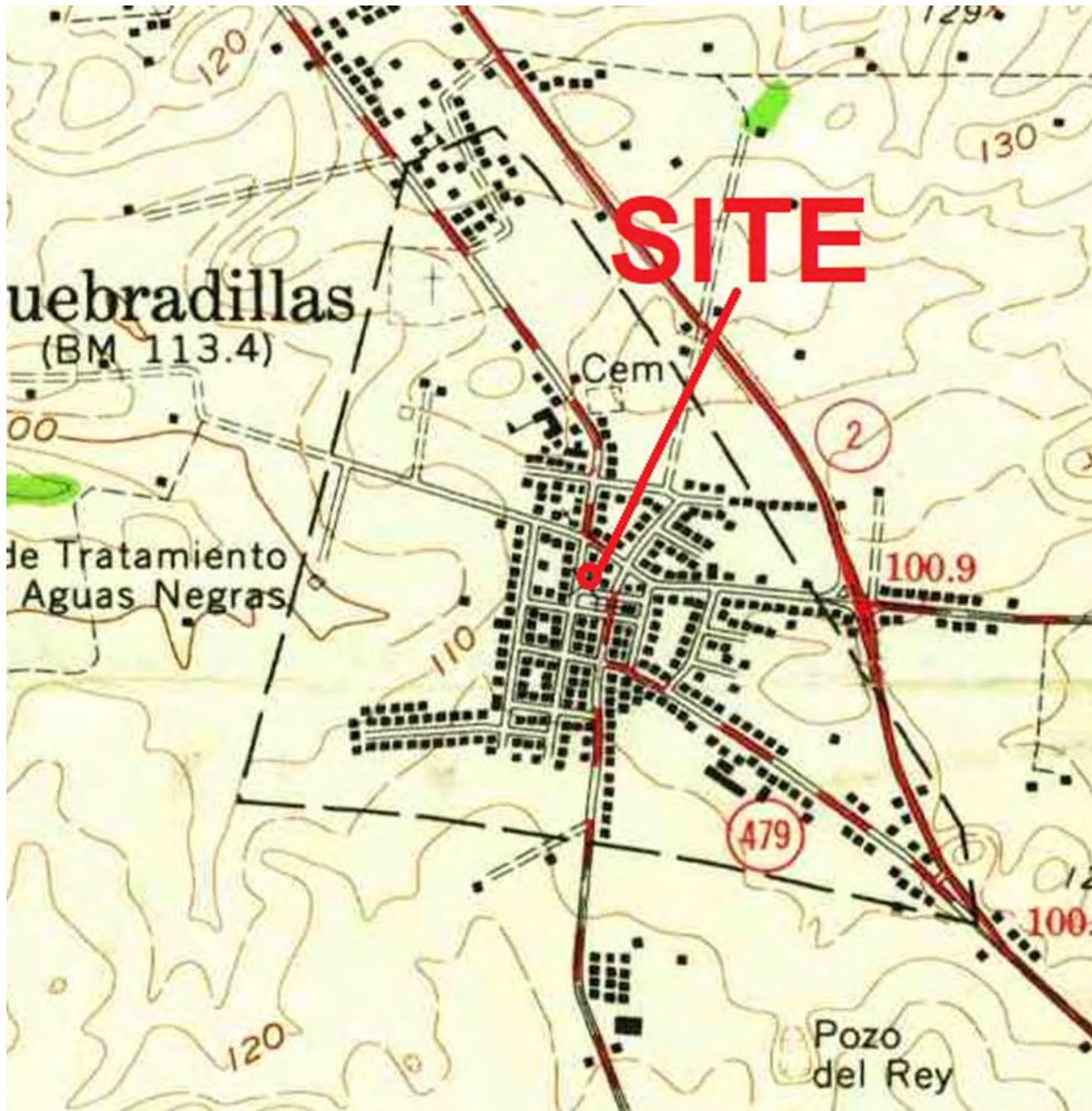
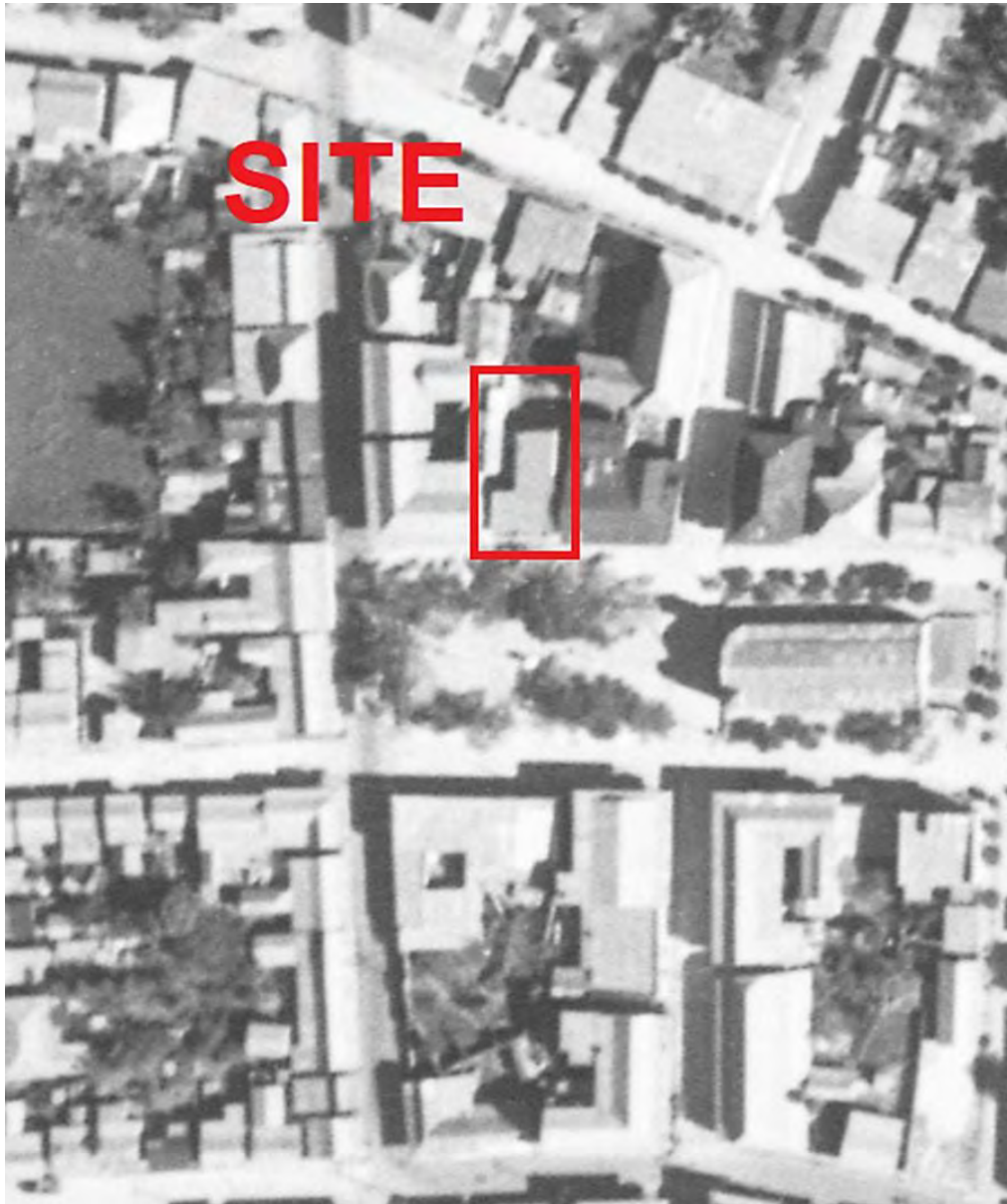


Figure 10: Topographic Quadrangle 1957-1961

Between 1942 and 1961 the urban grid of Quebradillas begins to extend to the east side of the town.

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Figure 11: Quebradillas Urban Center Aerial photo in 1931, DTOP.



In 1931, the hammer-shaped building is observed in the parcel under evaluation.



Figure 12: Quebradillas Urban Center Aerial Photo in 1985, DTOP. By 1985, no changes are observed in the area under study with respect to the 1976 photo.



Figure 13: Quebradillas Urban Center in 2018. The project site identified in red.



Figure 14: Historical photograph of Honorio Hernández Street. The existing building in the project parcel is observed in good condition c. 1950.

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Identification of Historic Properties Conclusions

After conducting the archival research at the Institute of Puerto Rican Culture /Council for the Protection of Terrestrial Archaeological Resources of Puerto Rico (ICP/CAT) and in the State Historic Preservation Office (PR-SHPO), no evidence of pre-Hispanic resources is documented in the project area or in the historic Urban Center of Quebradillas.

The structure under evaluation is considered an architectural historical resource. The historical photograph of the building in the 1950s (Figure 14), gives us the information of its historical character and its original architectural style *Neoclassical-Colonial of the early twentieth century (1918)*. As part of the Phase I research for this project an architectural evaluation of the building was made by Conservationist Architect Carlos Ferrán. A technical report "**EVALUATIVE REPORT OF THE CULTURAL HERITAGE OF ARCHITECTURE... patrimonial resource in Quebradillas de Puerto Rico, July 2022**" was performed.

Architect Carlos Ferrán exposes this recommendation when he express:

*"Our recommendation has always been to motivate and encourage the protection and conservation of this and other cultural resources as far as possible. In addition, avoid a greater impact and acceleration of the detriment of the environment. The purpose of this report in compliance with current protection regulations is to recognize the patrimonial Assets and the historical footprint product of its time are part of our historical legacy that define us as a nation."*⁹

*"We promote considering the resource as an element that can and should be merged or integrated into new projects while maintaining their particular characteristics in the areas where they exist, occur and remain. Its reuse should always be motivated, either through a restoration as reliable as possible, properly for the uses that were originally developed or through other initiatives that provide the regulations governing interventions on the built heritage. We mention among which is the activities of Rehabilitation, which allows to incorporate new uses in old structures with the minimum of alteration to its original factory."*¹⁰

We support the recommendations of Architect Carlos Ferran in terms that the project for the Historical Museum of Quebradillas can be accepted as a contribution to the conservation of

⁹ Ferran Carlos, "EVALUATIVE REPORT OF THE CULTURAL HERITAGE OF ARCHITECTURE... patrimonial resource in Quebradillas de Puerto Rico", July 2022.

¹⁰ Ibid.

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our architectural heritage. Based on the analysis of the historical plans and the aerial photographs we understand that, on the parcel where the project building is located, prior to 1918, there was a previous building, which can be seen on the map of Quebradillas "Map of Quebradillas 1889, By Félix Ardanaz y Crespo, Corps of Military Engineers, Topographic Commission (Figure 2). This possibility points to the necessity to conduct an Archaeological Monitoring during the construction Phase of the proposed project "Historical Museum of Quebradillas".

Identification of Historic Properties – Architecture¹¹

“Casa Criolla” Traditional Urban Settlements Architecture: The Creole Style.

This type of traditional urban center developments has its roots during the modernization of rural areas by which its genesis is due to the growth in the agriculture and transportation fields. These remote areas were slowly expanding into towns with stability and permanence of utilities. With these activities, the presence of more solid constructions were introduced which eventually led to the definition of permanent streets landscape of the eventually settlements.

The Casa Criolla or Creole Style were introduced between the years 1850 and 1925 and the first examples were built of wood with the exterior perimeter walls in rubblework or masonry. Most of them either one or two stories high. At the main façade, a balcony was projected towards the street. If the house was of two stories, the construction was stretched up to the sidewalk line and the balcony was placed on the second level, over the public way.

Most of these balconies were built across the entire façade and had several double-sided doors which opened towards this area. These fenestrations were oriented to the main living room spaces and sometimes to one of the dormitories. The roof usually was built in two or four gables with the main ridge parallel to the street. Also, a single gabled roof could be found with the inclination towards the posterior courtyard. The roof consisted in wood frame beams with paneled metal cover. In some cases, roof tyles were installed.

The plan consisted basically of one extended rectangular building, but in most cases a hammer plan shape was developed. The living room and sometimes a foyer was introduced towards the center. A decorative partition named “medio punto” could be found and it divided these two main spaces. This wall was decorated with fine carpentry and intricate wood craft. At the two sides of these centered areas, the dormitories were placed or mainly towards one of the sides. These dormitories communicated with each other through interior doors.

¹¹ Ferran Carlos, EVALUATIVE REPORT OF THE CULTURAL HERITAGE OF ARCHITECTURE... patrimonial resource in Quebradillas de Puerto Rico, July 2022.

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When a hammer shape plan was developed, an exterior gallery was introduced that was oriented towards an interior courtyard with service dormitories, kitchen and restroom were located at the end.

Usually, in the two-level Creole Style buildings, the first story was dedicated to the owner store, storage or both and the living quarters were on the second floor. This same style was also introduced in the development of state mansions of coffee and sugar cane companies' owners.

Most of these Creole Residences were developed with the introduction of European traditions that were introduced in Puerto Rico especially during the 19th Century with the commercial trading that took place with other Caribbean Nations. English, French, Danish and North American influence could be found expressed in the plans and main façades designs.

Project General Information

The identified resource object of this study is a two-level building located on Honorio Hernández Street in the traditional center of the Municipality of Quebradillas in front of the main square and the Catholic church in which they share the urban space. The information about the property and the plot on which they are located is as follows:

1. Classification: C-I, (Intermediate Commercial)
2. Architectural Category: Spanish Colonial Revival
3. Number of Stories: Two
4. Materials: Structural Concrete with metal roof over wood beams (Non existing)
5. Building Description: The building is located within the commercial urban district in one of the streets (Honorario Hernandez Street) that surrounds the Quebradillas' Luis Muñoz Rivera Main Square and Traditional Urban Center. Its use was mainly light commercial.

On the second floor the use was residential. The building is empty and sustained some damage that occurred during Irma and Maria hurricanes, which completely wrecked the remaining metal panels and wood beams roof.

The architectural floor plan consisted of an " L" shape structure, typical of this kind of development on the traditional town centers. The same space distribution occurs on both levels, except for where the stairs are located. In this case, the stairs are situated on the East side, which permits independent access to the second floor.

The space distribution of the plan is defined by two main naves that form the **L or Hammer** shaped, as it is commonly known. The first volume is parallel to the street and the structural arrangement is the separation of equally interstices spaces, also known as "**crujias**". This can be defined by aligned columns or walls or a combination of both. This area accommodated the most public uses of the building.

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The other nave or space volume is located perpendicular to the first one and is projected parallel to the near boundary or property line. The commercial use on the first floor gathers the storage area, restrooms and offices.

For residential use, located on the second floor above the first-floor nave the living and dining where located. The kitchen, restrooms and dormitories were situated on the second nave perpendicular to the first one. As mentioned, it is accessed by a stair located in the East side courtyard.

The second-floor perpendicular nave was joined by a lateral corridor oriented towards an interior courtyard. It also provided better natural illumination and cross ventilation.

The existing roof was lost by the effects of the latest hurricanes that impacted Puerto Rico, during 2017. It was a wood beams structure covered with zinc metal panels. The roof reflected the Hammer or L shape of the main floor plan.

Overall condition of the Structure: The building enveloped area is structurally well preserved and in good condition. No visible structural damage observed. Metal zinc paneled roof with structural wood beams is non-existing. Some existing recent construction is considered negative intervention to the original floor plan and it's in precarious conditions.

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Architectural analysis

The building, due to its location, was eminently for commercial use and as in most of these types of structure, the combination of light commercial use with residence is not far from being evident. In all probability the owner of the shop resided on the second level. Originally, the floor plan of the building is expressed in the form of "L" or hammer very typical of this type of urban development. This typological expression regarding the spatial distribution inside occurs on the first level, although in many of the similar cases they are repeated in the upper levels with the exception that the arrival or rest of the staircase is added. This is usually located in a central or lateral hallway. In this case studied it is in the side courtyard and allows independent access from the first level. The spatial distribution of this plant is defined by two naves that form the hammer. One extends parallel to the street formed by the support elements that from the plane of the main elevation are almost always repeated equidistant inside and can be columns, walls, or load-bearing walls. These interceded or intercolonial spaces called bays are identifiable elements of the development of the architectural plan and housed the most public areas of the building. The other nave extends perpendicular with respect to the first and parallel to the line of the nearest adjacent. In these spaces of commercial use were the warehouses, sanitary services and the office of the owner. In the case of residences, the kitchen, dining room, rooms and sanitary services are distributed. It is usually accessed through a side corridor facing the inner courtyard. One of the reasons is accessibility to better natural lighting and ventilation.

This condition gives it a historical character since they are found in many of our old developments. We can cite the origins of the development in Antiguo San Juan prior to the construction of the urban blocks and later in the urban plots of the traditional centers in many of the municipalities of Puerto Rico. The roof above the second level is non-existent, although it can be determined that it was a wooden beam structure with a ribbed metal cover. The roof of the nave parallel to the street is a single water with inclination towards the lateral inner courtyard with a diagonal hole file starting with the highest point in the southeast corner. Here the roof of the second nave is joined, which is also in a single water and moves parallel to the adjoining line. The roof reflects the hammer shape seen in the original architectural plan. The main elevation can be identified as Neoclassical-Colonial of the early twentieth century (1918) and is identified in the shell ornament above the central door of the first level. We point out that the imposition of an eclectic style prevails in the way that decorative elements are combined on the plane of the façade. These are very well crafted and built in concrete. It is worth mentioning and listing that the following characteristics of the patrimonial resource stand out:

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1. Elevation or Facade

a. Parapet or parapet with sling and continuous cornice on the side facing the street. On this coronation row urns were placed in the center and corners.

b. The parapet contains a frieze with rectangular decorations inserted in the centers of the “paños”.

c. Coat of arms or “Cartuch” with a clear Masonic influence located in the center and articulating the parapet on two symmetrical sides. This presents an identifiable symbology such as the saber, axe, protection “adarga” and anchor. These are circumscribed within triangular geometric shapes, which visually create a square.

d. The whole parapet rests on the main cornice that is part of the entablature. and. It should be noted the influence of Italian architecture, especially the Neo-Renaissance in the expression and development of this parapet as a mainly decorative feature of the style. It also remembers, railings of which they were known as Paseo de las Viudas or Paseo del Capitan, especially in coastal places and whose origin is of North American influence.

2. Second Level

a. A continuously flown balcony with railing is projected whose tapestry are ornamental blocks type rosettes and articulated with posts separating into three areas. These units could be purchased commercially since they are modular pieces and have also been used in the same way in other residential buildings of the time.

b. The fenestrations of the doors are flanked with sashes on both sides of the gap and a sash-shaped wall in protruding box, at the top of the pillar.

c. The openings of the doors have semicircular arch uprights with truncated suns and inserted stained glass. The doors were of two leaves made of wood and each of them integrated movable lattices in the central quarters possibly with shutters in the back.

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3. Level One

- a. The fenestrations of the doors are rectangular whose sashes on each side replaced by pilasters of half circumference and with grooves in their shaft, capital and on these the corbels.
- b. The double doors and like the second level were made of wood and with fixed glass at the top. Although, without uprights, it possibly had central quarters in movable lattice windows, with shutters in the back and solid base quarters on the low cabio.
- c. Above the doors are walls or ornamentations in the form of very stylized shells and served for identification. In the central shell is the year in Roman numerals of the construction of the building. (1918).
- d. The whole building was raised in a basement and the bases of the columns that show a masonry finish in the plaster are integrated. The edges of the building in its main elevation show terminations in pads and occur on both levels. Also of neoclassical influence, in this case it is decorative elements in the corners.

Our recommendation has always been to motivate and encourage the protection and conservation of this and other cultural resources as much as possible. In addition, avoid a greater impact and acceleration of the detriment of the environment. The purpose of this report in compliance with current protection regulations is to recognize the heritage assets and the historical footprint product of their time are part of our historical legacy that defines us as a nation. We promote considering the resource as an element that can and should be merged or integrated into new projects while maintaining their particular characteristics in the areas where they exist, occur and remain. Its reuse must always be motivated, either through a restoration as reliable as possible, properly for the uses that were originally developed or through other initiatives that provide the regulations governing interventions on the built heritage.

We mention among which is the activities of Rehabilitation, which allows to incorporate new uses in old structures with the minimum of alteration to its original factory It is our responsibility to contribute with the analysis and present in conjunction with the regulatory agencies of Puerto Rico: Institute of Puerto Rican Culture (ICP) and the State Historic Preservation Office (SHPO) as well as the International Councils and Movements on the recovery and promotion of the protection of built heritage, express some guidelines or general regulations of intervention to resources:

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1. It is imperative to maintain the structural genesis, character of the buildings and their environment, without alterations or destructive interventions or that modify too much the idiosyncrasy originating in complex.

2. The historical character of the buildings must be preserved. They must not remove materials, nor alter elements that affect their nature.

3. The entire enclosure must be recognized as a record and physical evidence of its time, place, and use. You should avoid adding elements based on assumptions, assumptions or coming from other buildings.

4. The elements, finishes, construction techniques and craftsmanship that contribute to the character of a heritage resource must be preserved.

5. Any component of a property resource that is deteriorated must be repaired and not replaced. If the damage is of magnitude that requires its replacement, the new element must be compatible with the original in terms of color, texture, design and especially materials. The reproduction of missing pieces must be based on evidence, documents, sketches or photographs.

6. Interventions involving extensions, alterations or new construction must not destroy or replace original or historical materials that add value to a heritage resource. The contemporary building must be distinguishable from the old, although it must be compatible in terms of volumetry, morphology, scale and architectural or decorative elements.

7. Interventions involving extensions, alterations or new construction must be carried out in such a way that, if demolished in the future, it does not affect the quality of the heritage resource and its whole.

8. If archaeological sites are found in the enclosure, they must be preserved and protected. If they are impacted by the intervention of a project, it is imperative to establish a protocol of mitigation measures and tasks. It is, therefore, that we emphasize the following recommendations based on the guidelines presented. As has been recognized, there is a proposal for Rehabilitation to establish uses for a museum in the building object of this study. Although this is an excellent possibility and we understand that no plans have been developed for its implementation, we endorse the proposal, although we suggest that the following suggestions be considered:

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1. The original plant must be recognized in the form of a hammer. to. Eliminate any non-original and undue intervention that distorts the primary spatial distribution. We especially identify the part added that it invades the inner courtyard side of the plot and has been identified in this report. In addition, it is evident that it is structurally compromised in which fissures, products of differential settlements and exposure of steel reinforcements due to corrosion are observed next to the laminate of the concrete that covers them, especially in the columns.

2. The lateral inner courtyard must be recognized and can be incorporated into the architectural design proposal for museum use, avoiding its invasion by building structures that are visually permeable in terms of their basic construction for this space.

3. Increasing the amount of square footage of construction may be considered only if required by the proposed use: a. The expansion of the side nave towards the rear courtyard, although considering keeping the open space in a recognizable and considerable size. b. The increase to a third level of the lateral nave with the elevation that is oriented to the street set back, at least to be located after the second bay or the projection of the size of the second nave, only.

4. Any new construction must be recognized and differentiated from the original with the possibility that the original plant (hammer) can be recovered without affecting its shape if a new intervention occurs in the future.

5. The main façade must remain integrated and without interventions. It is recommended that no chemicals, corrosive cleaning components or systems, including pressurized water or sandblasting methods, be used. b. It has been included in the section of sketches, suggestion of the design of the doors and their components, for both levels. Likewise, proposals for the windows, which continue with the same pattern as the doors, according to the existing fenestration, should be considered. Although we recommend that doors and windows be constructed of wood, metal doors and windows are acceptable, if they maintain the design like the original, as suggested. We emphasize that you must have the endorsement or recommendation of the Built Heritage Protection Program attached to the Institute of Puerto Rican Culture (ICP). c. No new construction shall coincide with the plan of the main elevation.

The evaluation criteria for the Nomination of Historic Sites and Zones established by the Puerto Rican Institute (ICP) through the Joint Regulations, amended and approved in January 2020 and the State Historic Preservation Office (SHPO) who support and recommend the

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development of studies such as the present. Those concepts that apply to the resources identified to be protected as recommended in the report, are the following:

1. Criterion A: Associated with events that have contributed significantly to the patterns of our history.

2. Criterion B: Associated with the lives of significant people in our history.

3. Criterion C: Represent the distinguishing features of a type, period, or method of construction. Represents the Work of a Master, possesses great artistic or artisanal value, represents a significant and distinctive entity, whose components lack individual distinction. That constitutes an urban space of special relevance, beauty or meaning.

4. Criterion D: That they have meaning for history, architecture, art, archaeology, engineering, and that contribute to explaining the fundamentals of it.

We understand that all the four criteria presented apply to the case studied for the identified resource, especially Criteria C and D. Therefore, our recommendation is to begin the processes of registration of the identified resource in the National Registry. For these tasks, it is not required to begin the rehabilitation works of the existing structure and always in collaboration with the Institute of Puerto Rican Culture and the State Historic Preservation Office (SHPO).

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Determination

The following historic properties have been identified within the APE:

- **Direct Effect:**
In the project, a historical structure eligible to the National Register of Historic Places is located. The project proposes an internal restructuring of the property, to create the necessary spaces for the museum.
- **Indirect Effect:**
The existing historic building remains are part of the traditional Quebradillas historic core, facing the Historic Main Square and the catholic Church. The facade will not be affected by the project, therefore, there will be no indirect effect on the property or surrounding structures.

Based on the results of our historic property identification efforts, the Program has determined that project actions **have no adverse effect** the historic properties that compose the **Area of Potential Effect**. We promote, and it is our opinion that the cultural heritage that will be impacted by a new rehabilitation project preserve its existing identified elements without altering or demolishing them maintaining them in their current state, always considering their present original footprint.

Based on the analysis of the historical plans and the aerial photographs we recognize that, on the parcel where the project building is located, prior to 1918, there was a previous building, which can be seen on the map of Quebradillas "Map of Quebradillas 1889, By Félix Ardanaz y Crespo, Corps of Military Engineers, Topographic Commission (Figure 2). This possibility points to the necessity to conduct an **Archaeological Monitoring** during the construction Phase of the proposed project "Historical Museum of Quebradillas".

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The Puerto Rico Department of Housing requests that the Puerto Rico SHPO concur that the following determination is appropriate for the undertaking (Choose One):

☐ No Historic Properties Affected

☒ No Adverse Effect

Condition (if applicable): **Only selective demolition** shall be permitted to remove recent interventions, that are considered unstable. and an archaeological monitor should be present during any ground disturbing activities.

☐ Adverse Effect

Proposed Resolution (if applicable)

This Section is to be Completed by SHPO Staff Only

The Puerto Rico State Historic Preservation Office has reviewed the above information and:	
☐ Concurs with the information provided. ☐ Does not concur with the information provided.	
Comments: 	
Carlos Rubio-Cancela State Historic Preservation Officer	Date:

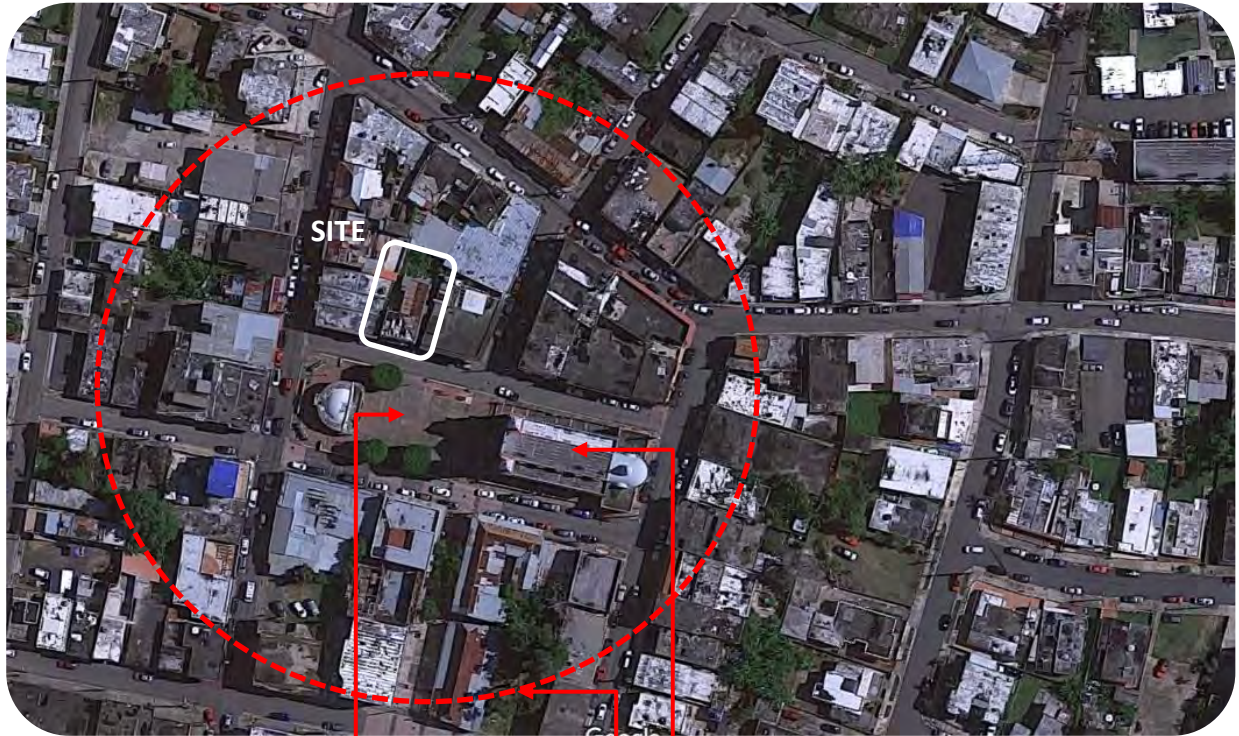


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Project (Parcel) Location – Area of Potential Effect Map (Aerial)



LUIS MUÑOZ
RIVERA MAIN SQUARE

CATHOLIC
CHURCH

TRADITIONAL URBAN
CENTER





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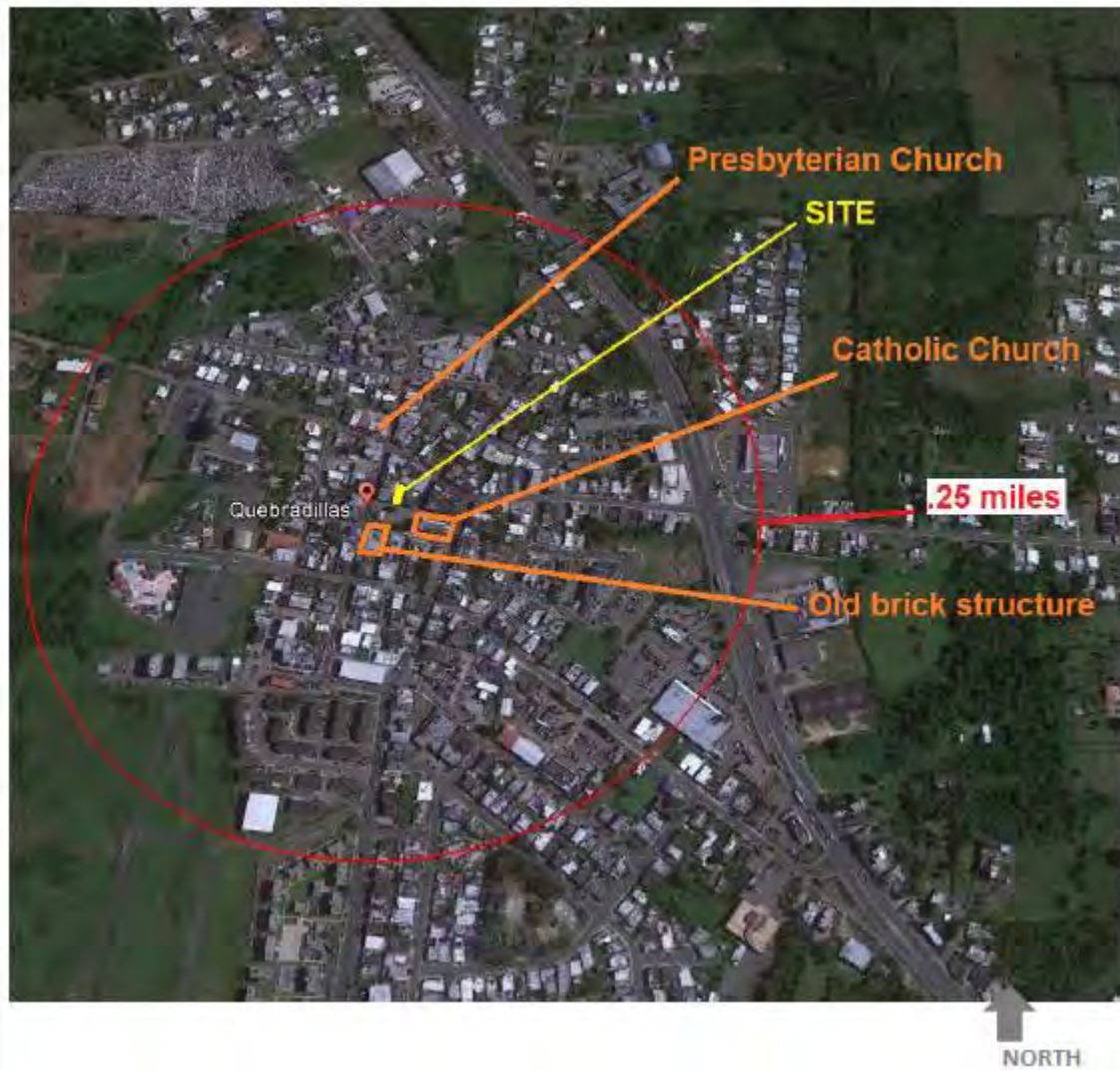
Project ID: PR-CRP-000554

Project (Parcel) Location - Aerial Map



NORT

Project (Parcel) Location with Recorded Historic Properties - Aerial Map

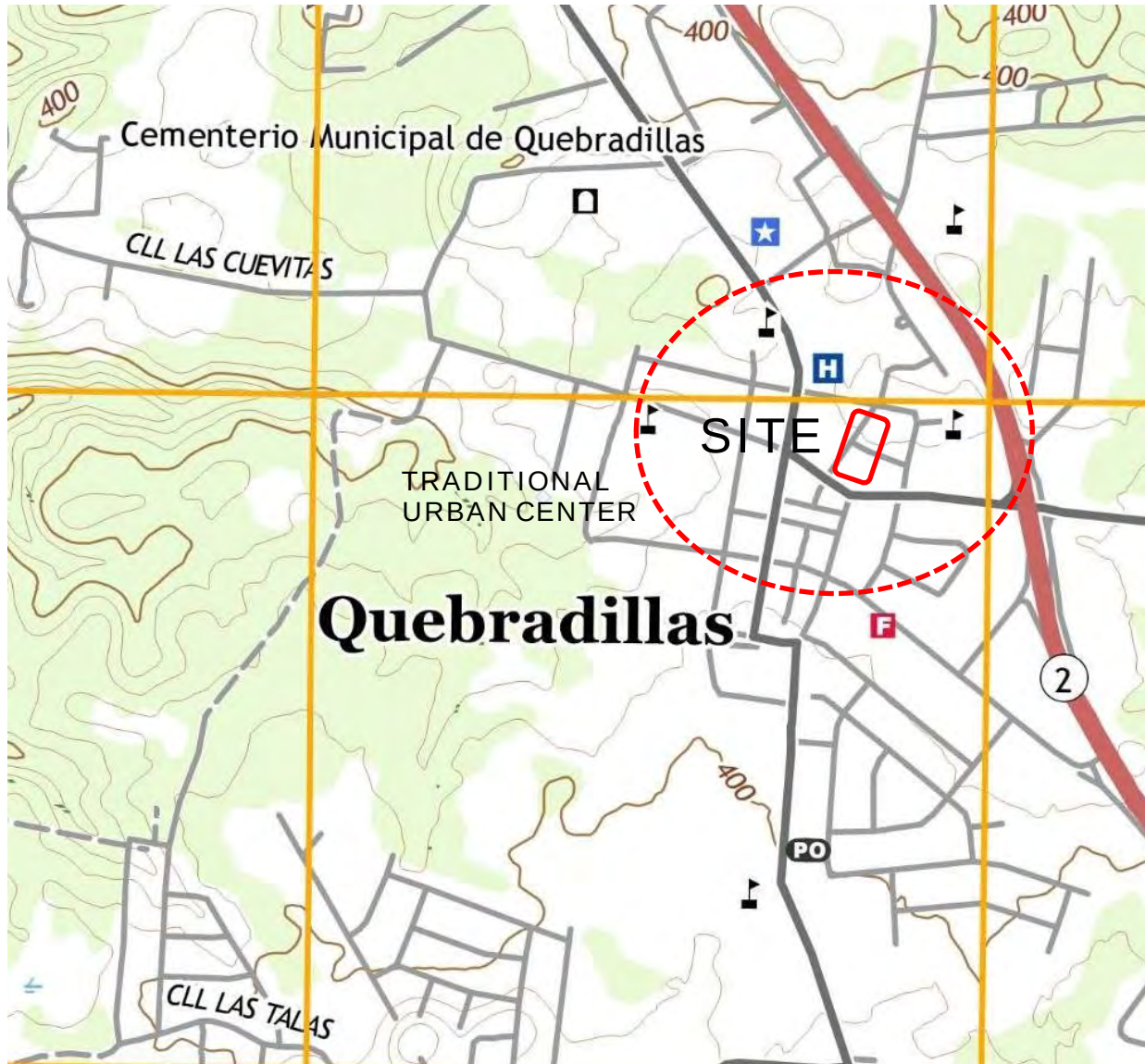


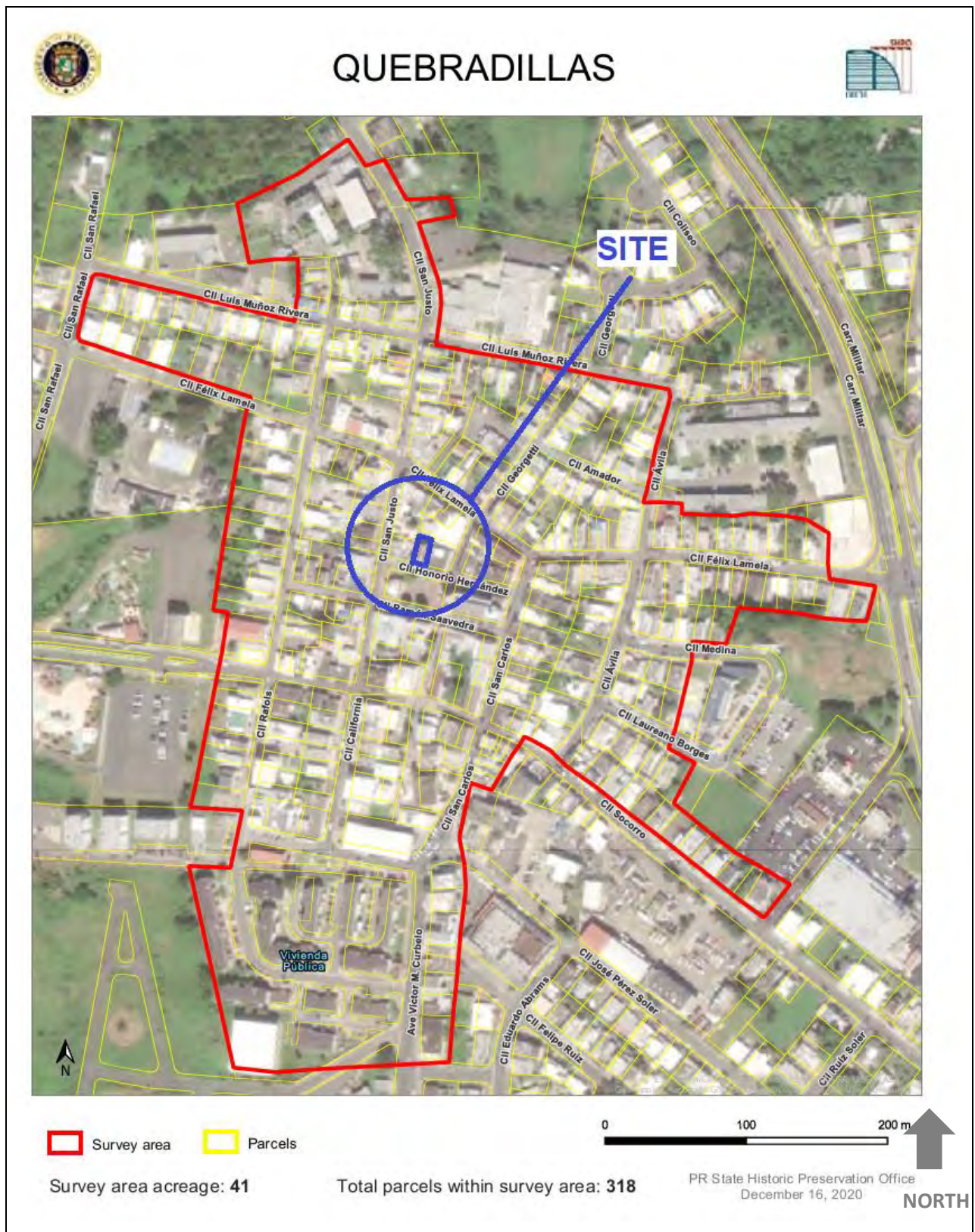
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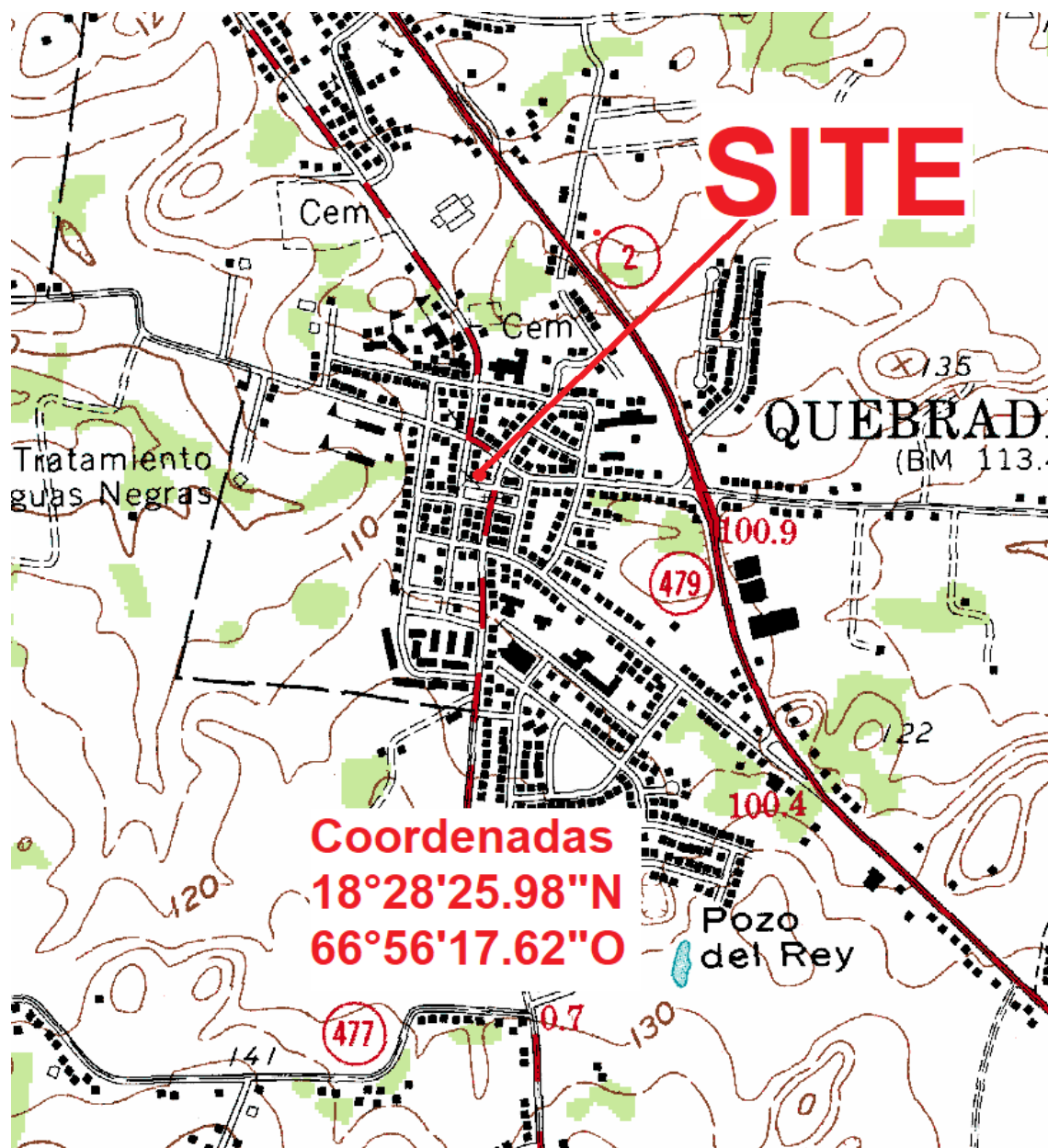
Project ID: PR-CRP-000554

Project (Parcel) Location - USGS Topographic Map



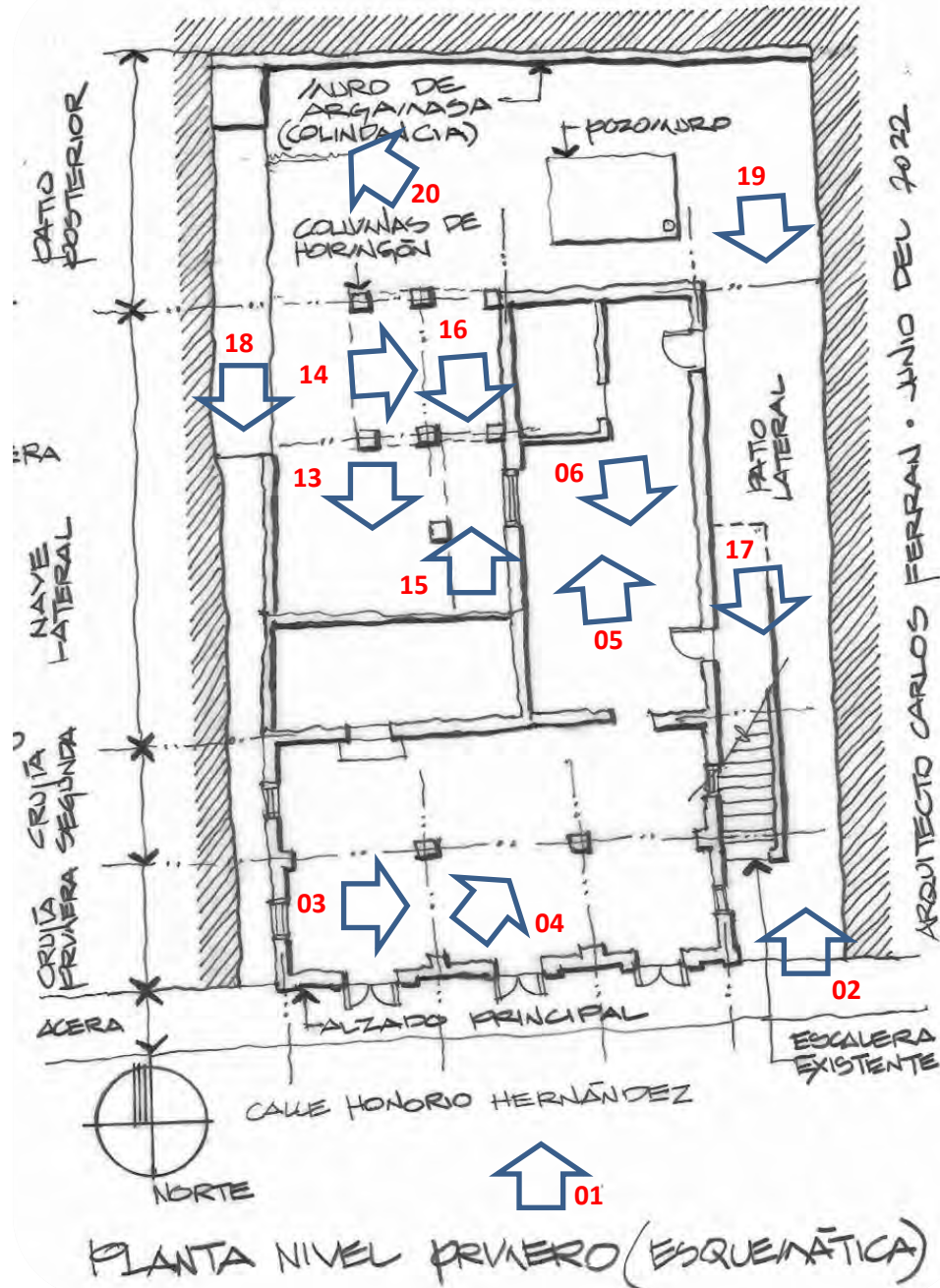


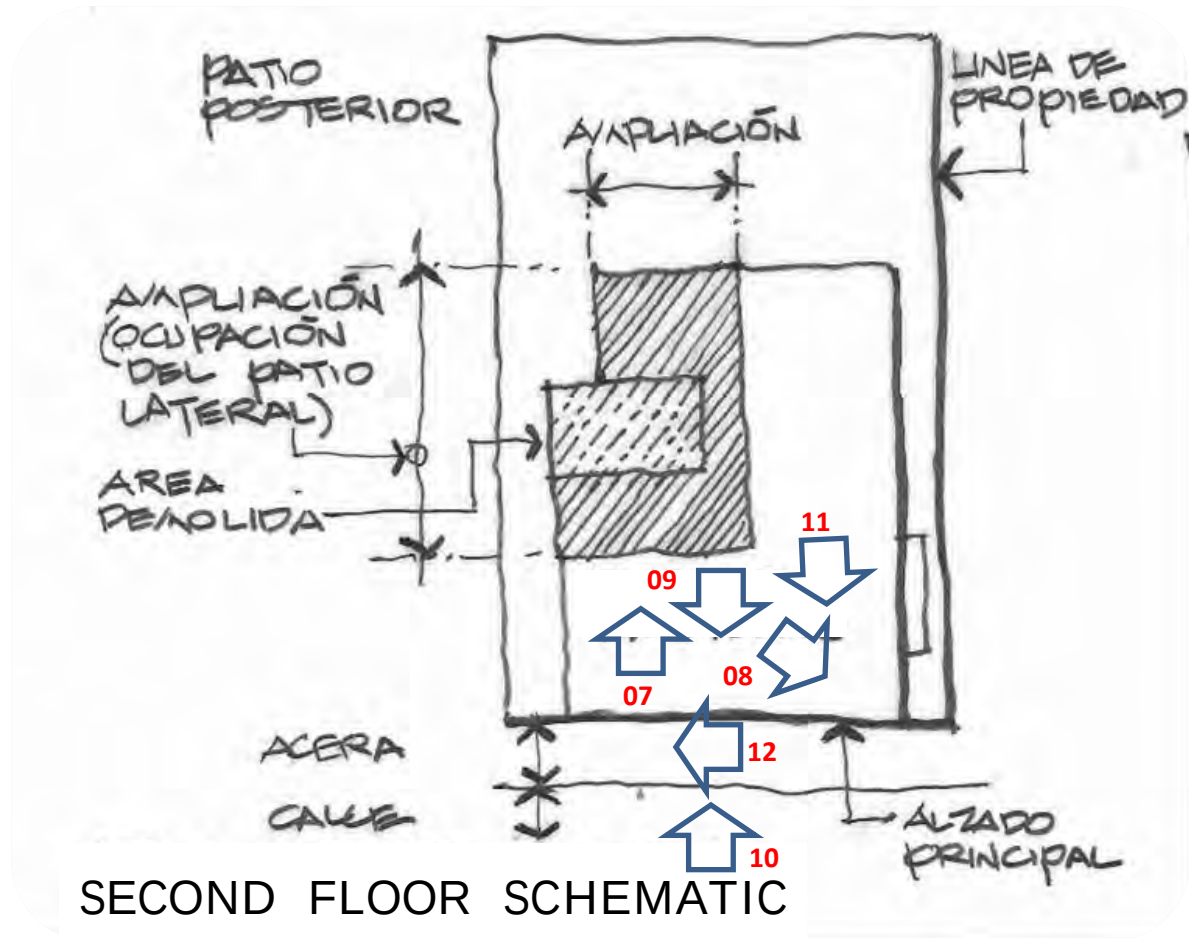
Project (Parcel) Location with Recorded Historic Properties – Topographic Map





Photograph Key







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Photo: #01

Description: South view and main façade located at Honorario Hernández Street

Date: 07/22/22



Photo: #02

Description: South-East view. Stairs on side courtyard to second floor.

Date: 07/22/22

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Photo: #03

Description: South, entrance from main façade, interior view of building. Concrete columns and beams.

Date: 07/22/22



Photo: #04

Description: South, entrance from main façade, interior view of building. Concrete columns and beams.

Date: 07/22/22



Subrecipient: Municipio de Quebradillas

Project Name: Reconstrucción de edificio para uso de Museo Histórico

Project ID: PR-CRP-000554



Photo: #05

Description: First floor level. South towards North side interior view of nave. Concrete roof walls and roof. Terrazzo tiles finished floor.

Date: 07/22/22



Photo: #06

Description: First floor level. North towards South, interior view of nave. Concrete roof, beams and walls. Terrazzo tiles finished floor.

Date: 07/22/22



Subrecipient: Municipio de Quebradillas

Project Name: Reconstrucción de edificio para uso de Museo Histórico

Project ID: PR-CRP-000554



Photo: #07

Description: Second floor level interior. South view towards North. Concrete walls and floors with ceramic tiles over hydraulic concrete tiles finish. Roof is missing.

Date: 07/22/22



Photo: #08

Description: Second floor level interior. North view towards South and main façade balcony. Concrete walls and floors hydraulic. Roof is missing.

Date: 07/22/22

Subrecipient: Municipio de Quebradillas

Project Name: Reconstrucción de edificio para uso de Museo Histórico

Project ID: PR-CRP-000554



Photo: #09

Description: Second floor level interior. South view and main façade posterior concrete wall with arched doors fenestrations. Coat of arms at center of parapet with urns.

Date: 07/22/22



Photo: #10

Description: South view of second floor level main façade. Concrete wall with arched doors fenestrations and decorative elements on wall surface and balcony

Date: 07/22/22



Subrecipient: Municipio de Quebradillas

Project Name: Reconstrucción de edificio para uso de Museo Histórico

Project ID: PR-CRP-000554



Photo: #11

Date: 07/22/22

Description: Second floor level interior. South view and main façade posterior concrete wall with arched doors fenestrations. Roof's wood beams wall connection shown.



Subrecipient: Municipio de Quebradillas

Project Name: Reconstrucción de edificio para uso de Museo Histórico

Project ID: PR-CRP-000554



Photo: #12

Description: West view on second level's balcony area.

Date: 07/22/22



Photo: #13

Description: North towards south. Interior courtyard with existing concrete railings and partial stairs remains (recent construction)

Date: 07/22/22



Subrecipient: Municipio de Quebradillas

Project Name: Reconstrucción de edificio para uso de Museo Histórico

Project ID: PR-CRP-000554



Photo: #14

Description: East view of second floor level façade, oriented towards interior courtyard.

Date: 07/22/22



Photo: #15

Description: North view. Interior courtyard. First floor level corridor. Existing concrete columns (recent construction)

Date: 07/22/22



Subrecipient: Municipio de Quebradillas

Project Name: Reconstrucción de edificio para uso de Museo Histórico

Project ID: PR-CRP-000554



Photo: #16

Description: South view, interior courtyard corridor.

Date: 07/22/22



Photo: #17

Description: South view. Area under main stairs and first level access from backyard.

Date: 07/22/22



Subrecipient: Municipio de Quebradillas

Project Name: Reconstrucción de edificio para uso de Museo Histórico

Project ID: PR-CRP-000554

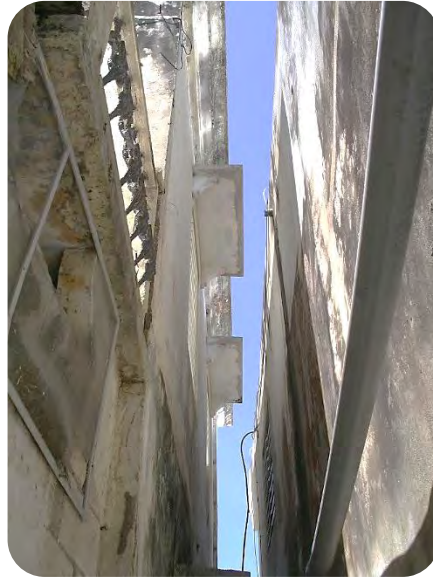


Photo: #18

Description: South view of West property line area and façade.

Date: 07/22/22



Photo: #19

Description: South view from posterior courtyard. East side property line.

Date: 07/22/22



Subrecipient: Municipio de Quebradillas

Project Name: Reconstrucción de edificio para uso de Museo Histórico

Project ID: PR-CRP-000554



Photo: #20

Date: 07/22/22

Description: North and West property line at the posterior courtyard. Cyclopean wall construction (bricks and mortar) with some rough plastered finished areas. Remanent of old fence

LEAD-BASED PAINT SURVEY

MUSEO HISTORICO

calle Honorio Hernandez Bo. Pueblo,
Quebradillas, Puerto Rico 00678



Inspection Date: January 24, 2023

Prepared for: Ingenieros del Oeste CSP

Prepared by: Nortol Environmental &
Occupational Safety, Inc.

Inspector:

A handwritten signature in blue ink, appearing to read 'Roberto Rodríguez'.

Roberto Rodríguez
Lead Inspector
LBP I.D. # LBPI-05522-073



NORTOL has performed this survey in a thorough and professional manner consistent with commonly accepted industry standards.

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Attachment 6 – Representative Pictures\Photograph Log

Attachment 7 – XRF Performance Characteristic Sheet



Acronyms

A/C	=	Air Conditioning
CFR	=	Code of Federal Regulations
CPSC	=	Consumer Product Safety Commission
EPA	=	Environmental Protection Agency
Ft ²	=	square feet
HA	=	Homogeneous Area
HUD	=	Department of Housing and Urban Development
LBP	=	Lead-based Paint
LF	=	Linear Feet
mg/cm ²	=	milligrams per square centimeter
NESHAP'S	=	National Emission Standards for Hazardous Air Pollutants
NIOSH	=	National Institute for Occupational Safety and Health
OSHA	=	Occupational Safety and Health Administration
PRDOH	=	Puerto Rico Department of Housing
PRDNER	=	Puerto Rico Department of Natural and Environmental Resources
SOW	=	Scope of Work
XRF	=	X-Ray Fluorescent



I. INTRODUCTION

As part of the environmental due diligence, this survey is intended to assess the general presence, quantity, and location of LBP and lead-glazed ceramic components above allowable levels at *Museo Histórico* property located at calle Honorio Hernández Bo. Pueblo, Quebradillas P.R.

The LBP survey, conforming to Housing Urban Development (HUD) Guidelines for the Evaluation and Control of Lead Based Paint in Housing, was conducted on January 24, 2023, by Mr. Roberto Rodríguez (Lead inspector number: LBPI-05522-073) from Nortol. Copy of Nortol's registration with the PRDNER as registered corporation is included in **Attachment 1**. Inspector's credential(s) is included in **Attachment 2**. Nortol's survey areas and report are limited to the details provided in the Section II part D.

Based on the results of the survey, 143 XRF readings were performed using an XRF analyzer on the identified and accessible surfaces in the interior and/or exterior of the subject structure. LBP was identified above the regulatory level of 1.0 mg/cm² at some areas of the project (interior concrete walls and lead-glazed ceramic tiles).

There are concrete/metal/wood structural components, and floors have terrazzo/ceramic tiles, or are bare concrete. Also, ceramic tiles are present on some walls.

II. LEAD BASED PAINT SURVEY REPORT

A. Lead Based Paint Findings:

LBP was found at some of the project accessed components. Some interior concrete walls (approx. 2,450 Ft²) have LBP. Also, about 240 FT² of lead-glazed ceramic tiles (which are regulated in PR as LBP) were found on some walls or floors. Data from XRF analyzer testing is included in **Attachment 3 and 4** with positive readings marked in red or bold. **Attachment 5** includes the approximated location of identified LBP or lead-glazes at the subject structure. Representative Pictures\Photograph Log of identified LBP surfaces and/or lead-glazed ceramic components within the structure are provided in the **Attachment 6**.

B. Survey Protocol and Sampling Procedure:

The survey was conducted following the *HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1997 Revision, Chapter 7)*. The technique used for assessing the painted components was the XRF instrument. The following guidelines were used to perform LBP testing:



1. Achieve inventory of painted surfaces
2. Select areas to be tested.
3. Perform XRF testing.
4. Review and evaluate the data.
5. Report findings

The XRF instrument was set at Standard Paint Mode showing reading “Positive” or “Negative” with a 95% confident reading. The result is reported in mg/cm². **Attachment 7** includes the XRF Performance Characteristic Sheet (PCS) of the analyzer.

The letters A, B, C, and D used in the survey refers to:

- A ⇒ Main entrance side orientation (to street)
- B ⇒ Left side orientation
- C ⇒ Rear side orientation
- D ⇒ Right side orientation

C. Lead Based Paint Background and Regulatory Review:

Overexposure to lead is one of the most common situations found in industry. It is also a major potential public health risk. Lead poisoning is the leading environmentally induced illness in children. At greatest risk are children under the age of six because they are undergoing rapid neurological and physical development. In general population, lead may be present at hazardous concentrations in food, water, and air. Sources include LBP, urban soil, and dust, and drinking water.

Lead is commonly added to industrial paints because of its characteristic to resist corrosion. Industries with particularly high potential exposures include construction work involving welding, cutting, brazing, blasting, etc., on lead paint surfaces; most smelter operations either as a trace contaminant or as a major product; secondary lead smelters where lead is recovered from batteries; radiator repair shops; and firing ranges. Oral ingestion may represent a major route of exposure in contaminated workplaces. Once in the blood, lead is distributed primarily among three routes - blood, soft tissue (kidney, bone marrow, liver, and brain) and mineralizing tissue (bones and teeth).

Hazard of lead in paint has been defined by the Department of Housing and Urban Development as 1.0 mg/cm² as measured by an XRF instrument, or Atomic Absorption Spectroscopy (AAS); or 0.5% by weight (or 5,000 ppm) as measured by AAS, or Inductive Coupled Plasma (ICP). The same level was adopted by EPA regulations published in 1992, under Title X.



Although OSHA regulations for occupational lead exposure have been in effect since 1971 for the construction and general industries, the agency recognized the need to provide better protection and revised the regulations for general industry in 1978. The 1978 lead standard, however, excluded the construction industry from coverage because of insufficient information regarding lead use in construction.

In 1990, NIOSH set a national goal to eliminate worker exposures resulting in blood lead concentrations greater than 25 micrograms per deciliter (25 µg/dl) of whole blood. Consequently, OSHA began developing a proposal for a comprehensive standard regulating occupational exposure to lead in construction. In October 1992, the Congress passed Section 1031 of Title X of the Housing and Community Development Act of 1992 (P. L. 102-550) requiring OSHA to issue an interim final lead standard for the construction industry, effective until OSHA issues a final standard. The interim final rule, published on May 4, 1993, amends the OSHA standards for occupational health and environmental controls in Subpart D of Title 29 CFR 1926 by adding a new section 1926.62, containing employee protection requirements for construction workers exposed to lead.

On July 1998, the PRDNER - former PR Environmental Quality Board regulations regarding to LBP was created to issue activity permits, accredit institutions, and certificate persons involved in LBP activities in Puerto Rico. Local regulations require all lead to be managed as a special waste. On August 2019 this regulation was replaced by the new *Reglamento para el Manejo Adecuado de Actividades de Pintura con Base de Plomo*. To obtain a demolition permit in Puerto Rico is necessary to includes a certification (OGP-PGC-010 or equivalent) stating that there is no LBP in the project.

D. Survey Areas – Extent of Survey Coverage:

The survey included a detailed structure inspection providing a general sense of the overall location, type, quantity, and condition of LBP and lead-glazed ceramic components. The LBP survey was performed to ready accessible components and surfaces. If any suspect coated surface or ceramic components that could contain lead are encountered underneath current installed tiles or other construction material during demolition and/or renovation activities which differ from materials tested during the LBP survey, these should be assumed to be Lead containing until testing/analysis confirmed otherwise. The survey was unobtrusive as samples were not taken where doing so would have resulted in objectionable damage to surfaces. Therefore, the survey did not include destructive, intrusive and/or exploratory testing.



Areas Not Included in Survey and Service Constraints: All professional opinions presented in this report are based on information made available either by review of data provided by others or data gathered by Nortol's personnel. Nortol affirms that data gathered and presented by Nortol in this report was collected in an appropriate manner in accordance with generally accepted methods and practices. Any energized utilities/services, including electric, water and heat were assumed to be active. Materials associated with these items were determined to not be safely accessible and were not sampled. The survey did not include access or inspection of confined spaces or subsurface/underground areas including piping, conduits, building footings and soils (surficial or otherwise).

III. CONCLUSION

LBP survey was conducted for the project identified with the header ID. LBP or lead-glaze was identified above the regulatory level of 1.0 mg/cm² at selective areas of the subject structure.

Data from XRF analyzer testing is included in **Attachment 3 and 4** with positive readings marked in red or bold. **Attachment 5** includes the approximated location of identified LBP or lead-glazes at the subject structure. Representative Pictures\Photograph Log of identified LBP surfaces and/or lead-glazed ceramic components within the structure are provided in **Attachment 6**.

Any conditions or materials that could not be visually identified or was out-of-the SOW, was not inspected and may differ from those conditions or materials noted. It was not within the scope of the activity to remove surface materials to investigate portions of the structure or materials that may lay beneath the surface. Nortol's selection of sample locations and frequency of sampling was based on Nortol's observations and the assumption that like materials in the same area are homogeneous in content.

The report is designed to aid the building owner, architect, construction manager, general contractors, and potential lead abatement contractors in locating LBP or lead-glaze. Under no circumstances is the report to be utilized as a solely bidding document or as a project specification document.



Attachment 1

Company Credentials





GOBIERNO DE PUERTO RICO

Departamento de Recursos Naturales y Ambientales

Este certificado es otorgado a:

Nortol Environmental Occupational Safety, Inc.

Por haber cumplido con los requisitos establecidos en el Capítulo VI, Regla 127 del Reglamento para el Manejo Adecuado de Actividades de Pintura con Base de Plomo. Se le otorga esta certificación como **Firma** para llevar a cabo actividades relacionadas a Mitigación de Pintura con base de plomo en la jurisdicción de Puerto Rico.

Número de Certificado

LBPf-03222-009

Fecha de emisión: Marzo 5, 2022

Fecha de Expiración: Marzo 4, 2023



José Roque Juliá
Jefe
División Desperdicios Tóxicos



NAT-F121771-2

Attachment 2

Inspector's Credentials



ROBERTO RODRIGUEZ
Puerto Rico
Lead-based Paint Inspector



Attachment 3
Positive LBP XRF Tabulated Readings



MUSEO HISTORICO DE QUEBRADILLAS XRF SHEET



Company	Heuresis Corp.																
Model	Pb200i																
Type	XRF Lead Paint Analyzer																
Serial Num.	2705																
App Version	Pb200i-5.2.0																
Job Id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Side	Color	Condition	Approx. QTY
MUSEO HISTORICO QUEBRADILLAS	45	6.8	mg/cm2	Positive	2	1/24/2023	10:22:34	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	A	White	Deteriorated	130 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	46	7.7	mg/cm2	Positive	2	1/24/2023	10:25:58	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	B	White	Deteriorated	200 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	47	6.4	mg/cm2	Positive	2	1/24/2023	10:26:22	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	C	White	Deteriorated	180 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	48	6.3	mg/cm2	Positive	2	1/24/2023	10:26:36	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	D	White	Deteriorated	200 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	56	1.1	mg/cm2	Positive	2	1/24/2023	10:30:19	R.RODRIGUEZ	526	Interior	Room 2	Floor	Ceramic	-	Blue	Deteriorated	75 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	63	5.5	mg/cm2	Positive	2	1/24/2023	10:33:10	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	B	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	64	5.5	mg/cm2	Positive	2	1/24/2023	10:33:31	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	C	White	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	65	6	mg/cm2	Positive	2	1/24/2023	10:33:43	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	D	White	Deteriorated	130 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	71	3.4	mg/cm2	Positive	2	1/24/2023	10:36:50	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	A	Beige	Deteriorated	40 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	72	3.1	mg/cm2	Positive	2	1/24/2023	10:37:03	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	C	Beige	Deteriorated	40 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	73	2.8	mg/cm2	Positive	2	1/24/2023	10:37:31	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	D	Beige	Deteriorated	35 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	74	4.6	mg/cm2	Positive	2	1/24/2023	10:38:00	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	A	White	Deteriorated	30 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	75	6.3	mg/cm2	Positive	2	1/24/2023	10:38:12	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	B	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	76	5.7	mg/cm2	Positive	2	1/24/2023	10:39:44	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	C	White	Deteriorated	55 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	77	4.4	mg/cm2	Positive	2	1/24/2023	10:39:58	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	D	White	Deteriorated	45 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	86	3.7	mg/cm2	Positive	1	1/24/2023	10:43:37	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	132 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	87	5.8	mg/cm2	Positive	1	1/24/2023	10:44:27	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	88	4.4	mg/cm2	Positive	1	1/24/2023	10:45:11	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	89	4.2	mg/cm2	Positive	1	1/24/2023	10:45:51	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	90	3.9	mg/cm2	Positive	1	1/24/2023	10:46:34	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	B	White	Deteriorated	210 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	91	4.8	mg/cm2	Positive	1	1/24/2023	10:47:53	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	B	White	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	92	3.6	mg/cm2	Positive	1	1/24/2023	10:48:13	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	210 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	93	2.9	mg/cm2	Positive	1	1/24/2023	10:48:52	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	94	4.8	mg/cm2	Positive	1	1/24/2023	10:49:55	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	95	4.5	mg/cm2	Positive	1	1/24/2023	10:50:07	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	D	Blue	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	96	4.4	mg/cm2	Positive	1	1/24/2023	10:51:31	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	D	Beige	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	101	3.7	mg/cm2	Positive	1	1/24/2023	10:53:59	R.RODRIGUEZ	526	Interior	Room 6	Floor	Ceramic	-	Gray	Deteriorated	50 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	102	1.4	mg/cm2	Positive	1	1/24/2023	10:54:10	R.RODRIGUEZ	526	Interior	Room 6	Floor	Ceramic	-	Gray	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	111	3.8	mg/cm2	Positive	1	1/24/2023	11:00:10	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	A	White	Deteriorated	45 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	113	3.8	mg/cm2	Positive	1	1/24/2023	11:01:14	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	B	White	Deteriorated	100 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	114	3.6	mg/cm2	Positive	1	1/24/2023	11:01:33	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	C	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	115	4.1	mg/cm2	Positive	1	1/24/2023	11:01:42	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	C	White	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	116	1.4	mg/cm2	Positive	1	1/24/2023	11:01:54	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	D	White	Deteriorated	275 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	117	2.9	mg/cm2	Positive	1	1/24/2023	11:02:09	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	D	White	Deteriorated	

Attachment 4
LBP XRF Tabulated Readings



MUSEO HISTORICO DE QUEBRADILLAS XRF SHEET



Company	Heuresis Corp.																
Model	Pb200i																
Type	XRF Lead Paint Analyzer																
Serial Num.	2705																
App Version	Pb200i-5.2.0																
Job Id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Side	Color	Condition	Approx. QTY
-	1	1	mg/cm2	Positive	1	1/24/2023	10:09:27	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-
-	2	1.1	mg/cm2	Positive	1	1/24/2023	10:09:41	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-
-	3	0.9	mg/cm2	Negative	1	1/24/2023	10:09:54	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-
MUSEO HISTORICO QUEBRADILLAS	4	0	mg/cm2	Negative	1	1/24/2023	10:10:43	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	5	0.5	mg/cm2	Negative	1	1/24/2023	10:10:53	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	6	0.1	mg/cm2	Negative	1	1/24/2023	10:11:03	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	7	0.2	mg/cm2	Negative	1	1/24/2023	10:11:16	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	8	0	mg/cm2	Negative	1	1/24/2023	10:11:26	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	9	0.1	mg/cm2	Negative	1	1/24/2023	10:11:50	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	10	0.1	mg/cm2	Negative	1	1/24/2023	10:12:08	R.RODRIGUEZ	526	Exterior	Building	Column	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	11	0.1	mg/cm2	Negative	1	1/24/2023	10:12:14	R.RODRIGUEZ	526	Exterior	Building	Column	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	12	0	mg/cm2	Negative	1	1/24/2023	10:12:23	R.RODRIGUEZ	526	Exterior	Building	Column	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	13	0.2	mg/cm2	Negative	1	1/24/2023	10:12:33	R.RODRIGUEZ	526	Exterior	Building	Column	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	14	0	mg/cm2	Negative	1	1/24/2023	10:12:41	R.RODRIGUEZ	526	Exterior	Building	Column	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	15	0.1	mg/cm2	Negative	1	1/24/2023	10:13:01	R.RODRIGUEZ	526	Exterior	Building	Ceiling	Concrete	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	16	0	mg/cm2	Negative	1	1/24/2023	10:13:48	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	17	0.1	mg/cm2	Negative	1	1/24/2023	10:13:57	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	18	0.1	mg/cm2	Negative	1	1/24/2023	10:14:02	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	19	0.8	mg/cm2	Negative	1	1/24/2023	10:15:07	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	20	0.2	mg/cm2	Negative	1	1/24/2023	10:15:23	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	21	0.4	mg/cm2	Negative	1	1/24/2023	10:15:31	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	22	0	mg/cm2	Negative	1	1/24/2023	10:16:03	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	D	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	23	0.2	mg/cm2	Negative	1	1/24/2023	10:16:15	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	D	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	24	0.4	mg/cm2	Negative	1	1/24/2023	10:16:28	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	D	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	25	0	mg/cm2	Negative	1	1/24/2023	10:16:37	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	D	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	26	0	mg/cm2	Negative	1	1/24/2023	10:16:43	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	D	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	27	0.1	mg/cm2	Negative	1	1/24/2023	10:17:05	R.RODRIGUEZ	526	Exterior	Building	Ceiling	Concrete	-	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	28	0.2	mg/cm2	Negative	2	1/24/2023	10:17:30	R.RODRIGUEZ	526	Exterior	Stair Area	Risers	Terrazo	-	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	29	0	mg/cm2	Negative	2	1/24/2023	10:17:36	R.RODRIGUEZ	526	Exterior	Stair Area	Risers	Terrazo	-	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	30	0.1	mg/cm2	Negative	2	1/24/2023	10:17:55	R.RODRIGUEZ	526	Exterior	Stair Area	Railing	Concrete	D	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	31	0	mg/cm2	Negative	2	1/24/2023	10:18:02	R.RODRIGUEZ	526	Exterior	Stair Area	Railing	Concrete	D	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	32	0.1	mg/cm2	Negative	2	1/24/2023	10:18:20	R.RODRIGUEZ	526	Exterior	Stair Area	Balusters	Concrete	C	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	33	0.2	mg/cm2	Negative	2	1/24/2023	10:18:31	R.RODRIGUEZ	526	Exterior	Stair Area	Balusters	Concrete	D	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	34	0.2	mg/cm2	Negative	2	1/24/2023	10:18:52	R.RODRIGUEZ	526	Exterior	Stair Area	Gate	Metal	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	35	0	mg/cm2	Negative	2	1/24/2023	10:19:36	R.RODRIGUEZ	526	Exterior	Balcony	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	36	0	mg/cm2	Negative	2	1/24/2023	10:19:45	R.RODRIGUEZ	526	Exterior	Balcony	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	37	0.3	mg/cm2	Negative	2	1/24/2023	10:20:06	R.RODRIGUEZ	526	Exterior	Balcony	Handrail	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	38	0.2	mg/cm2	Negative	2	1/24/2023	10:20:25	R.RODRIGUEZ	526	Exterior	Balcony	Handrail	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	39	0.1	mg/cm2	Negative	2	1/24/2023	10:20:42	R.RODRIGUEZ	526	Exterior	Balcony	Handrail	Concrete	D	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	40	0	mg/cm2	Negative	2	1/24/2023	10:20:56	R.RODRIGUEZ	526	Exterior	Balcony	Balusters	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	41	0	mg/cm2	Negative	2	1/24/2023	10:21:07	R.RODRIGUEZ	526	Exterior	Balcony	Balusters	Concrete	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	42	0	mg/cm2	Negative	2	1/24/2023	10:21:18	R.RODRIGUEZ	526	Exterior	Balcony	Balusters	Concrete	D	White	Deteriorated	-

MUSEO HISTORICO DE QUEBRADILLAS XRF SHEET



Company		Heuresis Corp.															
Model		Pb200i															
Type		XRF Lead Paint Analyzer															
Serial Num.		2705															
App Version		Pb200i-5.2.0															
Job Id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Side	Color	Condition	Approx. QTY
MUSEO HISTORICO QUEBRADILLAS	43	0.4	mg/cm2	Negative	2	1/24/2023	10:21:36	R.RODRIGUEZ	526	Exterior	Balcony	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	44	0.1	mg/cm2	Negative	2	1/24/2023	10:22:04	R.RODRIGUEZ	526	Interior	Room 1	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	45	6.8	mg/cm2	Positive	2	1/24/2023	10:22:34	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	A	White	Deteriorated	130 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	46	7.7	mg/cm2	Positive	2	1/24/2023	10:25:58	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	B	White	Deteriorated	200 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	47	6.4	mg/cm2	Positive	2	1/24/2023	10:26:22	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	C	White	Deteriorated	180 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	48	6.3	mg/cm2	Positive	2	1/24/2023	10:26:36	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	D	White	Deteriorated	200 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	49	0.1	mg/cm2	Negative	2	1/24/2023	10:26:51	R.RODRIGUEZ	526	Interior	Room 1	Window	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	50	0.1	mg/cm2	Negative	2	1/24/2023	10:26:57	R.RODRIGUEZ	526	Interior	Room 1	Window Frame	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	51	0.9	mg/cm2	Negative	2	1/24/2023	10:27:40	R.RODRIGUEZ	526	Interior	Hallway 1	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	52	0.9	mg/cm2	Negative	2	1/24/2023	10:27:52	R.RODRIGUEZ	526	Interior	Hallway 1	Wall	Concrete	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	53	0.8	mg/cm2	Negative	2	1/24/2023	10:28:03	R.RODRIGUEZ	526	Interior	Hallway 1	Wall	Concrete	C	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	54	0.9	mg/cm2	Negative	2	1/24/2023	10:28:37	R.RODRIGUEZ	526	Interior	Hallway 1	Wall	Concrete	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	55	0.1	mg/cm2	Negative	2	1/24/2023	10:29:03	R.RODRIGUEZ	526	Interior	Hallway 1	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	56	1.1	mg/cm2	Positive	2	1/24/2023	10:30:19	R.RODRIGUEZ	526	Interior	Room 2	Floor	Ceramic	-	Blue	Deteriorated	75 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	57	0.9	mg/cm2	Negative	2	1/24/2023	10:31:07	R.RODRIGUEZ	526	Interior	Room 2	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	58	0.9	mg/cm2	Negative	2	1/24/2023	10:31:18	R.RODRIGUEZ	526	Interior	Room 2	Wall	Concrete	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	59	0.9	mg/cm2	Negative	2	1/24/2023	10:31:31	R.RODRIGUEZ	526	Interior	Room 2	Wall	Concrete	C	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	60	0.8	mg/cm2	Negative	2	1/24/2023	10:31:43	R.RODRIGUEZ	526	Interior	Room 2	Wall	Concrete	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	61	0.9	mg/cm2	Negative	2	1/24/2023	10:32:19	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	62	0.9	mg/cm2	Negative	2	1/24/2023	10:32:30	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	63	5.5	mg/cm2	Positive	2	1/24/2023	10:33:10	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	B	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	64	5.5	mg/cm2	Positive	2	1/24/2023	10:33:31	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	C	White	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	65	6	mg/cm2	Positive	2	1/24/2023	10:33:43	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	D	White	Deteriorated	130 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	66	0.1	mg/cm2	Negative	2	1/24/2023	10:35:35	R.RODRIGUEZ	526	Interior	Room 3	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	67	0.1	mg/cm2	Negative	2	1/24/2023	10:35:52	R.RODRIGUEZ	526	Interior	Room 3	Window	Metal	C	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	68	0	mg/cm2	Negative	2	1/24/2023	10:36:00	R.RODRIGUEZ	526	Interior	Room 3	Window Frame	Metal	C	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	69	0	mg/cm2	Negative	2	1/24/2023	10:36:23	R.RODRIGUEZ	526	Interior	Room 4	Window	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	70	0	mg/cm2	Negative	2	1/24/2023	10:36:30	R.RODRIGUEZ	526	Interior	Room 4	Window Frame	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	71	3.4	mg/cm2	Positive	2	1/24/2023	10:36:50	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	A	Beige	Deteriorated	40 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	72	3.1	mg/cm2	Positive	2	1/24/2023	10:37:03	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	C	Beige	Deteriorated	40 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	73	2.8	mg/cm2	Positive	2	1/24/2023	10:37:31	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	D	Beige	Deteriorated	35 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	74	4.6	mg/cm2	Positive	2	1/24/2023	10:38:00	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	A	White	Deteriorated	30 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	75	6.3	mg/cm2	Positive	2	1/24/2023	10:38:12	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	B	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	76	5.7	mg/cm2	Positive	2	1/24/2023	10:39:44	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	C	White	Deteriorated	55 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	77	4.4	mg/cm2	Positive	2	1/24/2023	10:39:58	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	D	White	Deteriorated	45 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	78	0	mg/cm2	Negative	2	1/24/2023	10:40:39	R.RODRIGUEZ	526	Interior	Room 4	Gate	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	79	0.3	mg/cm2	Negative	2	1/24/2023	10:40:55	R.RODRIGUEZ	526	Interior	Room 4	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	80	0.1	mg/cm2	Negative	2	1/24/2023	10:41:35	R.RODRIGUEZ	526	Interior	Room 4	Door	Wood	D	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	81	0.1	mg/cm2	Negative	2	1/24/2023	10:41:42	R.RODRIGUEZ	526	Interior	Room 4	Door Frame	Wood	D	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	82	0.3	mg/cm2	Negative	1	1/24/2023	10:42:31	R.RODRIGUEZ	526	Interior	Room 5	Door	Metal	A	Mostly Unpainted	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	83	0.2	mg/cm2	Negative	1	1/24/2023	10:42:37	R.RODRIGUEZ	526	Interior	Room 5	Door Frame	Metal	A	Mostly Unpainted	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	84	0	mg/cm2	Negative	1	1/24/2023	10:42:59	R.RODRIGUEZ	526	Interior	Room 5	Window	Metal	B	White	Deteriorated	-

MUSEO HISTORICO DE QUEBRADILLAS XRF SHEET



Company		Heuresis Corp.															
Model		Pb200i															
Type		XRF Lead Paint Analyzer															
Serial Num.		2705															
App Version		Pb200i-5.2.0															
Job Id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Side	Color	Condition	Approx. QTY
MUSEO HISTORICO QUEBRADILLAS	85	0.1	mg/cm2	Negative	1	1/24/2023	10:43:06	R. RODRIGUEZ	526	Interior	Room 5	Window Frame	Metal	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	86	3.7	mg/cm2	Positive	1	1/24/2023	10:43:37	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	132 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	87	5.8	mg/cm2	Positive	1	1/24/2023	10:44:27	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	88	4.4	mg/cm2	Positive	1	1/24/2023	10:45:11	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	89	4.2	mg/cm2	Positive	1	1/24/2023	10:45:51	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	90	3.9	mg/cm2	Positive	1	1/24/2023	10:46:34	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	B	White	Deteriorated	210 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	91	4.8	mg/cm2	Positive	1	1/24/2023	10:47:53	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	B	White	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	92	3.6	mg/cm2	Positive	1	1/24/2023	10:48:13	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	210 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	93	2.9	mg/cm2	Positive	1	1/24/2023	10:48:52	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	94	4.8	mg/cm2	Positive	1	1/24/2023	10:49:55	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	95	4.5	mg/cm2	Positive	1	1/24/2023	10:50:07	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	D	Blue	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	96	4.4	mg/cm2	Positive	1	1/24/2023	10:51:31	R. RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	D	Beige	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	97	0.1	mg/cm2	Negative	1	1/24/2023	10:52:41	R. RODRIGUEZ	526	Interior	Room 5	Ceiling	Concrete	-	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	98	0.1	mg/cm2	Negative	1	1/24/2023	10:52:48	R. RODRIGUEZ	526	Interior	Room 5	Ceiling	Concrete	-	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	99	0.2	mg/cm2	Negative	1	1/24/2023	10:53:11	R. RODRIGUEZ	526	Interior	Room 5	Floor	Terrazo	-	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	100	0.2	mg/cm2	Negative	1	1/24/2023	10:53:46	R. RODRIGUEZ	526	Interior	Room 6	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	101	3.7	mg/cm2	Positive	1	1/24/2023	10:53:59	R. RODRIGUEZ	526	Interior	Room 6	Floor	Ceramic	-	Gray	Deteriorated	50 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	102	1.4	mg/cm2	Positive	1	1/24/2023	10:54:10	R. RODRIGUEZ	526	Interior	Room 6	Floor	Ceramic	-	Gray	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	103	0	mg/cm2	Negative	1	1/24/2023	10:57:26	R. RODRIGUEZ	526	Interior	Room 6	Ceiling	Concrete	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	104	0.1	mg/cm2	Negative	1	1/24/2023	10:57:45	R. RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	A	Gray	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	105	0	mg/cm2	Negative	1	1/24/2023	10:57:59	R. RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	106	0	mg/cm2	Negative	1	1/24/2023	10:58:13	R. RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	107	0	mg/cm2	Negative	1	1/24/2023	10:58:28	R. RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	C	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	108	0	mg/cm2	Negative	1	1/24/2023	10:58:42	R. RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	109	0.1	mg/cm2	Negative	1	1/24/2023	10:58:55	R. RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	D	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	110	0	mg/cm2	Negative	1	1/24/2023	10:59:59	R. RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	111	3.8	mg/cm2	Positive	1	1/24/2023	11:00:10	R. RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	A	White	Deteriorated	45 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	112	0.3	mg/cm2	Negative	1	1/24/2023	11:01:01	R. RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	113	3.8	mg/cm2	Positive	1	1/24/2023	11:01:14	R. RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	B	White	Deteriorated	100 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	114	3.6	mg/cm2	Positive	1	1/24/2023	11:01:33	R. RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	C	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	115	4.1	mg/cm2	Positive	1	1/24/2023	11:01:42	R. RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	C	White	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	116	1.4	mg/cm2	Positive	1	1/24/2023	11:01:54	R. RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	D	White	Deteriorated	275 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	117	2.9	mg/cm2	Positive	1	1/24/2023	11:02:09	R. RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	D	White	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	118	0.1	mg/cm2	Negative	1	1/24/2023	11:02:33	R. RODRIGUEZ	526	Interior	Room 7	Floor	Terrazo	-	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	119	0	mg/cm2	Negative	1	1/24/2023	11:02:51	R. RODRIGUEZ	526	Interior	Room 7	Ceiling	Concrete	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	120	0	mg/cm2	Negative	1	1/24/2023	11:03:30	R. RODRIGUEZ	526	Interior	Room 7	Ceiling	Concrete	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	121	0.2	mg/cm2	Negative	1	1/24/2023	11:03:53	R. RODRIGUEZ	526	Interior	Room 7	Ceiling	Concrete	-	Green	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	122	0.2	mg/cm2	Negative	1	1/24/2023	11:04:01	R. RODRIGUEZ	526	Interior	Room 7	Ceiling	Concrete	-	Green	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	123	0.1	mg/cm2	Negative	1	1/24/2023	11:04:31	R. RODRIGUEZ	526	Interior	Room 7	Wall	Ceramic	A	Pink	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	124	0.3	mg/cm2	Negative	1	1/24/2023	11:04:42	R. RODRIGUEZ	526	Interior	Room 7	Wall	Ceramic	B	Pink	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	125	0.8	mg/cm2	Negative	1	1/24/2023	11:04:52	R. RODRIGUEZ	526	Interior	Room 7	Wall	Ceramic	C	Pink	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	126	0.2	mg/cm2	Negative	1	1/24/2023	11:05:13	R. RODRIGUEZ	526	Interior	Room 7	Wall	Ceramic	D	Pink	Deteriorated	-

MUSEO HISTORICO DE QUEBRADILLAS XRF SHEET



Company		Heuresis Corp.																
Model		Pb200i																
Type		XRF Lead Paint Analyzer																
Serial Num.		2705																
App Version		Pb200i-5.2.0																
Job Id		Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Side	Color	Condition	Approx. QTY
MUSEO HISTORICO QUEBRADILLAS		127	0.3	mg/cm2	Negative	1	1/24/2023	11:05:27	R.RODRIGUEZ	526	Interior	Room 7	Floor	Ceramic	-	Pink	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		128	0.1	mg/cm2	Negative	1	1/24/2023	11:05:33	R.RODRIGUEZ	526	Interior	Room 7	Floor	Ceramic	-	Pink	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		129	0.2	mg/cm2	Negative	1	1/24/2023	11:05:58	R.RODRIGUEZ	526	Interior	Room 7	Burglar Fence	Metal	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		130	0.1	mg/cm2	Negative	1	1/24/2023	11:06:12	R.RODRIGUEZ	526	Interior	Room 7	Gate	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		131	0.1	mg/cm2	Negative	1	1/24/2023	11:06:27	R.RODRIGUEZ	526	Interior	Room 7	Door	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		132	0	mg/cm2	Negative	1	1/24/2023	11:06:34	R.RODRIGUEZ	526	Interior	Room 7	Door Frame	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		133	0.1	mg/cm2	Negative	1	1/24/2023	11:07:02	R.RODRIGUEZ	526	Interior	Room 7	Window	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		134	0	mg/cm2	Negative	1	1/24/2023	11:07:09	R.RODRIGUEZ	526	Interior	Room 7	Window Frame	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		135	0.1	mg/cm2	Negative	2	1/24/2023	11:08:44	R.RODRIGUEZ	526	Exterior	Back Porch	Wall	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		136	0.5	mg/cm2	Negative	2	1/24/2023	11:08:59	R.RODRIGUEZ	526	Exterior	Back Porch	Handrail	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		137	0.1	mg/cm2	Negative	2	1/24/2023	11:09:11	R.RODRIGUEZ	526	Exterior	Back Porch	Handrail	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		138	0.1	mg/cm2	Negative	2	1/24/2023	11:09:37	R.RODRIGUEZ	526	Exterior	Back Porch	Balusters	Metal	B	Black	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		139	0.5	mg/cm2	Negative	2	1/24/2023	11:09:51	R.RODRIGUEZ	526	Exterior	Back Porch	Balusters	Metal	C	Black	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS		140	0.2	mg/cm2	Negative	2	1/24/2023	11:10:10	R.RODRIGUEZ	526	Exterior	Back Porch	Floor	Ceramic	-	White	Deteriorated	-
-		141	0.9	mg/cm2	Negative	1	1/24/2023	11:12:31	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-
-		142	1	mg/cm2	Positive	1	1/24/2023	11:12:44	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-
-		143	1	mg/cm2	Positive	1	1/24/2023	11:12:57	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-

Attachment 5

LBP Diagram



MUSEO HISTÓRICO DE QUEBRADILLAS

LBP DIAGRAM

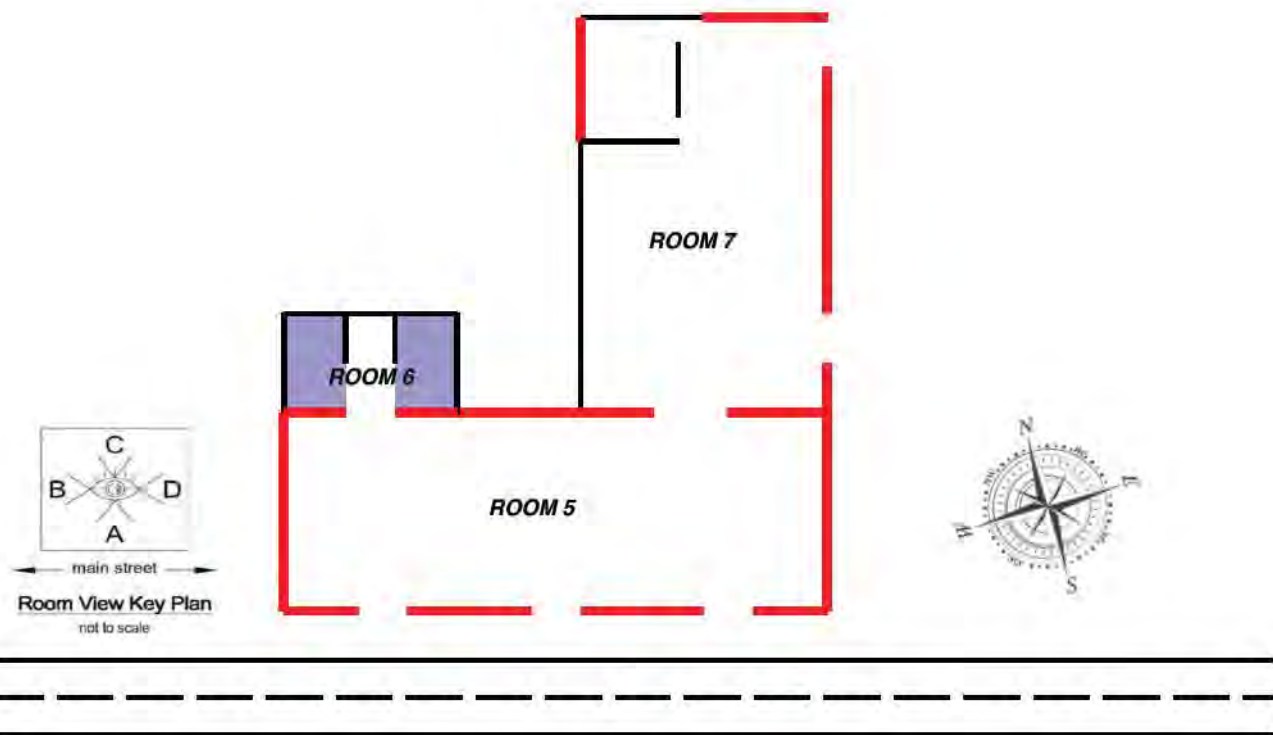


➡ **LBP POSITIVE, INTERIOR CONCRETE WALLS**



➡ **LBP POSITIVE, INTERIOR GRAY LEAD-GLAZED CERAMIC FLOOR TILE**

FIRST LEVEL



Calle Honorio Hernandez Bo. Pueblo,

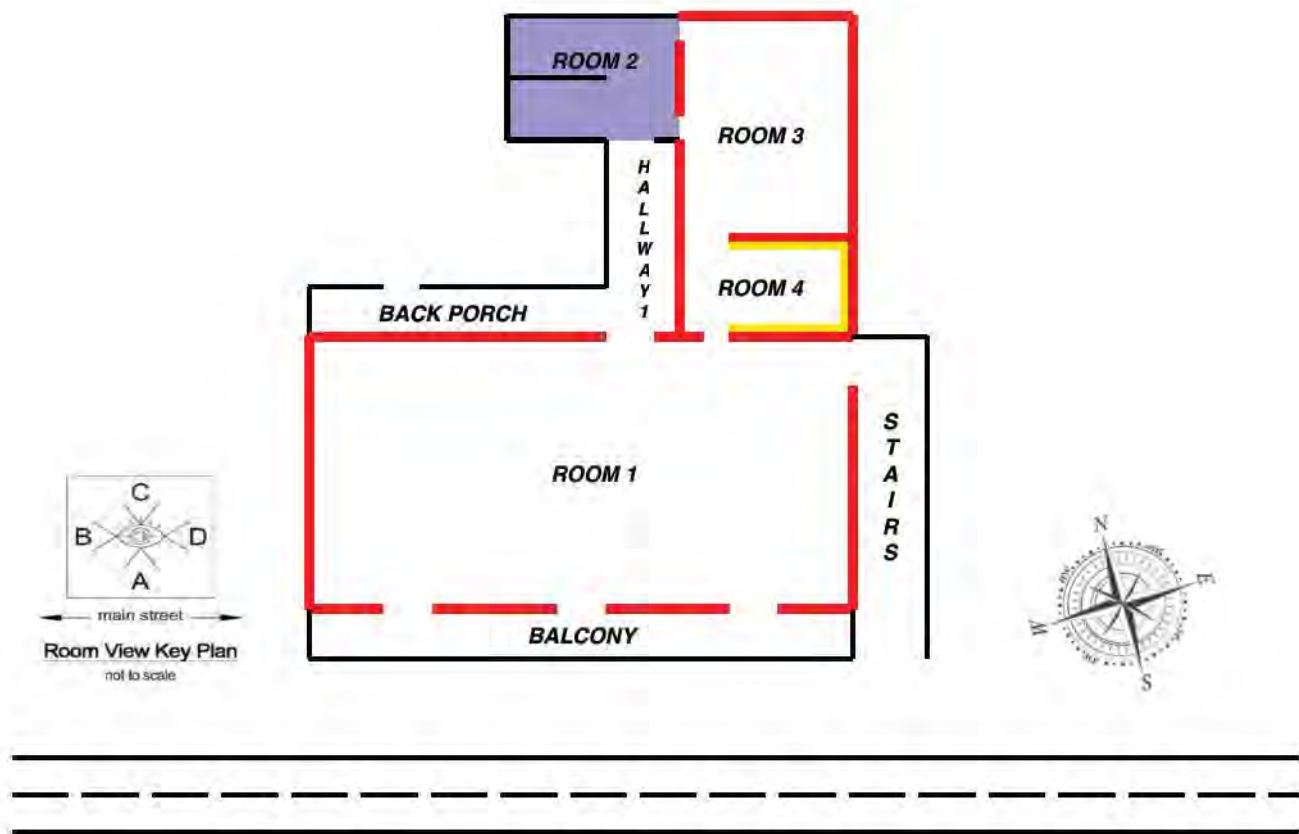
Quebradillas PR 00678

MUSEO HISTÓRICO DE QUEBRADILLAS

LBP DIAGRAM

-  ➡ LBP POSITIVE, INTERIOR WHITE CONCRETE WALLS
-  ➡ LBP POSITIVE, INTERIOR BEIGE LEAD-GLAZED CERAMIC WALL TILE
-  ➡ LBP POSITIVE, INTERIOR BLUE LEAD-GLAZED CERAMIC FLOOR TILE

SECOND LEVEL



Calle Honorio Hernandez Bo. Pueblo,

Quebradillas PR 00678

Attachment 6
Representative Pictures\Photograph Log





Roberto Rodriguez Rodriguez
NORTOL Environmental & Occupational Safety, Inc.

MUSEO HISTÓRICO DE QUEBRADILLAS - LBP SURVEY PHOTO LOG

Year of construction not available at the moment of the inspection

Tuesday, January 24, 2023

Prepared For Ingenieros del Oeste CSP

Calle Honorio Hernandez Bo. Pueblo, Quebradillas PR 00678

19 Sections Identified



FRONT VIEW:

Section Completed: Yes

(18.4738988, -66.9381899)

LOCATION:

Section Completed: Yes

(18.4738988, -66.9381899)



Marcador

Cerca de 108 C. Honorio Hernández, Quebradillas, 00...

1 min



Cómo llegar



Iniciar



Guardar



Medir la distancia



F3F6+HP3 Quebradillas



(18.4738988, -66.9381899)



Sugerir una edición



Agregar un lugar





SCOPE OF WORK:

Section Completed: Yes

Full Inspection Abestos and Lead-
Based Paint.

EXTERIOR GENERAL VIEW SIDE A:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE B:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE C:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE D:

Section Completed: Yes



EXTERIOR GENERAL VIEWS:

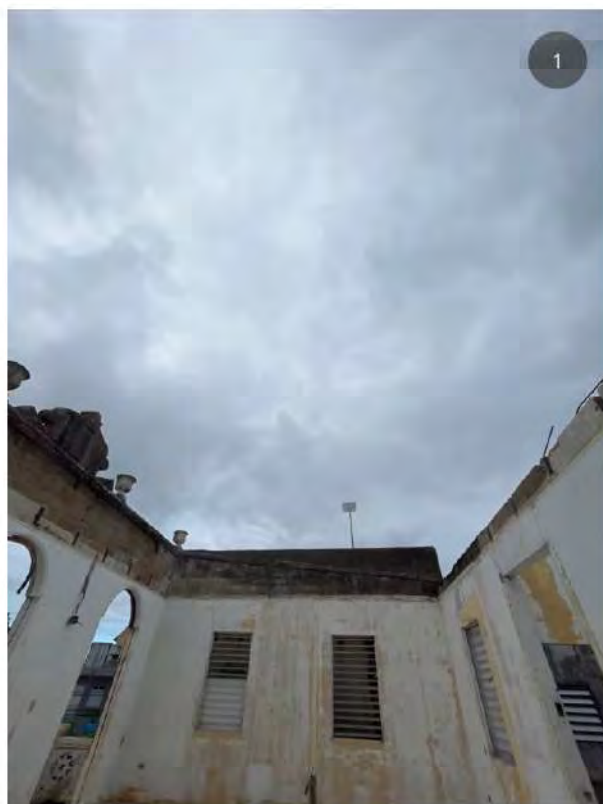
Section Completed: Yes



EXTERIOR GENERAL VIEWS: ROOF

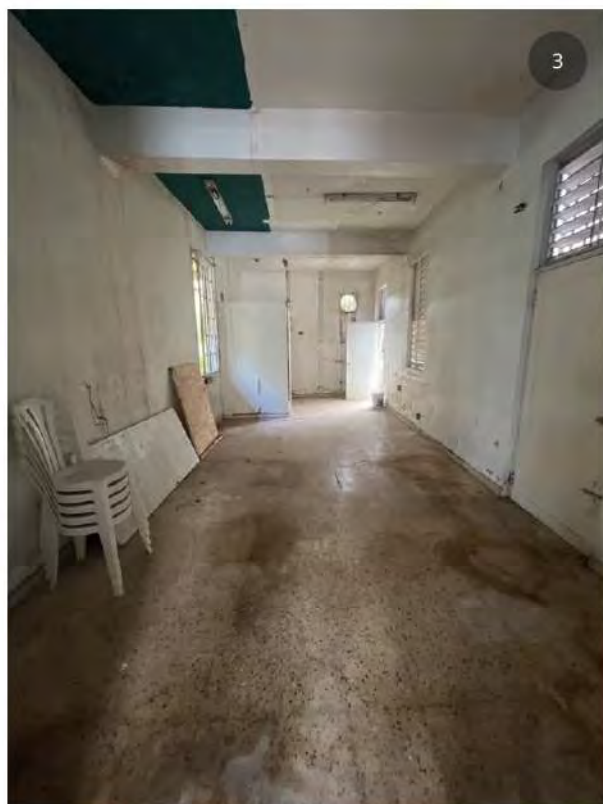
Section Completed: Yes

N/A



INTERIOR GENERAL VIEWS: FIRST LEVEL

Section Completed: Yes



INTERIOR GENERAL VIEWS: SECOND LEVEL

Section Completed: Yes



LBP DETECTED? ROOM 1 SECOND FLOOR

Section Completed: Yes

Interior, Reading #45, white concrete wall, side A, 6.8 mg/cm². (QTY. 130 S.F APPROX.)

Interior, Reading #46, white concrete wall, side B, 7.7 mg/cm². (QTY. 200 S.F APPROX.)

Interior, Reading #47, white concrete wall, side C, 6.4 mg/cm². (QTY. 180 S.F APPROX.)

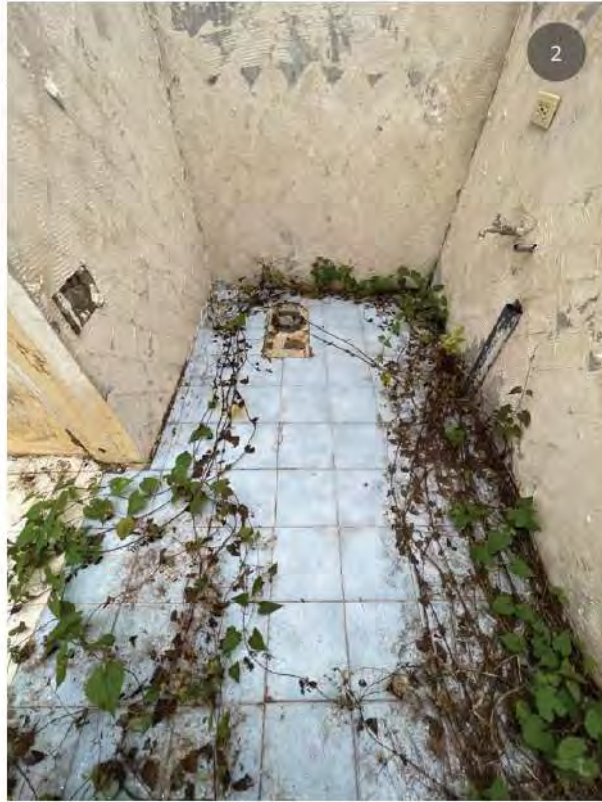
Interior, Reading #48, white concrete wall, side D, 6.3 mg/cm². (QTY. 200 S.F APPROX.)



LBP DETECTED? ROOM 2 SECOND FLOOR

Section Completed: Yes

Interior, Reading #56, blue lead-glazed ceramic floor tile, 1.1 mg/cm². (QTY. 75 S.F APPROX.)



LBP DETECTED? ROOM 3 SECOND FLOOR

Section Completed: Yes

Interior, Reading #63, white concrete wall, side B, 5.5 mg/cm². (QTY. 60 S.F APPROX.)

Interior, Reading #64, white concrete wall, side C, 5.5 mg/cm². (QTY. 110 S.F APPROX.)

Interior, Reading #65, white concrete wall, side D, 6.0 mg/cm². (QTY. 130 S.F APPROX.)



LBP DETECTED? ROOM 4 SECOND FLOOR

Section Completed: Yes

Interior, Reading #71, beige lead-glazed ceramic wall tile, side A, 3.4 mg/cm². (QTY. 40 S.F APPROX.)

Interior, Reading #72, beige lead-glazed ceramic wall tile, side C, 3.1 mg/cm². (QTY. 40 S.F APPROX.)

Interior, Reading #73, beige lead-glazed ceramic wall tile, side D, 2.8 mg/cm². (QTY. 35 S.F APPROX.)



LBP DETECTED? ROOM 4 SECOND FLOOR

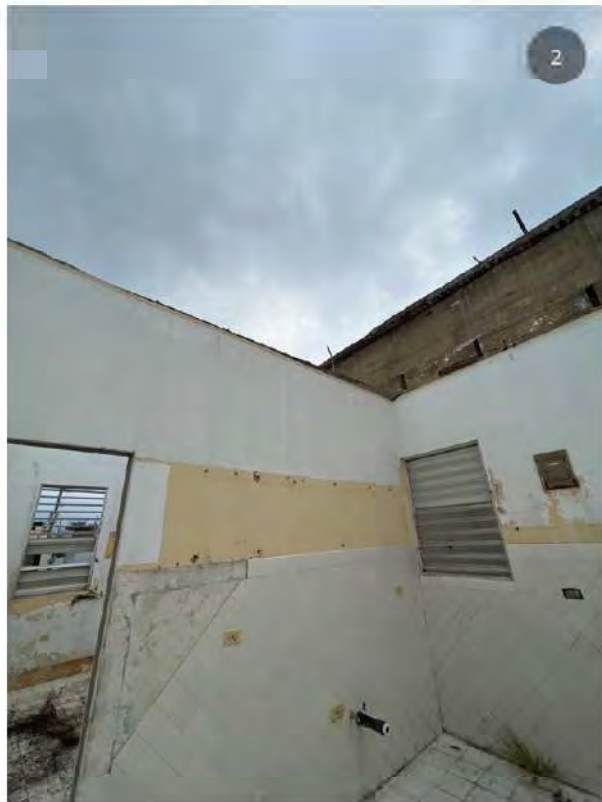
Section Completed: Yes

Interior, Reading #74, white concrete wall, side A, 4.6 mg/cm². (QTY. 30 S.F APPROX.)

Interior, Reading #75, white concrete wall, side B, 6.3 mg/cm². (QTY. 60 S.F APPROX.)

Interior, Reading #76, white concrete wall, side C, 5.7 mg/cm². (QTY. 55 S.F APPROX.)

Interior, Reading #77, white concrete wall, side D, 4.4 mg/cm². (QTY. 45 S.F APPROX.)



LBP DETECTED? ROOM 5 FIRST FLOOR

Section Completed: Yes

Interior, Reading #86, #87, #88, #89, multicolor concrete wall, side A, 3.7, 5.8, 4.4, 4.2 mg/cm².

(QTY. 132 S.F APPROX.)

Interior, Reading #90, #91, white concrete wall, side B, 3.9, 4.8 mg/cm².

(QTY. 210 S.F APPROX.)

Interior, Reading #92, #93, #94, multicolor concrete wall, side C, 3.6, 2.9, 4.8 mg/cm². (QTY. 210 S.F APPROX.)

Interior, Reading #95, blue concrete wall, side D, 4.5 mg/cm². (QTY. 110 S.F APPROX.)

Interior, Reading #96, beige concrete wall, side D, 4.4 mg/cm². (QTY. 110 S.F APPROX.)



LBP DETECTED? ROOM 6 FIRST FLOOR

Section Completed: Yes

Interior, Reading #101, #102, gray lead-glazed ceramic floor tile, 3.7, 1.4 mg/cm². (QTY. 50 S.F APPROX.)



LBP DETECTED? ROOM 7 FIRST FLOOR

Section Completed: Yes

Interior, Reading #111, white concrete wall, side A, 3.8 mg/cm². (QTY. 45 S.F APPROX.)

Interior, Reading #113, white concrete wall, side B, 3.8 mg/cm². (QTY. 100 S.F APPROX.)

Interior, Reading #114, #115, white concrete wall, side C, 3.6, 4.1 mg/cm². (QTY. 60 S.F APPROX.)

Interior, Reading #116, #117, white concrete wall, side D, 1.4, 2.9 mg/cm². (QTY. 275 S.F APPROX.)



Attachment 7
XRF Performance Characteristic Sheet



Performance Characteristic Sheet

EFFECTIVE DATE: December 1, 2015

MANUFACTURER AND MODEL:

Make: *Heuresis*
Models: *Model Pb200i*
Source: *⁵⁷Co, 5 mCi (nominal – new source)*

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Action Level mode

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm ² (inclusive)

SUBSTRATE CORRECTION:

Not applicable

INCONCLUSIVE RANGE OR THRESHOLD:

ACTION LEVEL MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm ²)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated using test results on building components in the HUD archive. Testing was conducted on 146 test samples in November 2015, with two separate instruments running software version 2.1-2 in Action Level test mode. The actual source strength of each instrument on the day of testing was approximately 2.0 mCi; source ages were approximately one year.

OPERATING PARAMETERS

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

XRF CALIBRATION CHECK:

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm² in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm² film).

If the average (rounded to 1 decimal place) of three readings is outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instrument into control before XRF testing proceeds.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm² for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.0 mg/cm² at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm². Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.

Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.

For each substrate type (the 1.02 mg/cm² NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):

$$\text{Correction value} = (1\text{st} + 2\text{nd} + 3\text{rd} + 4\text{th} + 5\text{th} + 6\text{th Reading})/6 - 1.02 \text{ mg/cm}^2$$

Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing.

Conduct XRF re-testing at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below. Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family and multi-family housing, a result is defined as a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and the retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF readings.

Compute the average of all ten re-test XRF readings.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

In the Action Level paint test mode, the instrument takes the longest time to complete readings close to the Federal standard of 1.0 mg/cm². The table below shows the mean and standard deviation of actual reading times by reading level for paint samples during the November 2015 archive testing. The tested instruments reported readings to one decimal place. No significant differences in reading times by substrate were observed. These times apply only to instruments with the same source strength as those tested (2.0 mCi). Instruments with stronger sources will have shorter reading times and those with weaker sources, longer reading times, than those in the table.

Mean and Standard Deviation of Reading Times in Action Level Mode by Reading Level		
Reading (mg/cm ²)	Mean Reading Time (seconds)	Standard Deviation (seconds)
< 0.7	3.48	0.47
0.7	7.29	1.92
0.8	13.95	1.78
0.9 – 1.2	15.25	0.66
1.3 – 1.4	6.08	2.50
≥ 1.5	3.32	0.05

CLASSIFICATION OF RESULTS:

XRF results are classified as **positive** if they are **greater than or equal** to the stated threshold for the instrument (1.0 mg/cm²), and *negative* if they are *less than* the threshold.

DOCUMENTATION:

A report titled *Methodology for XRF Performance Characteristic Sheets* (EPA 747-R-95-008) provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. The report may be downloaded at <http://www2.epa.gov/lead/methodology-xrf-performance-characteristic-sheets-epa-747-r-95-008-september-1997>.

This XRF Performance Characteristic Sheet (PCS) was developed by QuanTech, Inc., under a contract with the XRF manufacturer.



www.nortolpr.com | info@nortolpr.com | 787.420.0220
PO Box 366457, San Juan, PR 00936-6457

ASBESTOS-CONTAINING MATERIALS SURVEY

MUSEO HISTORICO

Calle Honorio Hernandez Bo. Pueblo,
Quebradillas, Puerto Rico 00678



Inspection Date: January 24, 2023

Prepared for: Ingenieros del Oeste CSP

Prepared by: Nortol Environmental &
Occupational Safety, Inc.

Inspector:


Eduardo Colón
Asbestos Inspector
ASB-0822-0299-SI



***NORTOL** has performed this survey in a thorough and professional manner consistent with commonly accepted industry standards.*

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Acronyms

A/C	=	Air Conditioning
ACM	=	Asbestos-containing Material
ACBM	=	Asbestos-containing Building Material
AHERA	=	Asbestos Hazard Emergency Response Act
ASHARA	=	Asbestos School Hazard Abatement and Reauthorization Act
CFR	=	Code of Federal Regulations
CPSC	=	Consumer Product Safety Commission
EPA	=	Environmental Protection Agency
Ft2	=	square feet
HA	=	Homogeneous Area
HUD	=	Department of Housing and Urban Development
LF	=	Linear Feet
NESHAP'S	=	National Emission Standards for Hazardous Air Pollutants
NIOSH	=	National Institute for Occupational Safety and Health
OSHA	=	Occupational Safety and Health Administration
PLM	=	Polarized Light Microscopy
PRDOH	=	Puerto Rico Department of Housing
PRDNER	=	Puerto Rico Department of Natural and Environmental Resources
SACM	=	Suspect ACM
SOW	=	Scope of Work
TEM	=	Transmission Electron Microscopy
TSI	=	Thermal System Insulation
VFT	=	Vinyl floor tiles



I. INTRODUCTION

As part of the environmental due diligence, this survey is intended to assess the general presence, quantity, and location of suspected asbestos-containing materials (SACM) at Museo Histórico property located at Calle Honorio Hernández Bo. Pueblo, Quebradillas P.R. 00678.

The SACM survey was conducted on January 24, 2023, by Mr. Eduardo Colón (ACM inspector num. ASB-0822-0299-SI) from Nortol. Inspector's credential(s) is included in **Attachment 1**. Nortol's survey areas and report are limited to the details provided in Section II part D.

Nortol identified SACM and bulk samples were collected and submitted for laboratory analysis. The bulk sample's results were reported by the laboratory as "None Detected" or <1%. Table of asbestos summary findings is included as **Attachment 2**.

There are concrete/metal/wood structural components, and floors have terrazzo/ceramic tiles, or are bare concrete. Also, ceramic tiles are present on some walls.

II. ASBESTOS SURVEY REPORT

A. Survey Protocol:

This activity was conducted following the latest protocol for assessing materials suspected of containing asbestos as defined by the U.S. Environmental Protection Agency (EPA). It involved a visual walk-through inspection of the accessible areas of the building to develop an inventory of suspect ACM homogeneous materials. During the sampling activities, suspected ACM was touched and observed by the inspector to determine its friability and physical condition. A friable material is defined as a material that when dry, can be crumbled, or reduced to powder by hand pressure. Friability of a material causally relates to a potential of the asbestos fibers to be released. The inspector assessed the suspect ACM according to their physical condition and potential damage.

B. Sampling Procedure:

The technique used for sampling the suspected accessible materials was designed to minimize possible fiber release and in turn possible contamination of surrounding areas. Representative suspected material samples were collected in accordance with the EPA's AHERA/ASHARA guidelines and procedures presented in the *Guide for Controlling Asbestos Containing Materials in Building* (EPA 560-6-85-024, June 1985) and characterized following the *National Emission Standard for Hazardous Air Pollution (NESHAP)*, subpart M-Asbestos, 40 CFR Part 61-Standard for Demolition and Renovation. Samples of the homogeneous accessible materials were collected in



quantities enough to determine asbestos content, and then placed in airtight bags. The bagged samples were properly collected, labeled, and identified. A Chain of Custody form was completed for collected bulk samples which were analyzed by an independent laboratory using PLM method. The laboratory utilizes dispersion staining techniques according to US EPA method 600/M4-82-020 incorporating visual estimates of identified material percentages.

C. Regulatory Review:

According to NESHAP's standards (40 CFR 61.141), Asbestos Containing Building Materials are classified into three categories: Category I - Nonfriable asbestos-containing material (ACM), Category II – other Nonfriable ACM, and Regulated asbestos-containing material (RACM). ACM's are classified into three categories according to EPA-AHERA/ASHARA's standards (40 CFR Part 763): Surfacing material, Thermal System Insulation (TSI) and Miscellaneous material.

Once the inspector has identified the ACM in a building, he or she must perform a physical assessment of TSI and friable material. Under § 763.88 of the AHERA Rule, the physical assessment of ACBM involve classifying the material into one of the following seven Categories: Damaged or significantly damaged TSI ACM; Damaged friable surfacing ACM; Significantly damaged friable surfacing ACM; Damaged or significantly damaged friable miscellaneous ACM; ACBM with potential for damage; ACBM with potential for significant damage; and Any remaining friable ACBM or friable suspected ACBM.

The PRDNER- former Environmental Quality Board (Regulation for the Control of Atmospheric Pollution-Rule 422) enacted in 1995, required all commercial and public building, including industries to identify asbestos containing building materials in their structures and take appropriate actions to control the release of asbestos fiber. Asbestos inspection is part of the permitting application process for any future project in the buildings which may include renovation or demolition activities regulated by the PR State/Municipal Offices. To obtain demolition permits in Puerto Rico is necessary to include a certification (OGP-PGC-009 or equivalent) stating that there is not asbestos containing material in the project.

D. Survey Areas – Extent of Survey Coverage:

The survey included a detailed structure inspection providing a general sense of the overall location, type, quantity, and condition of potential ACMs present. The survey was thorough in the interior or exterior accessible functional spaces, and bulk samples taken of suspect materials observed. The presence of asbestos in suspect materials was assumed or presumed in some cases without bulk samples being collected or analyzed (when applicable). This was necessary for locations where materials were inaccessible or areas that were unsafe to access (e.g., elevated heights, energized equipment, confined spaces, etc.). For those areas that were not



safely accessible, suspect materials observed or presumed to be present were documented and assumed as ACMs. The survey did not include intrusive and/or exploratory testing.

Areas Not Included in Survey and Service Constraints: All professional opinions presented in this report are based on information made available either by review of data provided by others or data gathered by Nortol personnel. Nortol affirms that data gathered and presented by Nortol in this report was collected in an appropriate manner in accordance with generally accepted methods and practices. Any energized utilities/services, including electricity, water and heat were assumed to be active. Materials associated with these items were determined to not be safely accessible and were not sampled. Suspect ACMs associated with these items should be assumed ACM until the systems can be de-energized and safely sampled. The survey did not include access or inspection of confined spaces or subsurface/underground areas including piping, conduits, building footings and soils (surficial or otherwise).

E. Findings

Nortol identified a total of 1 HA, of which 3 suspect ACM bulk samples were collected and submitted for laboratory analysis. The bulk samples collected as part of this survey were reported by the laboratory as “None Detected” or <1%. The client always has the alternative to request alternative analysis methods (i.e., TEM or Point counting) to get a more precise result. Furthermore, no additional suspect material was observed during the visual assessment that needed to be assumed as ACM. Table of asbestos summary findings is included as **Attachment 2**.

Attachment 3 includes Representative Pictures\Photograph Log, while the laboratory results, and field chain of custody are included as **Attachment 4**. Laboratory Certificates are included in **Attachment 5**. A basic diagram with the approximated sampling locations is included as **Attachment 6**. Certification of Non-Presence of Asbestos (PGC-009) is included as **Attachment 7**.



III. CONCLUSION

ACM survey was conducted for the project identified with the header ID. Nortol identified SACMs and bulk samples were collected and submitted for laboratory analysis. Findings are described in Section II part E. Table of asbestos summary is also included as **Attachment 2**.

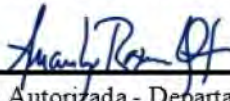
Any conditions or materials that could not be visually identified or were out-of-the SOW, were not inspected and may differ from those conditions or materials noted. It was not within the scope of the activity to remove surface materials to investigate portions of the structure or materials that may lay beneath the surface. Nortol's selection of sample locations and frequency of sampling was based on Nortol's observations and the assumption that materials in the same area are homogeneous in content.

The report is designed to aid the building owner, architect, construction manager, general contractors, and potential asbestos or lead abatement contractors in locating ACM. Under no circumstances is the report to be utilized solely as a bidding document or as a project specification document.



Attachment 1
Inspector's Credential



	TARJETA DE REGISTRO PARA LA REMOCION DE ASBESTO Esta tarjeta autoriza a: <i>Eduardo Colón León</i> Inspector A trabajar en la remoción de asbesto en Puerto Rico. Esta persona NO es un empleado del DRNA.  Firma Autorizada - Departamento Recursos Naturales y Ambientales
ASB-0822-0299-SI Número de Registro 31-jul-2023 Fecha de vencimiento	

PR ASBESTOS INSPECTOR ACCREDITATION

Attachment 2
Table Asbestos Summary Findings



Table Asbestos Summary Findings

Bulk Sample Results for Asbestos

Project: **HISTORIC MUSEUM**

Address: Calle Honorio Hernández Bo. Pueblo, Quebradillas PR 00678



Project ID	Municipality	HA No.	Material Type	Material Primary Color	Material Texture	Asbestos Results	Floor Designation	Material Location	Location	Condition	Quantity *	Units	Sample ID	Sample Location	Sample Content	Asbestos Type	Friable	Sample Date	Consultant	Method	Lab
Historic Museum	Quebradillas	1	Wall Stucco	White	Rough	NAD (Non-Asbestos Detected)	First Floor	Room 7	Wall	Damaged	330	SF	MHQ-HA1-EC-01	Room 7	NAD (Non-Asbestos Detected)	NAD (Non-Asbestos Detected)	Yes	1/24/23	NORTOL	PLM	Eurofine EPK Built Environment Testing
Historic Museum	Quebradillas	1	Wall Stucco	White	Smooth	NAD (Non-Asbestos Detected)	First Floor	Room 7	Wall	Damaged		SF	MHQ-HA1-EC-02	Room 7	NAD (Non-Asbestos Detected)	NAD (Non-Asbestos Detected)	Yes	1/24/23	NORTOL	PLM	Eurofine EPK Built Environment Testing
Historic Museum	Quebradillas	1	Wall Stucco	White	Smooth	NAD (Non-Asbestos Detected)	First Floor	Room 7	Wall	Damaged		SF	MHQ-HA1-EC-03	Room 7	NAD (Non-Asbestos Detected)	NAD (Non-Asbestos Detected)	Yes	1/24/23	NORTOL	PLM	Eurofine EPK Built Environment Testing

* abatement contractors are responsible to confirm this estimate on site.

Attachment 3
Representative Pictures\Photograph Log





Eduardo Colón

NORTOL Environmental & Occupational Safety, Inc.

MUSEO HISTÓRICO DE QUEBRADILLAS - ACM SURVEY PHOTO LOG

Year of construction not available at the moment of the inspection

Tuesday, January 24, 2023

Prepared For Ingenieros del Oeste CSP

Calle Honorio Hernandez Bo. Pueblo, Quebradillas PR 00678

13 Sections Identified



FRONT VIEW:

Section Completed: Yes

(18.4738988, -66.9381899)

LOCATION:

Section Completed: Yes

(18.4738988, -66.9381899)



Marcador

Cerca de 108 C. Honorio Hernández, Quebradillas, 00...

1 min



Cómo llegar



Iniciar



Guardar



Medir la distancia



F3F6+HP3 Quebradillas



(18.4738988, -66.9381899)



Sugerir una edición



Agregar un lugar





SCOPE OF WORK:

Section Completed: Yes

Full Inspection Abestos and Lead-
Based Paint.

EXTERIOR GENERAL VIEW SIDE A:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE B:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE C:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE D:

Section Completed: Yes



EXTERIOR GENERAL VIEWS:

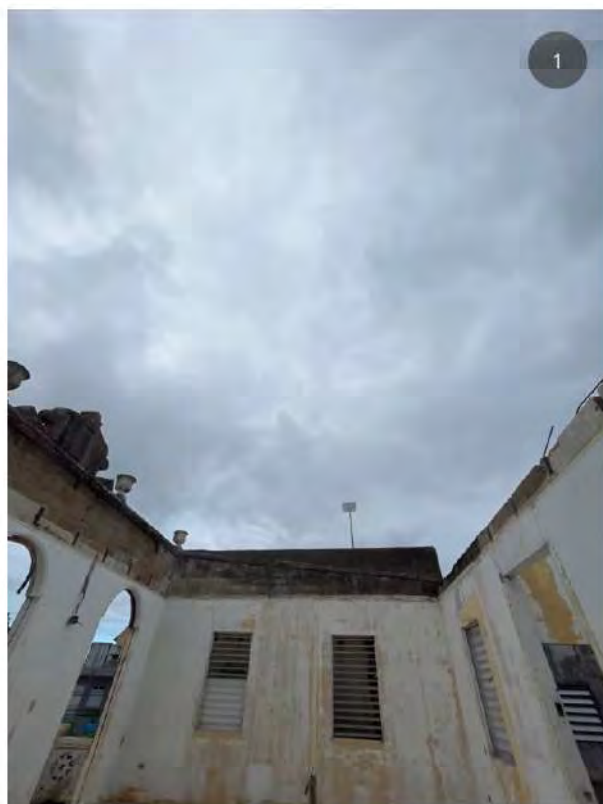
Section Completed: Yes



EXTERIOR GENERAL VIEWS: ROOF

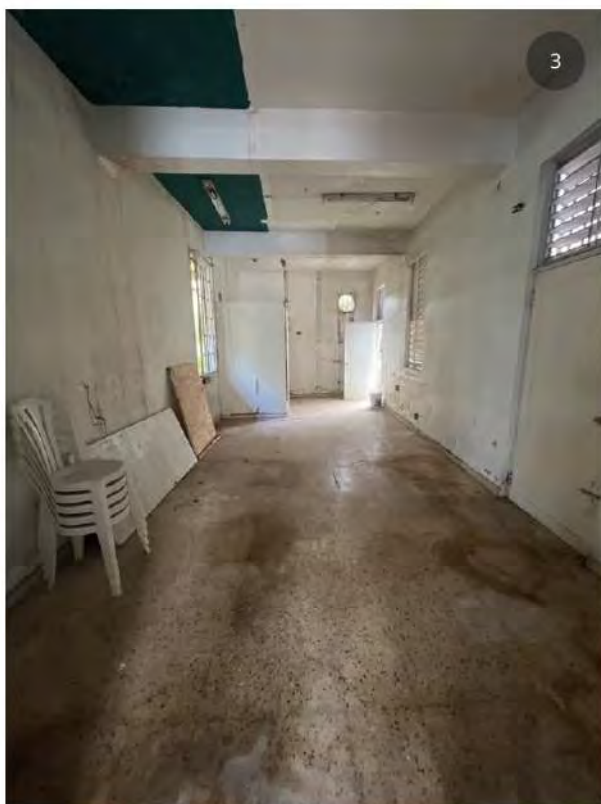
Section Completed: Yes

N/A



INTERIOR GENERAL VIEWS: FIRST LEVEL

Section Completed: Yes



INTERIOR GENERAL VIEWS: SECOND LEVEL

Section Completed: Yes



WINDOW/DOOR CAULKING:

Section Completed: Yes

None SACM caulking found visible at the moment of the inspection.



SACM VISIBLES? ROOM 7 - FIRST LEVEL

Section Completed: Yes

3 SACM samples were taken from white wall stucco. (Qty. 330 SF Approx.)

Condition: Damaged

MHQ-HA1-EC-01, 02 & 03.



Attachment 4
Asbestos Laboratory Report and Chain of Custody





Built Environment Testing

Report for:

Norma Torres
Nortol Env & Occupational Safety Inc
PO BOX 366457
San Juan, PR 00936-6457

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Museo- Historico Quebradillas
EML ID: 3149844

Approved by:

Approved Signatory
Balu Krishnan

Dates of Analysis:
Asbestos PLM: 01-31-2023

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 200738-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: Nortol Env & Occupational Safety Inc
C/O: Norma Torres
Re: Museo- Historico Quebradillas

Date of Sampling: 01-24-2023
Date of Receipt: 01-30-2023
Date of Report: 01-31-2023

ASBESTOS PLM REPORT

Total Samples Submitted: 3

Total Samples Analyzed: 3

Total Samples with Layer Asbestos Content > 1%: 0

Location: MHQ-01, Wall Stucco -Room 7- Side A

Lab ID-Version‡: 15231010-1

Sample Layers	Asbestos Content
White Stucco with Paint	ND
Sample Composite Homogeneity: Good	

Location: MHQ-02, Wall Stucco -Room 7- Side B

Lab ID-Version‡: 15231011-1

Sample Layers	Asbestos Content
White Stucco with Paint	ND
Sample Composite Homogeneity: Good	

Location: MHQ-03, Wall Stucco -Room 7- Side C

Lab ID-Version‡: 15231012-1

Sample Layers	Asbestos Content
White Stucco with Paint	ND
Sample Composite Homogeneity: Good	

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

New Jersey: 3000 Lincoln Drive East, Suite A, Marlton, NJ 08053 * (866) 871-1984
Phoenix, AZ: 1501 West Knudsen drive, Phoenix, AZ 85027 * (800) 651-4802
SSF, CA: 6000 Shoreline Court, Suite 205, South San Francisco, CA 94080 * (866) 386-6653

Weather		Fog	Rain	Snow	Wind	Clear
Level	None	☐	☐	☐	☐	☐
	Light	☐	☐	☐	☐	
	Moderate	☐	☐	☐	☐	
	Heavy	☐	☐	☐	☐	



003149844

Company: Nortol Env. & Occup. Sfty, Inc.		Address: PO Box 366457, San Juan, PR 00936-6457 Special Instructions:
Contact:	Norma Torres	
Phone:	787-420-0220	

TURN AROUND TIME CODES (TAT)

TURN AROUND TIME CODES (TAT)

(STD) - Standard (DEFAULT)

ND - Next Business Day

SD - Same Business Day Rush

WH - Weekend / Holiday

Rushes received after 2 pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

Sampling Date & Time:	01/24/23 12:00
Sampled By:	E. Colón

[illegible][illegible]

SAMPLE TYPE CODES				RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
BC - BioCassette™	ST - Spore Trap; Zefon, Allergenco, Burkard ...	T - Tape	D - Dust	Edwards Colon	01/24/23	JD	1/30/23
A1S - Anderson		SW - Swab	SO - Soil				
SAS - Surface Air Sampler	P - Potable Water	(B) Bulk		<i>[Signature]</i>	10am		2:0
CP - Contact Plate	NP - Non-Potable Water	O - Other:					

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at <http://www.emlab.com/main/service/terms.html>

Doc. 11152, Rev. 32, Revised 12/8/15, Page 1 of 1, 01

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at <http://www.emlab.com/main/service/terms.html>
Copyright © 2015 EMLab P&K

Attachment 5
Laboratory Certificates



United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200738-0

Eurofins EMLab P&K

Fort Lauderdale, FL

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2023-01-01 through 2023-12-31

Effective Dates



A handwritten signature in blue ink, reading "Dana S. Laman".

For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
6301 NW 5th Way, Suite 1410
Fort Lauderdale, FL 33309

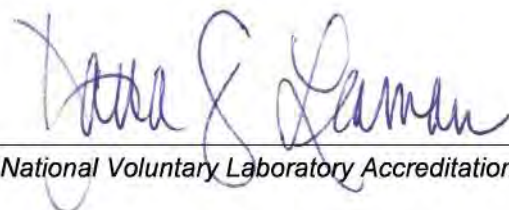
Mrs. Tracy Garcia
Phone: 770-368-2171
Email: tracy.garcia@et.eurofinsus.com
<http://www.emlab.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 200738-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials



For the National Voluntary Laboratory Accreditation Program

Attachment 6
Diagram
Bulk Sample's Approximated Location



MUSEO HISTÓRICO DE QUEBRADILLAS

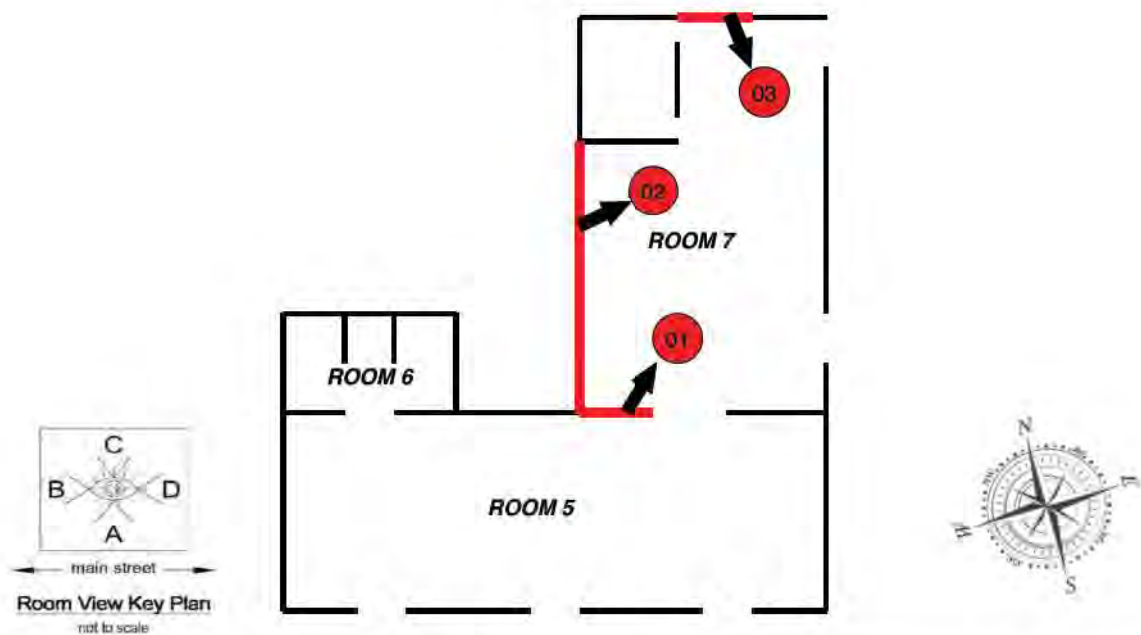
SACM DIAGRAM

Results were none detected for asbestos

● → AREA WHERE SAMPLES WERE TAKEN

| → HOMOGENEOUS AREA 1, WHITE WALL STUCCO

FIRST LEVEL



Calle Honorio Hernandez Bo. Pueblo,

Quebradillas PR 00678

Attachment 7
Certification Non-Presence of Asbestos (PGC-009)





CERTIFICACION DE NO PRESENCIA DE ASBESTO EN ESTRUCTURAS A DEMOLERSE

(Deberá completarse en letra de molde o impresa)

NUM. PERMISO: _____

Yo, Eduardo Colón, mayor de edad, soltero, y vecino de Villalba, Puerto Rico,
(Nombre) (Estado Civil) (Municipio)

Dirección Postal: PO BOX 366457 San Juan, P.R. 00936-6457
(Pueblo) (Zip Code)

Teléfonos: Residencial (787) 677 - 5527 Oficina (787) 420 - 0220

Certifico que:

1. La estructura museo histórico localizada en Calle Honorio Hernández Bo. Pueblo, Quebradillas P.R. 00678, la cual será objeto de una demolición se encuentra libre de asbesto.
2. La información antes indicada es cierta y correcta.
3. Afirmo y reconozco las consecuencias de incluir y someter información falsa en este documento.
4. Para que así conste, firmo la presente certificación en Caguas de Puerto Rico,
(Municipio)

hoy día 1 de febrero de 2023

Firma y Sello del Profesional o
Firma del Inspector de Asbesto registrado por la JCA (Original)

Nota: Ingenieros o Arquitectos deberán someter evidencia de que se encuentra al día en el pago de sus cuotas de colegiación e Inspectores de Asbesto deberán someter evidencia de la tarjeta de registro provista por la JCA.



www.nortolpr.com | info@nortolpr.com | 787.420.0220
PO Box 366457, San Juan, PR 00936-6457

ESCALA: 1:100

 ACERA

ESCALA: 1:100

NILDA PRIETO
HC-5 BOX 52501
AGUADILLA, PR 00603

⊕ ACER

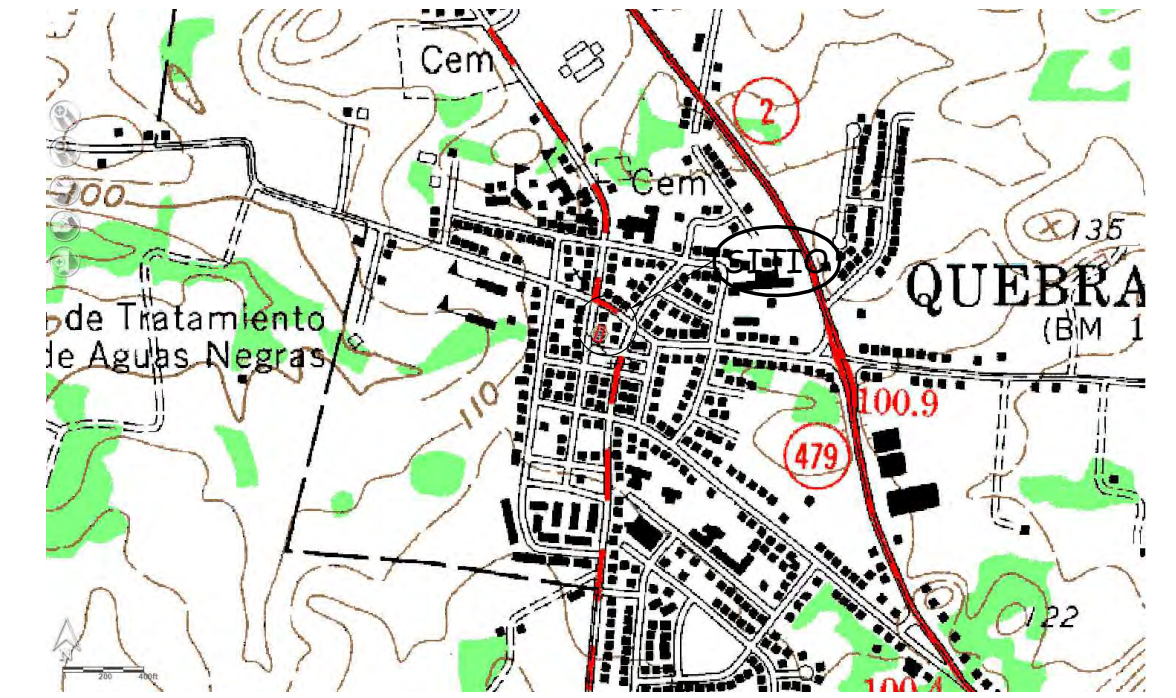
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ESCALA 1:20,000



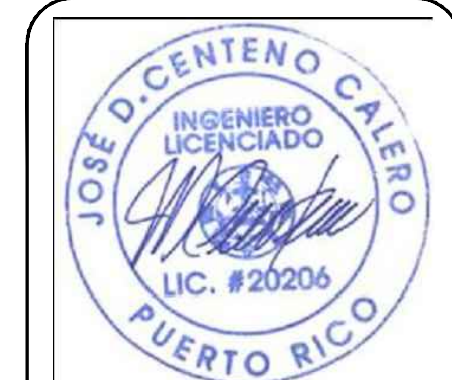
ESCALA 1:20,0



ESCALA 1:20,000

PO BOX 4448
AGUADILLA, PR. 00605
TEL. (787) 891-8256

TEL. 787-891-8256



Proyecto & Dirección:
**MUSEO HISTORICO
DE QUEBRADILLAS**
Calle Honorio Hernandez
Bo. Pueblo, Quebradilla, PR

Nombre de la Hoja:		TITULO		Num. Hoja:		T-1	
Fecha:		10 OCT 2022		1		de 17	
Escala:		1:100					

[illegible]

Ingenieros del Oeste C.S.P.
Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com

PLAZA PUBLICA

LOS SIGUIENTES SIMBOLOS SE
ENCUENTRAN EN EL PLANO.

QUIL HORIZONTAL Y VERTICAL.
 O COLINDANCIA.
 CION.
 DE CENTRO.
 DE PROPIEDAD.
 ALAMBRE PUAS.
 ALAMBRE ESLABONADO.
 LA EXISTENTE.
 DIRECCION ACCESO.
 ORNOS A CADA 5.00 MTS.
 ORNOS A CADA 1.00 MTS.
 ORNOS A CADA 0.25 MTS.

• LOS SIGUIENTES SIMBOLOS SE
• ENCUENTRAN EN EL PLANO.

TE HORMIGON ELECTRICO.
TE HORMIGON ELECTRICO
TRANSFORMADOR.
TE HORMIGON ELECTRICO
LUMINARIA.
TE MADERA ELECTRICO.
TE MADERA ELECTRICO
TRANSFORMADOR.
TE MADERA ELECTRICO
LUMINARIA.
OR.
ELECTRICA PRIMARIA.
ELECTRICA SECUNDARIA.
STAL ELECTRICO

LOS SIGUIENTES SIMBOLOS SE
ENCUENTRAN EN EL PLANO.

NTE (BOCA INCENDIO)
 IOLE SANITARIO
 IOLE PLUVIAL
 PLUVIAL (HEADWALL)
 TO PLUVIAL (CATCH BASIN)
 LA POTABLE
 O DE AGUA (AAA)
 TRO SANITARIO
 MANGUERA
 SA DE INCENDIO

LOS SIGUIENTES SIMBOLOS SE
ENCUENTRAN EN EL PLANO.

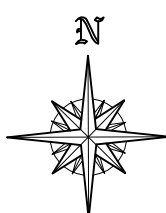
DE ALMACIGO
DE ROBLE
DE MANGO
NO IDENTIFICADO
KILOMETRO



MAPA DE CALIFICACION



FOTO AEREA DEL CRIM



ESCALA 1:200

ESTACIONES DE CONTROL

VIRGINIA HERNANDEZ
A3 URB AMADOR
QUEBRADILLAS, PR 00678-1710

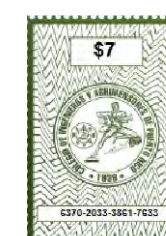
NILDA PRIETO
HC-5 BOX 52501
AGUADILLA, PR 00603

MUSEO

LONGINO MEDINA
1022 CALLE TEGULIGALPA
SAN JUAN, PR 00921-2346

PLAZA PUBLICA

IGLESIA CATOLICA



Y: 270930.000

DATOS DE FINCA
NO CONSTA INSCRITA
QUEBRADILLAS, P.R.

COORDENADAS NA
N = 270,974.580
E = 146,679.606

FECHA: 15 JUNIO 2022
ARCHIVO: PL2022-06-08

PLANO DE MENSURA Y NIVELES:

DONDE UBICA EL MUSEO
HISTORICO PROPIEDAD DEL
MUNICIPIO DE QUEBRADILLAS

SITA: CALLE HONORIO HERNANDEZ
BO. PUEBLO
QUEBRADILLAS, PUERTO RICO

RESUMEN DE AREA

NOTAS

1. TODAS LAS DISTANCIAS SON EN METROS A MENOS QUE SE INDIQUE OTRA UNIDAD
2. ESTE PLANO ESTA REFERENCIADO EN COORDENADAS LAMBERT NAD83 (NA2011)
EPOCA 2010
3. SE ESTABLECIO EN LAS ESTACIONES UNA ANTENA "TRIMBLE R8 GNSS RTK ROVER"
PARA GEOREFERENCIAR EL PREDIO.
4. ESTÁ FINCA FUE MENSURADA EL 14 DE JUNIO DEL 2022
5. LOS PUNTOS DE COLINDANCIAS FUERON INDICADOS POR EL DUEÑO
6. PARA ESTE TRABAJO NO SE HA CITADO COLINDANTES PARA CONFORMAR COLINDANCIAS
7. LAS DIRECCIONES DE COLINDANTES FUERON PROVISTOS POR EL DUEÑO
8. ESTA PROPIEDAD SE ENCUENTRA EN ZONA INUNDABILIDAD "X"
9. CERTIFICO QUE ESTA PROPIEDAD NO SE ENCUENTRA AFECTADA POR SERVIDUMBRE DE
AGENCIAS DE GOBIERNO
10. ESTE PREDIO SE ENCUENTRA EN CALIFICACION "C-I"
11. ESTE TRABAJO FUE SOLICITADO POR EL ING. JOSE CENTENO

NUMERO CATASTRO
008-080-009-06



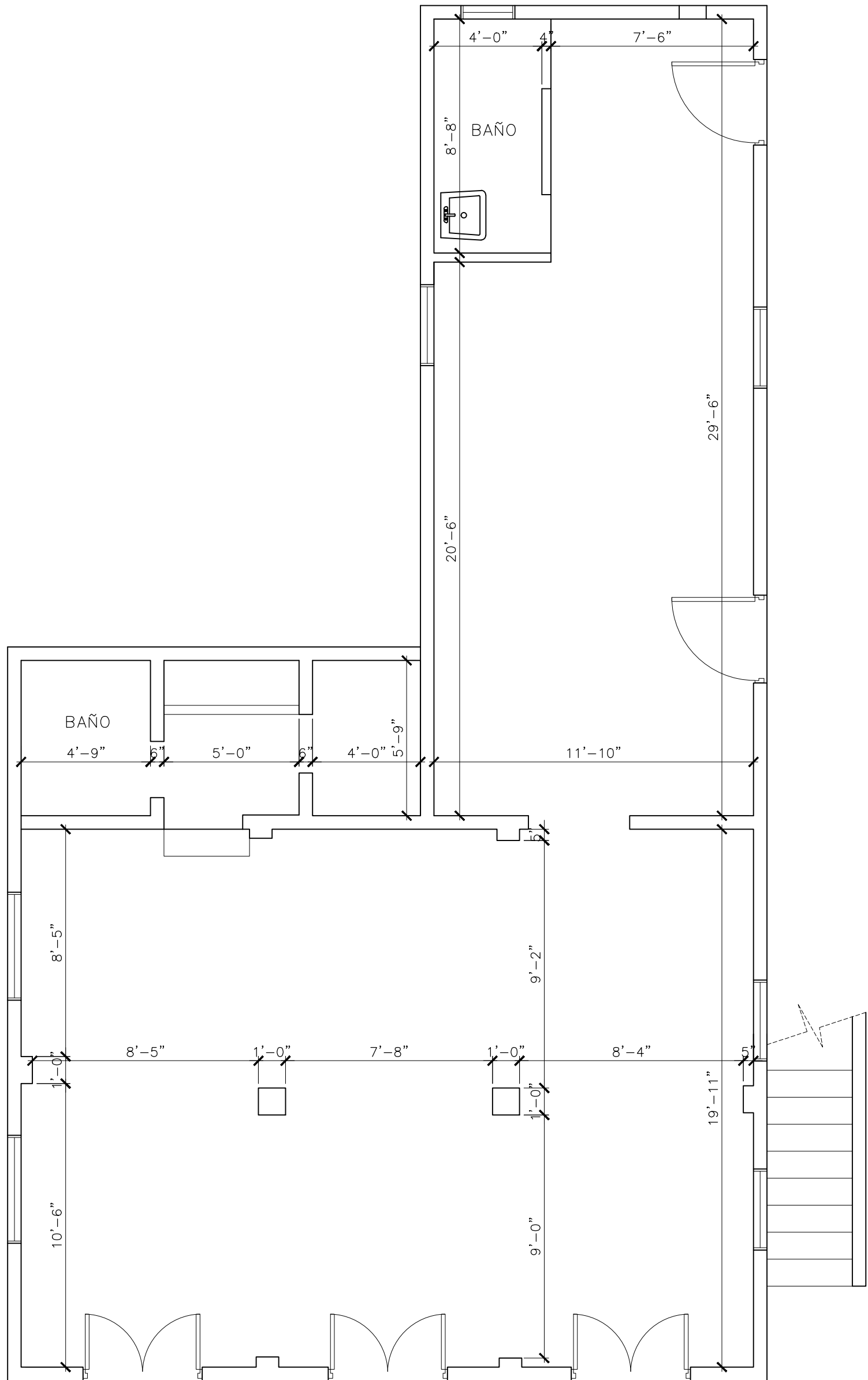
DENNIS O VARGAS GONZALEZ
AGRIMENSOR LICENCIADO
LIC. 21581
PO BOX 250660
AGUADILLA, PR 00604
CEL.939-579-2246

CASOS :

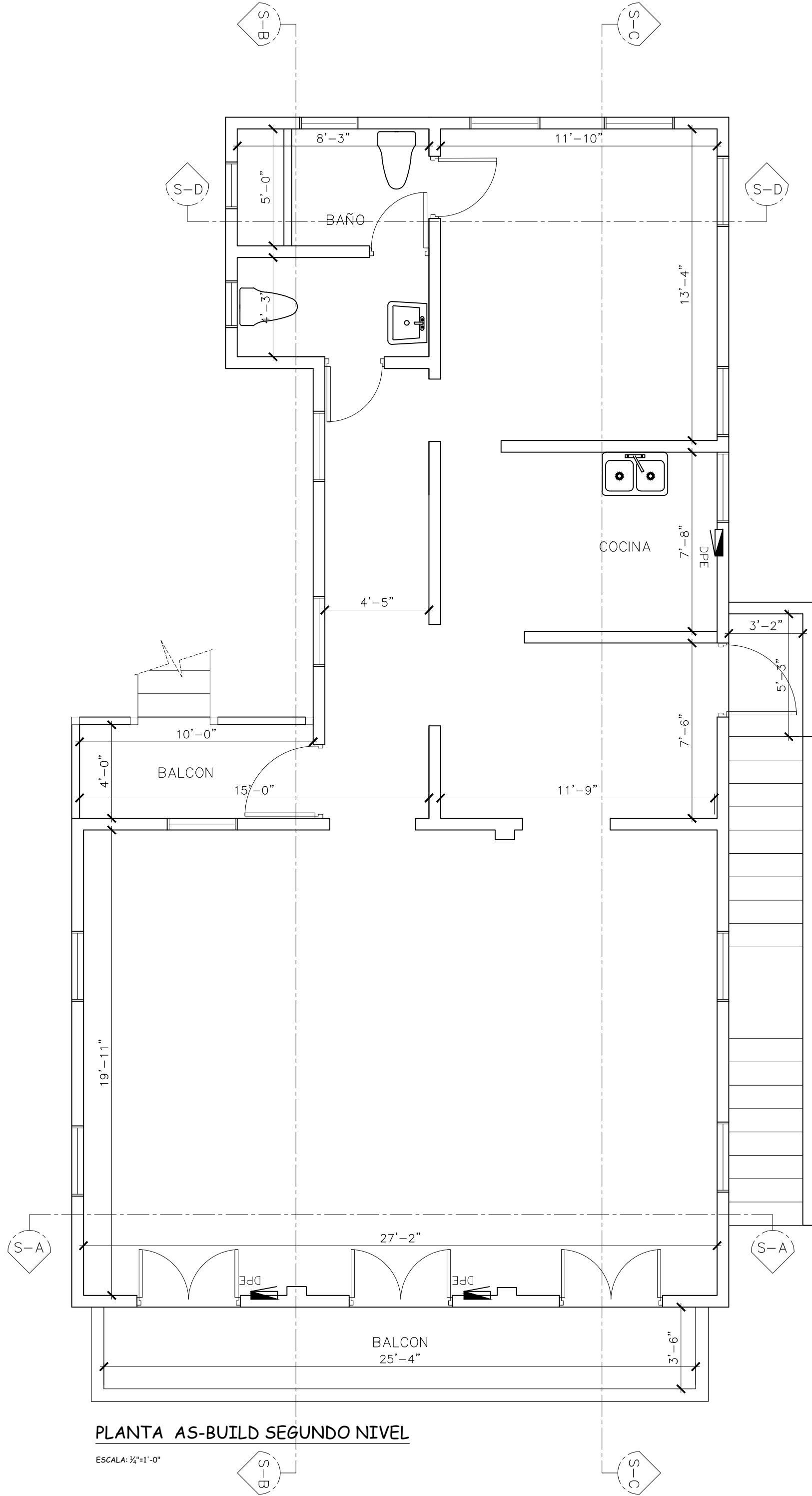
DELINEANTE
PROFESIONAL:
CARLOS VALENTIN
LIC. 2565

S-1

DE 1



PLANTA AS-BUILD PRIMER NIVEL (MUSEO)
ESCALA: 3/4"=1'-0"



PLANTA AS-BUILD SEGUNDO NIVEL
ESCALA: 3/4"=1'-0"



AREA DELANTERA
NO A ESCALA



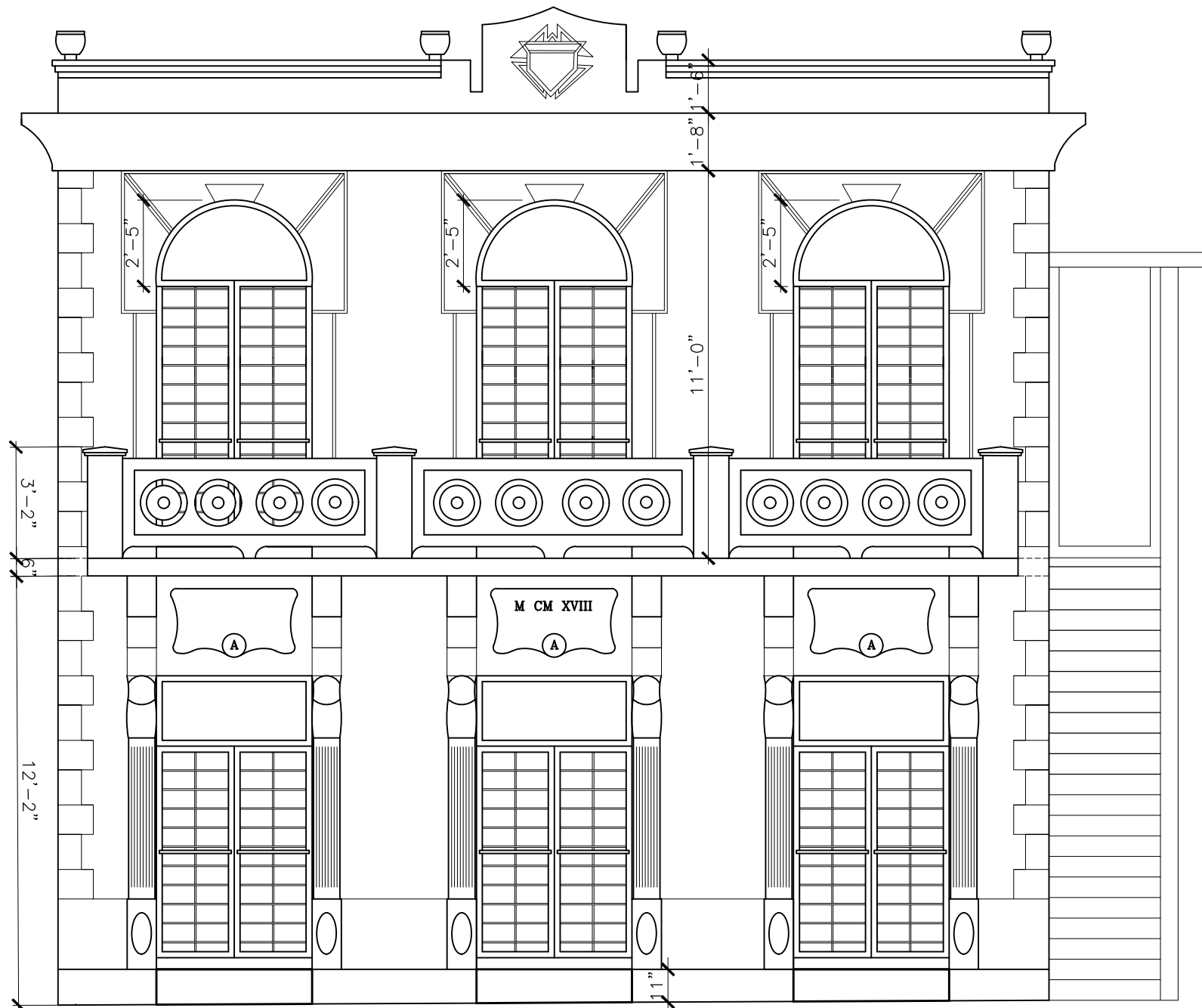
AREA POSTERIOR
NO A ESCALA



AREA DE ESCALERA
NO A ESCALA

Nombre de la Firma & Dirección Ing. JOSÉ D. CENTENO CALERO LIC. 20206 PO BOX 4448 AGUADILLA, PR. 00605 TEL. 787-891-8256	
Certificado & Sello del Profesional 	
Nombre del Proyecto & Dirección MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.	
Nombre de la Hoja AS-BUILD	Num. Hoja A-1
Fecha 17 NOV 2022	3 de 17
Escala 1/4" = 1'-0"	
JV	DIBUJADO POR:

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONÓ Y/O DISEÑÓ Y/O PREPARÓ ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDÍ QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN QUE SE APLICAN EN LOS MUNICIPIOS DE AGUADILLA Y QUEBRADILLAS, P.R. Y QUE LOS DICHOS PLANOS Y ESPECIFICACIONES CUMPLEN CON LOS REQUISITOS PARA LA OBTENCIÓN DEL CERTIFICADO DE OCUPANCIA DEL MUNICIPIO DE AGUADILLA, P.R. Y QUE, POR OTRAS PERSONAS CON MI CONOCIMIENTO, HE HECHO RESPONSABLE DE CUALQUIER ACCIÓN JUDICIAL O DISCIPLINARIA POR LA OCPE.



ELEVACION PRINCIPAL

ESCALA: 3/4"=1'-0"



ELEVACION POSTERIOR

ESCALA: 3/4"=1'-0"



ELEVACION LATERAL DERECHA

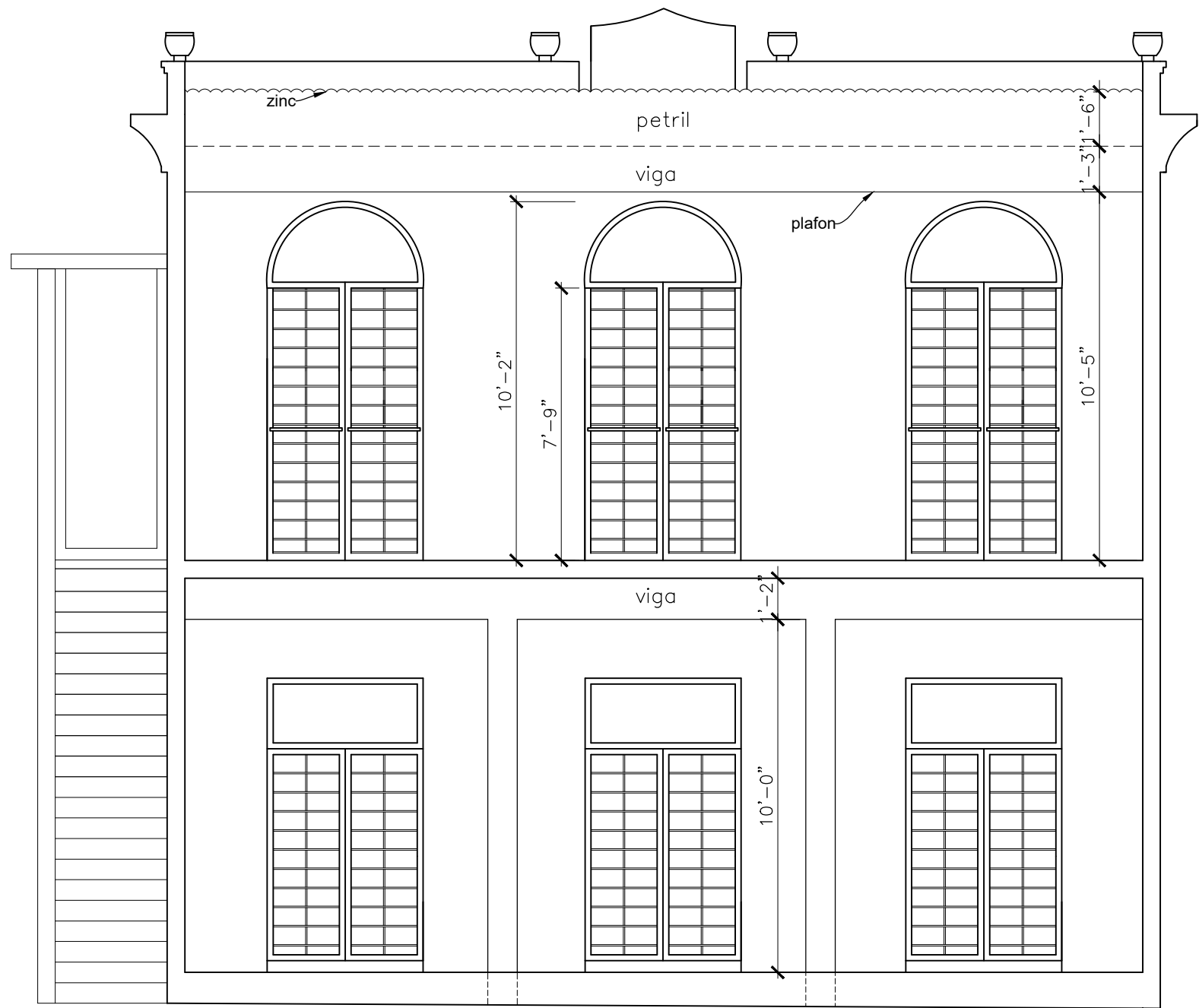
ESCALA: 3/4"=1'-0"



ELEVACION LATERAL IZQUIERDA

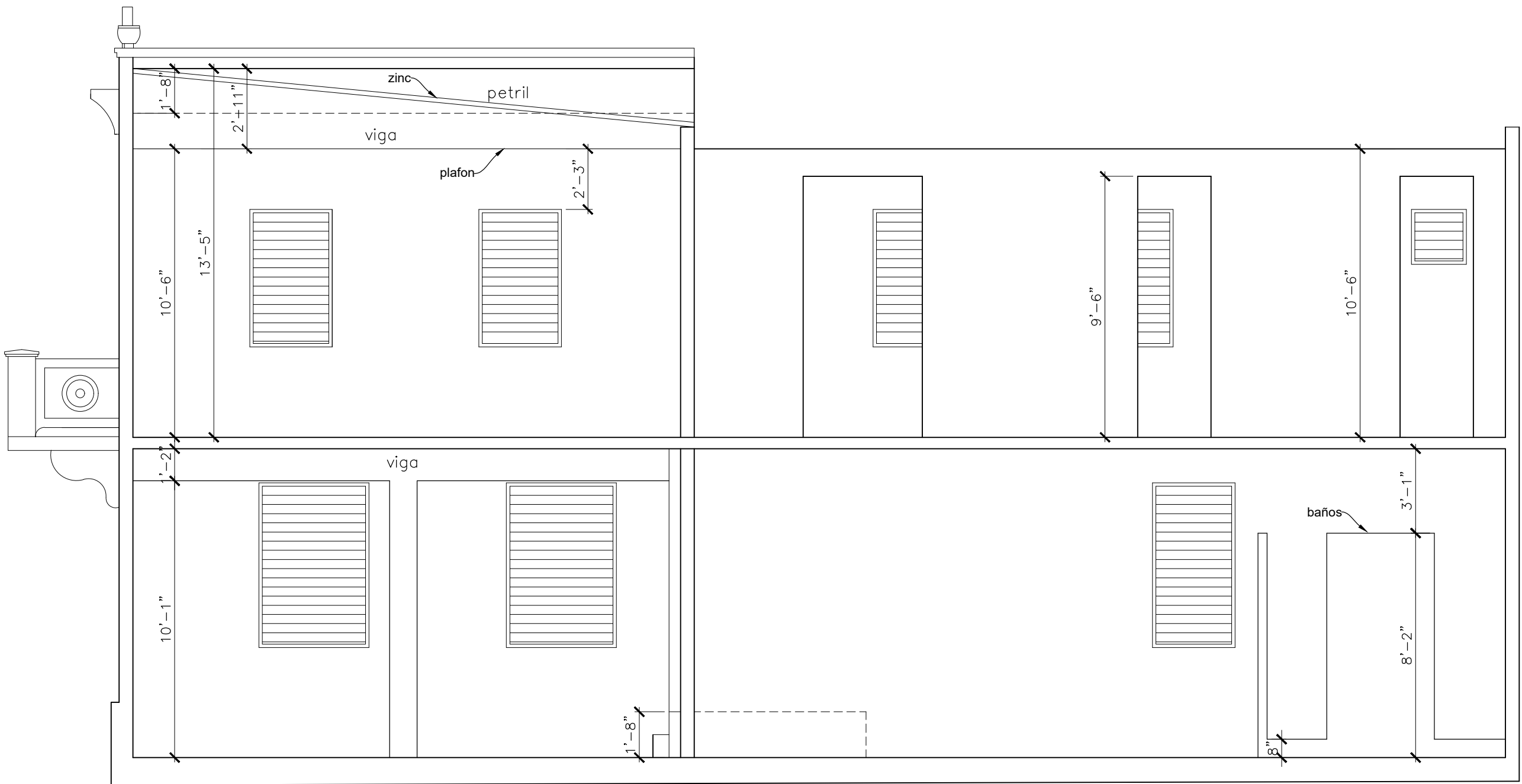
ESCALA: 3/4"=1'-0"

Nombre de la Hoja: ELEVACIONES		Núm. Hoja: A-2	
Fecha: 17 NOV 2022		4 de 17	
Escala: 1/4" = 1'-0"			
JV		DEBUTADO POR:	
Nombre del Proyecto & Dirección: MUSEO HISTORICO DE QUEBRADILLAS CALE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.			
Certificado & Sellado por:  Ing. JOSÉ D. CENTENO CALERO LIC. 20206 PO BOX 4448 AGUADILLA, PR. 00605 TEL. 787-891-8256			



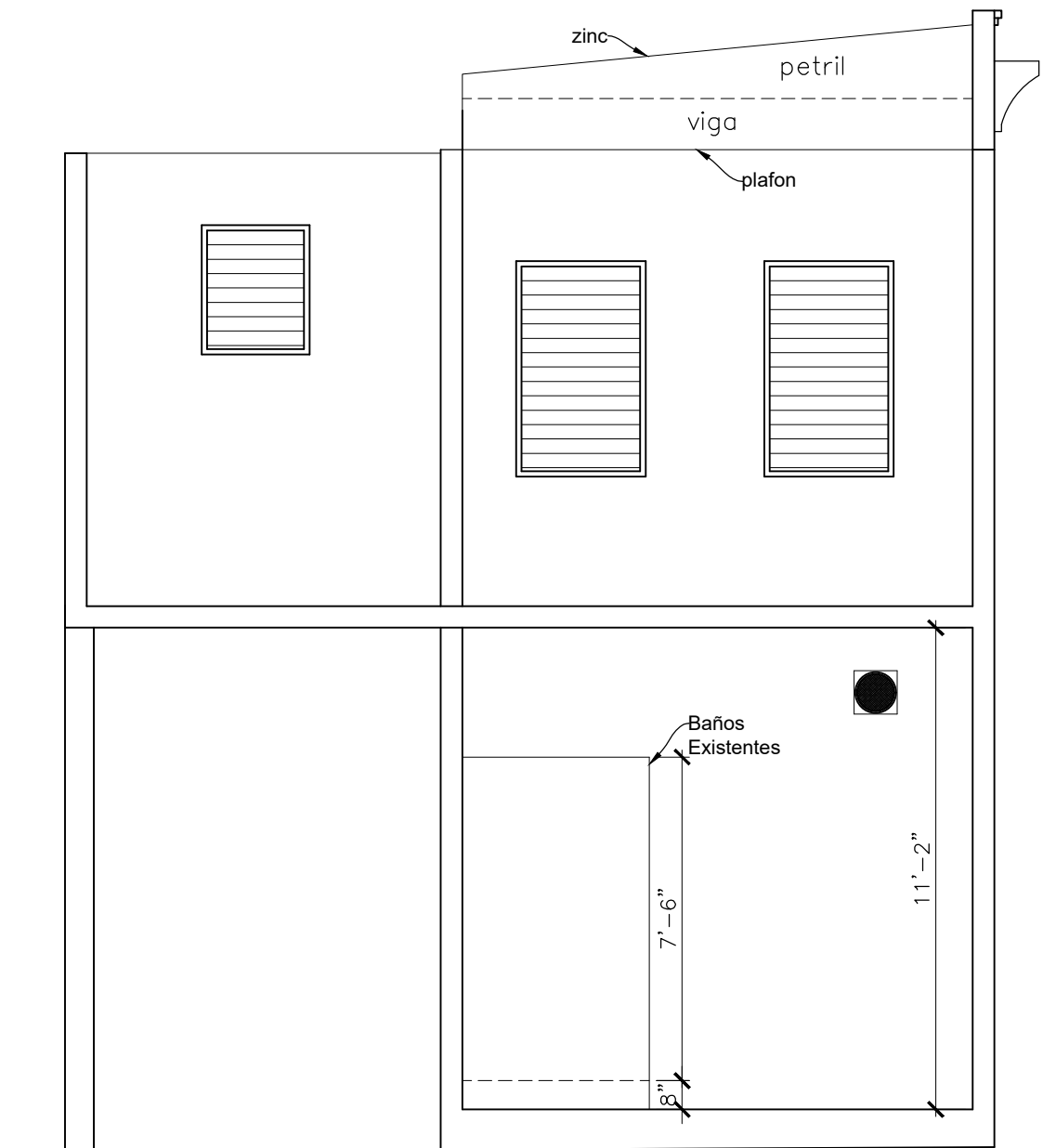
SECCION A-A

ESCALA: 1/4"=1'-0"



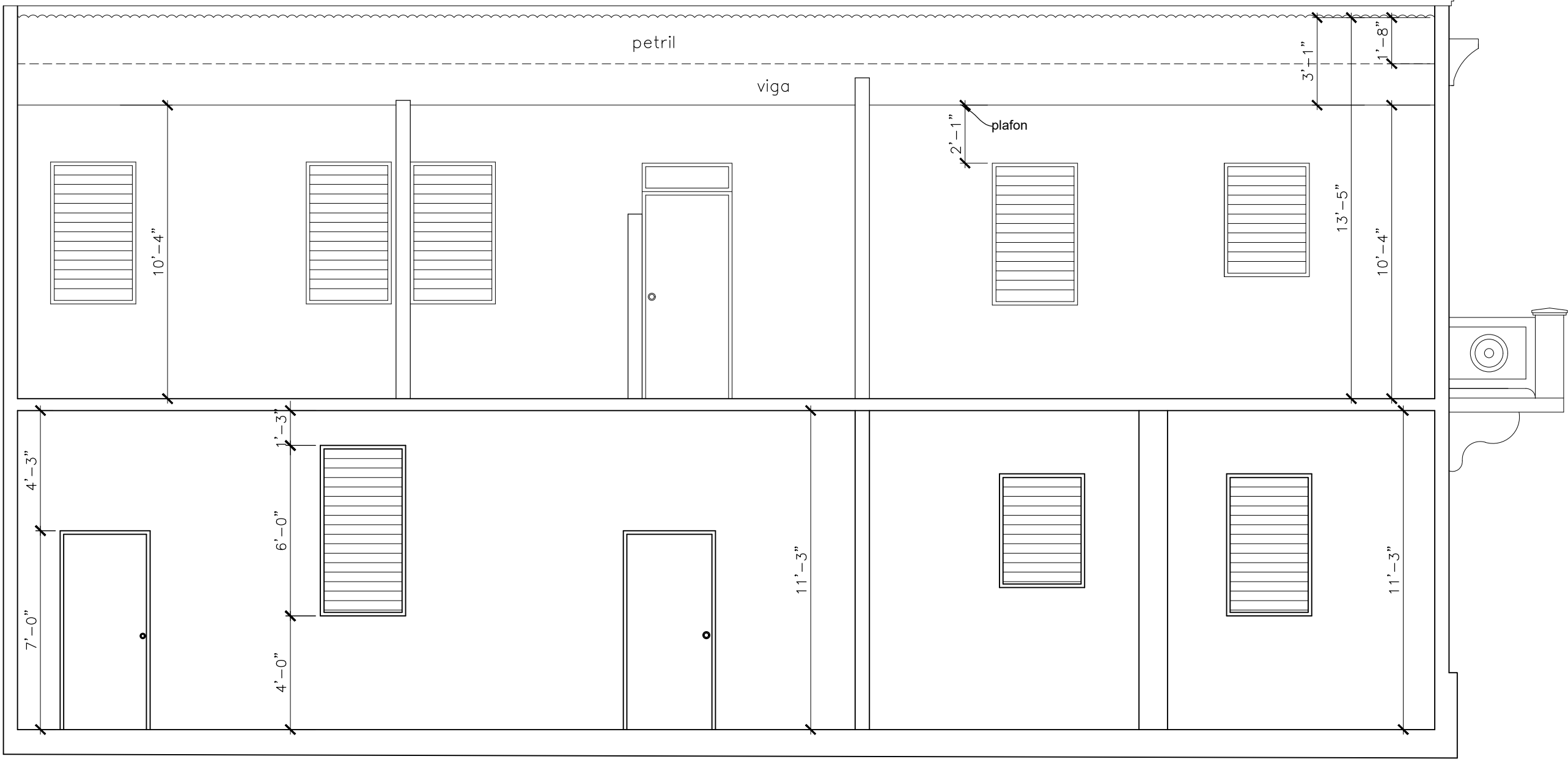
SECCION B-B

ESCALA: 1/4"=1'-0"



SECCION D-D

ESCALA: 1/4"=1'-0"

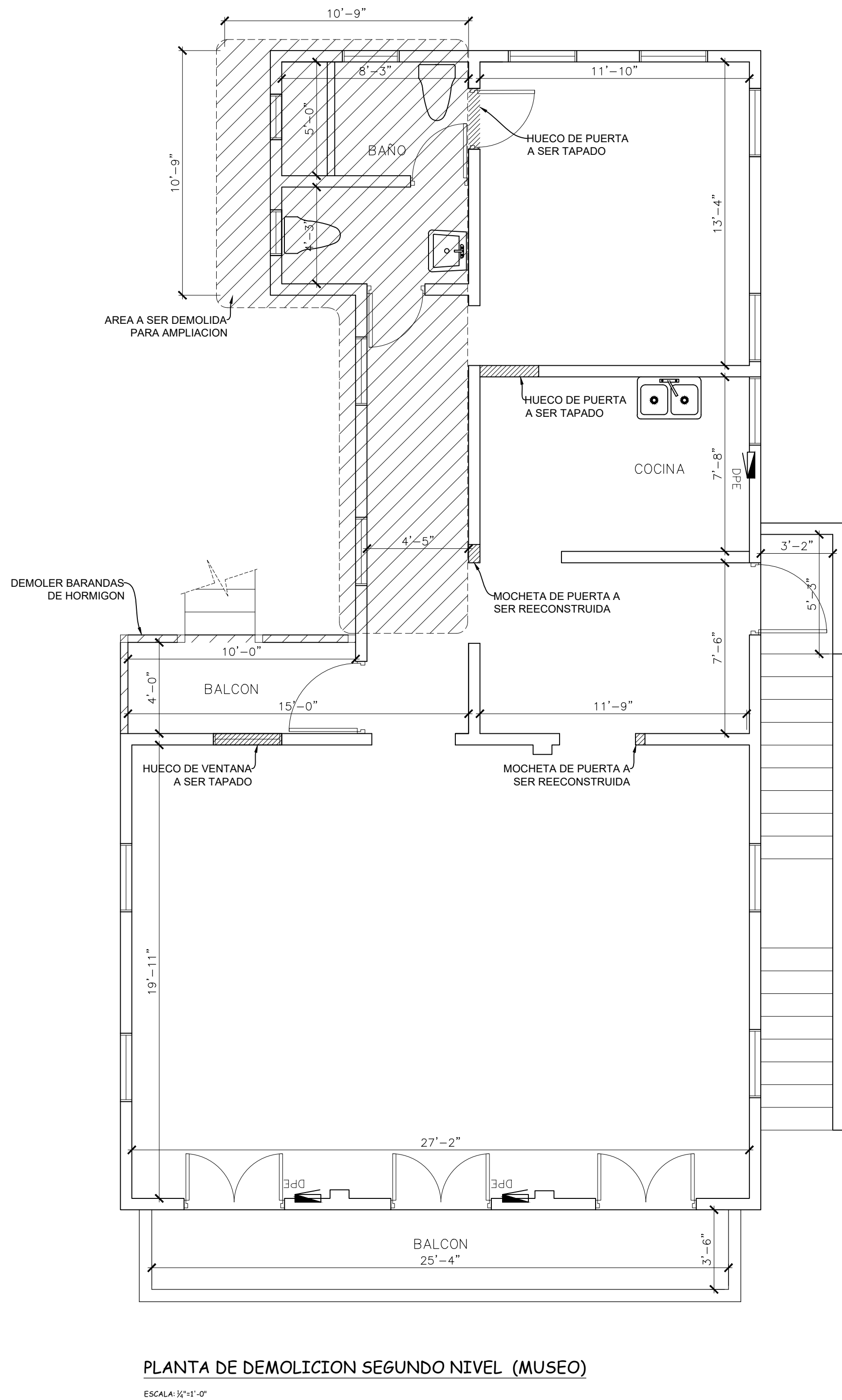
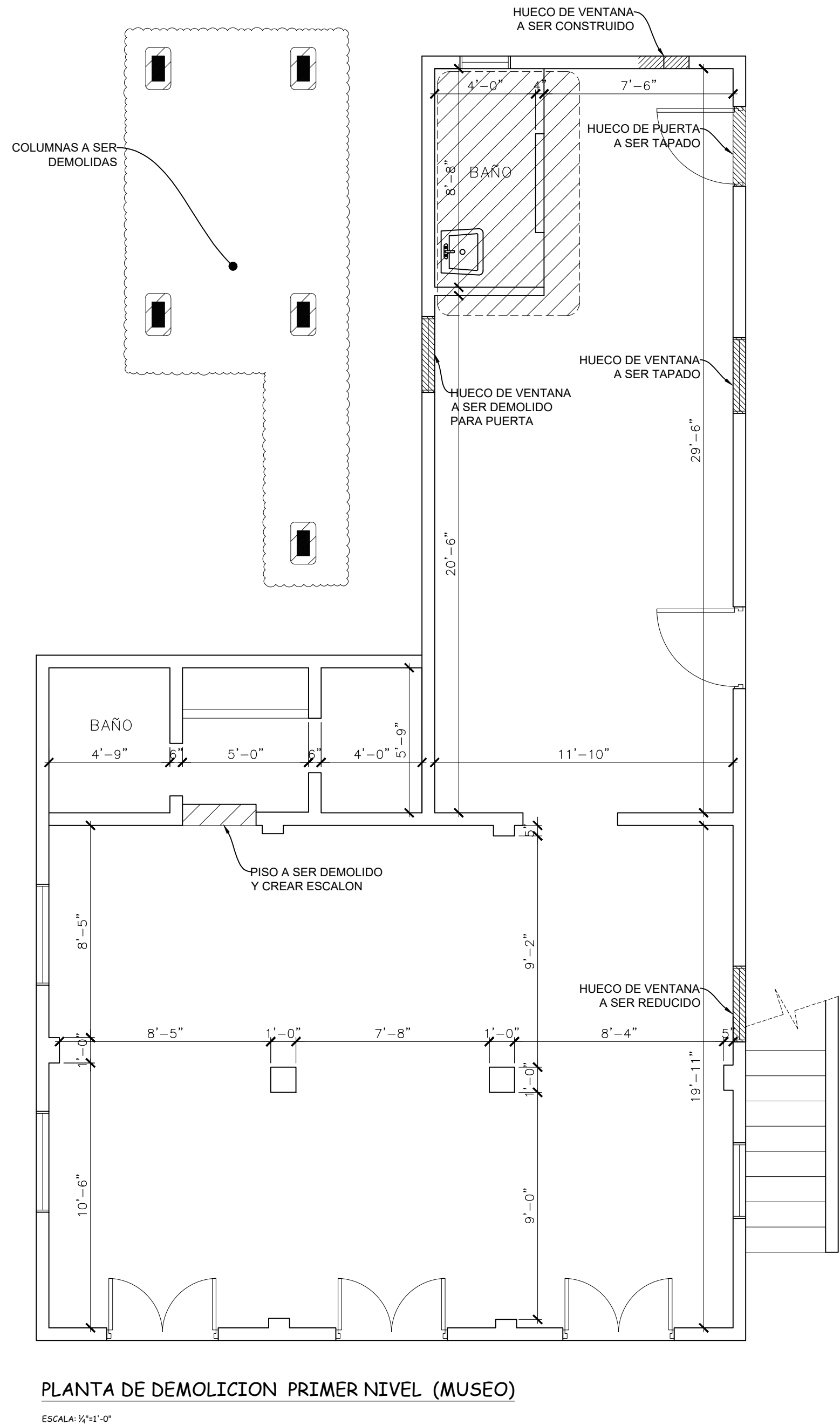


SECCION C-C

ESCALA: 1/4"=1'-0"

Nombre de la Firma & Dirección Ing. JOSÉ D. CENTENO CALERO LIC. 20206 PO BOX 4448 AGUADILLA, PR. 00605 TEL. 787-891-8256	
	
Certificado & Sello de 	
Nombre del Proyecto & Dirección MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.	
Nombre del Proyecto & Dirección MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.	Num. Hoja A-3
Fecha 17 NOV 2022	Hoja 5
Escala 1/4" = 1'-0"	Hoja 17
JV	DEBUTADO POR:

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONO Y/O DISEÑO Y/O PREPARO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTARIAS O CORPORACIONES PÚBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONCONCIEMENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA UGPE.



LEYENDA:

- AREA A SER DEMOLIDADA
- AREA A SER TAPADA

NOTAS:

- LOS BAÑOS TENDRAN AZULEJOS EN TODAS LAS PAREDES HASTA EL TECHO.
- AZULEJOS EXISTENTES DE PARED SERAN REMPLAZADOS
- TODO MUEBLE PARA BAÑOS, CLOSETS, ETC. SERA ESCOJIDO POR EL DUEÑO AL IGUAL QUE EL MATERIAL Y TERMINACION DE ESTOS.
- TODAS LAS PUERTAS & VENTANAS SERAN REEMPLAZADAS.

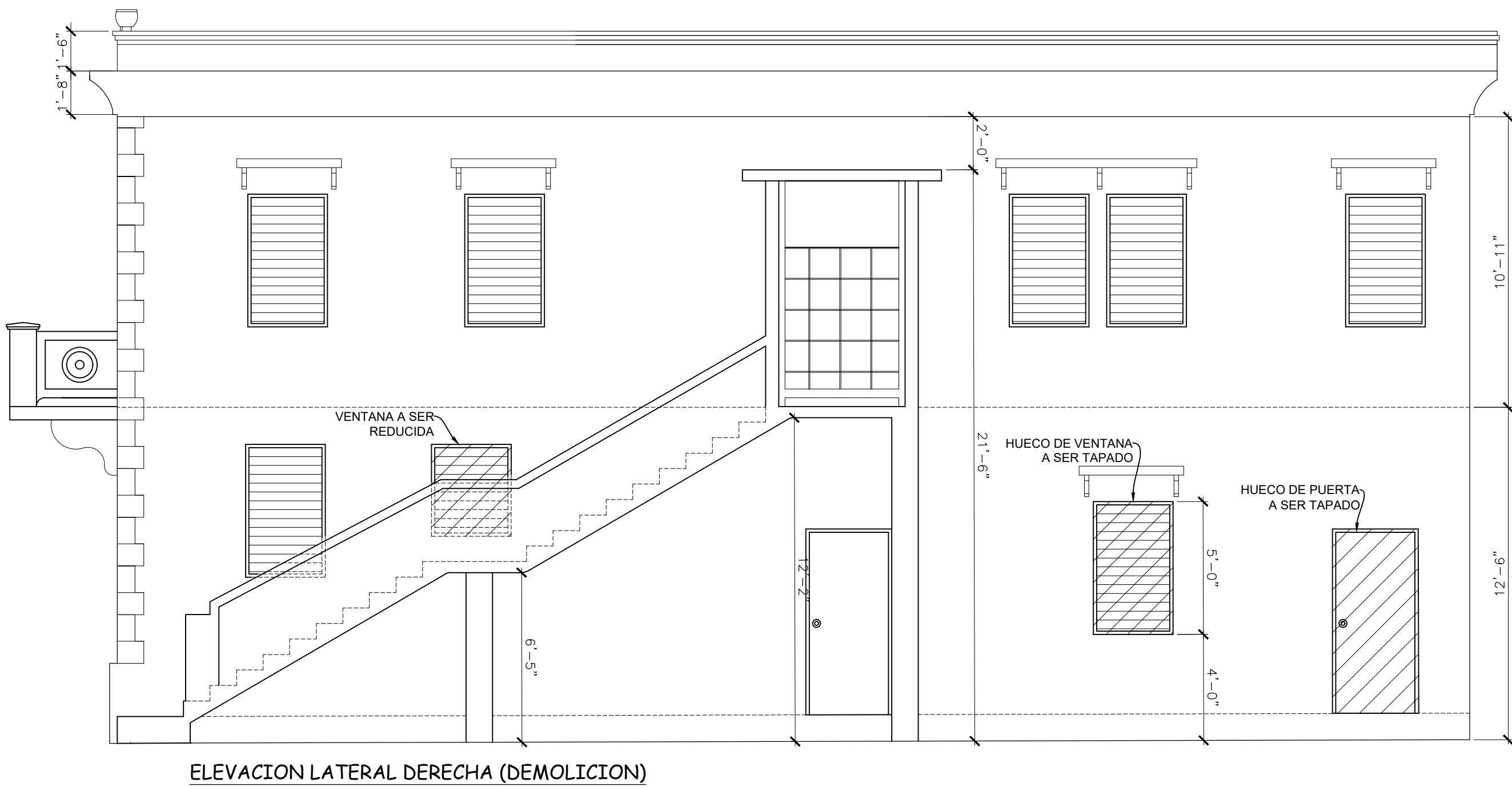
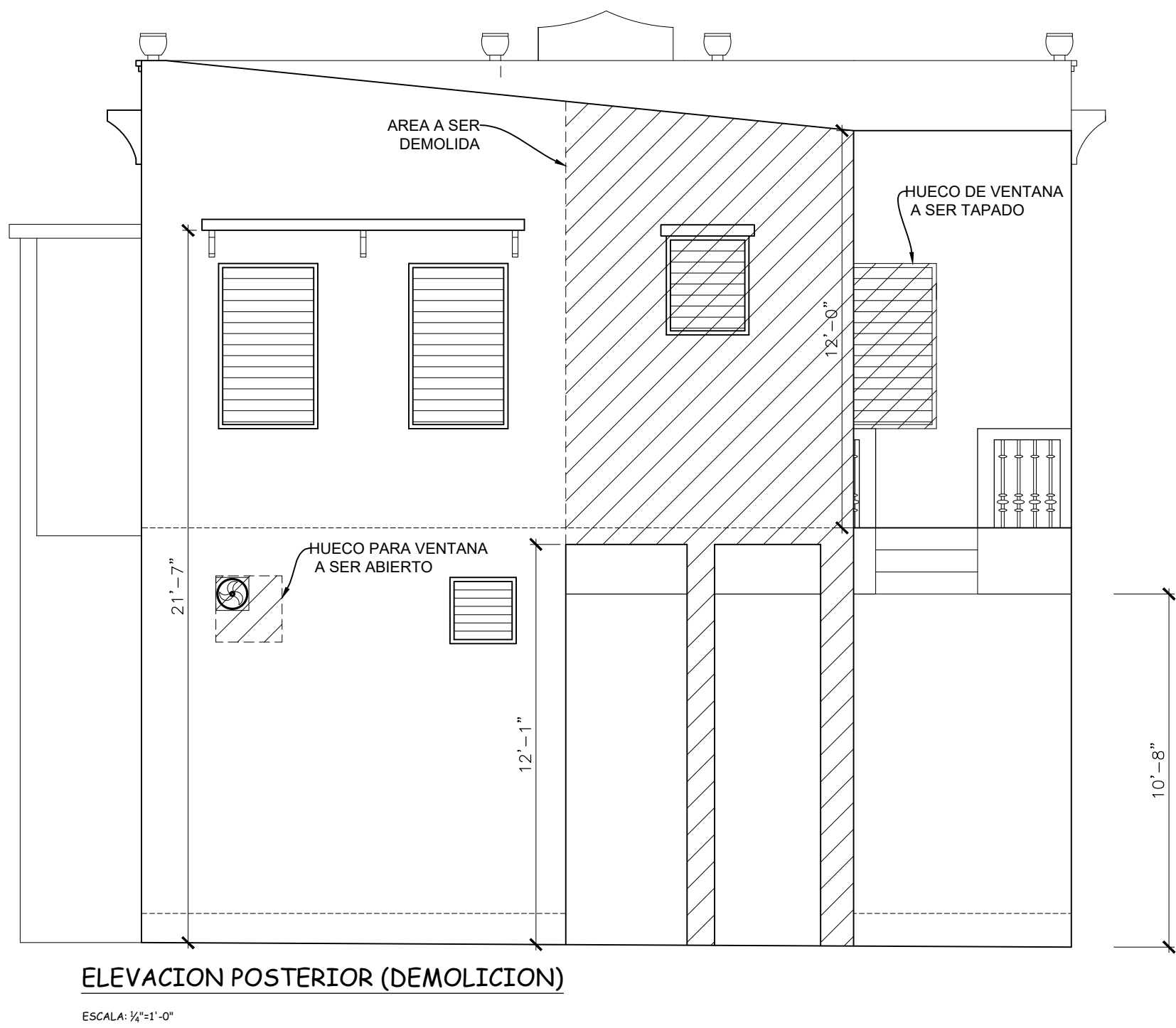
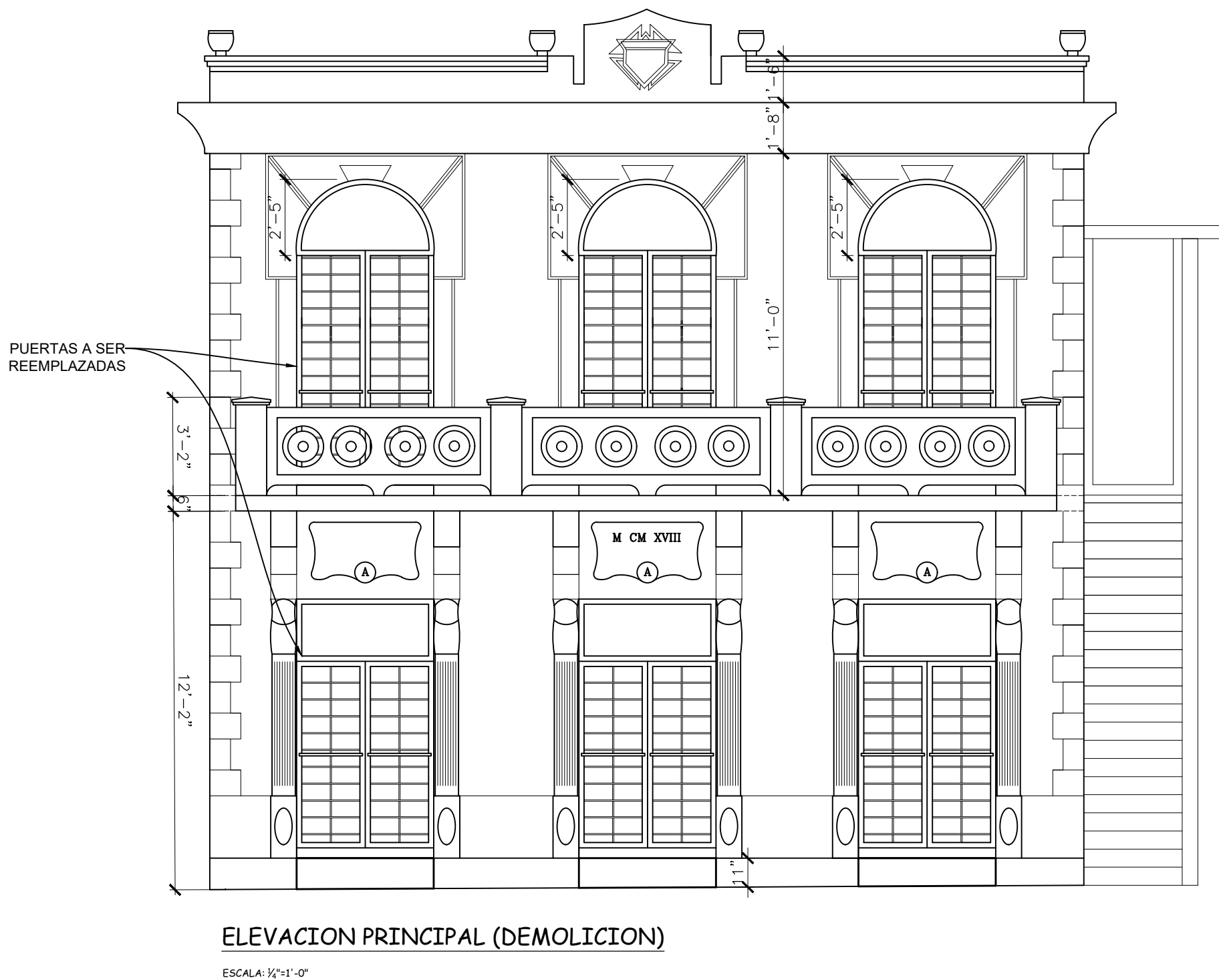


AREA A SER DEMOLIDADA

NO A ESCALA

Nombre de la Firma & Direccion Ing. JOSÉ D. CENTENO CALERO LIC. 20206 PO BOX 4448 AGUADILLA, PR. 00605 TEL. 787-891-8256	
Certificado & Sello por 	
Nombre del Proyecto & Direccion MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.	
Nombre de la Hoja HOJA DE DEMOLICION	Num. Hoja A-4
Fecha 17 NOV 2022	6 ^{ta} 17
Escala 1/4" = 1'-0"	
JV	DIBUJADO POR:

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONO Y/O DISEÑO Y/O PREPARO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA OCFE.



NOTAS:

1. TODAS LAS PUERTAS & VENTANAS SERAN REEMPLAZADAS.

Nombre de la Firma & Dirección
Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256



Certificado & Sello de

Nombre del Proyecto & Dirección

MUSEO HISTORICO DE QUEBRADILLAS
CALE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Num. Hoja

A-5

Fecha

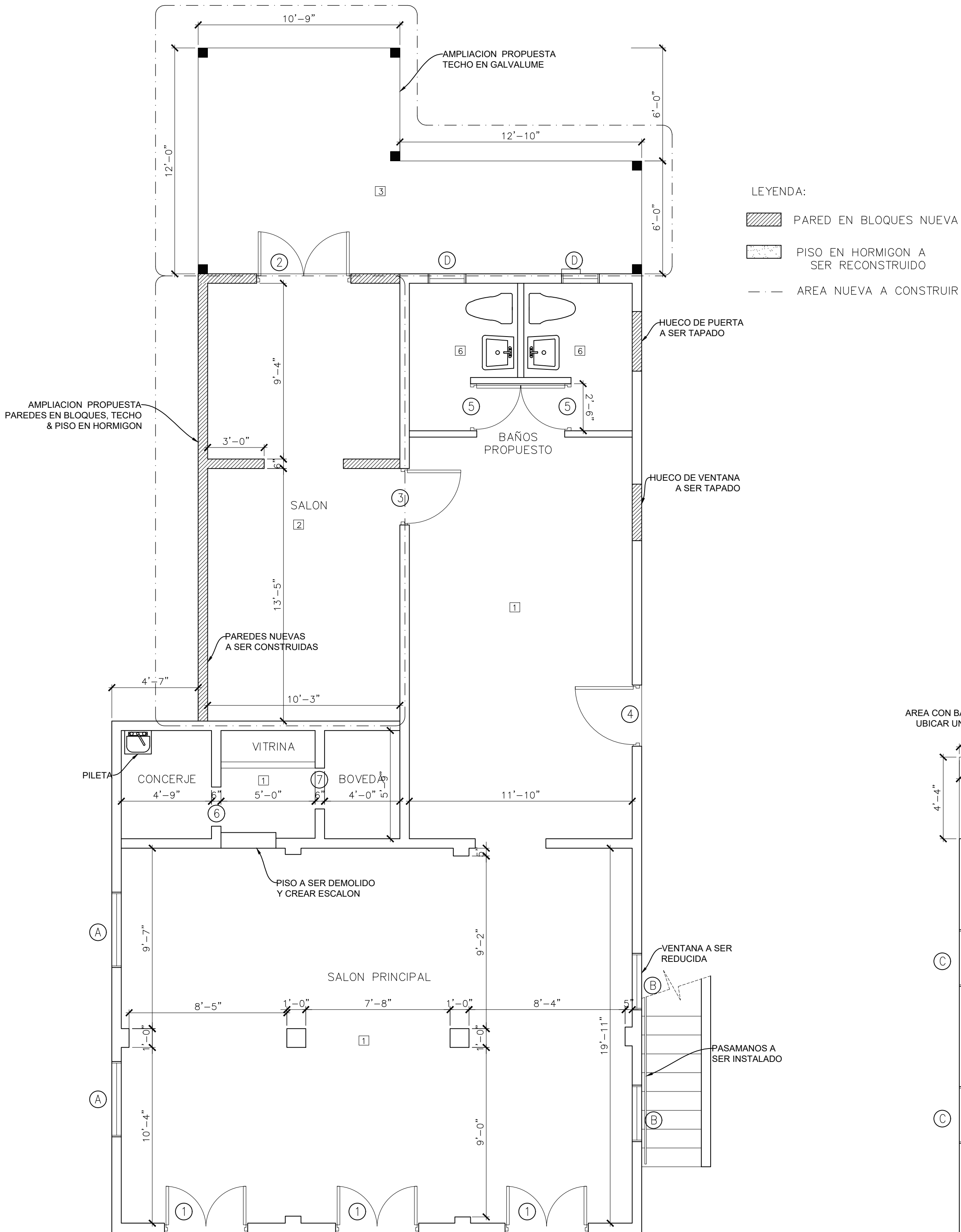
17 NOV 2022

Escala

1/4"= 1'-0"

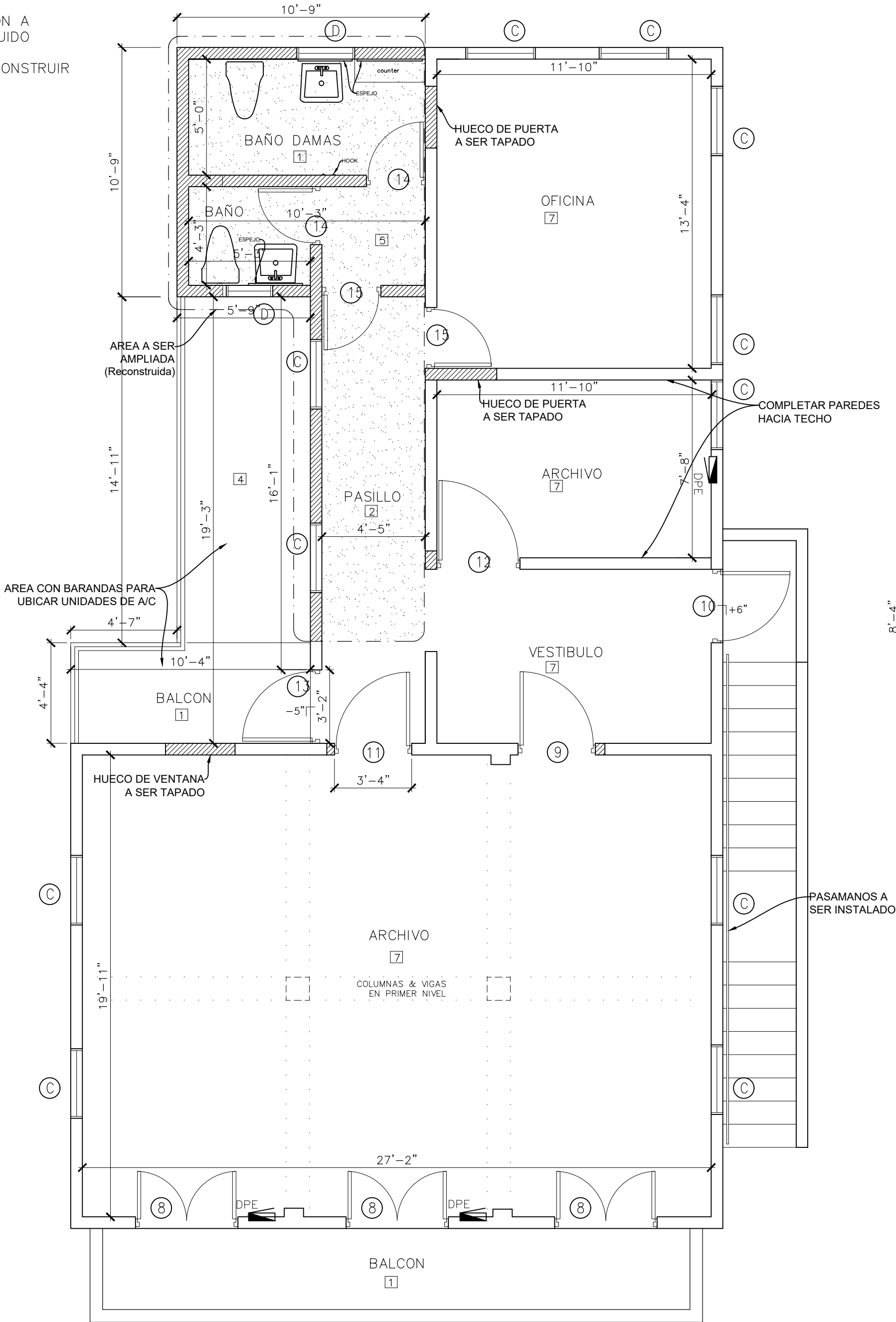
Dibujado POR:

JV



PRELIMINAR PRIMER NIVEL (MUSEO)

ESCALA: 1/4"=1'-0"



PRELIMINAR SEGUNDO NIVEL (ARCHIVO)

ESCALA: 1/4"=1'-0"

TERMINACIONES									
MCDA	PISO	ZOCALO	PAREDES	PLAFONES	PEREDES EXT.	OBSERVACION			
1	0	0	0	0	0				
2	0	0	0	0	0				
3	0	0	0	0	0				
4	0	0	0	0	0				
5	0	0	0	0	0				
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99	0	0	0	0	0				
100	0	0	0	0	0				

TABLA DE VENTANAS									
TAMAÑO HUECO									
MCDA	ANCHO	ALTO	TIPO	CANT.	MATERIAL	Descripción		Color	
Ⓐ	4'-0"	4'-0"	1	2	ALUMINIO & CRISTAL	VENTANAS DE SEGURIDAD CON CRISTAL Y ARTE		BRONCE	
Ⓑ	3'-0"	7'-0"	1	2	ALUMINIO & CRISTAL	VENTANAS DE SEGURIDAD CON CRISTAL Y ARTE		BRONCE	
Ⓒ	3'-0"	7'-0"	2	9	ALUMINIO & CRISTAL	VENTANA DE CELOSA 4" SEGURIDAD		BRONCE	
Ⓓ	2'-0"	2'-0"	3	4	ALUMINIO	VENTANA TIPO OLD SAN JUAN (CRISTAL SUPERIOR)		BRONCE	

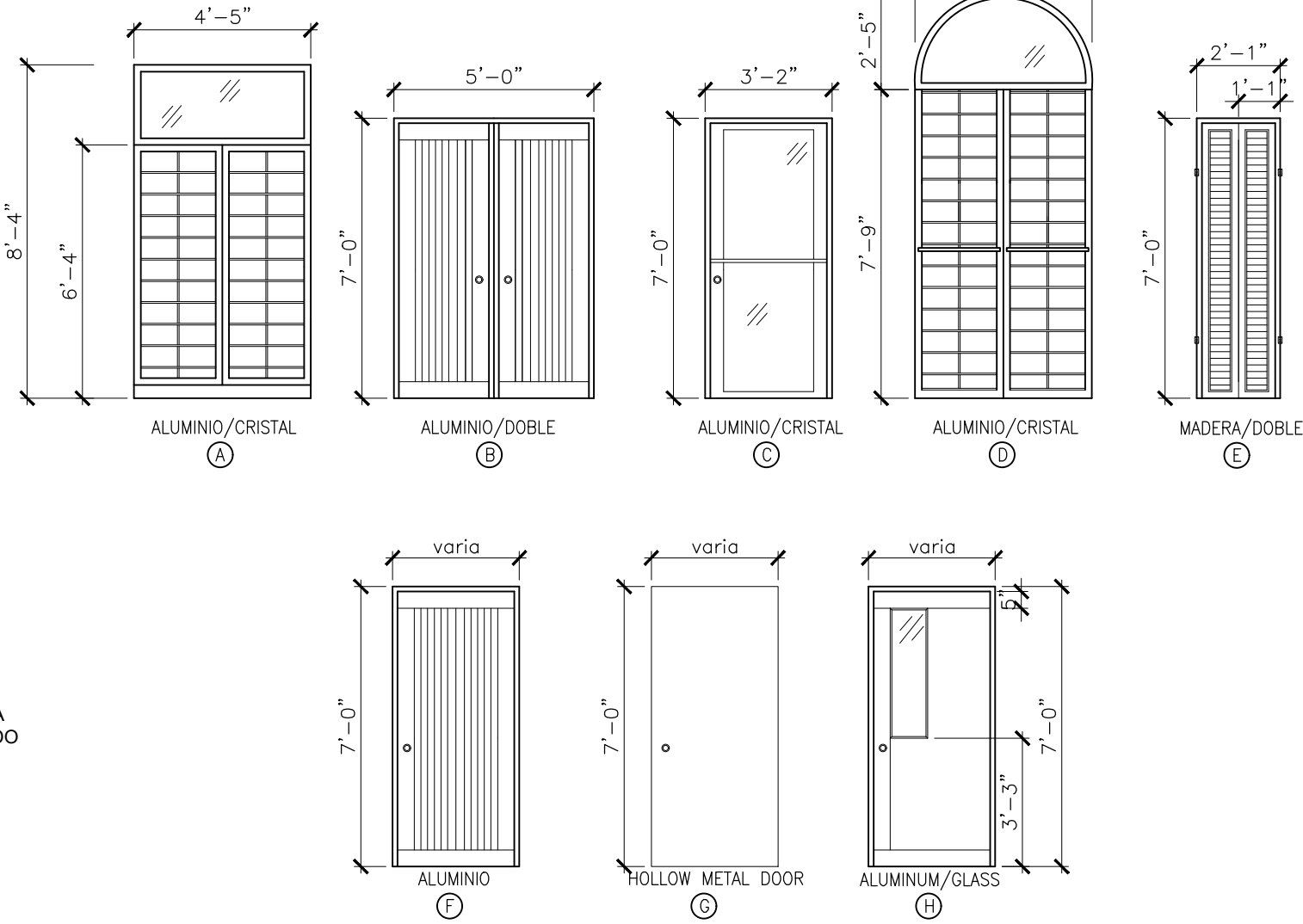
NOTAS: 1. SE DEBERA CONSULTAR AL FABRICANTE PARA LAS MEDIDAS EXACTAS.

TABLA DE PUERTAS							
TAMARO HUECO							
MCDA	ANCHO	ALTO	TIPO	CANT.	MATERIAL	Descripción	Color
①	4'-5"	8'-4"	A	3	ALUMINIO & CRISTAL	PUERTA DOBLE PARA EXTERIOR	BLANCO
②	5'-0"	7'-0"	B	1	HOLLOW METAL DOOR	PUERTA DOBLE PARA EXTERIOR	BLANCO
③	5'-0"	7'-0"	C	1	ALUMINIO & CRISTAL	PUERTA INTERIOR (CRISTAL COMPLETO)	BLANCO
④	3'-3"	7'-0"	G	1	HOLLOW METAL DOOR	PUERTA SENCILLA EXTERIOR	BLANCO
⑤	2'-4"	7'-0"	F	2	ALUMINIO	PUERTA INTERIOR	BLANCO
⑥	2'-1"	7'-0"	E	1	MADERA CON TINTE	PUERTA DOBLE (HERRAJE AMBAS DIRECCIONES)	MADERA CLARA
⑦	2'-2"	7'-0"	G	1	HOLLOW METAL DOOR	PUERTA SENCILLA EXTERIOR	BLANCO
⑧	4'-5"	7'-0"	D	3	ALUMINIO & CRISTAL	PUERTA DOBLE PARA EXTERIOR	BLANCO
⑨	3'-4"	7'-0"	G	1	HOLLOW METAL DOOR	PUERTA SENCILLA EXTERIOR	BLANCO
⑩	3'-2"	7'-0"	H	1	ALUMINIO & CRISTAL	PUERTA INTERIOR CON CRISTAL (VISOR)	BLANCO
⑪	3'-4"	7'-0"	H	1	ALUMINIO & CRISTAL	PUERTA INTERIOR CON CRISTAL (VISOR)	BLANCO
⑫	3'-2"	7'-0"	G	1	HOLLOW METAL DOOR	PUERTA SENCILLA EXTERIOR	BLANCO
⑬	3'-2"	7'-0"	F	1	ALUMINIO	PUERTA INTERIOR	BLANCO
⑭	2'-4"	7'-0"	F	2	ALUMINIO	PUERTA INTERIOR	BLANCO
⑮	2'-2"	7'-0"	H	2	ALUMINIO & CRISTAL	PUERTA INTERIOR CON CRISTAL (VISOR)	BLANCO
⑯							

NOTAS: 1. SE DEBERA CONSULTAR AL FABRICANTE PARA LAS MEDIDAS EXACTAS.

NOTAS:

1. TODAS LAS PUERTAS & VENTANAS SERAN REEMPLAZADAS.



PUERTAS PROPUESTAS

SCALE: 3/4"=1'-0"

Equipos y Accesorios - Baño para Adulto					
ITEM	MARCA	MODELO	DIMENSIONES		
			W	D	H
Toilet (Eco Fusion Siphonic Dual Flush Right Height Elongated Complete Toilet)	American Standard	3380.216	26.75	16.5	15
Lavamanos de Pared Baños (Lucerne Wall-Hung Lavatory)	American Standard	356.041	20.5	18.25	
Mezcladora (Metering Faucet w/Extended Spout 0.5 GPM Non-aerated Spray)	American Standard	1340.119			
Jabonera (Soap Dispenser for Liquid and Lotion Soaps, and Detergents)	Bobrick	B-40	5	6	3
Papelera (Surface Mounted Roll Paper Towel Dispenser)	Bobrick	B-72860	12	15	9
Zafacón Baños (Pedal Bin in Chrome 5 litre Stainless Steel)	Croydex	QA107/305YW		10.63	10.63
Toilet Tissue Dispenser Single with Controlled-Delivery	Bobrick	B-273	6.5	4.875	1.5
Tilt Mirror (Tilt Mirror With Stainless Steel Frame)	Bobrick	B-293			
Hand Air Dryer (Trim Line Surface-Mounted ADA Dryer)	Bobrick	B-712	13	4	13
Shower Head & Mixer (Townsend Collection, only trim kit w/water-saving shower head and cartridge)	American Standard	TL353507-002			

Ingenieros del Oeste C.S.P.
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PO BOX 4448 Aguadilla, P.R. 00605
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ingenierosdeloestecsp@gmail.com

Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256

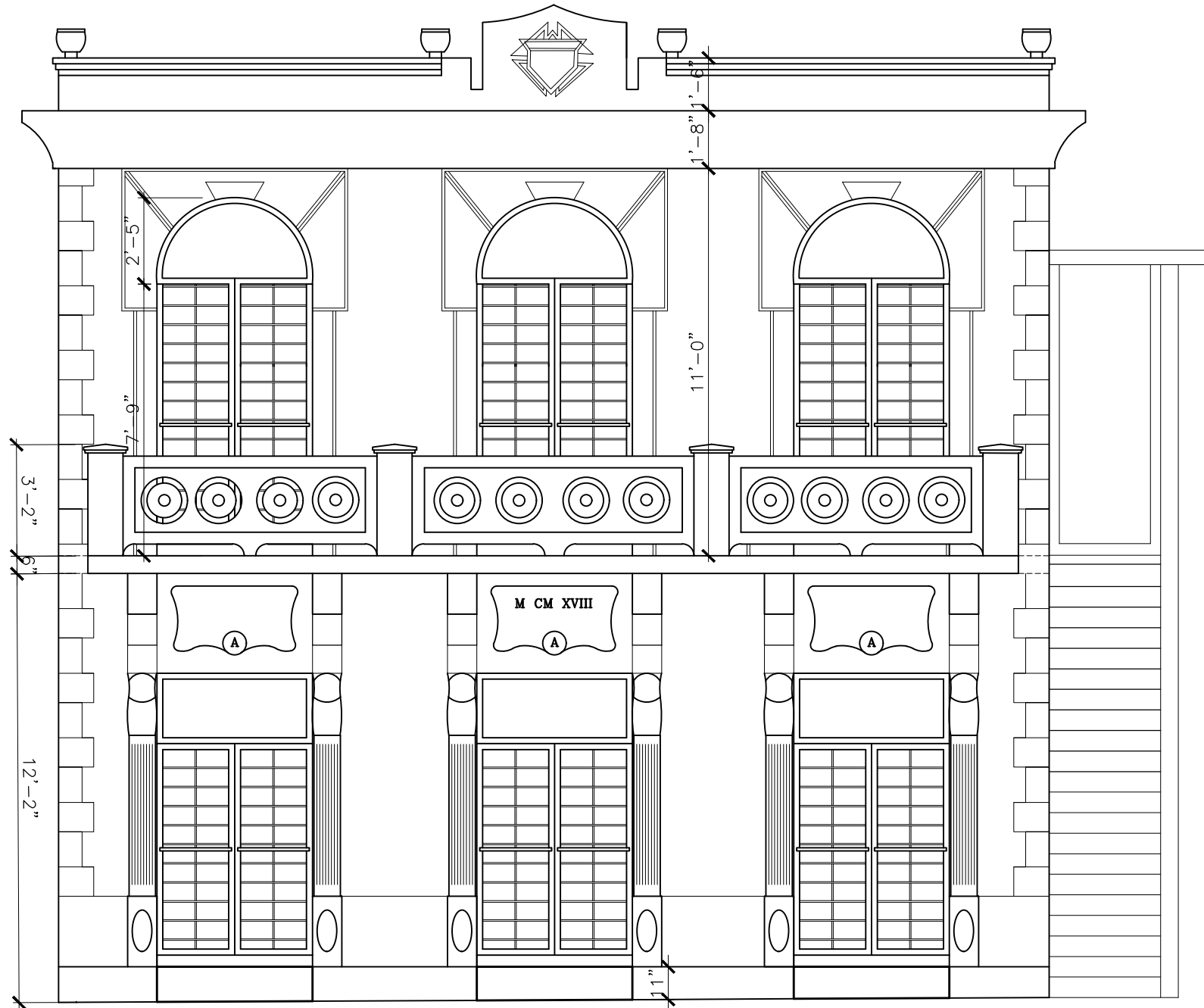


MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

PLANTA PRELIMINAR
17 NOV 2022
1/4" = 1'-0"

JV
DIBUJADO POR:

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONO Y/O DISEÑO Y/O PREPARO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONCONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA OGP.



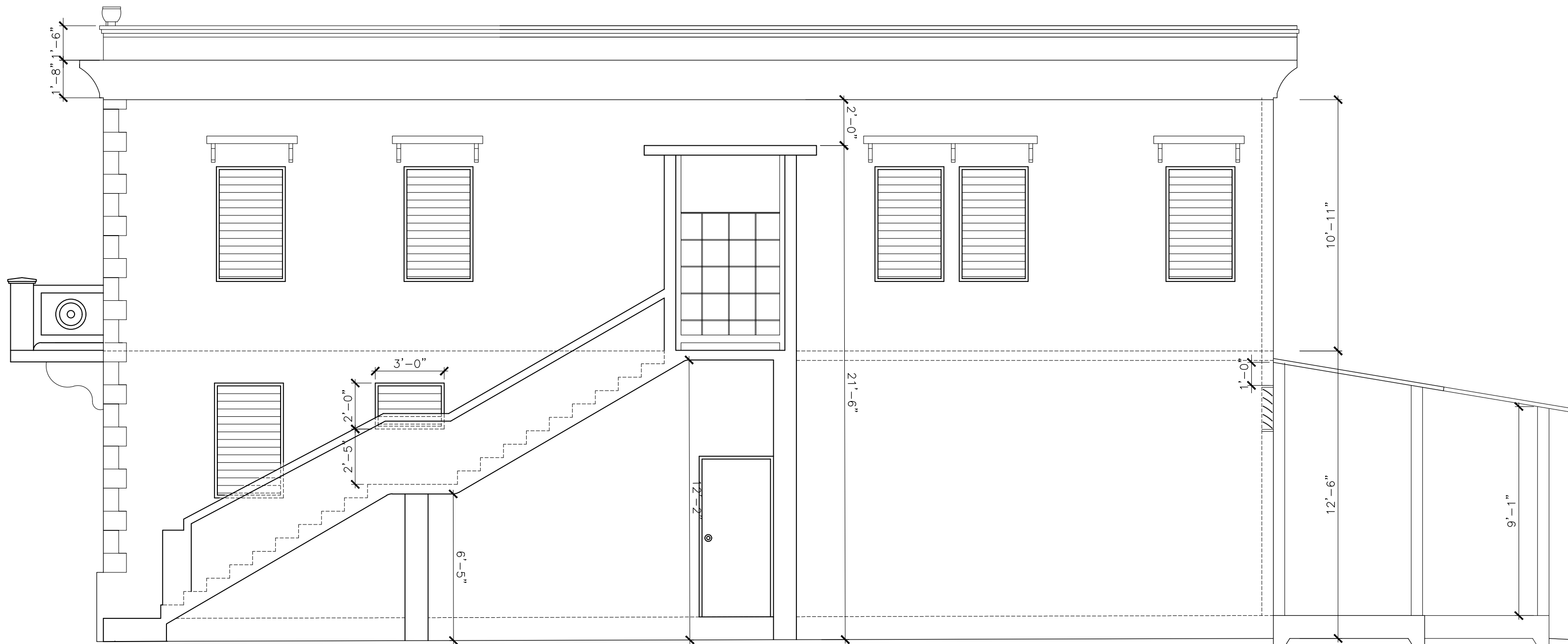
ELEVACION PRINCIPAL

ESCALA: 1/4"=1'-0"



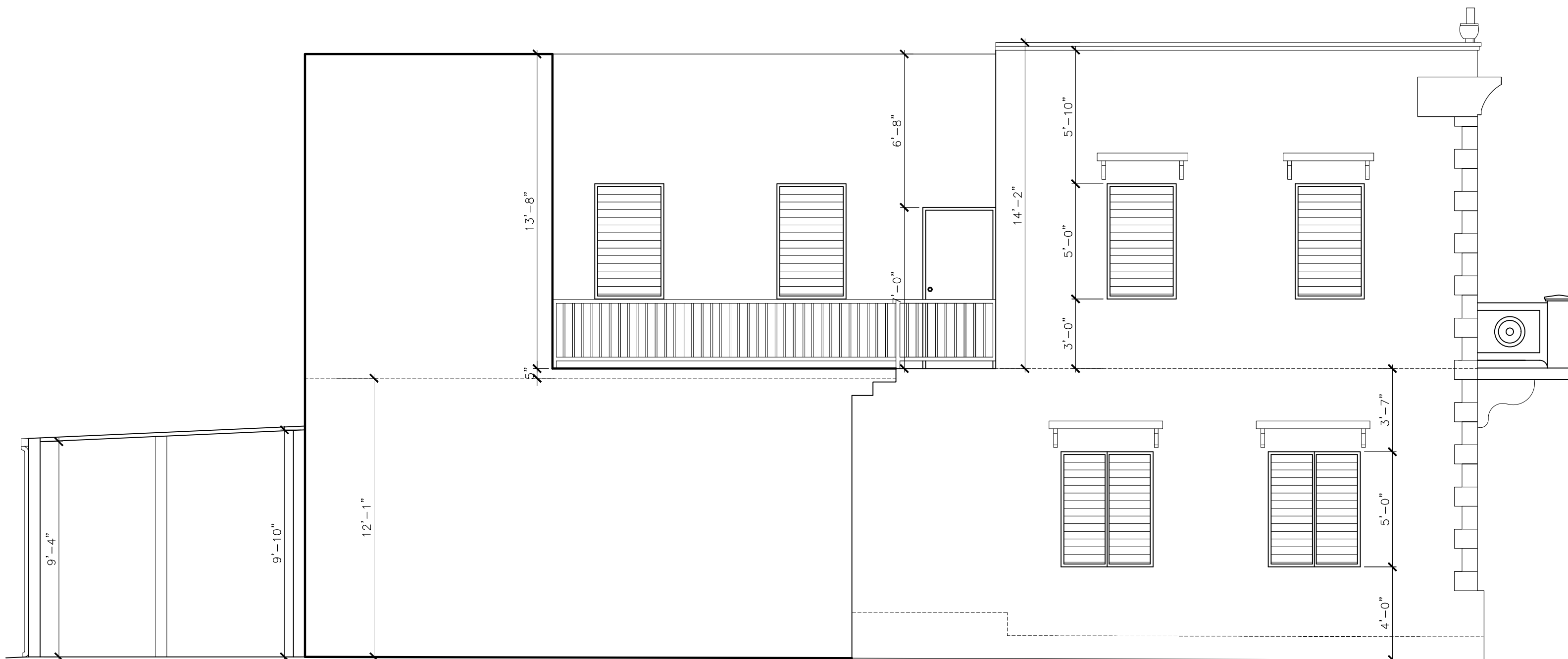
ELEVACION POSTERIOR

ESCALA: 1/4"=1'-0"



ELEVACION LATERAL DERECHA

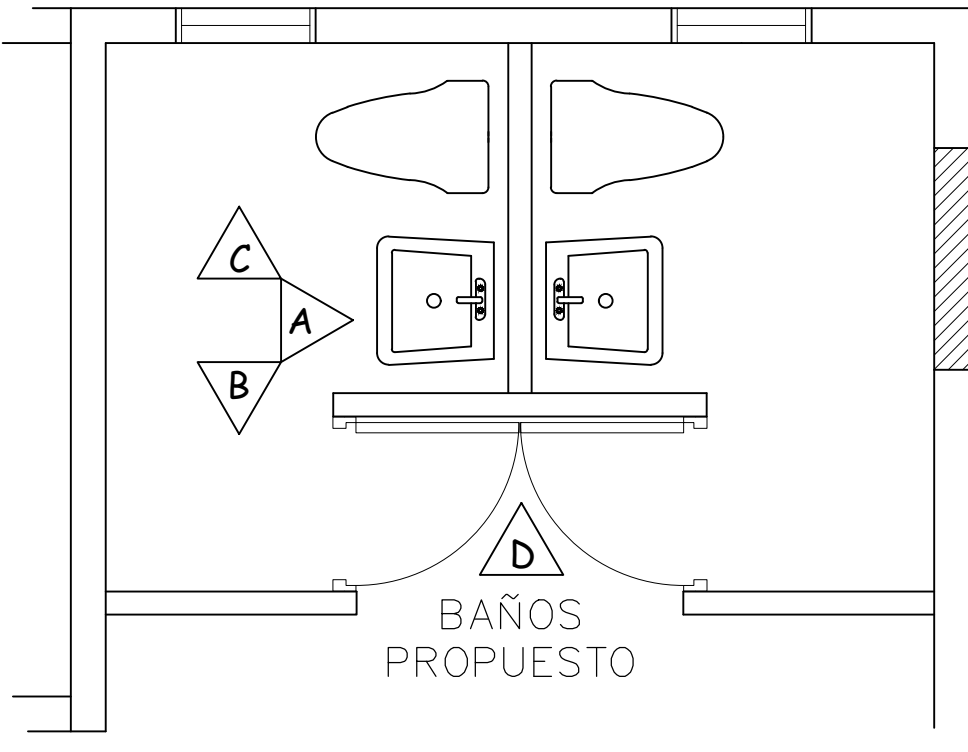
ESCALA: 1/4"=1'-0"



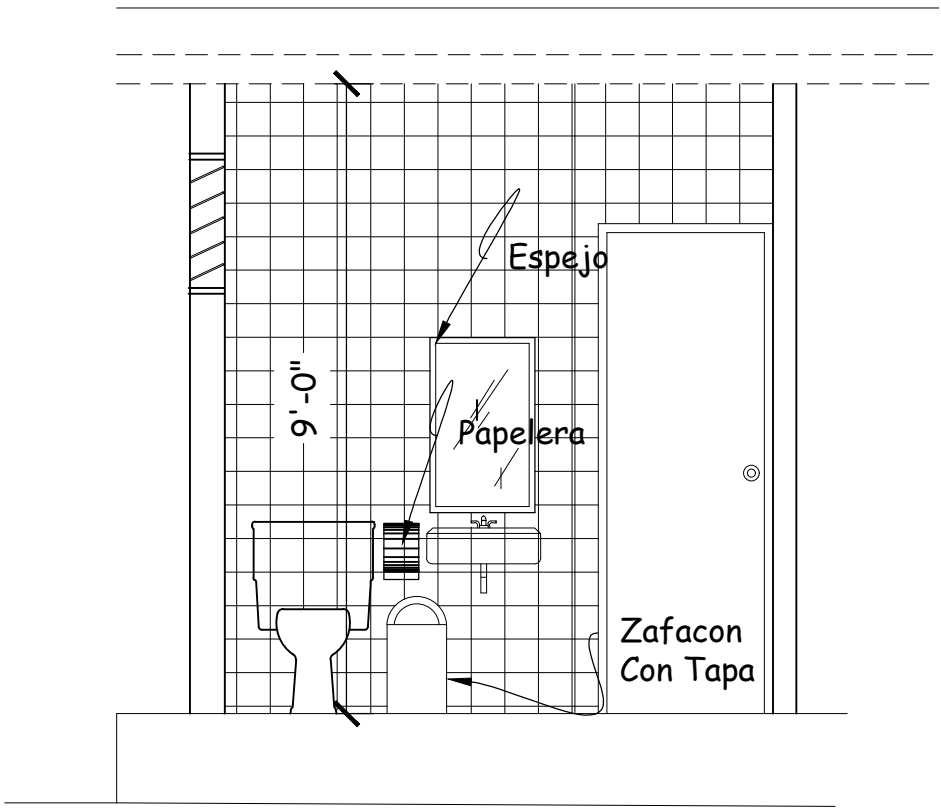
ELEVACION LATERAL IZQUIERDA

ESCALA: 1/4"=1'-0"

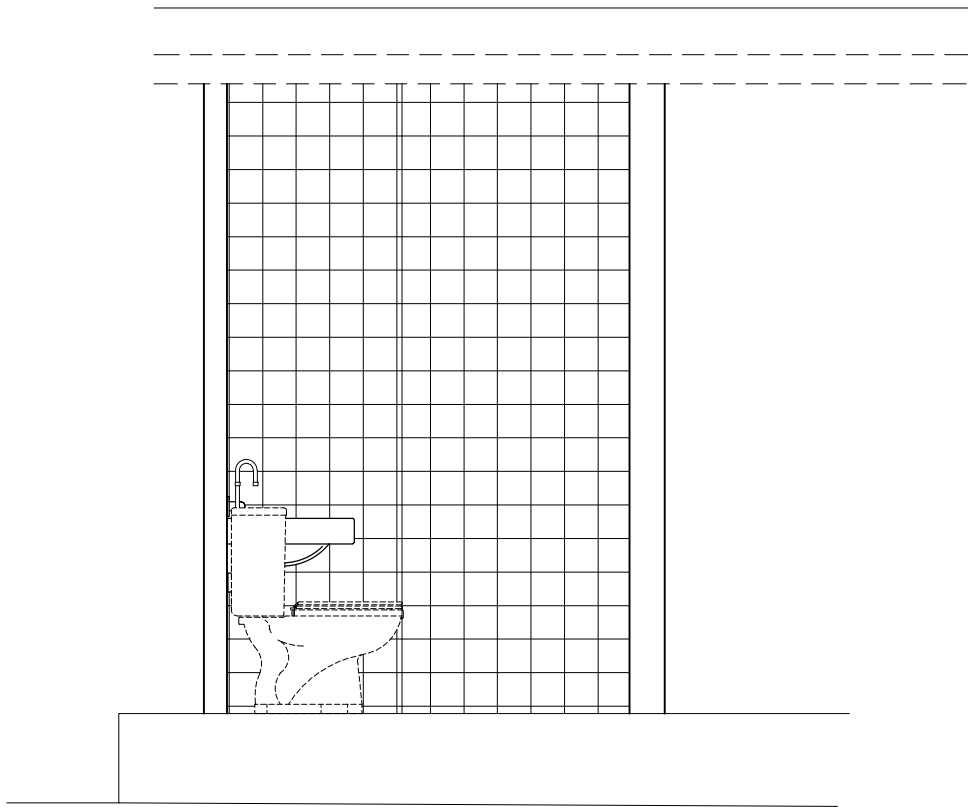
Nombre de la Hoja: ELEVACIONES PROPUESTAS		Num. Hoja: A-7	
Fecha: 17 NOV 2022		Hoja: 9	
Escala: 1/4" = 1'-0"		Página: 17	
Nombre del Proyecto & Dirección: MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.		Nombre de la Firma & Dirección: Ing. JOSÉ D. CENTENO CALERO LIC. 20206 PO BOX 4448 AGUADILLA, PR. 00605	
DIBUJADO POR: JV		TEL. 787-891-8256	



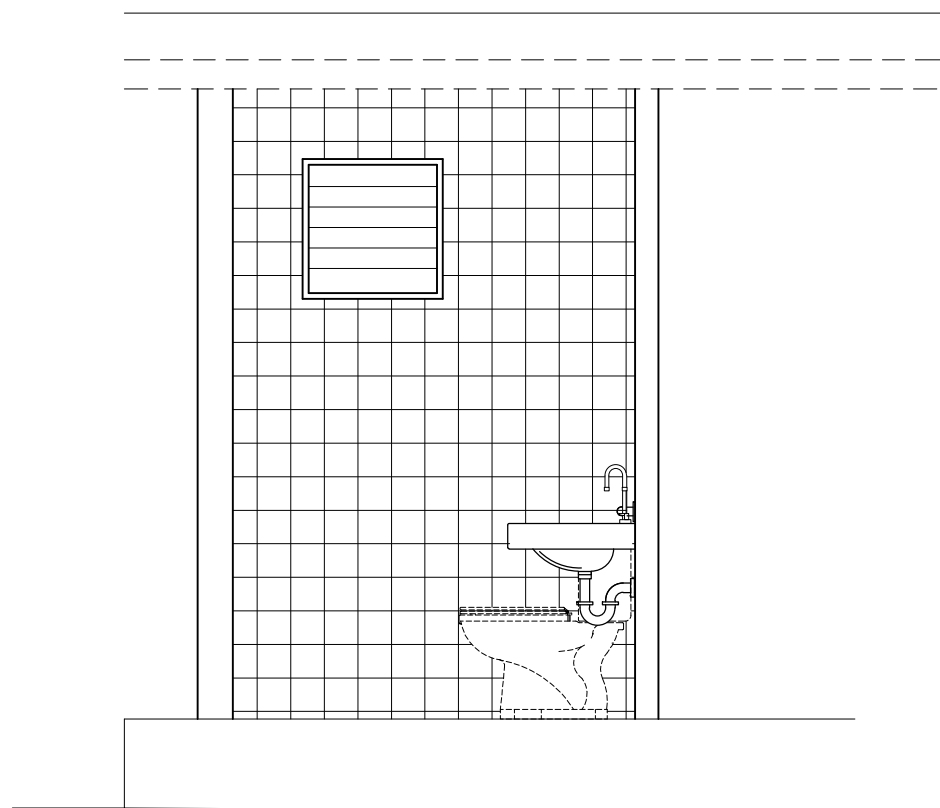
BAÑOS PROPUESTOS (PRIMER NIVEL)
ESCALA: 3/8"=1'-0"



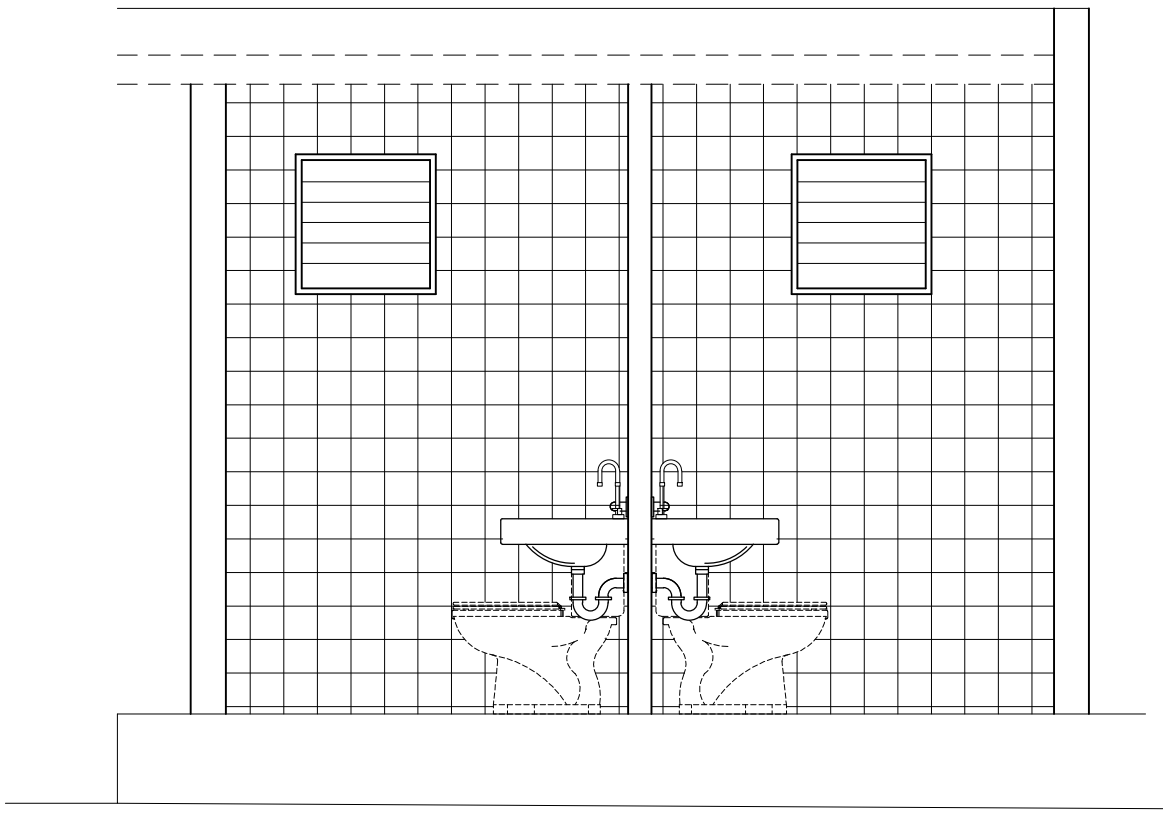
SECCION A
ESCALA: 3/8"=1'-0"



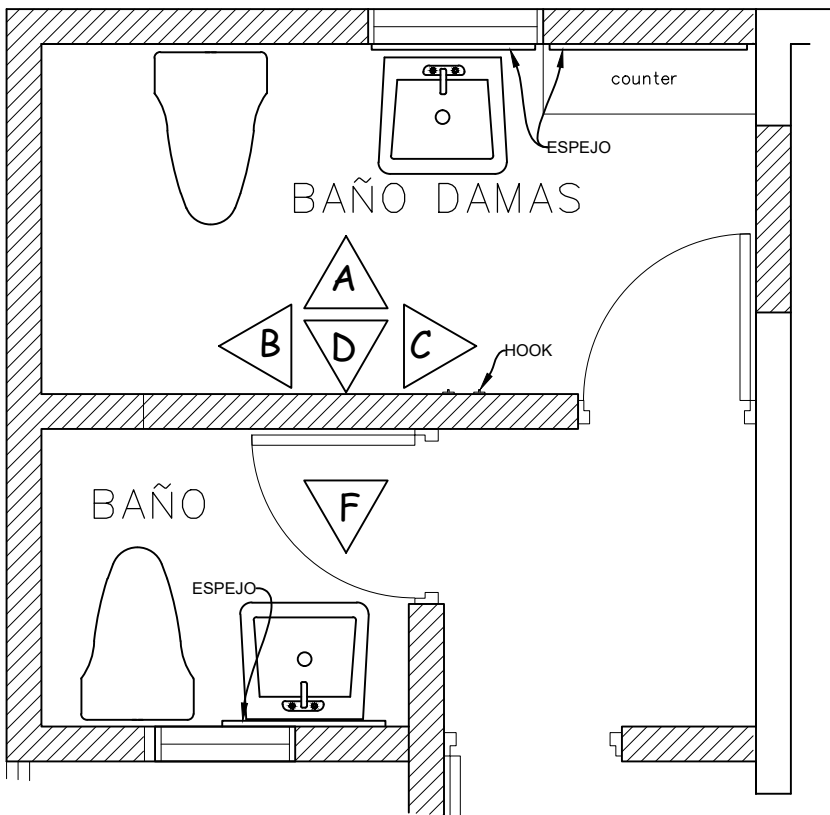
SECCION B
ESCALA: 3/8"=1'-0"



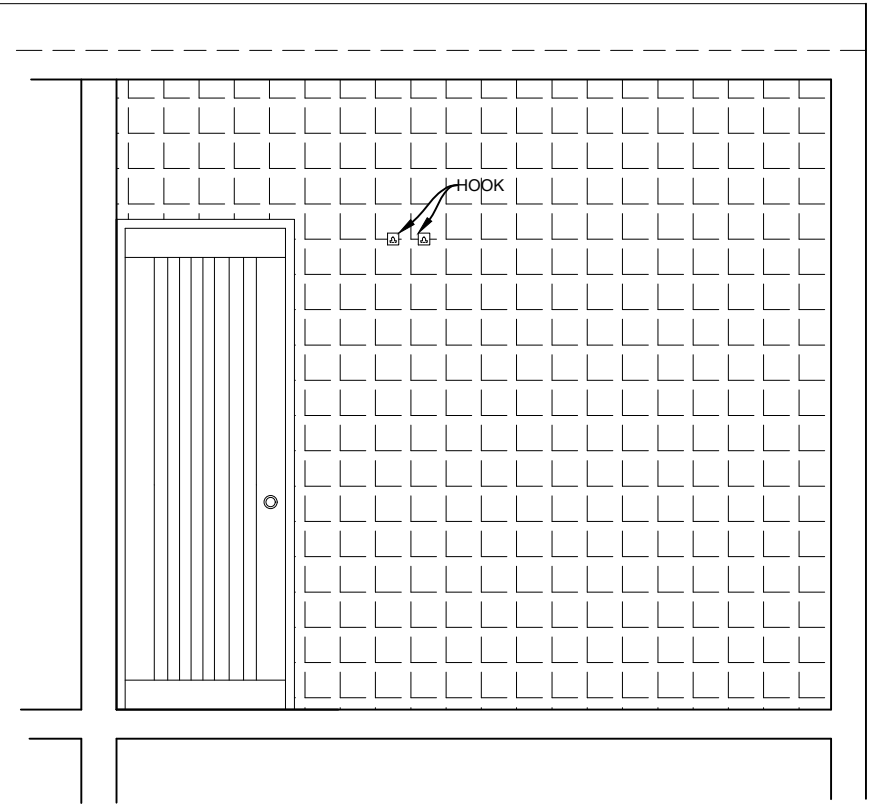
SECCION C
ESCALA: 3/8"=1'-0"



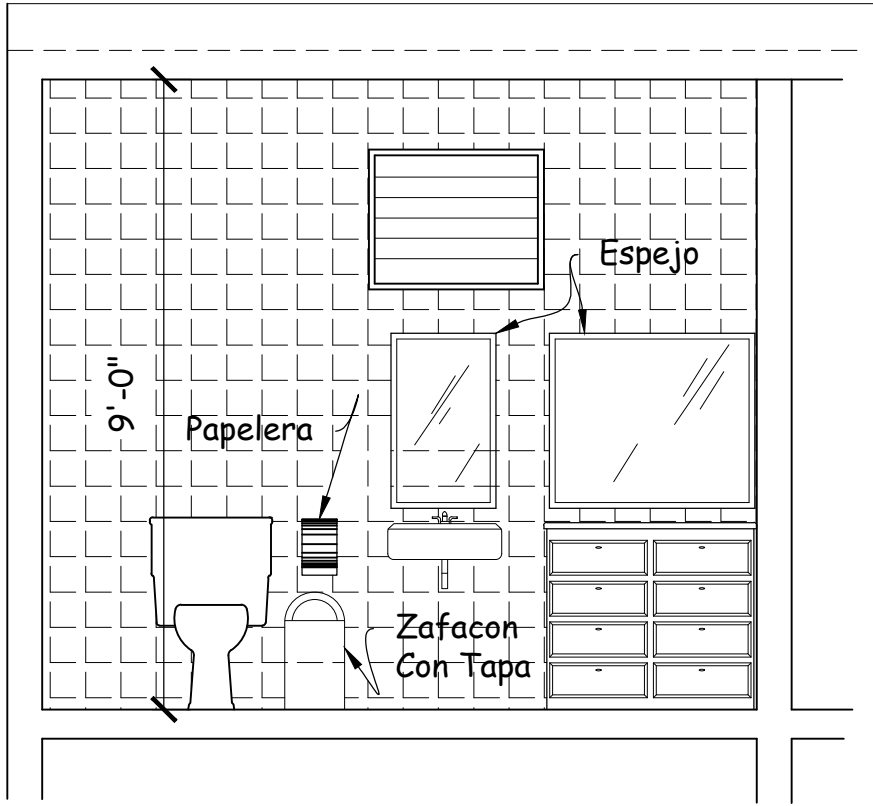
SECCION D
ESCALA: 3/8"=1'-0"



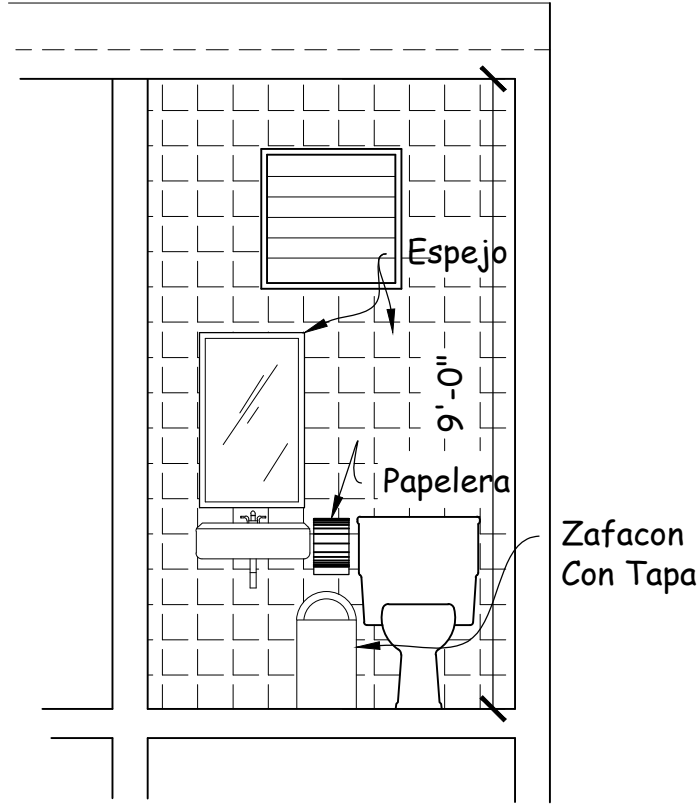
BAÑOS PROPUESTOS (SEGUNDO NIVEL)
ESCALA: 3/8"=1'-0"



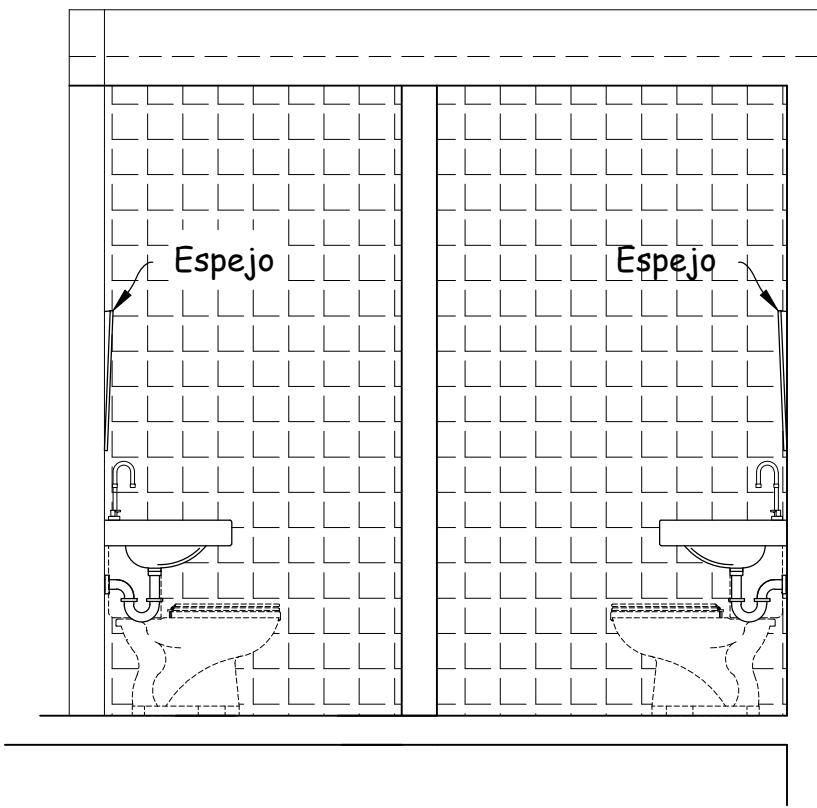
SECCION D
ESCALA: 3/8"=1'-0"



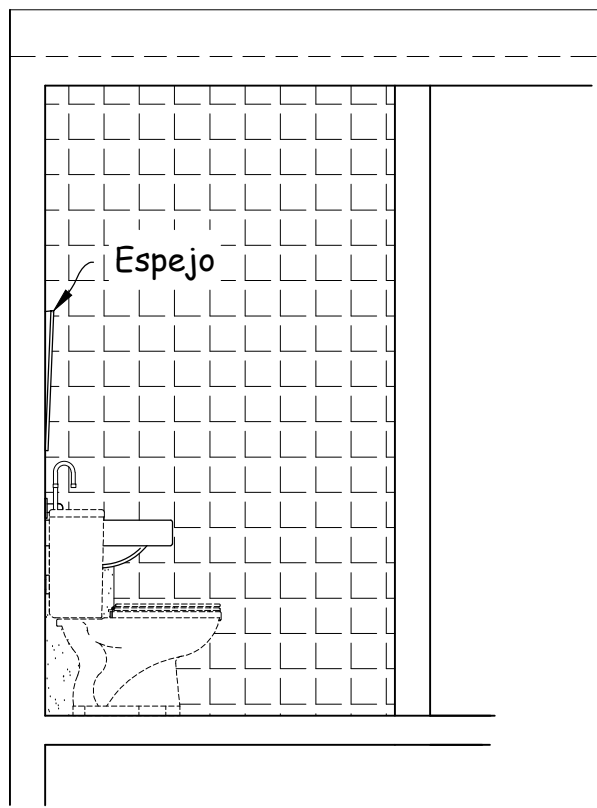
SECCION A
ESCALA: 3/8"=1'-0"



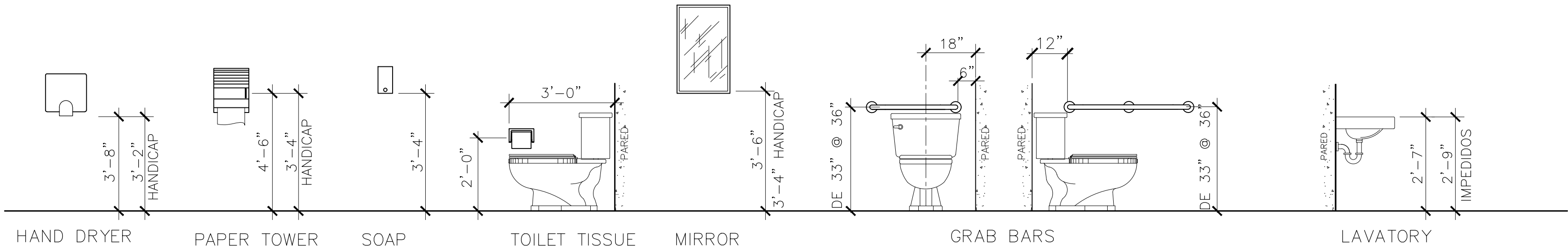
SECCION F
ESCALA: 3/8"=1'-0"



SECCION B
ESCALA: 3/8"=1'-0"



SECCION C
ESCALA: 3/8"=1'-0"



SUGGESTED ACCESSORIES INSTALLATION HEIGHTS

Ingenierosdel Oeste C.S.P.
Calle José de Diego #65, Aguadilla
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com

Nombre de la Firma & Dirección
Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256

JOSE D. CENTENO CALERO
INGENIERO
LICENCIADO
LIC. #20206
PUERTO RICO

Nombre del Proyecto & Dirección
MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Num. Hoja
A-8

Fecha
17 NOV 2022

Escala
3/8"= 1'-0"

SECCIONES BAÑO

17 NOV 2022

3/8"= 1'-0"

Num. Hoja
A-8

Fecha
17 NOV 2022

Escala
3/8"= 1'-0"

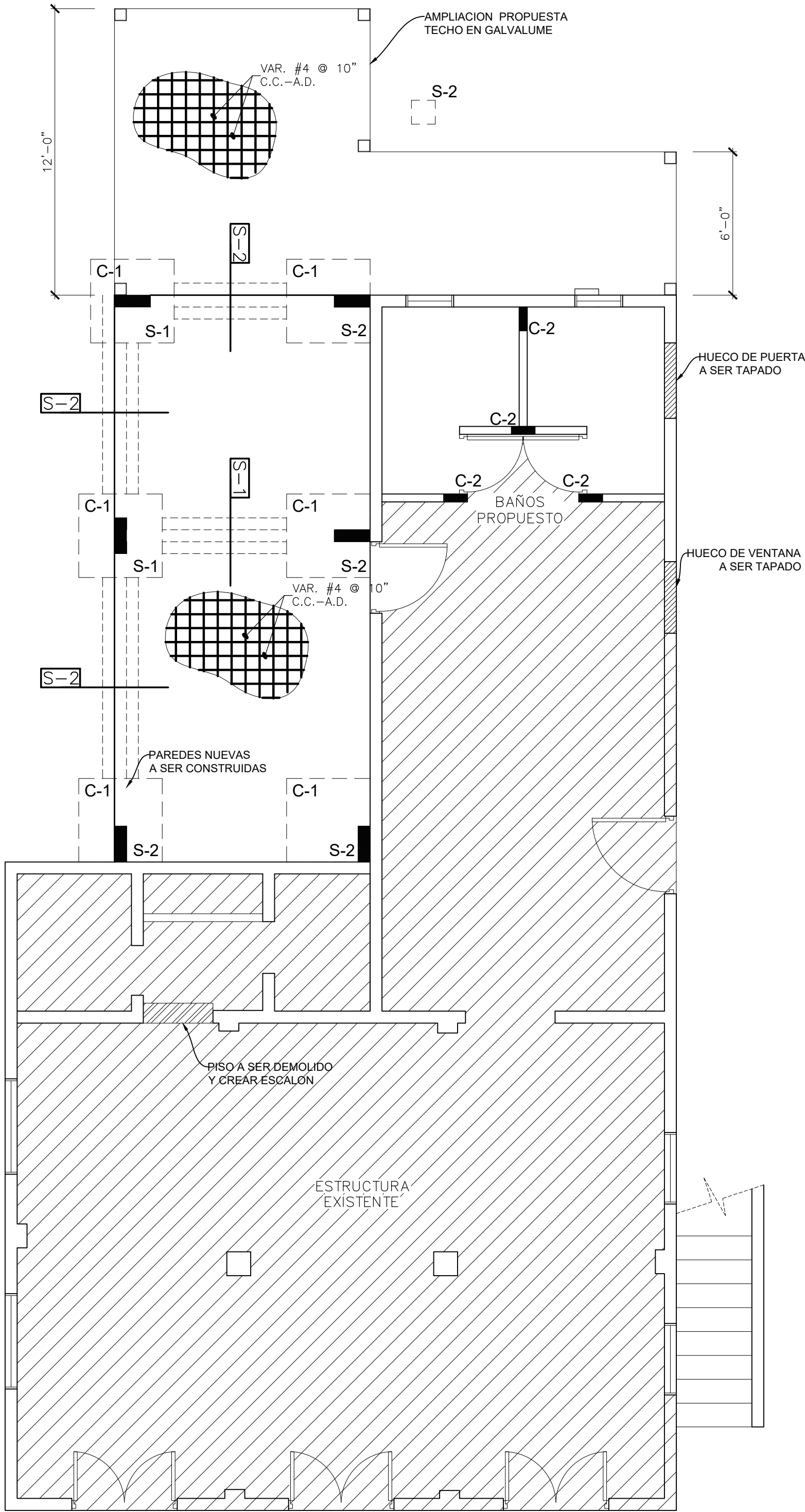
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17

JV

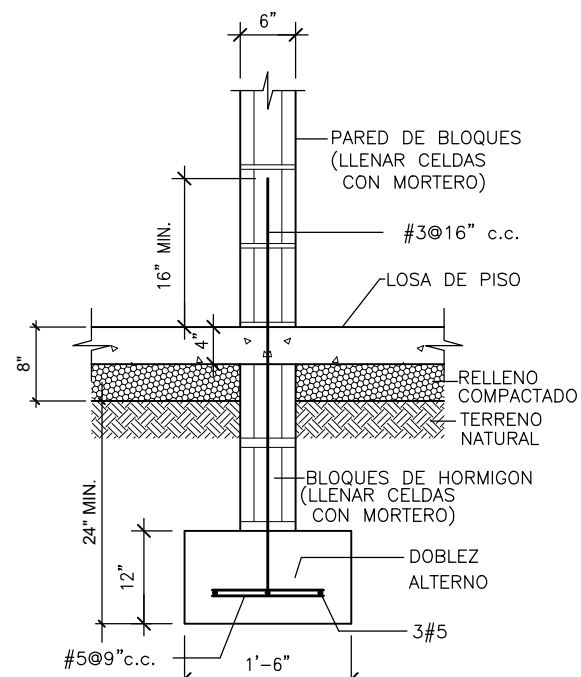
DIBUJADO POR:

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONÉ Y/O DISEÑÉ Y/O PREPARÉ ESTOS PLANOS Y LAS ESPECIFICACIONES CORRELATIVAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCION, RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA OGPE.

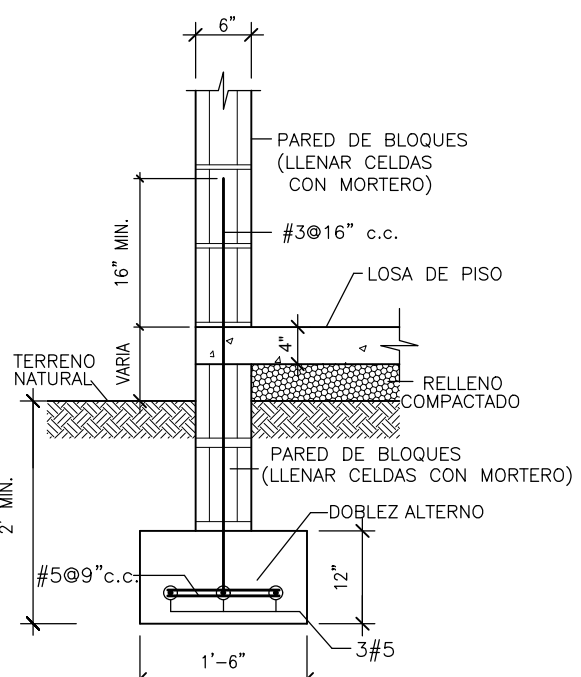


ESTRUCTURAL CIMIENTOS (MUSEO)

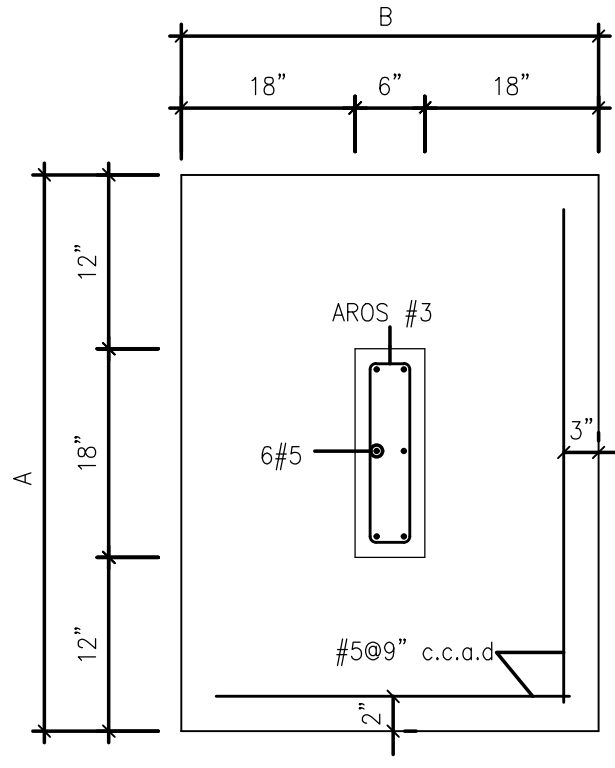
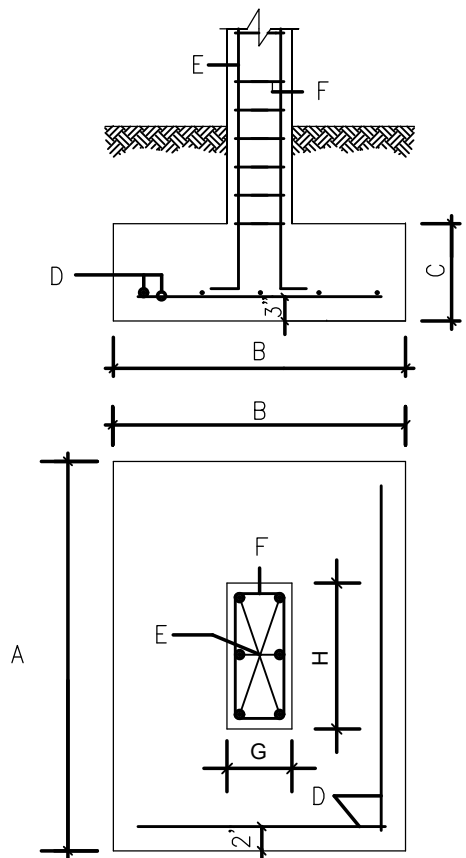
ESCALA: 1/4"=1'-0"



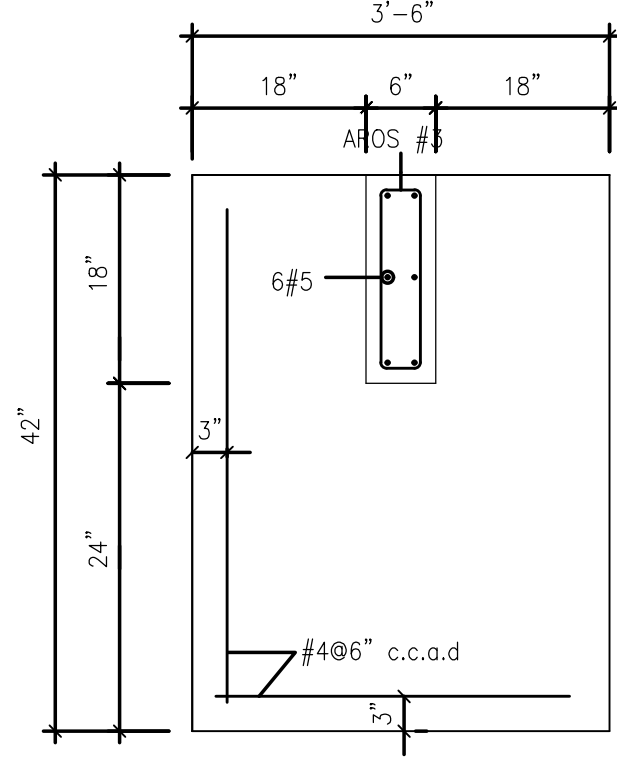
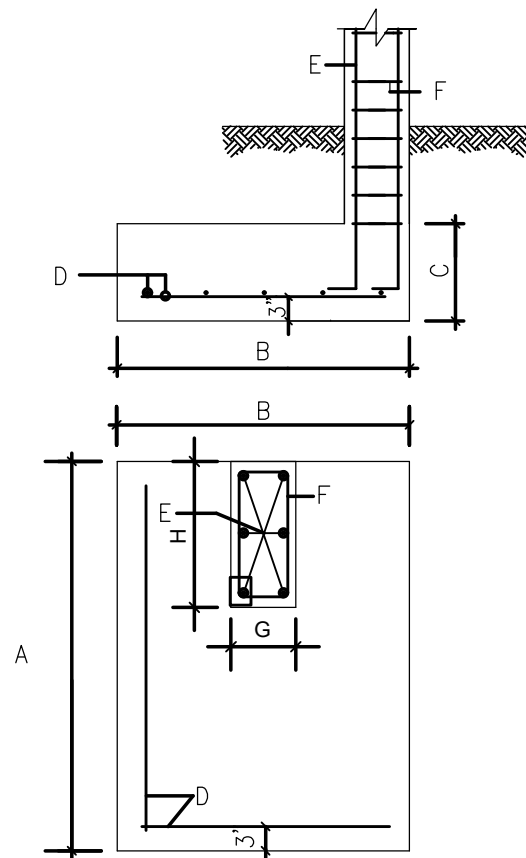
SECCION S-1
NO ESCALA



SECCION S-2
NO ESCALA

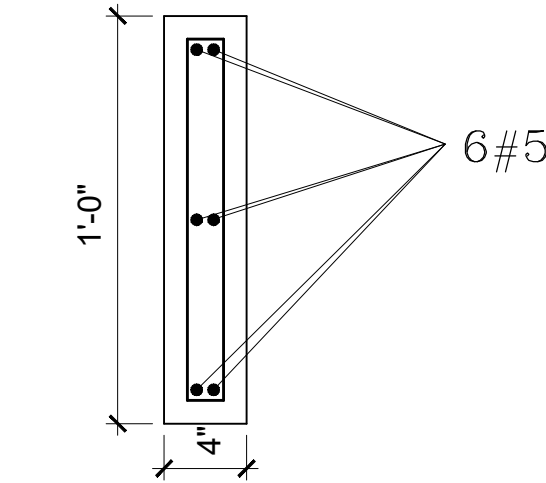
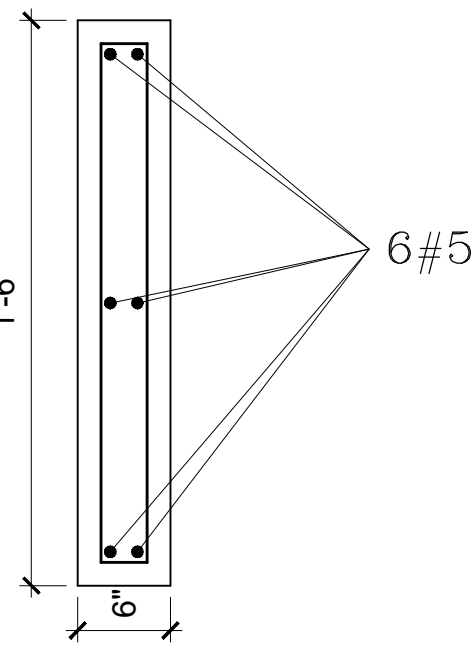


S-1



S-2

COLUMNA TIPICA C-1
SIN ESCALA



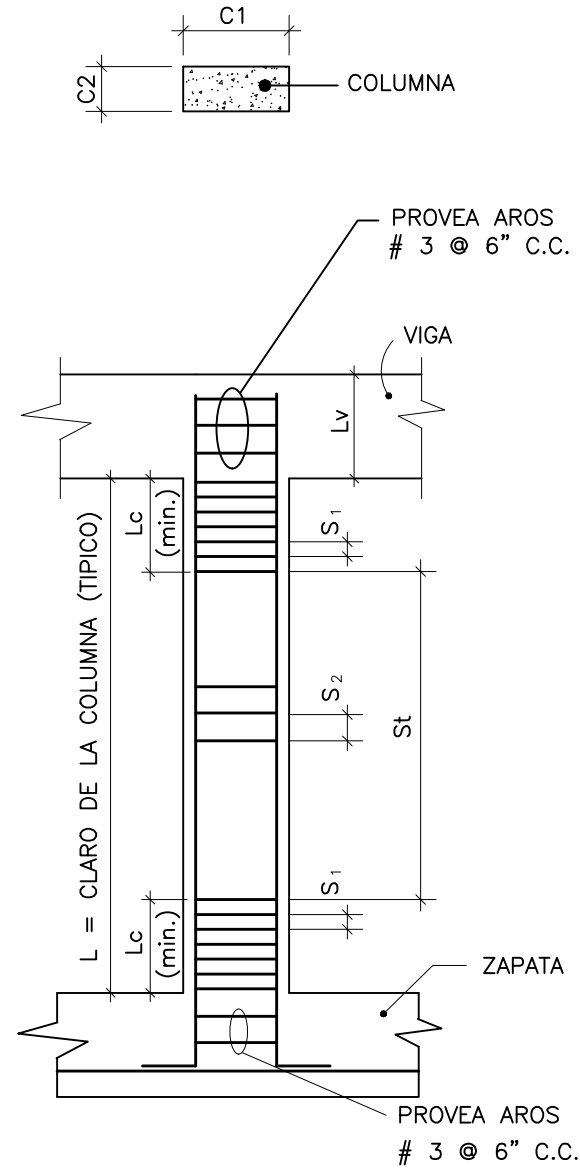
COLUMNA TIPICA C-2
SIN ESCALA

DETALLE DE COLUMNA Y ZAPATAS

SIN ESCALA

TABLA DE DISEÑO DE ZAPATAS

COLUMNAS	DIMENSIONES ZAPATAS			ACERO DE REFUERZOS		
	A	B	C	VARILLAS D	VARILLAS E	VARILLAS F
C-1	3'-6"	3'-6"	12"	#5 @ 9" C.C.	#5	#3



DETALLE TIPICO DE ESPACIAMIENTO

DE AROS EN COLUMNAS

SIN ESCALA

ESPACIAMIENTO DE AROS EN DISTINTAS AREAS DE LA COLUMNA

- S₁ SEPARACION DE AROS @ 4" C.C. EN ZONA L_c.
- S₂ SEPARACION DE AROS @ 6" C.C. EN ZONA INTERMEDIA S₁.
- USARA , (L/6 , 24" , C₁ , C₂) EL QUE SEA IGUAL O MAYOR
- L CLARO DE LA COLUMNA
- C₁ LARGO DE LA COLUMNA
- C₂ ANCHO DE LA COLUMNA

NOTAS GENERALES ESTRUCTURALES:

- SE REQUIERE QUE EL CONTRATISTA REVISE TODAS LAS HOJAS DE EL PLANO PARA COORDINAR LOS TRABAJOS DE LA CONSTRUCCION DEL PROYECTO. DE EXISTIR ALGUNA DISCREPANCIA EN LOS PLANOS DEBERA INFORMAR AL INGENIERO PARA CONSULTA.
- TODO HORMIGON A DEPOSITARSE DEBERA DESARROLLAR UN ESFUERZO DE COMPRESION DE 3000 PSI EN 28 DIAS (ASTM M4).
- EL HORMIGON SE MANTENDRA HUMEDO POR LO MENOS 7 DIAS DESPUES DEL VACIADO.
- EL CONTRATISTA DEBERA TOMAR PRUEBAS PARA DETERMINAR LA RESISTENCIA DE ESTE A LOS 28 DIAS.
- EL VACIADO DE HORMIGON NO SE REALIZARA HASTA QUE EL INGENIERO HAYA APROBADO LA INSTALACION DE EL ACERO DE REFUERZO.
- EL VACIADO DE HORMIGON DEBE SER MONOLITICO. SE REQUIERE USO DE VIBRADOR EN TODOS LOS VACIADOS.
- TODAS LAS JUNTAS DE CONSTRUCCION DEBERAN SER LIMPIADAS ANTES DE DEPOSITAR EL HORMIGON.
- TODAS LAS JUNTAS DE CONSTRUCCION PARA LOSAS Y VIGAS SE LOCALIZARAN AL CENTRO DE LA DISTANCIA ENTRE LOS SOPORTES.
- EL ACERO DE REFUERZO DEBERA SER DE GRADO INTERMEDIO CON VARILLAS DEFORMES ASTM 305 (60,000 PSI).
- SE REQUIERE SEPARADORES PARA ACERO DE REFUERZO BLOQUES DE HORMIGON DE 2" PARA FUNDACIONES Y PLASTICOS O DE METAL PARA LOSAS Y TECHO PARA OBTENER LA PROTECCION INDICADA.
- LOS BLOQUES SE INSTALARAN EN FORMA ALTERNADA CON JUNTAS DE MORTERO LLENAS HORIZONTAL Y VERTICALMENTE. JUNTAS VERTICALES CON ACERO DEBEN SER LLENADAS EN TODA SU LONGITUD.
- LA CAPACIDAD DE SUSTENTACION DEL SUELO (SOIL BEARING CAPACITY) ASUMIDA ES DE 2000 PSF.
- EL CONTRATISTA SERA RESPONSABLE DE VERIFICAR QUE LA CAPACIDAD DEL SUELO SEA LA REQUERIDA EN EL DISEÑO DE LA ESTRUCTURA. DE SURTIR ALGUNA ANOMALIA SE INFORMARA AL DUERO Y AL INGENIERO.
- SE LLEVARAN LAS EXCAVACIONES PARA LAS FUNDACIONES A UNA PROFUNDIDAD MINIMA DE 3'-0" DESDE EL NIVEL DEL TERRENO NATURAL. DE NO SER POSIBLE, ESTA PROFUNDIDAD SE CONSULTARA CON EL INGENIERO.
- USAR ACERO DE REFUERZO #4 A 12 CCAD EN PAREDES DE HORMIGON DE 6" DE ESPESOR(S) APLICA.
- EL CONTRATISTA NO ALTERARA EN FORMA ALGUNA LA CONSTRUCCION SIN LA PREVIA AUTORIZACION ESCRITA DE EL INGENIERO.
- SE INSTALARA MEMBRANA DE POLYETILENO (VAPOR BARRIER) 6 MIL (0.15MM) ENTRE EL TERRENO Y EL ACERO DE REFUERZO ANTES DE VACIAR HORMIGON EN LAS LOSAS DE PISO SOBRE EL RELLENO.
- TODOS LOS TECHOS AL MOMENTO DE FUNDIRSE SERAN RASTRADOS Y FLOTADOS CON FLOTA DE MADERA HASTA LOGRAR UNA SUPERFICIE UNIFORME Y LISA.
- EN LAS LOSAS CARGADAS EN DOS DIRECCIONES, EL REFUERZO POSITIVO EN LA DIRECCION MAS CORTA SERA COLOCADA MAS CERCA DE LA SUPERFICIE INFERIOR DE LA LOSA Y EL ACERO EN LA DIRECCION MAS LARGA SE COLOCARA POR ENCIMA DE EL CORTO.
- EL REFUERZO NEGATIVO ARRIBA SE COLOCARA A 3/4" DE LA SUPERFICIE TERMINADA.
- LA SOLICITUD DE INSPECCION DE ACERO DE REFUERZO PARA EL VACIADO DE EL HORMIGON DEBERA REALIZARSE CON 48 HORAS DE ANTICIPACION Y LOS TRABAJOS DEBEN ESTAR TERMINADOS DEBIDO A QUE EN ESTO INCURIRIA LA MAYOR RESPONSABILIDAD DEL INGENIERO Y/O INSPECTOR DE CONSTRUCCION O AMBOS.

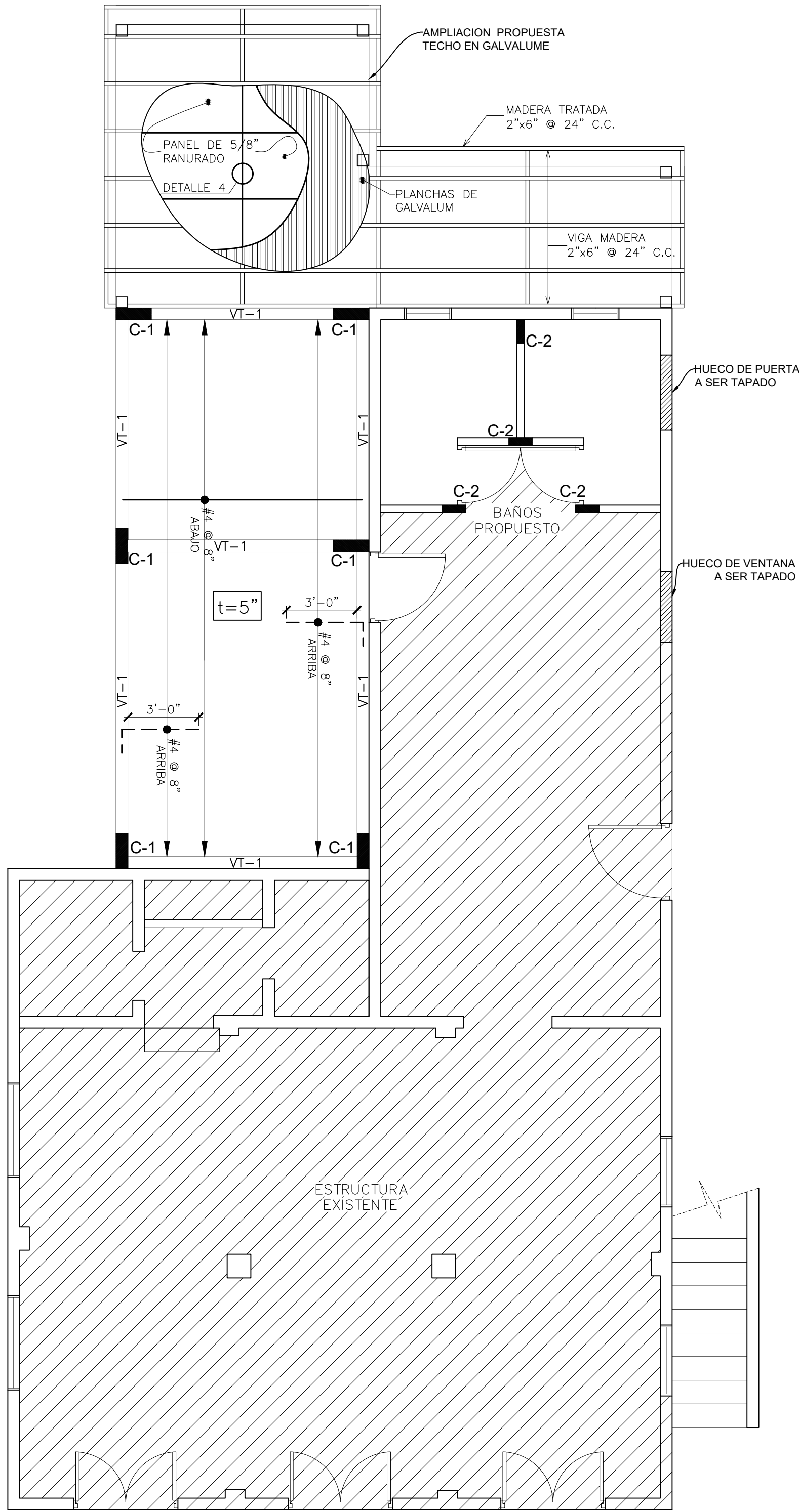
OTRAS NOTAS ESTRUCTURALES:

- DATA DE DISEÑO:
HORMIGON = FC = 3,000 PSI
ACERO ESTRUCTURAL = FY = 60,000 PSI
CAPACIDAD DEL SUELO = Q = 2,000 PSF (ASUMIDO)
- LLEVE TODAS LAS ZAPATAS A UNA PROFUNDIDAD MINIMA DE TRES PIES (3'-0") BAJO EL NIVEL NATURAL DEL TERRENO.
 - LOSAS AL AIRE, VOLADIZOS Y VIGAS SERAN FUNDIDOS MONOLITICAMENTE.
 - CARGAS ACCIDENTALES: PISO LOSA ESTRUCTURAL 40# PSF, TECHO ESTRUCTURAL 40# PSF, ESCALERAS Y BALCONES 100# PSF.
 - EL ACERO DE REFUERZO DEBERA SER DE GRADO INTERMEDIO O DURO EN VARILLAS DEFORMADAS.
 - PROTECCION MINIMA PARA ACERO DE REFUERZO SERA COMO SIGUE: 1 1/2" EN VIGAS Y COLUMNAS, 3/4" EN LOSAS, 3" EN ZAPATAS Y TODO HORMIGON EXPUESTO A LA INTERERIE SERA 1 1/2".

Ingenierosdel Oeste C.S.P.
Calle José de Diego #65, Aguadilla,
PO BOX 4448 Aguadilla, P.R. 00605
Tel/Fax: 787 891-8256
ingenierosdeloestecsp@gmail.com

Nombre de la Firma & Direccion Ing. JOSÉ D. CENTENO CALERO LIC. 20206 PO BOX 4448 AGUADILLA, PR. 00605 TEL. 787-891-8256	
Certificado & Sello por JOSÉ D. CENTENO CALERO INGENIERO LIC. #20206 PUERTO RICO	
Nombre del Proyecto & Direccion MUSEO HISTORICO DE QUEBRADILLAS CALLE HONORIO HERNANDEZ BO. PUEBLO, QUEBRADILLAS, PR.	
Nombre de la Firma ESTRUCTURAL CIMIENTOS	Num. Hoja ES-2
Fecha 17 NOV 2022	Edad 12 años
Escala 1/4" = 1'-0"	17 años
JV	DIBUJADO POR:

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONO Y/O DISEÑO Y/O PREPARO ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDI QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTARIAS O CORPORACIONES PUBLICAS CON JURISDICCION. RECONOZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA OGF.

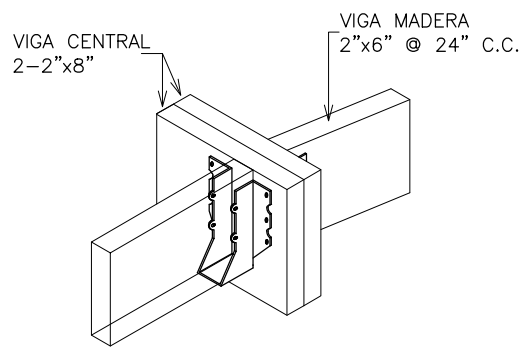


ESTRUCTURAL PISO SEGUNDO NIVEL (MUSEO)

ESCALA: 1/4"=1'-0"

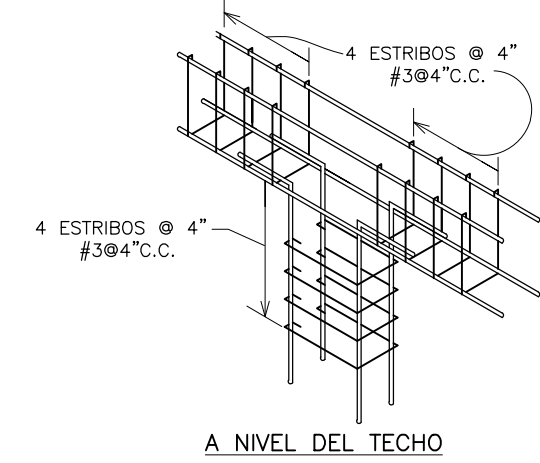
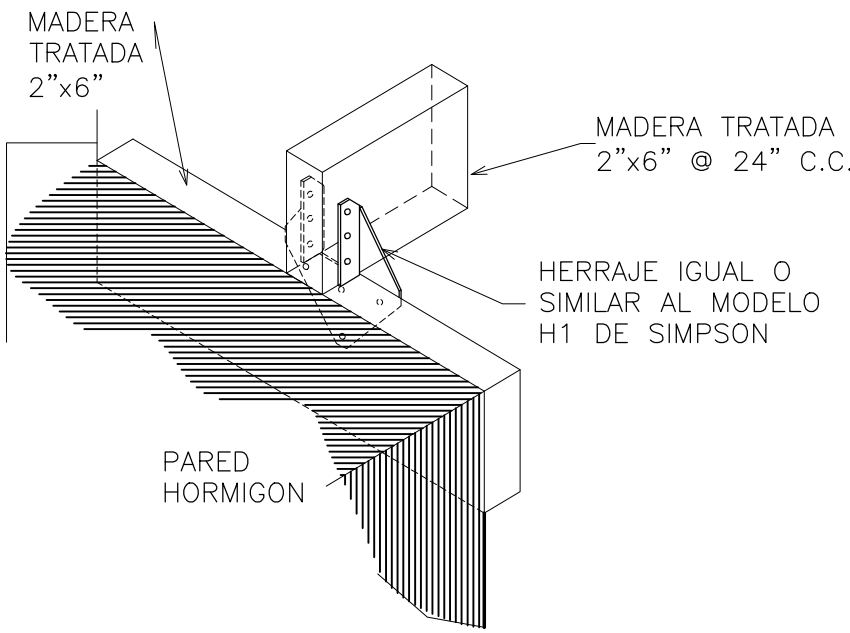
DETALLE 1—ANCLAJES ENTRE VIGAS DE MADERA

SIN ESCALA



DETALLE 2

SIN ESCALA



DETALLE AMARE PARA DISEÑO SISMICO ENTRE VIGAS Y COLUMNAS

SIN ESCALA

NOTAS GENERALES ESTRUCTURALES:

- SE REQUIERE QUE EL CONTRATISTA REVISE TODAS LAS HOJAS DE EL PLANO PARA COORDINAR LOS TRABAJOS DE LA CONSTRUCCION DEL PROYECTO. DE EXISTIR ALGUNA DISCREPANCIA EN LOS PLANOS DEBERA INFORMAR AL INGENIERO PARA CONSULTA.
- TODO HORMIGON A DEPOSITARSE DEBERA DESARROLLAR UN ESFUERZO DE COMPRESION DE 3000 PSI EN 28 DIAS (ASTM 34).
- EL HORMIGON SE MANTENDRA HUMEDO POR LO MENOS 7 DIAS DESPUES DEL VACIADO.
- EL CONTRATISTA DEBERA TOMAR PRUEBAS PARA DETERMINAR LA RESISTENCIA DE ESTE A LOS 28 DIAS.
- EL VACIADO DE HORMIGON NO SE REALIZARA HASTA QUE EL INGENIERO HAYA APROBADO LA INSTALACION DE EL ACERO DE REFUERZO.
- EL VACIADO DE HORMIGON DEBE SER MONOLITICO, SE REQUIERE USO DE VIBRADOR EN TODOS LOS VACIADOS.
- TODAS LAS JUNTAS DE CONSTRUCCION DEBERAN SER LIMPIADAS ANTES DE DEPOSITAR EL HORMIGON.
- TODAS LAS JUNTAS DE CONSTRUCCION PARA LOSAS Y VIGAS SE LOCALIZARAN AL CENTRO DE LA DISTANCIA ENTRE LOS SOPORTES.
- EL ACERO DE REFUERZO DEBERA SER DE GRADO INTERMEDIO CON VARILLAS DEFORMES ASTM 305 (60,000 PSI).
- SE REQUIERE SEPARADORES PARA ACERO DE REFUERZO BLOQUES DE HORMIGON DE 3" PARA FUNDACIONES Y PLASTICOS O DE METAL PARA LOSAS Y TECHO PARA OBTENER LA PROTECCION INDICADA.
- LOS BLOQUES SE INSTALARAN EN FORMA ALTERNADA CON JUNTAS DE MORTERO LLENAS HORIZONTAL Y VERTICALMENTE, JUNTAS VERTICALES CON ACERO DEBEN SER LLENADAS EN TODA SU LONGITUD.
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- SE LLEVARAN LAS EXCAVACIONES PARA LAS FUNDACIONES A UNA PROFUNDIDAD MINIMA DE 3'-0" DESDE EL NIVEL DEL TERRENO NATURAL. DE NO SER POSIBLE, ESTA PROFUNDIDAD SE CONSULTARA CON EL INGENIERO.
- USAR ACERO DE REFUERZO #4 A 12 OCAD EN PAREDES DE HORMIGON DE 6" DE ESPESOR(SI APLICA).
- EL CONTRATISTA NO ALTERARA EN FORMA ALGUNA LA CONSTRUCCION SIN LA PREVIA AUTORIZACION ESCRITA DE EL INGENIERO.
- SE INSTALARA MEMBRANA DE POLYETILENO (VAPOR BARRIER) 6 MIL (0.15MM) ENTRE EL TERRENO Y EL ACERO DE REFUERZO ANTES DE VACIAR HORMIGON EN LAS LOSAS DE PISO SOBRE EL RELLENO.
- TODOS LOS TECHOS AL MOMENTO DE FUNDIRSE SERAN RASTREADOS Y FLOTADOS CON FLOTA DE MADERA HASTA LOGRAR UNA SUPERFICIE UNIFORME Y LISA.
- EN LAS LOSAS CARGADAS EN DOS DIRECCIONES, EL REFUERZO POSITIVO EN LA DIRECCION MAS CORTA SERA COLOCADA MAS CERCA DE LA SUPERFICIE INFERIOR DE LA LOSA Y EL ACERO EN LA DIRECCION MAS LARGA SE COLOCARA POR ENCIMA DE EL CORTO.
- EL REFUERZO NEGATIVO ARRIBA SE COLOCARA A 3/4" DE LA SUPERFICIE TERMINADA.
- LA SOLICITUD DE INSPECCION DE ACERO DE REFUERZO PARA EL VACIADO DE EL HORMIGON DEBERA REALIZARSE CON 48 HORAS Y LOS TRABAJOS DEBEN ESTAR TERMINADOS DEBIDO A QUE EN ESTO INCURIRA LA MAYOR RESPONSABILIDAD DEL INGENIERO Y/O INSPECTOR DE CONSTRUCCION O AMBOS.

OTRAS NOTAS ESTRUCTURALES:

- DATA DE DISEÑO:
HORMIGON = FC = 3,000 PSI
ACERO ESTRUCTURAL = FY = 60,000 PSI
CAPACIDAD DEL SUELO = Q = 2,000 PSF (ASUMIDO)
- LEVANTE TODAS LAS ZAPATAS A UNA PROFUNDIDAD MINIMA DE TRES PIES (3'-0") BAJO EL NIVEL NATURAL DEL TERRENO.
 - LOSAS AL AIRE, VOLADIZOS Y VIGAS SERAN FUNDIDOS MONOLITICAMENTE.
 - CARGAS ACCIDENTALES: PISO LOSA ESTRUCTURAL 40# PSF, TECHO ESTRUCTURAL 40# PSF, ESCALERAS Y BALCONES 100# PSF.
 - EL ACERO DE REFUERZO DEBERA SER DE GRADO INTERMEDIO O DURO EN VARILLAS DEFORMADAS.
 - PROTECCION MINIMA PARA ACERO DE REFUERZO SERA COMO SIGUE: 1 1/2" EN VIGAS Y COLUMNAS, 3/4" EN LOSAS, 3" EN ZAPATAS Y TODO HORMIGON EXPUESTO A LA INTERPERIE SERA 1 1/2".

NOTAS IMPORTANTES

- TODO EL REFUERZO DE TEMPERATURA SERA # 3 @ 12" C.C. (ABAJO) PERPENDICULAR AL ACERO DE REFUERZO EXCEPTO DONDE SE INDIQUE LO CONTRARIO.
- EL ESPESOR DE LA LOSA DE TECHO SERA DE 5".
- LAS LOSAS Y VIGAS DEBERAN FUNDIRSE MONOLITICAMENTE.
- SIGA LAS INSTRUCCIONES DE LA HOJA DE NOTAS ESTRUCTURALES.
- VIGAS DE PISO INTERMEDIO SERAN DE 8" DE ANCHO.

Nombre de la Firma & Dirección

Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605

TEL. 787-891-8256

Certificado & Sello de per

Nombre del Proyecto & Dirección

MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Num. Hoja

ES-3

13

de 17

Fecha

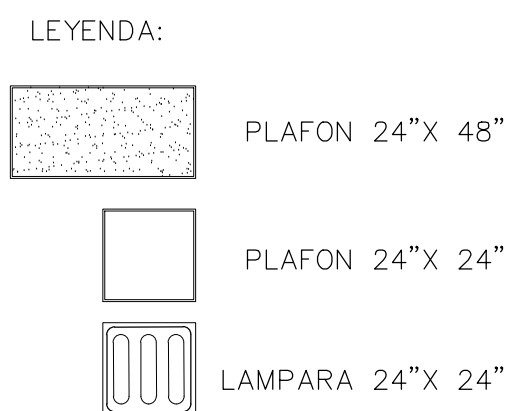
17 NOV 2022

Estado

1/4" = 1'-0"

DIBUJADO POR:

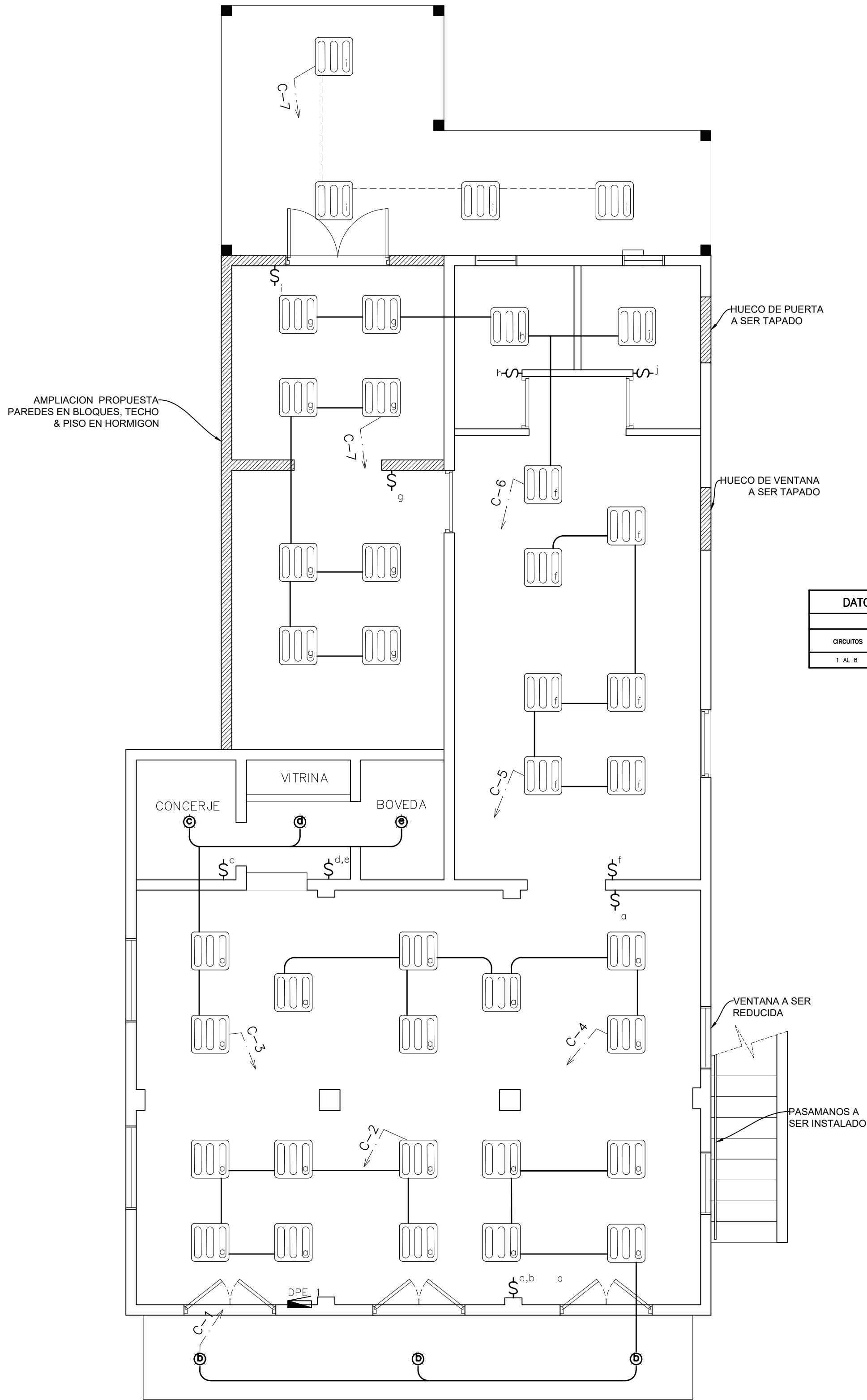
JV



ESCALA: $\frac{3}{4}"=1'-0"$



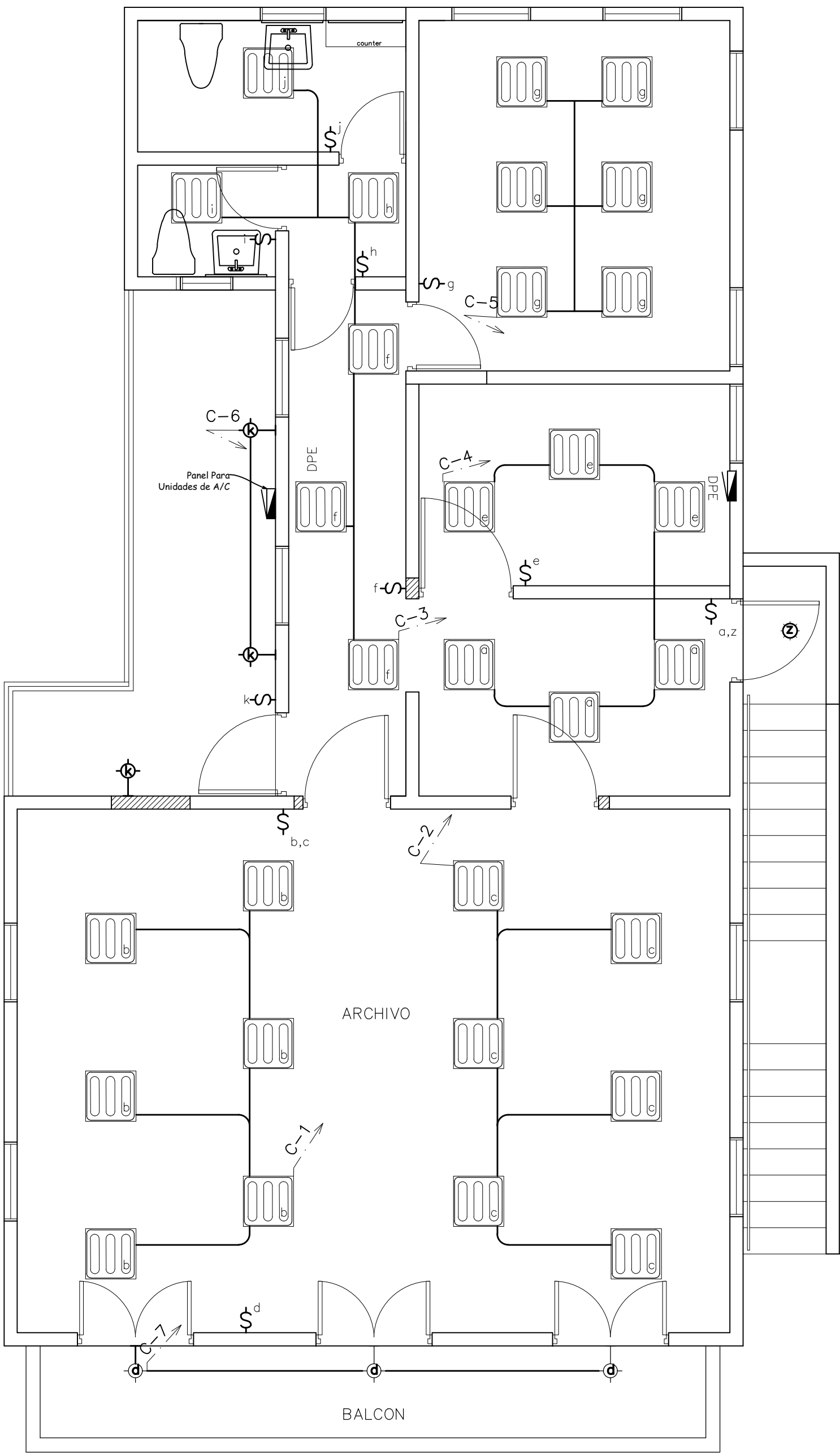
YO, JOSE D. CERVENCO CALVO, INGENIERO CIVIL C. N° 782060, CERTIFICO QUE SOY EL PROFESIONAL DEL COMANDO Y CONTROL DE LA CONSTRUCCION QUE PREPARO ESTOS PLANOS Y LAS ESPECIFICACIONES CORRESPONDIENTES. TAMBIÉN CERTIFICO QUE EN TODOS LOS CASOS PLANEY Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES VIGENTES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN.
RECONOZCO QUE CUALQUIER DECLARACIÓN FALSA O FALSIFICACIÓN DE LOS HECHOS QUE SE HAYA PRODUCIDO POR
DESBENTAJAMIENTO DE UNA NEGLIGENCIA, YA SEA POR MÍ, MIS AGENTES O COMPRAEADROS, NO PUEDE SER UN CAUSANTE DE NINGUNA ACCIÓN JUDICIAL DISCIPLINARIA POR LA DOGE.



ELECTRICIDAD PRIMER NIVEL (LUMINARIAS)

ESCALA: 1/8"=1'-0"

DATOS DE CIRCUITOS PANEL DE DISTRIBUCION (DPE 1)						
PANEL 120/240 V. - 125 AMP. (MAIN PLUG ONLY)						
CIRCUITOS	USOS	ALAMBRES		PROTECTORES		TIPO
		NOM.	CAL.	POLOS	CAPPA	
1 AL 6	LUCES	3	12	1	20	120
						3/4"x9



ELECTRICIDAD SEGUNDO NIVEL (LUMINARIAS)

ESCALA: 1/8"=1'-0"

LEYENDA

- TOMA LUZ DE PLAFON (ROSETA)
- TOMA LUZ DE PARED
- LUZ 2'-0" X 2'-0" EN PLAFON

DATOS DE CIRCUITOS PANEL DE DISTRIBUCION (DPE 2)						
PANEL 120/240 V. - 125 AMP. (MAIN PLUG ONLY)						
CIRCUITOS	USOS	ALAMBRES		PROTECTORES		TIPO
		NOM.	CAL.	POLOS	CAPPA	
1 AL 7	LUCES	3	12	1	20	120
						3/4"x9

NOTAS ELECTRICAS

- TODOS LOS TRABAJOS DE ELECTRICIDAD SE HARAN DE ACUERDO A LOS REQUERIMIENTOS Y REGLAMENTACIONES DE A.E.E., A.R.P.E. Y EL C.E.N. DE PUERTO RICO.
- TODO TRABAJO EN LINEAS ELECTRICAS PRIMARIAS O SECUNDARIAS EXISTENTES LO HARA LA A.E.E. CON CARGO AL CONTRATISTA.
- EL CONTRATISTA COORDINARA CON LA OFICINA LOCAL DE LA A.E.E. PARA LA LOCALIZACION EXACTA Y PUNTO DESDE DONDE SE DARA EL SERVICIO.
- TODO CONDUCTO SOTERRADO O NO EXPUESTO PODRA SER P.V.C. DEL TIPO APROBADO POR LA A.E.E. PERO TODO CONDUCTO EXPUESTO SERA RIGIDO GALVANIZADO.
- LA LOCALIZACION DE CAJAS DE REGISTRO O DE EMPALMES SE COORDINARAN CON EL INGENIERO ELECTRICISTA.
- EL SISTEMA ELECTRICO SE CONECTARA A TIERRA DE ACUERDO A LOS REQUERIMIENTOS DE LA A.E.E. Y DEL C.E.N. DE PUERTO RICO.
- LA LOCALIZACION DE CONDUCTOS IGUALES O MAYORES A 1/4" SE HARA EN ESTRICTA COORDINACION CON EL CONTRATISTA GENERAL, EL INGENIERO ESTRUCTURAL Y EL INGENIERO ELECTRICISTA.
- DONDE NO SE INDICA TAMAÑO DEL CONDUCTO SE ENTENDERA QUE ES 3/4" Y DONDE NO SE INDICA TAMAÑO DEL CABLE SE ENTENDERA 12 TW.
- PROVEASE LISTA DE IDENTIFICACION PARA TODOS LOS PANELES ELECTRICOS, IDENTIFICANDO EL USO DEL CIRCUITO O CIRCUITOS DE CADA INTERRUPTOR AUTOMATICO.
- TODA IDENTIFICACION DE CIRCUITO O EQUIPO SE HARA DE ACUERDO AL ARTICULO 110-22 DEL C.E.N. DE PUERTO RICO.
- CUANDO SE USE CONDUCTO NO METALICO, UN CONDUCTOR DE TIERRA SEPARADO SE INSTALARA DE ACUERDO CON LOS ARTS. 250-7 Y 547 (KY) DEL N.E.C.
- EL TERMINAL DE TIERRA DE LOS RECEPTACULOS SE CONECTARA, POR MEDIO DE UN NUMERO (12 TW) VERDE, AL TORNILLO DE TIERRA DE LA CAJA, O SE HARA ESTA CONEXION EN FORMA EQUIVALENTE.
- TODO CONDUCTOR SERA DE COBRE A MENOS QUE SE INDIQUE LO CONTRARIO.
- TAMAÑO MINIMO DE CONDUCTO A UTILIZARSE SERA 1/2" EMT.
- EL SISTEMA DE TIERRA DE LA ANTENA SE CONECTARA AL SISTEMA DE TIERRA DEL SERVICIO ELECTRICO DE ACUERDO A LOS ARTICULOS 250, 800.810 & 820 DEL CODIGO ELECTRICO NACIONAL.
- INTERCONECTESE TODA LAS SALIDAS PARA ANTENA DE TV, CON CONDUCTO PVC DE 3/4" Y PROVEASE UN CONDUCTO PVC 3/4" HACIA LA FAJA DE SEMBRADO PARA CABLE TV. INSTALARSE UN ALAMBRE PESCADOR NUMERO 14 AWG EN LOS CONDUCTOS.
- SE USARAN LAS SALIDAS ELECTRICAS "RECEPTACULOS Y LUCES" EXISTENTES EN LUGARES DONDE SEA POSIBLE. CONTRATISTA DEBERA HACER INVENTARIO.

NOTAS:

- TODO TRABAJO ELECTRICO SERA HECHO POR UN PERITO ELECTRICISTA LICENCIADO. ESTOS TRABAJOS SE HARAN DE ACUERDO CON LOS ULTIMOS REGLAMENTOS Y NORMAS DE LA AUTORIDAD DE ENERGIA ELECTRICA.

-TODAS LAS MEDIDAS SERAN DESDE EL PISO TERMINADO.

-EL CONTRATISTA DETERMINARA LA LOCALIZACION EXACTA DE LAS TUBERIAS DE MANERA QUE NO INTERIERAN CON OTRAS TUBERIAS O EQUIPOS A INSTALARSE.

-PROVEASE LISTA DE IDENTIFICACION PARA TODOS LOS PANELES ELECTRICOS, IDENTIFICANDO EL USO DEL CIRCUITO DE CADA INTERRUPTOR AUTOMATICO.

Nombre de la Firma & Direccion
Ing. JOSÉ D. CENTENO CALERO
LIC. #20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256



Certificado & sellado por:

Nombre del Proyecto & Direccion

MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO QUEBRADILLAS, PR.

Nombre del Proyecto
ELECTRICIDAD LUMINARIAS

Num. Hoja

EL-1

Fecha

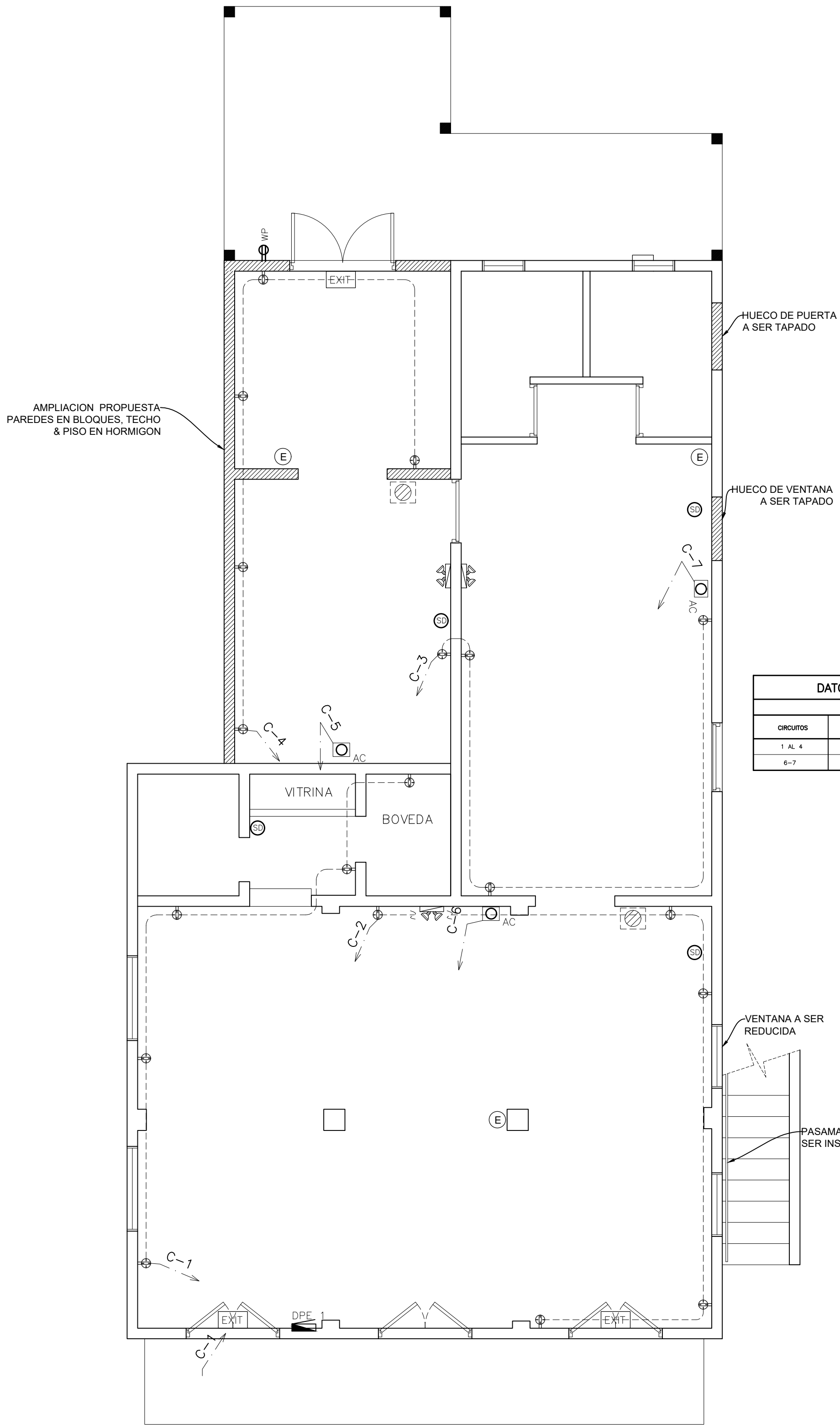
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Escala

1/4" = 1'-0"

DIBUJADO POR:

JV



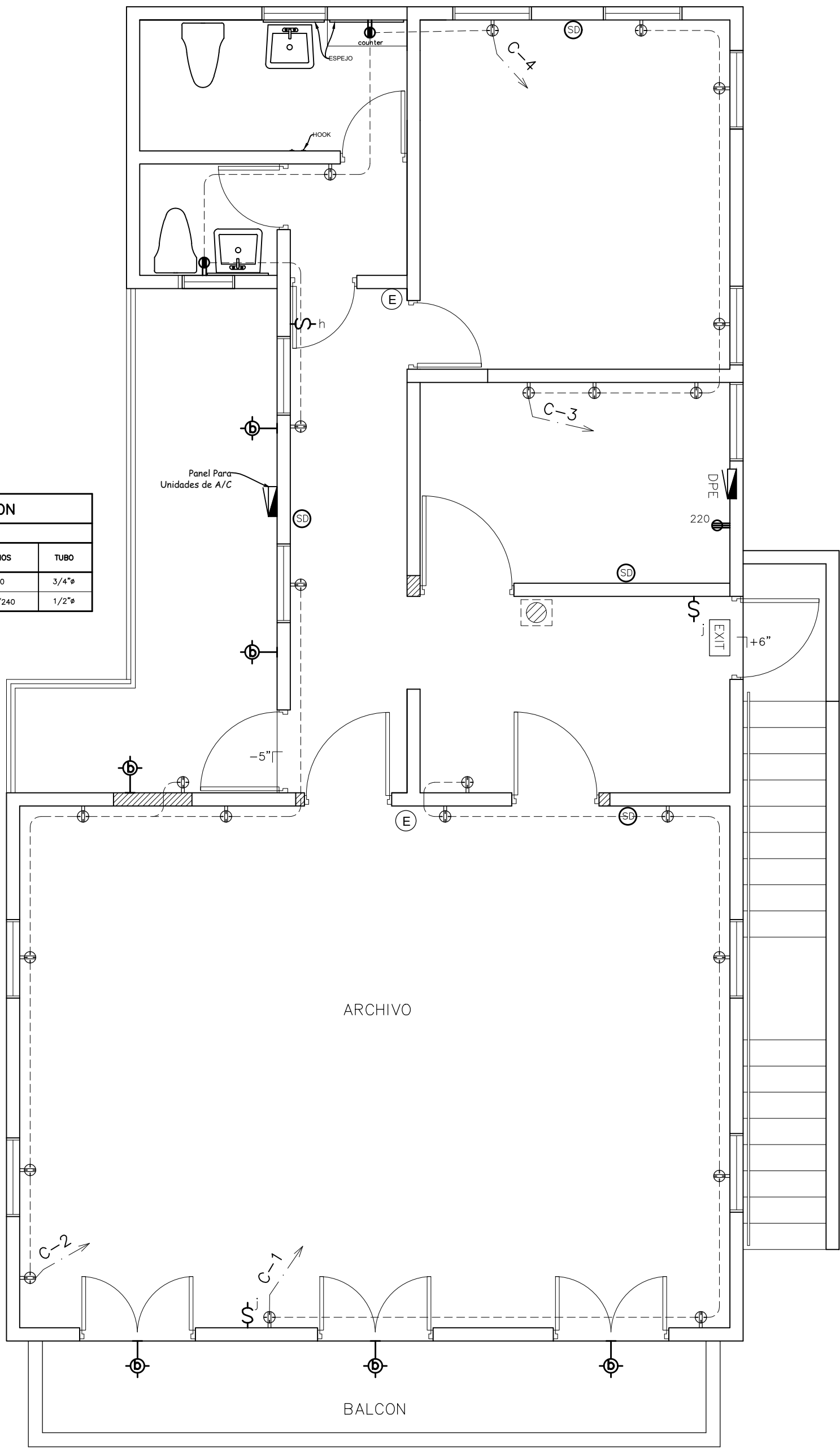
ELECTRICIDAD PRIMER NIVEL (LUMINARIAS)

ESCALA: 3/4"=1'-0"

LEYENDA SISTEMA DE EMERGENCIA:

- LUCES DE EMERGENCIA @ 8'-6" SOBRE PISO TERMINADO
- EXTINTOR
- ROTULO DE SALIDA
- DETECTOR DE HUMO
- EXTINTOR
- SISTEMA DE SPEAKERS

DATOS DE CIRCUITOS PANEL DE DISTRIBUCION							
PANEL 120/240 V. - 125 AMP. (MAIN PLUG ONLY)							
CIRCUITOS	USOS	ALAMBRES		PROTECTORES		VOLTIOS	TUBO
		NUM.	CAL.	POLOS	CAPA(V)		
1 AL 4	LUCES	3	12	1	20	120	3/4"X
6-7	AIRE ACONDICIONADO	3	12	1	20	120/240	1/2"X



ELECTRICIDAD SEGUNDO NIVEL (RECEPTACULOS)

ESCALA: 3/4"=1'-0"

LEYENDA

- INTERRUPTOR DE CORRIENTE SENCILLO
- INTERRUPTOR DE CORRIENTE DOBLE
- INTERRUPTOR DE CORRIENTE DE DOS DIRECCIONES
- RECEPTACULO DOBLE A 18" DEL PISO
- RECEPTACULO DOBLE A 42" DEL PISO (ANTEELECTROCUCION)
- RECEPTACULO DOBLE A 52" DEL PISO (BAÑOS) ANTEELECTROCUCION
- RECEPTACULO DOBLE A PRUEBA DE INTemperIE (GF) (CON TAPA)
- RECEPTACULO DE ESTUFA A 18" DEL PISO
- RECEPTACULO NEVERA A 18" DEL PISO
- RECEPTACULO SECADORA A 18" DEL PISO
- RECEPTACULO LAVADORA A 18" DEL PISO
- RECEPTACULO PARA CALENTADOR DE LINEA A 18"DEL PISO.
- RECEPTACULO 220 A 18" DEL PISO.
- CAJA 4X4 CON TUBO DE 3/4" PARA AIRE ACONDICIONADO A 18" DEL TECHO.
- PANEL DE DISTRIBUCION ELECTRICA
- TUBERIA EMT PARA LUCES E INTERRUPTORES
- TUBERIA EMT ENTRE RECEPTACULOS
- SALIDA PARA TELEVISION A 18"DEL PISO. (TUBO DE 3/4")
- SALIDA PARA TELEFONO O INTERNET A 18" DEL PISO. (TUBO DE 3/4")

DATOS DE CIRCUITOS PANEL DE DISTRIBUCION							
PANEL 120/240 V. - 125 AMP. (MAIN PLUG ONLY)							
CIRCUITOS	USOS	ALAMBRES		PROTECTORES		VOLTIOS	TUBO
		NUM.	CAL.	POLOS	CAPIA		
1 AL 4	LUCES	3	12	1	20	120	3/4"X
6-7	AIRE ACONDICIONADO	3	12	1	20	120/240	1/2"X

NOTAS ELECTRICAS

- 1 - TODOS LOS TRABAJOS DE ELECTRICIDAD SE HARAN DE ACUERDO A LOS REQUERIMIENTOS Y RECOMENDACIONES DE A.E.E., A.R.P.E. Y EL C.E.N. DE PUERTO RICO.
- 2 - TODO TRABAJO EN LINEAS ELECTRICAS PRIMARIAS O SECUNDARIAS EXISTENTES LO HARA LA A.E.E. CON CARGO AL CONTRATISTA.
- 3 - EL CONTRATISTA COORDINARA CON LA OFICINA LOCAL DE LA A.E.E. PARA LA LOCALIZACION EXACTA Y PUNTO DESDE DONDE SE DARA EL SERVICIO.
- 4 - TODO CONDUCTO SOTERRADO O NO EXPUESTO PODRA SER P.V.C. DEL TIPO APROBADO POR LA A.E.E. PERO TODO CONDUCTO EXPUESTO SERA RIGIDO GALVANIZADO.
- 5 - LA LOCALIZACION DE CAJAS DE REGISTRO O DE EMPALMES SE COORDINARAN CON EL INGENIERO ELECTRICISTA.
- 6 - EL SISTEMA ELECTRICO SE CONECTARA A TIERRA DE ACUERDO A LOS REQUERIMIENTOS DE LA A.E.E. Y DEL C.E.N. DE PUERTO RICO.
- 7 - LA LOCALIZACION DE CONDUCTOS IGUALES O MAYORES A 1/4" SE HARA EN ESTRICTA COORDINACION CON EL CONTRATISTA GENERAL.
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- 17 - INTERCONECTESE TODA LAS SALIDAS PARA ANTENA DE TV, CON CONDUCTO PVC DE 3/4" Y PROVEASE UN CONDUCTO PVC 3/4" HACIA LA FAJA DE SOMBREADO PARA CABLE TV. INSTALARESE UN ALAMBRE PESCADOR NUMERO 14 AWG EN LOS CONDUCTOS.
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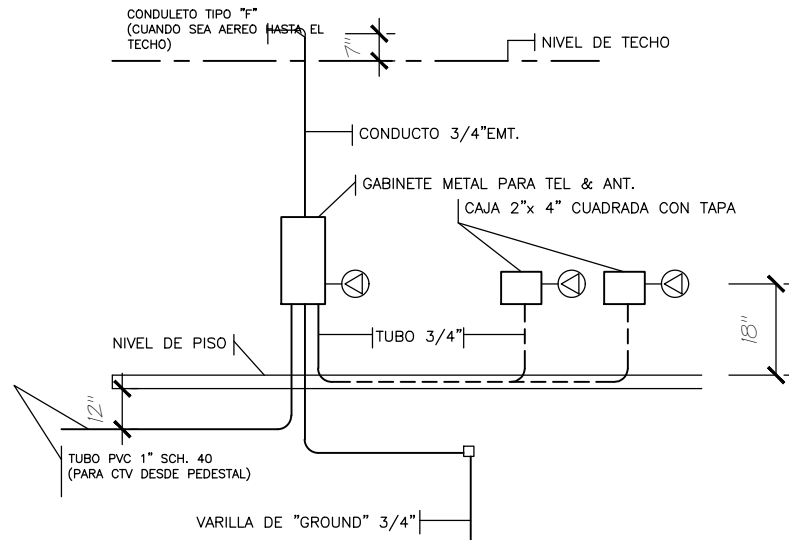


DIAGRAMA ANTENA O CTV.

NOTAS:

- TODO TRABAJO ELECTRICO SERA HECHO POR UN PERITO ELECTRICISTA LICENCIADO. ESTOS TRABAJOS SE HARAN DE ACUERDO CON LOS ULTIMOS REGLAMENTOS Y NORMAS DE LA AUTORIDAD DE ENERGIA ELECTRICA.

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Ing. JOSÉ D. CENTENO CALERO
LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256



Certificado & Sellado por

Nombre del Proyecto & Direccion:
MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Nombre de la Empresa
ELECTRICIDAD LUMINARIAS

Fecha
17 NOV 2022

Escala
1/4" = 1'-0"

Núm. Hoja
EL-1

Folios
16

Hoja
17

Escala
1/4" = 1'-0"

Nombre del Proyecto & Direccion:

Nombre de la Empresa

Fecha

Escala

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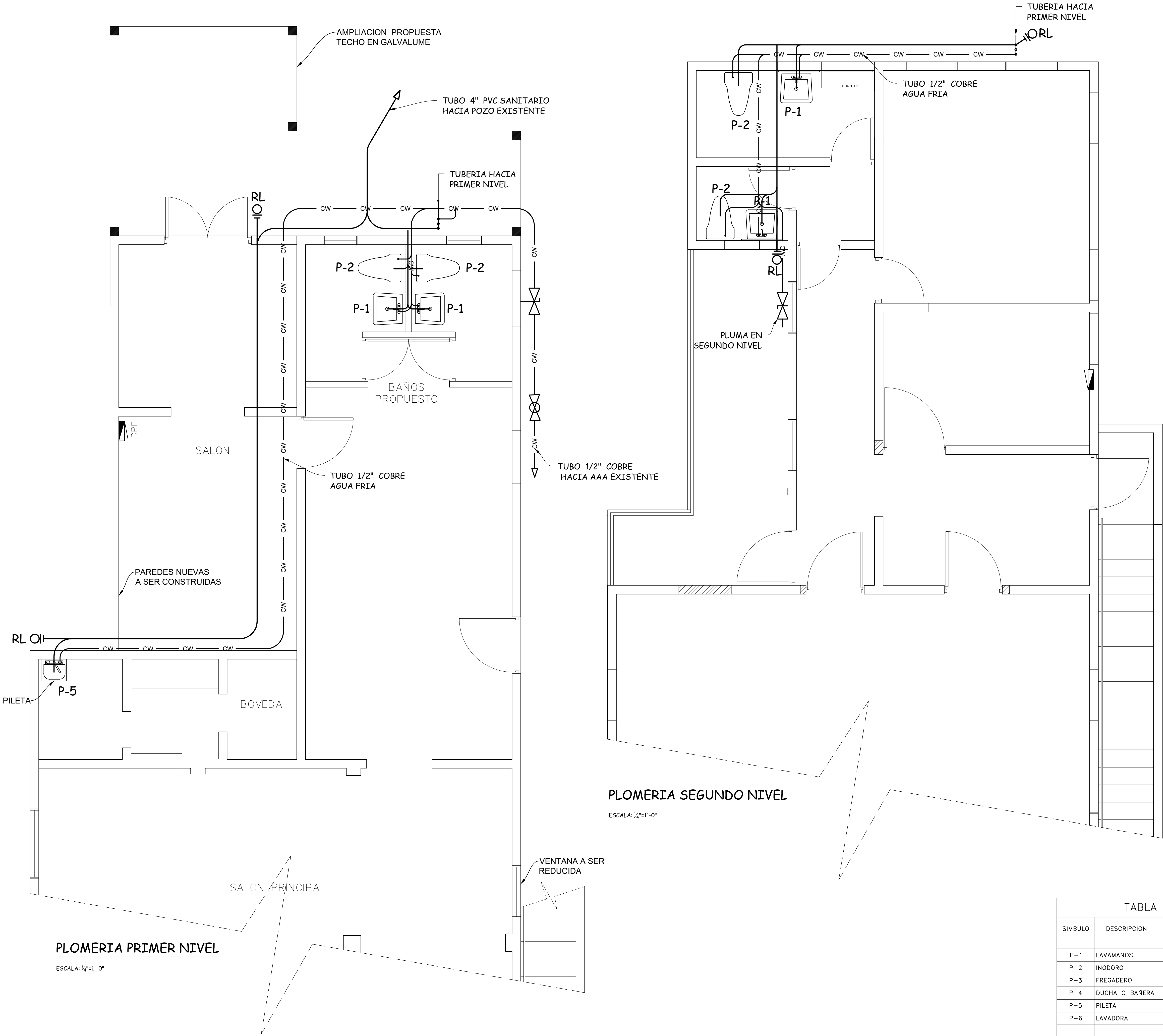
Núm. Hoja

Folios

Hoja

Escala

Núm. Hoja



LEYENDA:

SIMBOLO	DESCRIPCION		
	TUBERIA 1/2" COBRE -- AGUA FRIA		LLAVE DE PASO
	TUBERIA 1/2" COBRE -- AGUA CALIENTE		PLUMA CON ROSCA
	TUBERIA 1 1/2" PVC -- VENTILACION		VALVULA DE RETENCION
	TUBERIA 1 1/2" PVC --SANITARIA		VALVULAS
	TUBERIA 3" y 4" PVC -- SANITARIA		FLUJO AGUA DESAGUE -- SANITARIA
	REGISTRO DE LIMPIEZA		TUBERIA VERTICAL
	UNIONES EN COBRE y PVC		P-1 IDENTIFICACION APARATOS SANITARIOS

NOTAS SANITARIAS :

1. TODA LA TUBERIA SANITARIA SERA PLASTICA P.V.C.
2. TODA LA TUBERIA DE AGUA FRIA SERA DE COBRE 1/2" TIPO "K"
3. TODOS LOS APARATOS SANITARIOS SERAN DE MARCA "KOHLER" O "AMERICAN STANDARD"-- DUENO ESCOJE
4. DECLIVE: 1/8" POR PIE LINEAL TUBERIA DE 4"Ø O MAS.
5. DECLIVE: 1/4" POR PIE LINEAL TUBERIA DE 3"Ø O MENOS.
6. SE PUEDE USAR LA TUBERIA EXISTENTE DONDE NO CAMBIA LA DISTRIBUCION PERO LOS CONECTORES, LLAVES ANGULARES, Y FITTING SERAN NUEVOS.

TABLA APARATOS SANITARIO					
SIMBULO	DESCRIPCION	AGUA CALIENTE	AGUA FRIA	TUBERIA SANITARIA	ALTURA LLAVES
P-1	LAVAMANOS	1/2"	1/2"	1 1/2"	24"
P-2	INODORO	—	1/2"	1 1/2"	8"
P-3	FREGADERO	1/2"	1/2"	1 1/2"	24"
P-4	DUCHA O BAÑERA	1/2"	1/2"	1 1/2"	30"
P-5	PILETA	1/2"	1/2"	1 1/2"	30"
P-6	LAVADORA	1/2"	1/2"	1 1/2"	30"

Nombre de la Firma & Direccion

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LIC. 20206
PO BOX 4448
AGUADILLA, PR. 00605
TEL. 787-891-8256



Certificado & Sellado por

Nombre del Proyecto & Dirección:

MUSEO HISTORICO DE QUEBRADILLAS
CALLE HONORIO HERNANDEZ
BO. PUEBLO, QUEBRADILLAS, PR.

Nombre de la Hoja	PL-1	Num. Hoja	17
Fecha	17 NOV 2022	Edici	17
Escala	1/4" = 1'-0"		
JV	DIBUJADO POR:		

YO, JOSÉ D. CENTENO CALERO, INGENIERO CIVIL LIC. #20206, CERTIFICO QUE SOY EL PROFESIONAL QUE CONFECCIONÉ Y/O DISEÑÉ Y/O PREPARÉ ESTOS PLANOS Y LAS ESPECIFICACIONES COMPLEMENTARIAS. TAMBIÉN CERTIFICO QUE ENTENDIENDO QUE DICHS PLANOS Y ESPECIFICACIONES CUMPLEN CON LAS DISPOSICIONES APLICABLES DEL REGLAMENTO CONJUNTO Y LAS DISPOSICIONES APLICABLES DE LOS REGLAMENTOS Y CÓDIGOS DE CONSTRUCCIÓN VIGENTES DE LAS AGENCIAS, JUNTAS REGLAMENTADORAS O CORPORACIONES PÚBLICAS CON JURISDICCION. RECONZCO QUE CUALQUIER DECLARACION FALSA O FALSIFICACION DE LOS HECHOS QUE SE HAYA PRODUCIDO POR DESCONOCIMIENTO O POR NEGLIGENCIA YA SEA POR MI, MIS AGENTES O EMPLEADOS, O POR OTRAS PERSONAS CON MI CONOCIMIENTO, ME HACEN RESPONSABLE DE CUALQUIER ACCION JUDICIAL O DISCIPLINARIA POR LA OGRE.



October 20, 2022

Arch. Carlos A. Rubio Cancela

Executive Director

State Historic Preservation Officer

Cuartel de Ballajá Bldg.

San Juan, Puerto Rico

Re: Authorization to Submit Documents

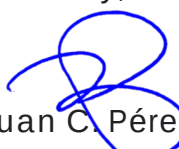
Dear Arch. Rubio Cancela:

The U.S. Department of Housing (HUD) approved the allocations of Community Development Block Grant (CDBG-DR) funds on February 9, 2018. It also approved the allocation of Community Development Block Grant Mitigation (CDBG-MIT) funds on January 27, 2020. The purpose of these allocations is to address unsatisfied needs as a result of Hurricanes Irma and Maria in September 2017; and to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses.

To comply with the environmental requirements established by HUD, the Department of Housing of Puerto Rico (PRDOH) contracted Horne Federal LLC to provide environmental registry review services, among others, that will support the objectives of the agenda for both CDBG-DR and CDBG -MIT Programs.

In line to expedite the processes, Horne Federal LLC, is authorized to submit to the State Historic Preservation Officer, documentation of projects related to both the CDBG-DR and CDBG-MIT on behalf of PRDOH.

Cordially,


Juan C. Pérez Bofill, P.E. M.Eng
Director of Disaster Recovery
CDBG DR-MIT

APPENDIX E

ASBESTO CONTAINING MATERIALS SURVEY

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-00054





ASBESTOS-CONTAINING MATERIALS SURVEY

MUSEO HISTORICO

Calle Honorio Hernandez Bo. Pueblo,
Quebradillas, Puerto Rico 00678



Inspection Date: January 24, 2023

Prepared for: Ingenieros del Oeste CSP

Prepared by: Nortol Environmental & Occupational Safety, Inc.

Inspector:

Eduardo Colón
Asbestos Inspector
ASB-0822-0299-SI



NORTOL has performed this survey in a thorough and professional manner consistent with commonly accepted industry standards.

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

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Asbestos Survey Report	4
Survey Protocol	
Sampling Procedures	
Regulatory Review	
Survey Areas – Extent of Survey Coverage	
Findings	
Conclusion	7

Attachment 1 – Inspector’s Credentials

Attachment 2 – Table Asbestos Summary Findings

Attachment 3 – Representative Pictures\Photograph Log

Attachment 4 – Asbestos Laboratory Report and Chain of Custody

Attachment 5 – Laboratory Certificates

Attachment 6 – Diagram: Bulk Sample Approximated Location

Attachment 7- Certification Non-Presence of Asbestos (PGC-009)



Acronyms

A/C	=	Air Conditioning
ACM	=	Asbestos-containing Material
ACBM	=	Asbestos-containing Building Material
AHERA	=	Asbestos Hazard Emergency Response Act
ASHARA	=	Asbestos School Hazard Abatement and Reauthorization Act
CFR	=	Code of Federal Regulations
CPSC	=	Consumer Product Safety Commission
EPA	=	Environmental Protection Agency
Ft2	=	square feet
HA	=	Homogeneous Area
HUD	=	Department of Housing and Urban Development
LF	=	Linear Feet
NESHAP'S	=	National Emission Standards for Hazardous Air Pollutants
NIOSH	=	National Institute for Occupational Safety and Health
OSHA	=	Occupational Safety and Health Administration
PLM	=	Polarized Light Microscopy
PRDOH	=	Puerto Rico Department of Housing
PRDNER	=	Puerto Rico Department of Natural and Environmental Resources
SACM	=	Suspect ACM
SOW	=	Scope of Work
TEM	=	Transmission Electron Microscopy
TSI	=	Thermal System Insulation
VFT	=	Vinyl floor tiles



I. INTRODUCTION

As part of the environmental due diligence, this survey is intended to assess the general presence, quantity, and location of suspected asbestos-containing materials (SACM) at Museo Histórico property located at Calle Honorio Hernández Bo. Pueblo, Quebradillas P.R. 00678.

The SACM survey was conducted on January 24, 2023, by Mr. Eduardo Colón (ACM inspector num. ASB-0822-0299-SI) from Nortol. Inspector's credential(s) is included in **Attachment 1**. Nortol's survey areas and report are limited to the details provided in Section II part D.

Nortol identified SACM and bulk samples were collected and submitted for laboratory analysis. The bulk sample's results were reported by the laboratory as "None Detected" or <1%. Table of asbestos summary findings is included as **Attachment 2**.

There are concrete/metal/wood structural components, and floors have terrazzo/ceramic tiles, or are bare concrete. Also, ceramic tiles are present on some walls.

II. ASBESTOS SURVEY REPORT

A. Survey Protocol:

This activity was conducted following the latest protocol for assessing materials suspected of containing asbestos as defined by the U.S. Environmental Protection Agency (EPA). It involved a visual walk-through inspection of the accessible areas of the building to develop an inventory of suspect ACM homogeneous materials. During the sampling activities, suspected ACM was touched and observed by the inspector to determine its friability and physical condition. A friable material is defined as a material that when dry, can be crumbled, or reduced to powder by hand pressure. Friability of a material causally relates to a potential of the asbestos fibers to be released. The inspector assessed the suspect ACM according to their physical condition and potential damage.

B. Sampling Procedure:

The technique used for sampling the suspected accessible materials was designed to minimize possible fiber release and in turn possible contamination of surrounding areas. Representative suspected material samples were collected in accordance with the EPA's AHERA/ASHARA guidelines and procedures presented in the *Guide for Controlling Asbestos Containing Materials in Building* (EPA 560-6-85-024, June 1985) and characterized following the *National Emission Standard for Hazardous Air Pollution (NESHAP)*, subpart M-Asbestos, 40 CFR Part 61-Standard for Demolition and Renovation. Samples of the homogeneous accessible materials were collected in



quantities enough to determine asbestos content, and then placed in airtight bags. The bagged samples were properly collected, labeled, and identified. A Chain of Custody form was completed for collected bulk samples which were analyzed by an independent laboratory using PLM method. The laboratory utilizes dispersion staining techniques according to US EPA method 600/M4-82-020 incorporating visual estimates of identified material percentages.

C. Regulatory Review:

According to NESHAP's standards (40 CFR 61.141), Asbestos Containing Building Materials are classified into three categories: Category I - Nonfriable asbestos-containing material (ACM), Category II – other Nonfriable ACM, and Regulated asbestos-containing material (RACM). ACM's are classified into three categories according to EPA-AHERA/ASHARA's standards (40 CFR Part 763): Surfacing material, Thermal System Insulation (TSI) and Miscellaneous material.

Once the inspector has identified the ACM in a building, he or she must perform a physical assessment of TSI and friable material. Under § 763.88 of the AHERA Rule, the physical assessment of ACBM involve classifying the material into one of the following seven Categories: Damaged or significantly damaged TSI ACM; Damaged friable surfacing ACM; Significantly damaged friable surfacing ACM; Damaged or significantly damaged friable miscellaneous ACM; ACBM with potential for damage; ACBM with potential for significant damage; and Any remaining friable ACBM or friable suspected ACBM.

The PRDNER- former Environmental Quality Board (Regulation for the Control of Atmospheric Pollution-Rule 422) enacted in 1995, required all commercial and public building, including industries to identify asbestos containing building materials in their structures and take appropriate actions to control the release of asbestos fiber. Asbestos inspection is part of the permitting application process for any future project in the buildings which may include renovation or demolition activities regulated by the PR State/Municipal Offices. To obtain demolition permits in Puerto Rico is necessary to include a certification (OGP-PGC-009 or equivalent) stating that there is not asbestos containing material in the project.

D. Survey Areas – Extent of Survey Coverage:

The survey included a detailed structure inspection providing a general sense of the overall location, type, quantity, and condition of potential ACMs present. The survey was thorough in the interior or exterior accessible functional spaces, and bulk samples taken of suspect materials observed. The presence of asbestos in suspect materials was assumed or presumed in some cases without bulk samples being collected or analyzed (when applicable). This was necessary for locations where materials were inaccessible or areas that were unsafe to access (e.g., elevated heights, energized equipment, confined spaces, etc.). For those areas that were not



safely accessible, suspect materials observed or presumed to be present were documented and assumed as ACMs. The survey did not include intrusive and/or exploratory testing.

Areas Not Included in Survey and Service Constraints: All professional opinions presented in this report are based on information made available either by review of data provided by others or data gathered by Nortol personnel. Nortol affirms that data gathered and presented by Nortol in this report was collected in an appropriate manner in accordance with generally accepted methods and practices. Any energized utilities/services, including electricity, water and heat were assumed to be active. Materials associated with these items were determined to not be safely accessible and were not sampled. Suspect ACMs associated with these items should be assumed ACM until the systems can be de-energized and safely sampled. The survey did not include access or inspection of confined spaces or subsurface/underground areas including piping, conduits, building footings and soils (surficial or otherwise).

E. Findings

Nortol identified a total of 1 HA, of which 3 suspect ACM bulk samples were collected and submitted for laboratory analysis. The bulk samples collected as part of this survey were reported by the laboratory as "None Detected" or <1%. The client always has the alternative to request alternative analysis methods (i.e., TEM or Point counting) to get a more precise result. Furthermore, no additional suspect material was observed during the visual assessment that needed to be assumed as ACM. Table of asbestos summary findings is included as **Attachment 2**.

Attachment 3 includes Representative Pictures\Photograph Log, while the laboratory results, and field chain of custody are included as **Attachment 4**. Laboratory Certificates are included in **Attachment 5**. A basic diagram with the approximated sampling locations is included as **Attachment 6**. Certification of Non-Presence of Asbestos (PGC-009) is included as **Attachment 7**.



III. CONCLUSION

ACM survey was conducted for the project identified with the header ID. Nortol identified SACMs and bulk samples were collected and submitted for laboratory analysis. Findings are described in Section II part E. Table of asbestos summary is also included as **Attachment 2**.

Any conditions or materials that could not be visually identified or were out-of-the SOW, were not inspected and may differ from those conditions or materials noted. It was not within the scope of the activity to remove surface materials to investigate portions of the structure or materials that may lay beneath the surface. Nortol's selection of sample locations and frequency of sampling was based on Nortol's observations and the assumption that materials in the same area are homogeneous in content.

The report is designed to aid the building owner, architect, construction manager, general contractors, and potential asbestos or lead abatement contractors in locating ACM. Under no circumstances is the report to be utilized solely as a bidding document or as a project specification document.



Attachment 1
Inspector's Credential



	TARJETA DE REGISTRO PARA LA REMOCION DE ASBESTO Esta tarjeta autoriza a: <i>Eduardo Colón León</i> Inspector A trabajar en la remoción de asbesto en Puerto Rico. Esta persona NO es un empleado del DRNA. <i>[Signature]</i> Firma Autorizada - Departamento Recursos Naturales y Ambientales
ASB-0822-0299-SI Número de Registro 31-jul-2023 Fecha de vencimiento	

PR ASBESTOS INSPECTOR ACCREDITATION

Attachment 2
Table Asbestos Summary Findings



Table Asbestos Summary Findings

Bulk Sample Results for Asbestos

Project: **HISTORIC MUSEUM**

Address: Calle Honorio Hernández Bo. Pueblo, Quebradillas PR 00678



Project ID	Municipality	HA No.	Material Type	Material Primary Color	Material Texture	Asbestos Results	Floor Designation	Material Location	Location	Condition	Quantity *	Units	Sample ID	Sample Location	Sample Content	Asbestos Type	Friable	Sample Date	Consultant	Method	Lab
Historic Museum	Quebradillas	1	Wall Stucco	White	Rough	NAD (Non-Asbestos Detected)	First Floor	Room 7	Wall	Damaged	330	SF	MHQ-HA1-EC-01	Room 7	NAD (Non-Asbestos Detected)	NAD (Non-Asbestos Detected)	Yes	1/24/23	NORTOL	PLM	Eurofins EPK Built Environment Testing
Historic Museum	Quebradillas	1	Wall Stucco	White	Smooth	NAD (Non-Asbestos Detected)	First Floor	Room 7	Wall	Damaged		SF	MHQ-HA1-EC-02	Room 7	NAD (Non-Asbestos Detected)	NAD (Non-Asbestos Detected)	Yes	1/24/23	NORTOL	PLM	Eurofins EPK Built Environment Testing
Historic Museum	Quebradillas	1	Wall Stucco	White	Smooth	NAD (Non-Asbestos Detected)	First Floor	Room 7	Wall	Damaged		SF	MHQ-HA1-EC-03	Room 7	NAD (Non-Asbestos Detected)	NAD (Non-Asbestos Detected)	Yes	1/24/23	NORTOL	PLM	Eurofins EPK Built Environment Testing

* abatement contractors are responsible to confirm this estimate on site.

Attachment 3
Representative Pictures\Photograph Log





Eduardo Colón

NORTOL Environmental & Occupational Safety, Inc.

MUSEO HISTÓRICO DE QUEBRADILLAS - ACM SURVEY PHOTO LOG

Year of construction not available at the moment of the inspection

Tuesday, January 24, 2023

Prepared For Ingenieros del Oeste CSP

Calle Honorio Hernandez Bo. Pueblo, Quebradillas PR 00678

13 Sections Identified



FRONT VIEW:

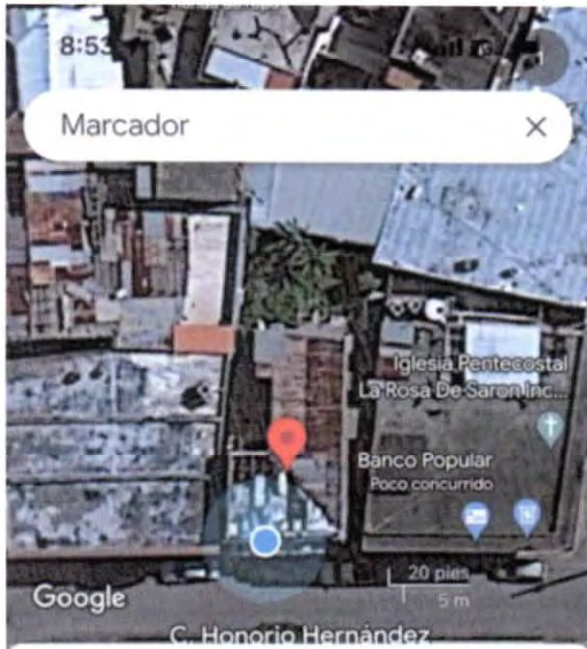
Section Completed: Yes

(18.4738988, -66.9381899)

LOCATION:

Section Completed: Yes

(18.4738988, -66.9381899)



Marcador

Cerca de 108 C. Honorio Hernández, Quebradillas, 00...

1 min



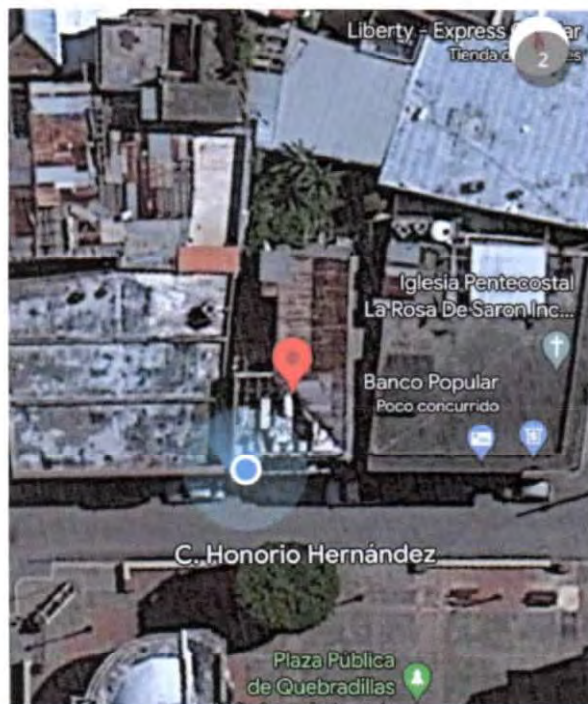
Medir la distancia

F3F6+HP3 Quebradillas

(18.4738988, -66.9381899)

Sugerir una edición

Agregar un lugar





SCOPE OF WORK:

Section Completed: Yes

Full Inspection Abestos and Lead-Based Paint.

EXTERIOR GENERAL VIEW SIDE A:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE B:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE C:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE D:

Section Completed: Yes



EXTERIOR GENERAL VIEWS:

Section Completed: Yes



EXTERIOR GENERAL VIEWS: ROOF

Section Completed: Yes

N/A



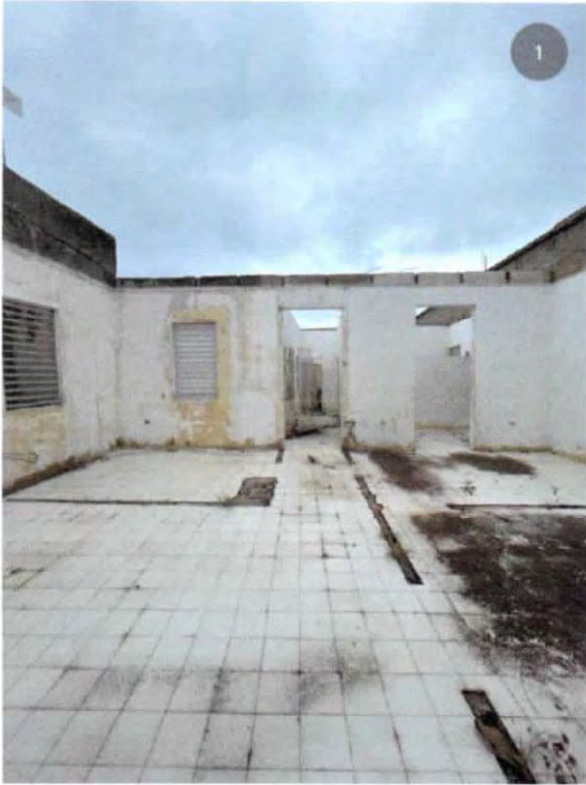
INTERIOR GENERAL VIEWS: FIRST LEVEL

Section Completed: Yes



INTERIOR GENERAL VIEWS: SECOND LEVEL

Section Completed: Yes



WINDOW/DOOR CAULKING:

Section Completed: Yes

None SACM caulking found visible at the moment of the inspection.



SACM VISIBLES? ROOM 7 - FIRST LEVEL

Section Completed: Yes

3 SACM samples were taken from white wall stucco. (Qty. 330 SF Approx.)

Condition: Damaged

MHQ-HA1-EC-01, 02 & 03.



Attachment 4
Asbestos Laboratory Report and Chain of Custody



Report for:

Norma Torres
Nortol Env & Occupational Safety Inc
PO BOX 366457
San Juan, PR 00936-6457

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Museo- Historico Quebradillas
EML ID: 3149844

Approved by:



Approved Signatory
Balu Krishnan

Dates of Analysis:
Asbestos PLM: 01-31-2023

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 200738-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: Nortol Env & Occupational Safety Inc
C/O: Norma Torres
Re: Museo- Historico Quebradillas

Date of Sampling: 01-24-2023
Date of Receipt: 01-30-2023
Date of Report: 01-31-2023

ASBESTOS PLM REPORT

Total Samples Submitted: 3

Total Samples Analyzed: 3

Total Samples with Layer Asbestos Content > 1%: 0

Location: MHQ-01, Wall Stucco -Room 7- Side A

Lab ID-Version†: 15231010-1

Sample Layers	Asbestos Content
White Stucco with Paint	ND
Sample Composite Homogeneity:	Good

Location: MHQ-02, Wall Stucco -Room 7- Side B

Lab ID-Version†: 15231011-1

Sample Layers	Asbestos Content
White Stucco with Paint	ND
Sample Composite Homogeneity:	Good

Location: MHQ-03, Wall Stucco -Room 7- Side C

Lab ID-Version†: 15231012-1

Sample Layers	Asbestos Content
White Stucco with Paint	ND
Sample Composite Homogeneity:	Good

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

† A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
A TestAmerica Company

New Jersey: 3000 Lincoln Drive East, Suite A, Marlton, NJ 08053 * (866) 371-1984
Phoenix, AZ: 1501 West Knudsen drive, Phoenix, AZ 85027 * (800) 651-4802
SSF, CA: 6000 Shoreline Court, Suite 205, South San Francisco, CA 94080 * (866) 388-6653

Weather		Fog	Rain	Snow	Wind	Clear
Level	None	☐	☐	☐	☐	☐
	Light	☐	☐	☐	☐	
	Moderate	☐	☐	☐	☐	
	Heavy	☐	☐	☐	☐	

REQUIREMENTS
(Use ...)



003149844

Address: PO Box 366457, San Juan, PR 00936 6457

Company:	Nortol Env. & Occup. Sfty, Inc.
----------	---------------------------------

Special Instructions:

Contact:	Norma Torres
----------	--------------

Phone:	787-420-0220
--------	--------------

PROJECT INFORMATION

Project ID:	Museo Historico Quebradillas
-------------	------------------------------

Project Description:	Sampling	01/24/23
----------------------	----------	----------

Project	Quebradillas PR	Date & Time:	10/30
Zip Code:		Sampled By:	F. Colón

☐ QC Number:	☐ Sampled by: L. LUTON	☐ Sample
---	---	---

TURN AROUND TIME CODES (TAT)

(STD) - Standard (DEFAULT)

ND-- Next Business Day

SD - Same Business Day Rush

WH - Weekend / Holiday

Rushes received after 2 pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

[illegible]

Non-Culturable		Tape Swab Bulk		BioCassette Water, Bulk		003149844	
Spore Trap	Tape Swab Bulk						
Fungi - Spore Trap Analysis							
Spore Trap Analysis - Other patho/fes							
Dried Microscopic Exam (Qualitative)							
Quantitative Spore Count Direct Exant							
1-Media Surface Fungi (Genus ID + Asp. spp.)							
2-Media Surface Fungi (Genus ID + Asp. spp.)							
3-Media Surface Fungi (Genus ID + Asp. spp.)							
Culturable Air Fungi (Genus ID + Asp. spp.)							
Culturable Air Counts (Culturable Air & Surface Bacteria)							
Gram Stain & Counts (Culturable Air & Surface Bacteria)							
Legionella culture							
Total Coliform, E. coli (Presence/Absence)							
Membrane Filtration (specify organism):							
MPN Bacteria (specify organism)							
Coculturing - Sewage Screen							
Ashes/soil Analysis - PCM Airborne Fiber Count (NIOSH 7400)							
Asbestos Analysis - PLM (EPA method 600/4-91-010)							
PCR (specify test)							

SAMPLE TYPE CODES				RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
BC - BioCassette™	ST - Spore Trap: Zefon, Allergenco, Burkard ...	T - Tape SW - Swab ☒ B - Bulk O - Other:	D - Dust SO - Soil	Eduardo Colon	01/24/23	JD	1/30/23
A1S - Anderson	P - Potable Water			<i>Eduardo</i>	10am		2:0
SAS - Surface Air Sampler	NP - Non-Potable Water						
CP - Contact Plate							

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at <http://www.emlab.com/main/service/terms.html>

Dec. 6/199, Rev. 32, Revised 12/18/15, Page 1 of 1, C0

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at <http://www.emlab.com/simain/service/terms.html>
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Doc. 61152, Rev. 32, Revised 12/15/15, Page 7 of 1, CIA

Attachment 5
Laboratory Certificates



United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200738-0

Eurofins EMLab P&K

Fort Lauderdale, FL

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

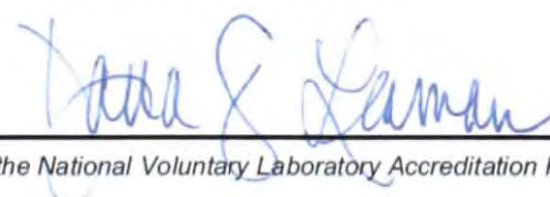
Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2023-01-01 through 2023-12-31

Effective Dates




For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
6301 NW 5th Way, Suite 1410
Fort Lauderdale, FL 33309
Mrs. Tracy Garcia
Phone: 770-368-2171
Email: tracy.garcia@et.eurofinsus.com
<http://www.emlab.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 200738-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials



For the National Voluntary Laboratory Accreditation Program

Attachment 6
Diagram
Bulk Sample's Approximated Location



MUSEO HISTÓRICO DE QUEBRADILLAS

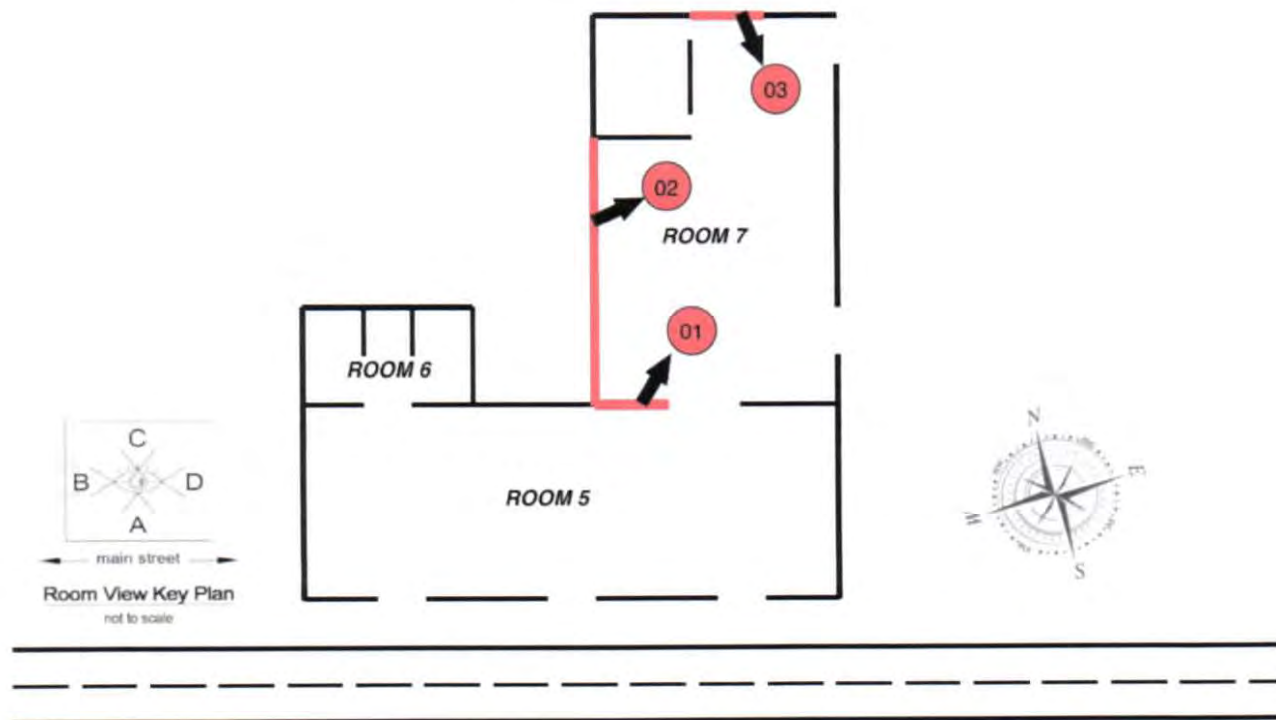
SACM DIAGRAM

Results were none detected for asbestos

● ➔ AREA WHERE SAMPLES WERE TAKEN

| ➔ HOMOGENEOUS AREA 1, WHITE WALL STUCCO

FIRST LEVEL



Calle Honorio Hernandez Bo. Pueblo,

Quebradillas PR 00678

Attachment 7
Certification Non-Presence of Asbestos (PGC-009)





**CERTIFICACION DE NO PRESENCIA DE ASBESTO
EN ESTRUCTURAS A DEMOLERSE**
(Deberá completarse en letra de molde o impresa)

NUM. PERMISO: _____

Yo, Eduardo Colón, mayor de edad, soltero, y vecino de Villalba, Puerto Rico.
(Nombre) (Estado Civil) (Municipio)

Dirección Postal: PO BOX 366457 San Juan, P.R. 00936-6457
(Pueblo) (Zip Code)

Teléfonos: Residencial (787) 677 - 5527 Oficina (787) 420 - 0220

Certifico que:

1. La estructura museo histórico localizada en Calle Honorio Hernández Bo. Pueblo, Quebradillas P.R. 00678, la cual será objeto de una demolición se encuentra libre de asbesto.
2. La información antes indicada es cierta y correcta.
3. Afirmo y reconozco las consecuencias de incluir y someter información falsa en este documento.
4. Para que así conste, firmo la presente certificación en Caguas de Puerto Rico,
(Municipio)

hoy día 1 de febrero de 2023

Firma y Sello del Profesional o
Firma del Inspector de Asbesto registrado por la JCA (Original)

Nota: Ingenieros o Arquitectos deberán someter evidencia de que se encuentra al día en el pago de sus cuotas de colegiación e Inspectores de Asbesto deberán someter evidencia de la tarjeta de registro provista por la JCA.



www.nortolpr.com | info@nortolpr.com | 787.420.0220
PO Box 366457, San Juan, PR 00936-6457

APPENDIX F

LEAD BASED PAINT SURVEY

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-00054





LEAD-BASED PAINT SURVEY

MUSEO HISTORICO

calle Honorio Hernandez Bo. Pueblo,
Quebradillas, Puerto Rico 00678



Inspection Date: January 24, 2023

Prepared for: Ingenieros del Oeste CSP

Prepared by: Nortol Environmental &
Occupational Safety, Inc.

Inspector:

Roberto Rodríguez
Lead Inspector
LBP I.D. # LBPI-05522-073



NORTOL has performed this survey in a thorough and professional manner consistent with commonly accepted industry standards.

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

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Survey Protocol and Sampling Procedures	
LBP Background and Regulatory review	
Conclusion	7

Attachment 1 – Company Credentials

Attachment 2 – Inspector’s Credentials

Attachment 3 – Positive LBP XRF Tabulated Readings

Attachment 4 – LBP XRF Tabulated Readings

Attachment 5 – LBP Diagram

Attachment 6 – Representative Pictures\Photograph Log

Attachment 7 – XRF Performance Characteristic Sheet



Acronyms

A/C	=	Air Conditioning
CFR	=	Code of Federal Regulations
CPSC	=	Consumer Product Safety Commission
EPA	=	Environmental Protection Agency
Ft ²	=	square feet
HA	=	Homogeneous Area
HUD	=	Department of Housing and Urban Development
LBP	=	Lead-based Paint
LF	=	Linear Feet
mg/cm ²	=	milligrams per square centimeter
NESHAP'S	=	National Emission Standards for Hazardous Air Pollutants
NIOSH	=	National Institute for Occupational Safety and Health
OSHA	=	Occupational Safety and Health Administration
PRDOH	=	Puerto Rico Department of Housing
PRDNER	=	Puerto Rico Department of Natural and Environmental Resources
SOW	=	Scope of Work
XRF	=	X-Ray Fluorescent



I. INTRODUCTION

As part of the environmental due diligence, this survey is intended to assess the general presence, quantity, and location of LBP and lead-glazed ceramic components above allowable levels at *Museo Histórico* property located at calle Honorio Hernández Bo. Pueblo, Quebradillas P.R.

The LBP survey, conforming to Housing Urban Development (HUD) Guidelines for the Evaluation and Control of Lead Based Paint in Housing, was conducted on January 24, 2023, by Mr. Roberto Rodríguez (Lead inspector number: LBPI-05522-073) from Nortol. Copy of Nortol's registration with the PRDNER as registered corporation is included in **Attachment 1**. Inspector's credential(s) is included in **Attachment 2**. Nortol's survey areas and report are limited to the details provided in the Section II part D.

Based on the results of the survey, 143 XRF readings were performed using an XRF analyzer on the identified and accessible surfaces in the interior and/or exterior of the subject structure. LBP was identified above the regulatory level of 1.0 mg/cm² at some areas of the project (interior concrete walls and lead-glazed ceramic tiles).

There are concrete/metal/wood structural components, and floors have terrazzo/ceramic tiles, or are bare concrete. Also, ceramic tiles are present on some walls.

II. LEAD BASED PAINT SURVEY REPORT

A. Lead Based Paint Findings:

LBP was found at some of the project accessed components. Some interior concrete walls (approx. 2,450 Ft²) have LBP. Also, about 240 FT² of lead-glazed ceramic tiles (which are regulated in PR as LBP) were found on some walls or floors. Data from XRF analyzer testing is included in **Attachment 3 and 4** with positive readings marked in red or bold. **Attachment 5** includes the approximated location of identified LBP or lead-glazes at the subject structure. Representative Pictures\Photograph Log of identified LBP surfaces and/or lead-glazed ceramic components within the structure are provided in the **Attachment 6**.

B. Survey Protocol and Sampling Procedure:

The survey was conducted following the *HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1997 Revision, Chapter 7)*. The technique used for assessing the painted components was the XRF instrument. The following guidelines were used to perform LBP testing:



1. Achieve inventory of painted surfaces
2. Select areas to be tested.
3. Perform XRF testing.
4. Review and evaluate the data.
5. Report findings

The XRF instrument was set at Standard Paint Mode showing reading “Positive” or “Negative” with a 95% confident reading. The result is reported in mg/cm². **Attachment 7** includes the XRF Performance Characteristic Sheet (PCS) of the analyzer.

The letters A, B, C, and D used in the survey refers to:

- A ⇒ Main entrance side orientation (to street)
- B ⇒ Left side orientation
- C ⇒ Rear side orientation
- D ⇒ Right side orientation

C. Lead Based Paint Background and Regulatory Review:

Overexposure to lead is one of the most common situations found in industry. It is also a major potential public health risk. Lead poisoning is the leading environmentally induced illness in children. At greatest risk are children under the age of six because they are undergoing rapid neurological and physical development. In general population, lead may be present at hazardous concentrations in food, water, and air. Sources include LBP, urban soil, and dust, and drinking water.

Lead is commonly added to industrial paints because of its characteristic to resist corrosion. Industries with particularly high potential exposures include construction work involving welding, cutting, brazing, blasting, etc., on lead paint surfaces; most smelter operations either as a trace contaminant or as a major product; secondary lead smelters where lead is recovered from batteries; radiator repair shops; and firing ranges. Oral ingestion may represent a major route of exposure in contaminated workplaces. Once in the blood, lead is distributed primarily among three routes - blood, soft tissue (kidney, bone marrow, liver, and brain) and mineralizing tissue (bones and teeth).

Hazard of lead in paint has been defined by the Department of Housing and Urban Development as 1.0 mg/cm² as measured by an XRF instrument, or Atomic Absorption Spectroscopy (AAS); or 0.5% by weight (or 5,000 ppm) as measured by AAS, or Inductive Coupled Plasma (ICP). The same level was adopted by EPA regulations published in 1992, under Title X.



Although OSHA regulations for occupational lead exposure have been in effect since 1971 for the construction and general industries, the agency recognized the need to provide better protection and revised the regulations for general industry in 1978. The 1978 lead standard, however, excluded the construction industry from coverage because of insufficient information regarding lead use in construction.

In 1990, NIOSH set a national goal to eliminate worker exposures resulting in blood lead concentrations greater than 25 micrograms per deciliter (25 µg/dl) of whole blood. Consequently, OSHA began developing a proposal for a comprehensive standard regulating occupational exposure to lead in construction. In October 1992, the Congress passed Section 1031 of Title X of the Housing and Community Development Act of 1992 (P. L. 102-550) requiring OSHA to issue an interim final lead standard for the construction industry, effective until OSHA issues a final standard. The interim final rule, published on May 4, 1993, amends the OSHA standards for occupational health and environmental controls in Subpart D of Title 29 CFR 1926 by adding a new section 1926.62, containing employee protection requirements for construction workers exposed to lead.

On July 1998, the PRDNER - former PR Environmental Quality Board regulations regarding to LBP was created to issue activity permits, accredit institutions, and certificate persons involved in LBP activities in Puerto Rico. Local regulations require all lead to be managed as a special waste. On August 2019 this regulation was replaced by the new *Reglamento para el Manejo Adecuado de Actividades de Pintura con Base de Plomo*. To obtain a demolition permit in Puerto Rico is necessary to includes a certification (OGP-PGC-010 or equivalent) stating that there is no LBP in the project.

D. Survey Areas – Extent of Survey Coverage:

The survey included a detailed structure inspection providing a general sense of the overall location, type, quantity, and condition of LBP and lead-glazed ceramic components. The LBP survey was performed to ready accessible components and surfaces. If any suspect coated surface or ceramic components that could contain lead are encountered underneath current installed tiles or other construction material during demolition and/or renovation activities which differ from materials tested during the LBP survey, these should be assumed to be Lead containing until testing/analysis confirmed otherwise. The survey was unobtrusive as samples were not taken where doing so would have resulted in objectionable damage to surfaces. Therefore, the survey did not include destructive, intrusive and/or exploratory testing.



Areas Not Included in Survey and Service Constraints: All professional opinions presented in this report are based on information made available either by review of data provided by others or data gathered by Nortol's personnel. Nortol affirms that data gathered and presented by Nortol in this report was collected in an appropriate manner in accordance with generally accepted methods and practices. Any energized utilities/services, including electric, water and heat were assumed to be active. Materials associated with these items were determined to not be safely accessible and were not sampled. The survey did not include access or inspection of confined spaces or subsurface/underground areas including piping, conduits, building footings and soils (surficial or otherwise).

III. CONCLUSION

LBP survey was conducted for the project identified with the header ID. LBP or lead-glaze was identified above the regulatory level of 1.0 mg/cm² at selective areas of the subject structure.

Data from XRF analyzer testing is included in **Attachment 3 and 4** with positive readings marked in red or bold. **Attachment 5** includes the approximated location of identified LBP or lead-glazes at the subject structure. Representative Pictures\Photograph Log of identified LBP surfaces and/or lead-glazed ceramic components within the structure are provided in **Attachment 6**.

Any conditions or materials that could not be visually identified or was out-of-the SOW, was not inspected and may differ from those conditions or materials noted. It was not within the scope of the activity to remove surface materials to investigate portions of the structure or materials that may lay beneath the surface. Nortol's selection of sample locations and frequency of sampling was based on Nortol's observations and the assumption that like materials in the same area are homogeneous in content.

The report is designed to aid the building owner, architect, construction manager, general contractors, and potential lead abatement contractors in locating LBP or lead-glaze. Under no circumstances is the report to be utilized as a solely bidding document or as a project specification document.



Attachment 1
Company Credentials





GOBIERNO DE PUERTO RICO

Departamento de Recursos Naturales y Ambientales

Este certificado es otorgado a:

Nortol Environmental Occupational Safety, Inc.

Por haber cumplido con los requisitos establecidos en el Capítulo VI, Regla 127 del Reglamento para el Manejo Adecuado de Actividades de Pintura con Base de Plomo. Se le otorga esta certificación como **Firma** para llevar a cabo actividades relacionadas a Mitigación de Pintura con base de plomo en la jurisdicción de Puerto Rico.

Numero de Certificado:

LBPF-03222-009

Fecha de emisión: Marzo 5, 2022

Fecha de Expiración: Marzo 4, 2023



José Roque Julia
Jefe
División Desperdicios Tóxicos



NAT-F121771-2

Attachment 2
Inspector's Credentials



ROBERTO RODRIGUEZ
Puerto Rico
Lead-based Paint Inspector



Attachment 3
Positive LBP XRF Tabulated Readings



MUSEO HISTORICO DE QUEBRADILLAS XRF SHEET																	
Company	Heuresis Corp.																
Model	Pb2001																
Type	XRF Lead Paint Analyzer																
Serial Num.	2705																
App Version	Pb2001-5.2.0																
Job Id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Side	Color	Condition	Approx. QTY
MUSEO HISTORICO QUEBRADILLAS	45	6.8	mg/cm2	Positive	2	1/24/2023	10:22:34	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	A	White	Deteriorated	130 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	46	7.7	mg/cm2	Positive	2	1/24/2023	10:25:58	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	B	White	Deteriorated	200 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	47	6.4	mg/cm2	Positive	2	1/24/2023	10:26:22	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	C	White	Deteriorated	180 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	48	6.3	mg/cm2	Positive	2	1/24/2023	10:26:36	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	D	White	Deteriorated	200 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	56	1.1	mg/cm2	Positive	2	1/24/2023	10:30:19	R.RODRIGUEZ	526	Interior	Room 2	Floor	Ceramic	-	Blue	Deteriorated	75 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	63	5.5	mg/cm2	Positive	2	1/24/2023	10:33:10	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	B	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	64	5.5	mg/cm2	Positive	2	1/24/2023	10:33:31	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	C	White	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	65	6	mg/cm2	Positive	2	1/24/2023	10:33:43	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	D	White	Deteriorated	130 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	71	3.4	mg/cm2	Positive	2	1/24/2023	10:36:50	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	A	Beige	Deteriorated	40 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	72	3.1	mg/cm2	Positive	2	1/24/2023	10:37:03	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	C	Beige	Deteriorated	40 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	73	2.8	mg/cm2	Positive	2	1/24/2023	10:37:31	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	D	Beige	Deteriorated	35 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	74	4.6	mg/cm2	Positive	2	1/24/2023	10:38:00	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	A	White	Deteriorated	30 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	75	6.3	mg/cm2	Positive	2	1/24/2023	10:38:12	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	B	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	76	5.7	mg/cm2	Positive	2	1/24/2023	10:39:44	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	C	White	Deteriorated	55 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	77	4.4	mg/cm2	Positive	2	1/24/2023	10:39:58	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	D	White	Deteriorated	45 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	86	3.7	mg/cm2	Positive	1	1/24/2023	10:43:37	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	132 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	87	5.8	mg/cm2	Positive	1	1/24/2023	10:44:27	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	88	4.4	mg/cm2	Positive	1	1/24/2023	10:45:11	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	89	4.2	mg/cm2	Positive	1	1/24/2023	10:45:51	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	90	3.9	mg/cm2	Positive	1	1/24/2023	10:46:34	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	B	White	Deteriorated	210 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	91	4.8	mg/cm2	Positive	1	1/24/2023	10:47:53	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	B	White	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	92	3.6	mg/cm2	Positive	1	1/24/2023	10:48:13	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	210 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	93	2.9	mg/cm2	Positive	1	1/24/2023	10:48:52	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	94	4.8	mg/cm2	Positive	1	1/24/2023	10:49:55	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	95	4.5	mg/cm2	Positive	1	1/24/2023	10:50:07	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	D	Blue	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	96	4.4	mg/cm2	Positive	1	1/24/2023	10:51:31	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	D	Beige	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	101	3.7	mg/cm2	Positive	1	1/24/2023	10:53:59	R.RODRIGUEZ	526	Interior	Room 6	Floor	Ceramic	-	Gray	Deteriorated	50 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	102	1.4	mg/cm2	Positive	1	1/24/2023	10:54:10	R.RODRIGUEZ	526	Interior	Room 6	Floor	Ceramic	-	Gray	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	111	3.8	mg/cm2	Positive	1	1/24/2023	11:00:10	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	A	White	Deteriorated	45 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	113	3.8	mg/cm2	Positive	1	1/24/2023	11:01:14	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	B	White	Deteriorated	100 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	114	3.6	mg/cm2	Positive	1	1/24/2023	11:01:33	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	C	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	115	4.1	mg/cm2	Positive	1	1/24/2023	11:01:42	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	C	White	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	116	1.4	mg/cm2	Positive	1	1/24/2023	11:01:54	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	D	White	Deteriorated	275 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	117	2.9	mg/cm2	Positive	1	1/24/2023	11:02:09	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	D	White	Deteriorated	

Attachment 4
LBP XRF Tabulated Readings



MUSEO HISTORICO DE QUEBRADILLAS XRF SHEET



Company	Heuresis Corp.																
Model	Pb200i																
Type	XRF Lead Paint Analyzer																
Serial Num.	2705																
App Version	Pb200i-S.2.0																
Job id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Side	Color	Condition	Approx. QT
-	1	1	mg/cm2	Positive	1	1/24/2023	10:09:27	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-
-	2	1.1	mg/cm2	Positive	1	1/24/2023	10:09:41	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-
-	3	0.9	mg/cm2	Negative	1	1/24/2023	10:09:54	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-
MUSEO HISTORICO QUEBRADILLAS	4	0	mg/cm2	Negative	1	1/24/2023	10:10:43	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	5	0.5	mg/cm2	Negative	1	1/24/2023	10:10:53	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	6	0.1	mg/cm2	Negative	1	1/24/2023	10:11:03	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	7	0.2	mg/cm2	Negative	1	1/24/2023	10:11:16	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	8	0	mg/cm2	Negative	1	1/24/2023	10:11:26	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	9	0.1	mg/cm2	Negative	1	1/24/2023	10:11:50	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	10	0.1	mg/cm2	Negative	1	1/24/2023	10:12:08	R.RODRIGUEZ	526	Exterior	Building	Column	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	11	0.1	mg/cm2	Negative	1	1/24/2023	10:12:14	R.RODRIGUEZ	526	Exterior	Building	Column	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	12	0	mg/cm2	Negative	1	1/24/2023	10:12:23	R.RODRIGUEZ	526	Exterior	Building	Column	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	13	0.2	mg/cm2	Negative	1	1/24/2023	10:12:33	R.RODRIGUEZ	526	Exterior	Building	Column	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	14	0	mg/cm2	Negative	1	1/24/2023	10:12:41	R.RODRIGUEZ	526	Exterior	Building	Column	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	15	0.1	mg/cm2	Negative	1	1/24/2023	10:13:01	R.RODRIGUEZ	526	Exterior	Building	Ceiling	Concrete	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	16	0	mg/cm2	Negative	1	1/24/2023	10:13:48	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	17	0.1	mg/cm2	Negative	1	1/24/2023	10:13:57	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	18	0.1	mg/cm2	Negative	1	1/24/2023	10:14:02	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	19	0.8	mg/cm2	Negative	1	1/24/2023	10:15:07	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	20	0.2	mg/cm2	Negative	1	1/24/2023	10:15:23	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	21	0.4	mg/cm2	Negative	1	1/24/2023	10:15:31	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	22	0	mg/cm2	Negative	1	1/24/2023	10:16:03	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	D	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	23	0.2	mg/cm2	Negative	1	1/24/2023	10:16:15	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	D	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	24	0.4	mg/cm2	Negative	1	1/24/2023	10:16:28	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	D	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	25	0	mg/cm2	Negative	1	1/24/2023	10:16:37	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	D	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	26	0	mg/cm2	Negative	1	1/24/2023	10:16:43	R.RODRIGUEZ	526	Exterior	Building	Wall	Concrete	D	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	27	0.1	mg/cm2	Negative	1	1/24/2023	10:17:05	R.RODRIGUEZ	526	Exterior	Building	Ceiling	Concrete	-	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	28	0.2	mg/cm2	Negative	2	1/24/2023	10:17:30	R.RODRIGUEZ	526	Exterior	Stair Area	Risers	Terrazo	-	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	29	0	mg/cm2	Negative	2	1/24/2023	10:17:36	R.RODRIGUEZ	526	Exterior	Stair Area	Risers	Terrazo	-	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	30	0.1	mg/cm2	Negative	2	1/24/2023	10:17:55	R.RODRIGUEZ	526	Exterior	Stair Area	Railing	Concrete	D	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	31	0	mg/cm2	Negative	2	1/24/2023	10:18:02	R.RODRIGUEZ	526	Exterior	Stair Area	Railing	Concrete	D	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	32	0.1	mg/cm2	Negative	2	1/24/2023	10:18:20	R.RODRIGUEZ	526	Exterior	Stair Area	Balusters	Concrete	C	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	33	0.2	mg/cm2	Negative	2	1/24/2023	10:18:31	R.RODRIGUEZ	526	Exterior	Stair Area	Balusters	Concrete	D	Red	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	34	0.2	mg/cm2	Negative	2	1/24/2023	10:18:52	R.RODRIGUEZ	526	Exterior	Stair Area	Gate	Metal	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	35	0	mg/cm2	Negative	2	1/24/2023	10:19:36	R.RODRIGUEZ	526	Exterior	Balcony	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	36	0	mg/cm2	Negative	2	1/24/2023	10:19:45	R.RODRIGUEZ	526	Exterior	Balcony	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	37	0.3	mg/cm2	Negative	2	1/24/2023	10:20:06	R.RODRIGUEZ	526	Exterior	Balcony	Handrail	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	38	0.2	mg/cm2	Negative	2	1/24/2023	10:20:25	R.RODRIGUEZ	526	Exterior	Balcony	Handrail	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	39	0.1	mg/cm2	Negative	2	1/24/2023	10:20:42	R.RODRIGUEZ	526	Exterior	Balcony	Handrail	Concrete	D	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	40	0	mg/cm2	Negative	2	1/24/2023	10:20:56	R.RODRIGUEZ	526	Exterior	Balcony	Balusters	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	41	0	mg/cm2	Negative	2	1/24/2023	10:21:07	R.RODRIGUEZ	526	Exterior	Balcony	Balusters	Concrete	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	42	0	mg/cm2	Negative	2	1/24/2023	10:21:18	R.RODRIGUEZ	526	Exterior	Balcony	Balusters	Concrete	D	White	Deteriorated	-

MUSEO HISTORICO DE QUEBRADILLAS XRF SHEET



Company	Heuresis Corp.																
Model	Pb200i																
Type	XRF Lead Paint Analyzer																
Serial Num.	2705																
App Version	Pb200i-5.2.0																
Job Id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Side	Color	Condition	Approx. QTY
MUSEO HISTORICO QUEBRADILLAS	43	0.4	mg/cm2	Negative	2	1/24/2023	10:21:36	R.RODRIGUEZ	526	Exterior	Balcony	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	44	0.1	mg/cm2	Negative	2	1/24/2023	10:22:04	R.RODRIGUEZ	526	Interior	Room 1	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	45	6.8	mg/cm2	Positive	2	1/24/2023	10:22:34	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	A	White	Deteriorated	130 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	46	7.7	mg/cm2	Positive	2	1/24/2023	10:25:58	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	B	White	Deteriorated	200 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	47	6.4	mg/cm2	Positive	2	1/24/2023	10:26:22	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	C	White	Deteriorated	180 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	48	6.3	mg/cm2	Positive	2	1/24/2023	10:26:36	R.RODRIGUEZ	526	Interior	Room 1	Wall	Concrete	D	White	Deteriorated	200 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	49	0.1	mg/cm2	Negative	2	1/24/2023	10:26:51	R.RODRIGUEZ	526	Interior	Room 1	Window	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	50	0.1	mg/cm2	Negative	2	1/24/2023	10:26:57	R.RODRIGUEZ	526	Interior	Room 1	Window Frame	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	51	0.9	mg/cm2	Negative	2	1/24/2023	10:27:40	R.RODRIGUEZ	526	Interior	Hallway 1	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	52	0.9	mg/cm2	Negative	2	1/24/2023	10:27:52	R.RODRIGUEZ	526	Interior	Hallway 1	Wall	Concrete	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	53	0.8	mg/cm2	Negative	2	1/24/2023	10:28:03	R.RODRIGUEZ	526	Interior	Hallway 1	Wall	Concrete	C	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	54	0.9	mg/cm2	Negative	2	1/24/2023	10:28:37	R.RODRIGUEZ	526	Interior	Hallway 1	Wall	Concrete	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	55	0.1	mg/cm2	Negative	2	1/24/2023	10:29:03	R.RODRIGUEZ	526	Interior	Hallway 1	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	56	1.1	mg/cm2	Positive	2	1/24/2023	10:30:19	R.RODRIGUEZ	526	Interior	Room 2	Floor	Ceramic	-	Blue	Deteriorated	75 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	57	0.9	mg/cm2	Negative	2	1/24/2023	10:31:07	R.RODRIGUEZ	526	Interior	Room 2	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	58	0.9	mg/cm2	Negative	2	1/24/2023	10:31:18	R.RODRIGUEZ	526	Interior	Room 2	Wall	Concrete	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	59	0.9	mg/cm2	Negative	2	1/24/2023	10:31:31	R.RODRIGUEZ	526	Interior	Room 2	Wall	Concrete	C	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	60	0.8	mg/cm2	Negative	2	1/24/2023	10:31:43	R.RODRIGUEZ	526	Interior	Room 2	Wall	Concrete	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	61	0.9	mg/cm2	Negative	2	1/24/2023	10:32:19	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	62	0.9	mg/cm2	Negative	2	1/24/2023	10:32:30	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	63	5.5	mg/cm2	Positive	2	1/24/2023	10:33:10	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	B	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	64	5.5	mg/cm2	Positive	2	1/24/2023	10:33:31	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	C	White	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	65	6	mg/cm2	Positive	2	1/24/2023	10:33:43	R.RODRIGUEZ	526	Interior	Room 3	Wall	Concrete	D	White	Deteriorated	130 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	66	0.1	mg/cm2	Negative	2	1/24/2023	10:35:35	R.RODRIGUEZ	526	Interior	Room 3	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	67	0.1	mg/cm2	Negative	2	1/24/2023	10:35:52	R.RODRIGUEZ	526	Interior	Room 3	Window	Metal	C	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	68	0	mg/cm2	Negative	2	1/24/2023	10:36:00	R.RODRIGUEZ	526	Interior	Room 3	Window Frame	Metal	C	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	69	0	mg/cm2	Negative	2	1/24/2023	10:36:23	R.RODRIGUEZ	526	Interior	Room 4	Window	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	70	0	mg/cm2	Negative	2	1/24/2023	10:36:30	R.RODRIGUEZ	526	Interior	Room 4	Window Frame	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	71	3.4	mg/cm2	Positive	2	1/24/2023	10:36:50	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	A	Beige	Deteriorated	40 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	72	3.1	mg/cm2	Positive	2	1/24/2023	10:37:03	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	C	Beige	Deteriorated	40 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	73	2.8	mg/cm2	Positive	2	1/24/2023	10:37:31	R.RODRIGUEZ	526	Interior	Room 4	Wall	Ceramic	D	Beige	Deteriorated	35 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	74	4.6	mg/cm2	Positive	2	1/24/2023	10:38:00	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	A	White	Deteriorated	30 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	75	6.3	mg/cm2	Positive	2	1/24/2023	10:38:12	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	B	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	76	5.7	mg/cm2	Positive	2	1/24/2023	10:39:44	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	C	White	Deteriorated	55 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	77	4.4	mg/cm2	Positive	2	1/24/2023	10:39:58	R.RODRIGUEZ	526	Interior	Room 4	Wall	Concrete	D	White	Deteriorated	45 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	78	0	mg/cm2	Negative	2	1/24/2023	10:40:39	R.RODRIGUEZ	526	Interior	Room 4	Gate	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	79	0.3	mg/cm2	Negative	2	1/24/2023	10:40:55	R.RODRIGUEZ	526	Interior	Room 4	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	80	0.1	mg/cm2	Negative	2	1/24/2023	10:41:35	R.RODRIGUEZ	526	Interior	Room 4	Door	Wood	D	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	81	0.1	mg/cm2	Negative	2	1/24/2023	10:41:42	R.RODRIGUEZ	526	Interior	Room 4	Door Frame	Wood	D	Brown	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	82	0.3	mg/cm2	Negative	1	1/24/2023	10:42:31	R.RODRIGUEZ	526	Interior	Room 5	Door	Metal	A	Mostly Unpainted	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	83	0.2	mg/cm2	Negative	1	1/24/2023	10:42:37	R.RODRIGUEZ	526	Interior	Room 5	Door Frame	Metal	A	Mostly Unpainted	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	84	0	mg/cm2	Negative	1	1/24/2023	10:42:59	R.RODRIGUEZ	526	Interior	Room 5	Window	Metal	B	White	Deteriorated	-

MUSEO HISTORICO DE QUEBRADILLAS XRF SHEET																	
Company	Heuresis Corp.																
Model	Pb200i																
Type	XRF Lead Paint Analyzer																
Serial Num.	2705																
App Version	Pb200i-5.2.0																
Job id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Side	Color	Condition	Approx. QTY
MUSEO HISTORICO QUEBRADILLAS	85	0.1	mg/cm2	Negative	1	1/24/2023	10:43:06	R.RODRIGUEZ	526	Interior	Room 5	Window Frame	Metal	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	86	3.7	mg/cm2	Positive	1	1/24/2023	10:43:37	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	132 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	87	5.8	mg/cm2	Positive	1	1/24/2023	10:44:27	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	88	4.4	mg/cm2	Positive	1	1/24/2023	10:45:11	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	89	4.2	mg/cm2	Positive	1	1/24/2023	10:45:51	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	A	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	90	3.9	mg/cm2	Positive	1	1/24/2023	10:46:34	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	B	White	Deteriorated	210 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	91	4.8	mg/cm2	Positive	1	1/24/2023	10:47:53	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	B	White	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	92	3.6	mg/cm2	Positive	1	1/24/2023	10:48:13	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	210 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	93	2.9	mg/cm2	Positive	1	1/24/2023	10:48:52	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	94	4.8	mg/cm2	Positive	1	1/24/2023	10:49:55	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	C	Multicolor	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	95	4.5	mg/cm2	Positive	1	1/24/2023	10:50:07	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	D	Blue	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	96	4.4	mg/cm2	Positive	1	1/24/2023	10:51:31	R.RODRIGUEZ	526	Interior	Room 5	Wall	Concrete	D	Beige	Deteriorated	110 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	97	0.1	mg/cm2	Negative	1	1/24/2023	10:52:41	R.RODRIGUEZ	526	Interior	Room 5	Ceiling	Concrete	-	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	98	0.1	mg/cm2	Negative	1	1/24/2023	10:52:48	R.RODRIGUEZ	526	Interior	Room 5	Ceiling	Concrete	-	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	99	0.2	mg/cm2	Negative	1	1/24/2023	10:53:11	R.RODRIGUEZ	526	Interior	Room 5	Floor	Terrazo	-	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	100	0.2	mg/cm2	Negative	1	1/24/2023	10:53:46	R.RODRIGUEZ	526	Interior	Room 6	Floor	Ceramic	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	101	3.7	mg/cm2	Positive	1	1/24/2023	10:53:59	R.RODRIGUEZ	526	Interior	Room 6	Floor	Ceramic	-	Gray	Deteriorated	50 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	102	1.4	mg/cm2	Positive	1	1/24/2023	10:54:10	R.RODRIGUEZ	526	Interior	Room 6	Floor	Ceramic	-	Gray	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	103	0	mg/cm2	Negative	1	1/24/2023	10:57:26	R.RODRIGUEZ	526	Interior	Room 6	Ceiling	Concrete	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	104	0.1	mg/cm2	Negative	1	1/24/2023	10:57:45	R.RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	A	Gray	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	105	0	mg/cm2	Negative	1	1/24/2023	10:57:59	R.RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	106	0	mg/cm2	Negative	1	1/24/2023	10:58:13	R.RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	107	0	mg/cm2	Negative	1	1/24/2023	10:58:28	R.RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	C	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	108	0	mg/cm2	Negative	1	1/24/2023	10:58:42	R.RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	109	0.1	mg/cm2	Negative	1	1/24/2023	10:58:55	R.RODRIGUEZ	526	Interior	Room 6	Wall	Concrete	D	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	110	0	mg/cm2	Negative	1	1/24/2023	10:59:59	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	A	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	111	3.8	mg/cm2	Positive	1	1/24/2023	11:00:10	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	A	White	Deteriorated	45 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	112	0.3	mg/cm2	Negative	1	1/24/2023	11:01:01	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	113	3.8	mg/cm2	Positive	1	1/24/2023	11:01:14	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	B	White	Deteriorated	100 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	114	3.6	mg/cm2	Positive	1	1/24/2023	11:01:33	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	C	White	Deteriorated	60 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	115	4.1	mg/cm2	Positive	1	1/24/2023	11:01:42	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	C	White	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	116	1.4	mg/cm2	Positive	1	1/24/2023	11:01:54	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	D	White	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	117	2.9	mg/cm2	Positive	1	1/24/2023	11:02:09	R.RODRIGUEZ	526	Interior	Room 7	Wall	Concrete	D	White	Deteriorated	275 SF APPROX
MUSEO HISTORICO QUEBRADILLAS	118	0.1	mg/cm2	Negative	1	1/24/2023	11:02:33	R.RODRIGUEZ	526	Interior	Room 7	Floor	Terrazo	-	Beige	Deteriorated	
MUSEO HISTORICO QUEBRADILLAS	119	0	mg/cm2	Negative	1	1/24/2023	11:02:51	R.RODRIGUEZ	526	Interior	Room 7	Ceiling	Concrete	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	120	0	mg/cm2	Negative	1	1/24/2023	11:03:30	R.RODRIGUEZ	526	Interior	Room 7	Ceiling	Concrete	-	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	121	0.2	mg/cm2	Negative	1	1/24/2023	11:03:53	R.RODRIGUEZ	526	Interior	Room 7	Ceiling	Concrete	-	Green	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	122	0.2	mg/cm2	Negative	1	1/24/2023	11:04:01	R.RODRIGUEZ	526	Interior	Room 7	Ceiling	Concrete	-	Green	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	123	0.1	mg/cm2	Negative	1	1/24/2023	11:04:31	R.RODRIGUEZ	526	Interior	Room 7	Wall	Ceramic	A	Pink	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	124	0.3	mg/cm2	Negative	1	1/24/2023	11:04:42	R.RODRIGUEZ	526	Interior	Room 7	Wall	Ceramic	B	Pink	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	125	0.8	mg/cm2	Negative	1	1/24/2023	11:04:52	R.RODRIGUEZ	526	Interior	Room 7	Wall	Ceramic	C	Pink	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	126	0.2	mg/cm2	Negative	1	1/24/2023	11:05:13	R.RODRIGUEZ	526	Interior	Room 7	Wall	Ceramic	D	Pink	Deteriorated	-

MUSEO HISTORICO DE QUEBRADILLAS XRF SHEET



Company		Heuresis Corp.															
Model		Pb200i															
Type		XRF Lead Paint Analyzer															
Serial Num.		2705															
App Version		Pb200i-5.2.0															
Job Id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Side	Color	Condition	Approx. QTY
MUSEO HISTORICO QUEBRADILLAS	127	0.3	mg/cm2	Negative	1	1/24/2023	11:05:27	R.RODRIGUEZ	526	Interior	Room 7	Floor	Ceramic	-	Pink	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	128	0.1	mg/cm2	Negative	1	1/24/2023	11:05:33	R.RODRIGUEZ	526	Interior	Room 7	Floor	Ceramic	-	Pink	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	129	0.2	mg/cm2	Negative	1	1/24/2023	11:05:58	R.RODRIGUEZ	526	Interior	Room 7	Burglar Fence	Metal	B	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	130	0.1	mg/cm2	Negative	1	1/24/2023	11:06:12	R.RODRIGUEZ	526	Interior	Room 7	Gate	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	131	0.1	mg/cm2	Negative	1	1/24/2023	11:06:27	R.RODRIGUEZ	526	Interior	Room 7	Door	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	132	0	mg/cm2	Negative	1	1/24/2023	11:06:34	R.RODRIGUEZ	526	Interior	Room 7	Door Frame	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	133	0.1	mg/cm2	Negative	1	1/24/2023	11:07:02	R.RODRIGUEZ	526	Interior	Room 7	Window	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	134	0	mg/cm2	Negative	1	1/24/2023	11:07:09	R.RODRIGUEZ	526	Interior	Room 7	Window Frame	Metal	D	White	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	135	0.1	mg/cm2	Negative	2	1/24/2023	11:08:44	R.RODRIGUEZ	526	Exterior	Back Porch	Wall	Concrete	A	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	136	0.5	mg/cm2	Negative	2	1/24/2023	11:08:59	R.RODRIGUEZ	526	Exterior	Back Porch	Handrail	Concrete	B	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	137	0.1	mg/cm2	Negative	2	1/24/2023	11:09:11	R.RODRIGUEZ	526	Exterior	Back Porch	Handrail	Concrete	C	Beige	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	138	0.1	mg/cm2	Negative	2	1/24/2023	11:09:37	R.RODRIGUEZ	526	Exterior	Back Porch	Balusters	Metal	B	Black	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	139	0.5	mg/cm2	Negative	2	1/24/2023	11:09:51	R.RODRIGUEZ	526	Exterior	Back Porch	Balusters	Metal	C	Black	Deteriorated	-
MUSEO HISTORICO QUEBRADILLAS	140	0.2	mg/cm2	Negative	2	1/24/2023	11:10:10	R.RODRIGUEZ	526	Exterior	Back Porch	Floor	Ceramic	-	White	Deteriorated	-
-	141	0.9	mg/cm2	Negative	1	1/24/2023	11:12:31	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-
-	142	1	mg/cm2	Positive	1	1/24/2023	11:12:44	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-
-	143	1	mg/cm2	Positive	1	1/24/2023	11:12:57	R.RODRIGUEZ	-	-	Calibration	-	-	-	-	-	-

Attachment 5
LBP Diagram



MUSEO HISTÓRICO DE QUEBRADILLAS

LBP DIAGRAM

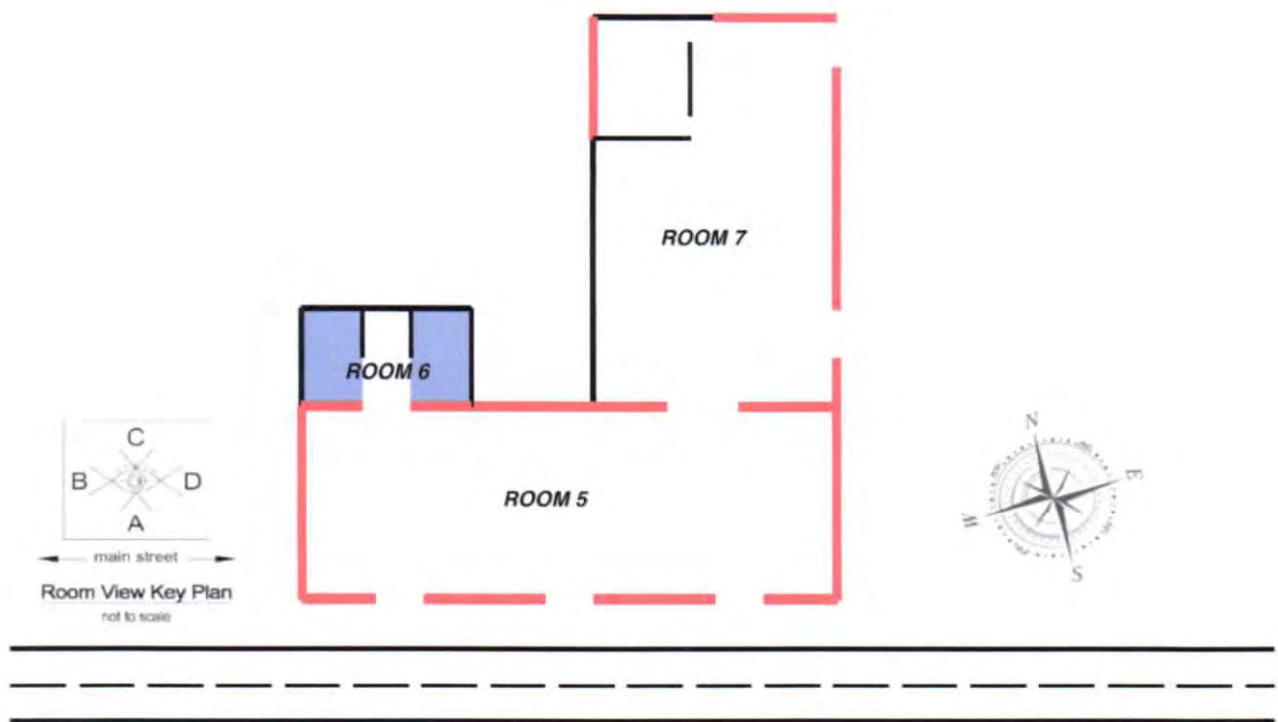


➡ LBP POSITIVE, INTERIOR CONCRETE WALLS



➡ LBP POSITIVE, INTERIOR GRAY LEAD-GLAZED CERAMIC FLOOR TILE

FIRST LEVEL



Calle Honorio Hernandez Bo. Pueblo,

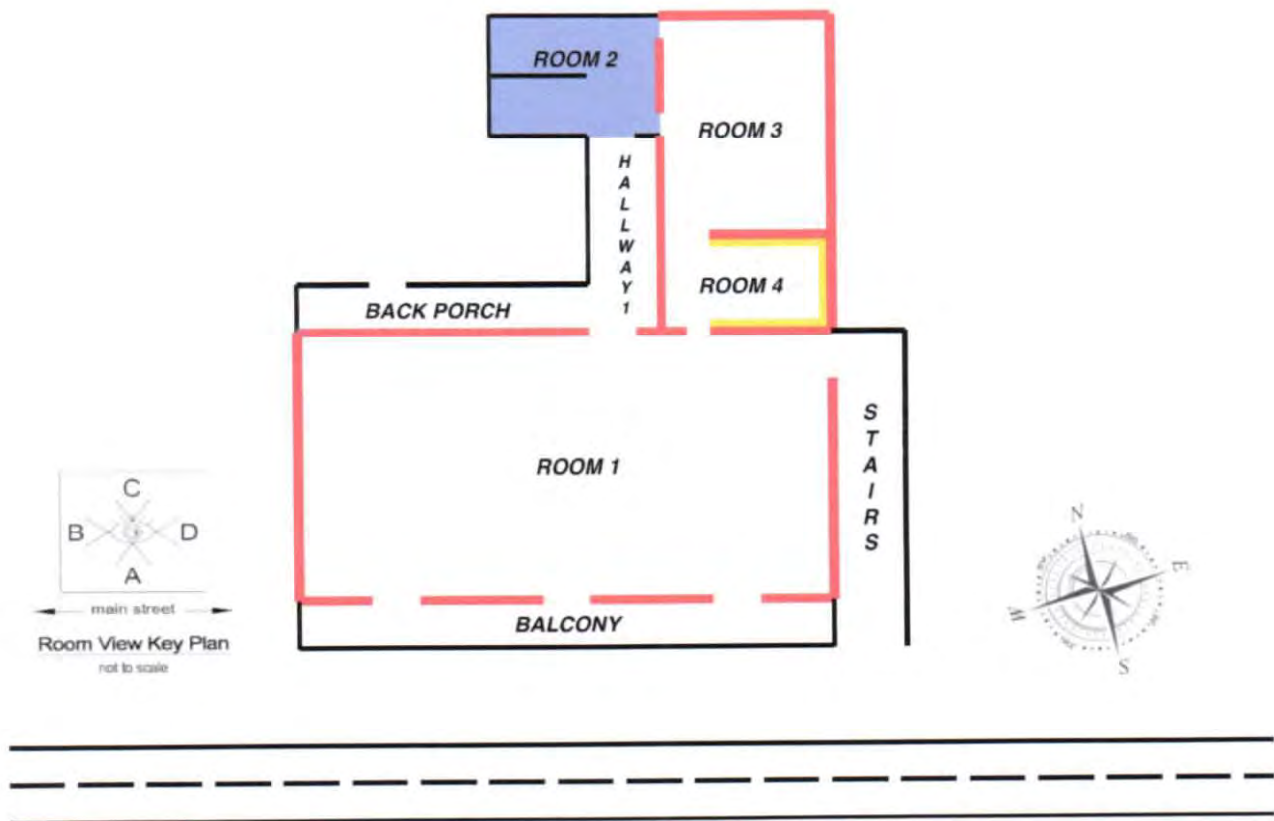
Quebradillas PR 00678

MUSEO HISTÓRICO DE QUEBRADILLAS

LBP DIAGRAM

-  ➔ LBP POSITIVE, INTERIOR WHITE CONCRETE WALLS
-  ➔ LBP POSITIVE, INTERIOR BEIGE LEAD-GLAZED CERAMIC WALL TILE
-  ➔ LBP POSITIVE, INTERIOR BLUE LEAD-GLAZED CERAMIC FLOOR TILE

SECOND LEVEL



Calle Honorio Hernandez Bo. Pueblo,

Quebradillas PR 00678

Attachment 6
Representative Pictures\Photograph Log





Roberto Rodriguez Rodriguez
NORTOL Environmental & Occupational Safety, Inc.

MUSEO HISTÓRICO DE QUEBRADILLAS - LBP SURVEY PHOTO LOG

Year of construction not available at the moment of the inspection

Tuesday, January 24, 2023

Prepared For Ingenieros del Oeste CSP

Calle Honorio Hernandez Bo. Pueblo, Quebradillas PR 00678

19 Sections Identified



FRONT VIEW:

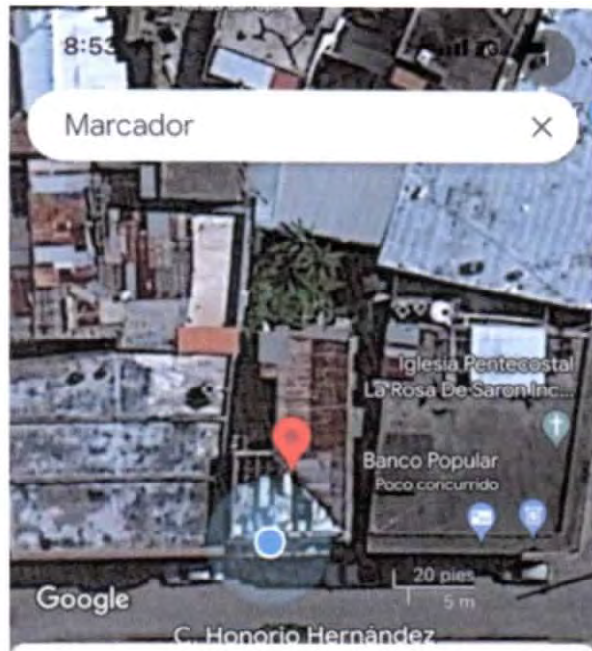
Section Completed: Yes

(18.4738988, -66.9381899)

LOCATION:

Section Completed: Yes

(18.4738988, -66.9381899)



Marcador

Cerca de 108 C. Honorio Hernández, Quebradillas, 00...

1 min



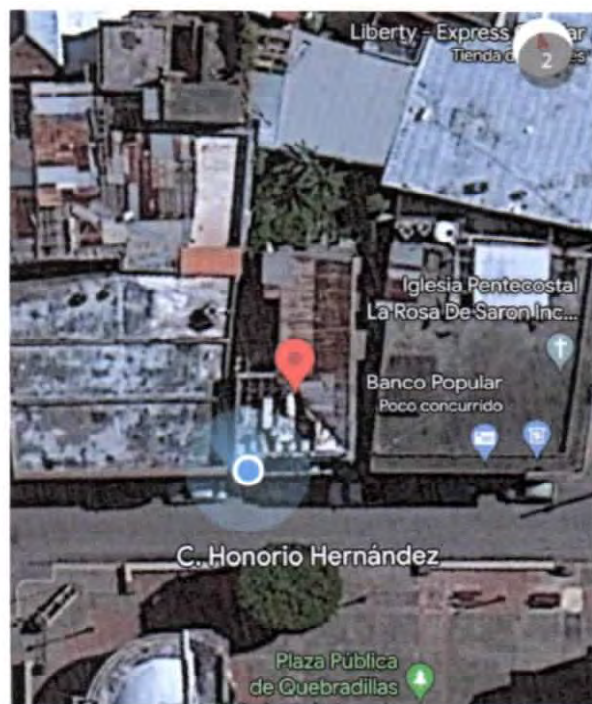
Medir la distancia

F3F6+HP3 Quebradillas

(18.4738988, -66.9381899)

Sugerir una edición

Agregar un lugar





SCOPE OF WORK:

Section Completed: Yes

Full Inspection Abestos and Lead-
Based Paint.

EXTERIOR GENERAL VIEW SIDE A:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE B:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE C:

Section Completed: Yes



EXTERIOR GENERAL VIEW SIDE D:
Section Completed: Yes



EXTERIOR GENERAL VIEWS:

Section Completed: Yes



EXTERIOR GENERAL VIEWS: ROOF

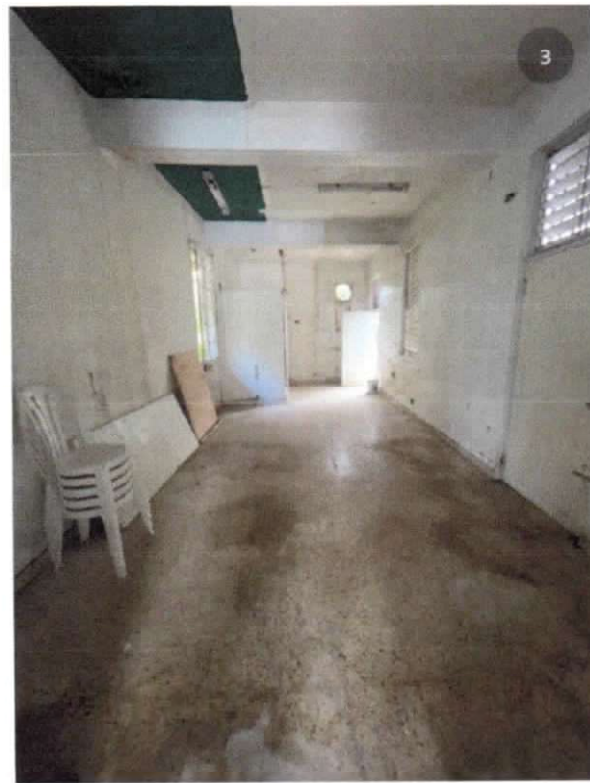
Section Completed: Yes

N/A



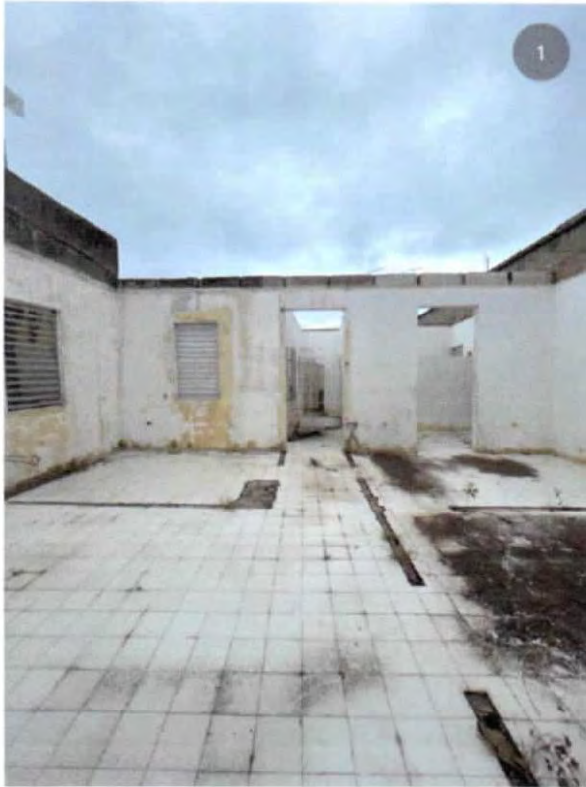
INTERIOR GENERAL VIEWS: FIRST LEVEL

Section Completed: Yes



INTERIOR GENERAL VIEWS: SECOND LEVEL

Section Completed: Yes



LBP DETECTED? ROOM 1 SECOND FLOOR

Section Completed: Yes

Interior, Reading #45, white concrete wall, side A, 6.8 mg/cm². (QTY. 130 S.F APPROX.)

Interior, Reading #46, white concrete wall, side B, 7.7 mg/cm². (QTY. 200 S.F APPROX.)

Interior, Reading #47, white concrete wall, side C, 6.4 mg/cm². (QTY. 180 S.F APPROX.)

Interior, Reading #48, white concrete wall, side D, 6.3 mg/cm². (QTY. 200 S.F APPROX.)



LBP DETECTED? ROOM 2 SECOND FLOOR

Section Completed: Yes

Interior, Reading #56, blue lead-glazed ceramic floor tile, 1.1 mg/cm². (QTY. 75 S.F APPROX.)



LBP DETECTED? ROOM 3 SECOND FLOOR

Section Completed: Yes

Interior, Reading #63, white concrete wall, side B, 5.5 mg/cm². (QTY. 60 S.F APPROX.)

Interior, Reading #64, white concrete wall, side C, 5.5 mg/cm². (QTY. 110 S.F APPROX.)

Interior, Reading #65, white concrete wall, side D, 6.0 mg/cm². (QTY. 130 S.F APPROX.)



LBP DETECTED? ROOM 4 SECOND FLOOR

Section Completed: Yes

Interior, Reading #71, beige lead-glazed ceramic wall tile, side A, 3.4 mg/cm². (QTY. 40 S.F APPROX.)

Interior, Reading #72, beige lead-glazed ceramic wall tile, side C, 3.1 mg/cm². (QTY. 40 S.F APPROX.)

Interior, Reading #73, beige lead-glazed ceramic wall tile, side D, 2.8 mg/cm². (QTY. 35 S.F APPROX.)



LBP DETECTED? ROOM 4 SECOND FLOOR

Section Completed: Yes

Interior, Reading #74, white concrete wall, side A, 4.6 mg/cm². (QTY. 30 S.F APPROX.)

Interior, Reading #75, white concrete wall, side B, 6.3 mg/cm². (QTY. 60 S.F APPROX.)

Interior, Reading #76, white concrete wall, side C, 5.7 mg/cm². (QTY. 55 S.F APPROX.)

Interior, Reading #77, white concrete wall, side D, 4.4 mg/cm². (QTY. 45 S.F APPROX.)



LBP DETECTED? ROOM 5 FIRST FLOOR

Section Completed: Yes

Interior, Reading #86, #87, #88, #89, multicolor concrete wall, side A, 3.7, 5.8, 4.4, 4.2 mg/cm².

(QTY. 132 S.F APPROX.)

Interior, Reading #90, #91, white concrete wall, side B, 3.9, 4.8 mg/cm².

(QTY. 210 S.F APPROX.)

Interior, Reading #92, #93, #94, multicolor concrete wall, side C, 3.6, 2.9, 4.8 mg/cm². (QTY. 210 S.F APPROX.)

Interior, Reading #95, blue concrete wall, side D, 4.5 mg/cm². (QTY. 110 S.F APPROX.)

Interior, Reading #96, beige concrete wall, side D, 4.4 mg/cm². (QTY. 110 S.F APPROX.)



LBP DETECTED? ROOM 6 FIRST FLOOR

Section Completed: Yes

Interior, Reading #101, #102, gray lead-glazed ceramic floor tile, 3.7, 1.4 mg/cm². (QTY. 50 S.F APPROX.)



LBP DETECTED? ROOM 7 FIRST FLOOR

Section Completed: Yes

Interior, Reading #111, white concrete wall, side A, 3.8 mg/cm². (QTY. 45 S.F APPROX.)

Interior, Reading #113, white concrete wall, side B, 3.8 mg/cm². (QTY. 100 S.F APPROX.)

Interior, Reading #114, #115, white concrete wall, side C, 3.6, 4.1 mg/cm². (QTY. 60 S.F APPROX.)

Interior, Reading #116, #117, white concrete wall, side D, 1.4, 2.9 mg/cm². (QTY. 275 S.F APPROX.)



Attachment 7
XRF Performance Characteristic Sheet



Performance Characteristic Sheet

EFFECTIVE DATE: December 1, 2015

MANUFACTURER AND MODEL:

Make: *Heuresis*
Models: *Model Pb200i*
Source: *⁵⁷Co, 5 mCi (nominal – new source)*

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Action Level mode

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm ² (inclusive)

SUBSTRATE CORRECTION:

Not applicable

INCONCLUSIVE RANGE OR THRESHOLD:

ACTION LEVEL MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm ²)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated using test results on building components in the HUD archive. Testing was conducted on 146 test samples in November 2015, with two separate instruments running software version 2.1-2 in Action Level test mode. The actual source strength of each instrument on the day of testing was approximately 2.0 mCi; source ages were approximately one year.

OPERATING PARAMETERS

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

XRF CALIBRATION CHECK:

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm² in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm² film).

If the average (rounded to 1 decimal place) of three readings is outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instrument into control before XRF testing proceeds.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm² for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.0 mg/cm² at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm². Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.

Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.

For each substrate type (the 1.02 mg/cm² NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):

$$\text{Correction value} = (1\text{st} + 2\text{nd} + 3\text{rd} + 4\text{th} + 5\text{th} + 6\text{th Reading})/6 - 1.02 \text{ mg/cm}^2$$

Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing.

Conduct XRF re-testing at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below. Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family and multi-family housing, a result is defined as a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and the retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF readings.

Compute the average of all ten re-test XRF readings.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

In the Action Level paint test mode, the instrument takes the longest time to complete readings close to the Federal standard of 1.0 mg/cm². The table below shows the mean and standard deviation of actual reading times by reading level for paint samples during the November 2015 archive testing. The tested instruments reported readings to one decimal place. No significant differences in reading times by substrate were observed. These times apply only to instruments with the same source strength as those tested (2.0 mCi). Instruments with stronger sources will have shorter reading times and those with weaker sources, longer reading times, than those in the table.

Mean and Standard Deviation of Reading Times in Action Level Mode by Reading Level		
Reading (mg/cm ²)	Mean Reading Time (seconds)	Standard Deviation (seconds)
< 0.7	3.48	0.47
0.7	7.29	1.92
0.8	13.95	1.78
0.9 – 1.2	15.25	0.66
1.3 – 1.4	6.08	2.50
≥ 1.5	3.32	0.05

CLASSIFICATION OF RESULTS:

XRF results are classified as **positive** if they are **greater than or equal** to the stated threshold for the instrument (1.0 mg/cm²), and *negative* if they are *less than* the threshold.

DOCUMENTATION:

A report titled *Methodology for XRF Performance Characteristic Sheets* (EPA 747-R-95-008) provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. The report may be downloaded at <http://www2.epa.gov/lead/methodology-xrf-performance-characteristic-sheets-epa-747-r-95-008-september-1997>.

This XRF Performance Characteristic Sheet (PCS) was developed by QuanTech, Inc., under a contract with the XRF manufacturer.



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APPENDIX G

CONSULT WITH TRIBES

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Museo Histórico de Quebradillas PR-CRP-00054



When To Consult With Tribes Under Section 106

Section 106 requires consultation with federally-recognized Indian tribes when a project may affect a historic property of religious and cultural significance to the tribe. Historic properties of religious and cultural significance include: archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places, traditional cultural landscapes, plant and animal communities, and buildings and structures with significant tribal association. The types of activities that may affect historic properties of religious and cultural significance include: ground disturbance (digging), new construction in undeveloped natural areas, introduction of incongruent visual, audible, or atmospheric changes, work on a building with significant tribal association, and transfer, lease or sale of properties of the types listed above.

If a project includes any of the types of activities below, invite tribes to consult:

- ☐ **significant ground disturbance (digging)**
Examples: new sewer lines, utility lines (above and below ground), foundations, footings, grading, access roads
- ☐ **new construction in undeveloped natural areas**
Examples: industrial-scale energy facilities, transmission lines, pipelines, or new recreational facilities, in undeveloped natural areas like mountaintops, canyons, islands, forests, native grasslands, etc., and housing, commercial, and industrial facilities in such areas
- ☐ **incongruent visual changes**
Examples: construction of a focal point that is out of character with the surrounding natural area, impairment of the vista or viewshed from an observation point in the natural landscape, or impairment of the recognized historic scenic qualities of an area
- ☐ **incongruent audible changes**
Examples: increase in noise levels above an acceptable standard in areas known for their quiet, contemplative experience
- ☐ **incongruent atmospheric changes**
Examples: introduction of lights that create skyglow in an area with a dark night sky
- ☐ **work on a building with significant tribal association**
Examples: rehabilitation, demolition or removal of a surviving ancient tribal structure or village, or a building or structure that there is reason to believe was the location of a significant tribal event, home of an important person, or that served as a tribal school or community hall
- ☐ **transfer, lease or sale of a historic property of religious and cultural significance**
Example: transfer, lease or sale of properties that contain archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, plant and animal communities, or buildings and structures with significant tribal association
- ☒ **None of the above apply**

Museo Histórico de Quebradillas PR-CRP-00054

Project

Reviewed By

Date

APPENDIX H

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards (HUD – Chapter 12 – Abatement)

Environmental Assessment CDBG-DR
Museo Histórico de Quebradillas PR-CRP-00054



Chapter 12: Abatement

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Chapter 12: Abatement

Abatement – How To Do It

1. **Arrange for risk assessment or paint inspection.** Have a lead hazard risk assessment or lead-based paint inspection performed by a certified risk assessor or a certified inspector who is independent of the abatement contractor.
2. **Develop hazard control plan.** Develop a site-specific lead hazard control plan based on the hazards (risk assessment) or lead-based paint (inspection) identified and financing available. Prepare the work area (see Chapter 8); avoid high-dust jobs and procedures.
3. **Obtain waste permits.** Have the contractor obtain any necessary building or waste permits; notify local authorities if the local jurisdiction requires it.
4. **Select needed materials.** Together with the contractor (or designer or risk assessor), select specific building component replacement items, enclosure materials, paint removal equipment and/or chemicals, tools, and cleaning supplies. Consider waste management and historic preservation implications of the selected treatment.
5. **Develop specifications.** Develop specifications (usually for large projects only).
6. **Schedule other construction work.** Schedule other construction work so that leaded surfaces are not inadvertently disturbed and unprotected workers are not placed at risk. Include time for clearance examinations and laboratory dust sample analysis in the scheduling process (see Chapters 3 and 15).
7. **Select a contractor.** Select a certified abatement contractor using the lowest *qualified* bidder.
8. **Conduct preconstruction conference.** Conduct a preconstruction conference to ensure the contractor fully understands the work involved (for large projects only).
9. **Notify residents.** Notify residents of the dwelling and adjacent dwellings of the work and the date when it will begin. Implement relocation (if appropriate).
10. **Correct housing conditions that might impede work.** Correct any existing conditions that could impede the abatement work (e.g., trash removal, structural deficiencies).
11. **Post warning signs.** Post warning signs and restrict entry to authorized personnel only. Implement the worksite preparation procedures.
12. **Consider a pilot project.** For large projects only, consider conducting a pilot project to determine if the selected abatement method will actually work (pilot projects are sometimes completed before step 4).
13. **Consider collecting soil samples as an option.** As an optional quality control procedure, consider collecting pre-abatement soil samples, which may not have to be analyzed until post-abatement soil samples have been collected, analyzed, and compared to clearance standards. If post-abatement soil levels are below applicable limits, the pre-abatement samples need not be analyzed (see Chapter 15). Soil sampling is not required by EPA regulations as part of clearance. This is an optional activity (see Chapter 15).

14. **Execute construction work.** Execute abatement work. See the other sections of this chapter for step-by-step summaries for building component replacement, enclosure, paint removal, and soil abatement methods. See Chapter 13 for encapsulation methods. Observe local or State regulations if applicable.
15. **Store waste.** Store all waste in a secure area (see Chapter 10).
16. **Cleanup.** Conduct daily and final cleanup (see Chapter 14). Execute waste disposal procedures.
17. **Arrange for clearance.** Have an independent certified inspector technician or risk assessor conduct a clearance examination after waiting at least 1 hour after cleanup has been completed to let dust settle (see Chapter 15).
18. **Repeat cleaning if clearance fails.** If clearance is not achieved, repeat cleaning and/or complete abatement work. Repeat clearance examination and, if clearance is achieved, obtain any required formal release or, if required by the U.S. Department of Housing and Urban Development (HUD) or local authorities, owner's certification that the project has been completed required.
19. **Notify Residents.** Notify residents of affected dwellings of the nature and results of the abatement work.
20. **Pay contractors.** Pay contractor and clearance examiner.
21. **Conduct periodic monitoring.** Conduct periodic monitoring and reevaluation of enclosure or encapsulation systems (if applicable) or lead-based paint that was not abated as indicated in Chapter 6. Maintain records of all abatement, monitoring, reevaluation, and maintenance activities, and turn them over to any new owner upon sale of the property as part of lead disclosure. Provide proper disclosure and notification to tenants. See Appendix 6 for more information.

Building Component Replacement – How To Do It

1. **Prepare work area and plan new component installation.** Prepare the work area (see Chapter 8); avoid high-dust jobs and procedures. Plan how the new component will be installed. Whenever possible, use new, energy efficient window, door, and insulating systems.
2. **Prepare building component for removal.** Prepare the building component for removal. Turn off and disconnect any electrical circuits inside or near the building component to be removed.
3. **Mist component.** Lightly mist the component to be removed (unless electrical circuits are nearby).
4. **Score seams.** Score all painted seams with a sharp knife.
5. **Remove screws.** Remove any screws, nails, or fasteners.
6. **Pry component.** Use a flat pry instrument (crowbar) and hammer to pry the component from the substrate.
7. **Remove nails.** Remove or bend back all nails.
8. **Wrap component.** Wrap and seal bulk components in plastic and take them to a covered truck or secured waste storage area along pathways covered with plastic. Shovel any debris; see Chapter 10 for proper disposal methods.
9. **Vacuum dust.** Vacuum any dust or chips in the area where the component was located.

10. **Replace component** (optional).
11. **Cleanup.** Conduct cleaning (see Chapter 14).
12. **Conduct clearance.** Conduct clearance and reclean if necessary.

Enclosure Methods – How To Do It

1. **Post warnings on affected components.** Stamp, label, or stencil all lead-based painted surfaces that will be enclosed with a warning approximately every 2 feet both horizontally and vertically on all components. The warning should read: "Danger: Lead-Based Paint." Deteriorated paint should not be removed from the surface to be enclosed.
2. **Determine whether low- or high-dust job.** Prepare the worksite in accordance with guidance in Chapter 8; avoid high-dust jobs and procedures.
3. **Identify enclosure.** Attach a durable drawing to the utility room or closet showing where lead-based paint has been enclosed in the dwelling.
4. **Plan for monitoring.** Plan for annual monitoring of the enclosure by the owner.
5. **Repair substrates.** Repair unsound substrates and structural members that will support the enclosure, if necessary.
6. **Select enclosure material.** Select appropriate enclosure material (drywall or fiberboard, wood paneling, laminated products, rigid tile and brick veneers, vinyl, aluminum, or plywood).
7. **Prepare electrical fittings.** Install extension rings for all electrical switches and outlets that will penetrate the enclosure.
8. **Clean floors.** If enclosing floors, remove all dirt with a vacuum to avoid small lumps in the new flooring.
9. **Seal seams.** Seal and back-caulk all seams and joints. Back-caulk means applying caulk to the underside of the enclosure.
10. **Anchor enclosures.** When installing enclosures directly to a painted surface, use adhesive and then anchor with mechanical fasteners (nails or screws).
11. **Conduct cleanup.**
12. **Arrange for clearance.** Have a certified risk assessor or inspector technician conduct clearance testing and provide documentation.

Paint Removal Methods – How To Do It

1. **Use only approved removal methods.** Be sure all paint-removal methods are not prohibited methods. Avoid the following:
 - a. Open flame burning or torching.
 - b. Heat guns operating above 1100 °F.
 - c. Machine sanding or grinding without a HEPA vacuum exhaust tool.
 - d. Abrasive blasting or sandblasting without a HEPA vacuum exhaust tool.
 - e. Paint stripping in a poorly ventilated space using volatile stripper.
 - f. Dry scraping (except for limited areas).
2. **Determine whether low- or high-dust job.** Prepare the worksite in accordance with guidance in Chapter 8; avoid high-dust jobs and procedures.
3. **Ensure safe use of heat guns.** For heat gun work, provide fire extinguishers in the work area and ensure that adequate electrical power is available. Use for limited areas only. Train workers to avoid gouging or abrading the substrate.
4. **When using mechanical tools, USE only HEPA-equipped tools.** Be sure workers keep the shroud against the surface being treated. Vacuum blasting and needle guns should not be used on wood, plaster, drywall, or other soft substrates. Observe the manufacturer's directions for the amount of vacuum airflow required.
5. **Wet scrape.** For wet scraping, use a spray bottle or wet sponge to keep the surface wet while scraping. Apply enough water to moisten the surface completely, but not so much that large amounts run onto the floor or ground. Do not moisten areas near electrical circuits.
6. **Use off-site chemical stripping facilities, if feasible.** For chemical paint removers, determine if the building component can be removed and stripped off-site. Off-site stripping is generally preferred to on-site paint removal. Observe all manufacturers' directions for use of paint removers.
7. **Remove components carefully.** For off-site stripping, determine how to remove the component. Score the edges with a knife or razor blade to minimize damage to adjacent surfaces. Punch or tag the building component if similar building components are also being stripped off-site (e.g., doors). This will ensure that the individual component is reinstalled in the original location. Inform the off-site paint remover that lead-based paint is present before shipping. Wrap the component in plastic and send to the off-site stripping location. Clean all surfaces before reinstallation to remove any lead residues by vacuuming all surfaces, cleaning with other lead specific or all-purpose cleaners detergents, and vacuuming again. Conduct cleanup and clearance.
8. **Test effectiveness of on-site stripper, if used.** For on-site paint removal, first test the product on a small area to determine its effectiveness. Chemical paint removers may not be effective or desirable on exterior, deteriorated wood surfaces, aluminum, and glass. Provide neoprene, nitrile, rubber, or polyvinyl chloride (PVC) gloves (or other type of glove recommended by the manufacturer); face shields; respirators with combination filter cartridges for leaded-dust and organic vapors (if appropriate); and

chemical-resistant clothing. Be sure to select the right type of organic vapor filter cartridge, gloves, and clothing for the specific chemical being used. Portable eyewash stations capable of providing a 15-minute flow must be on-site. Apply the chemical and wait the required period of time. Maintain security overnight to prevent passersby from coming into contact with the chemical. For caustic chemical paint removers, neutralize the surface before repainting using glacial acetic acid (not vinegar). Repaint and conduct cleanup and clearance.

9. **Dispose of waste properly** (see Chapter 10).
10. **Conduct cleanup.**
11. **Arrange for clearance.** Have a certified risk assessor or lead-based paint inspector conduct a clearance examination and provide documentation (see Chapter 15).

Soil and Exterior Dust Abatement – How To Do It

1. **Identify any soil hazard.** Determine if a soil-lead hazard exists. For a hazard to exist, a total of at least 9 square feet of soil in a single yard or area must be bare and soil concentrations must be equal to or exceed either 1,200 $\mu\text{g/g}$ of lead for the yard or building perimeter or 400 $\mu\text{g/g}$ of lead for small, high-contact play areas. Bare soil above these levels should be treated by either interim controls or abatement. Soil abatement is most appropriate when levels of lead are extraordinarily high (equal to or greater than 5,000 $\mu\text{g/g}$) and when use patterns indicate contact frequency and exposure will be high.
2. **Optionally, collect pre-abatement soil samples.** As an option, collect pre-abatement soil samples to determine baseline levels. These samples need not be analyzed if post-abatement soil samples are below applicable clearance levels.
3. **Determine soil abatement method.** Determine the method of soil abatement (soil removal and replacement, soil cleaning, or paving). Soil cultivation (rototilling or turning over the soil) is not recommended.
4. **Prepare carefully for paving.** If paving, use a high-quality concrete or asphalt. Observe normal precautions associated with traffic load weight and thermal expansion and contraction. Obtain any necessary permits. Keep soil cultivation to a minimum.
5. **Plan soil removal carefully.** If removing and replacing soil:
 - ✦ Determine if waste soil will be placed in an on-site or off-site burial pit. Prepare vehicle operation and soil movement plan. Test new replacement soil (should not contain more than 400 $\mu\text{g/g}$ lead).
 - ✦ Contact the local information source to determine location of underground utilities, including water, gas, electric, cable TV, and sewer, or contact each utility individually. Mark all locations to be avoided.
 - ✦ Remove fencing if necessary to allow equipment access and define site limits with temporary fencing, signs, or yellow caution tape.
 - ✦ Tie and protect existing trees, shrubs, and bushes.
 - ✦ Have enough tools to avoid handling clean soil with contaminated tools.

- ✦ Remove soil.
 - ✦ Clean all walkways, driveways, and street areas near abatement area.
 - ✦ Replace soil at proper grade to allow drainage.
 - ✦ Replacement soil should be at least 2 inches above existing grade to allow for settling.
 - ✦ Install new soil covering (grass or sod) and maintain it through the growing season.
 - ✦ Have enough workers and equipment available to complete the job in 1 day.
6. **Manage disposal of soil waste carefully** (see Chapter 10).
 7. **Conduct final cleanup and visual inspection for clearance** (see Chapter 15).
 8. **Provide walk-off mat(s) for residents.** Provide walk-off doormats to residents and educate them on the benefits of removing shoes at the dwelling entryway.

I. Principles of Lead-Based Paint Hazard Abatement

A. Longevity of Abatement

There are several approaches to abatement. Abatement is either: the removal of the building component, the removal of the paint itself, or the long-lasting – at least 20 years – enclosure or encapsulation of lead-based paint hazards. (For enclosure, see Section III of this chapter, and for encapsulation, see Chapter 13.) From a public health perspective, properly conducted abatement is the preferred permanent or long-lasting response to lead hazards. Abatement has two principal advantages: it provides a long-term solution, and little (if any) monitoring or reevaluation of the treated surface is necessary because failure is less likely to occur. Abatement treatments provide longer-lasting safe conditions than interim controls because the effectiveness of the work is less dependent on resident action, maintenance of housing stock, the conscientiousness of property managers, and the attention of maintenance workers during repair.

As used in this chapter, abatement can mean either correction of lead-based paint *hazards* (as defined in Title X) or removal, “permanent” encapsulation or “permanent” enclosure of all lead-based paint, as describe below. The methods explained in this chapter apply to abatement of both lead-based paint hazards *and* lead-based paint. From the Federal perspective, construction activities intending only to remodel, renovate or paint, are not considered abatement. Abatement does include work intending to permanently eliminate lead-based paint or lead-based paint hazards.

Interim controls, abatement, or a combination of the two are acceptable methods of addressing lead-based paint hazards. In contrast to interim controls, lead-based paint abatement refers to a group of measures that can be expected to eliminate or reduce exposures to lead hazards for at least 20 years under normal conditions. As 20 years is the expected lifespan of many commonly used building components, abatement is the closest one can get to a “permanent” solution in housing. The abatement methods described in this chapter should be capable of lasting 20 years under typical conditions. Any methods developed in the future that also last 20 years will be acceptable as abatement methods. This orientation toward performance standards should provide owners and the abatement industry with opportunities for innovation and flexibility, ensuring that the abatement method selected is the one that is most cost effective for a particular component.

The term “abatement” also includes a number of other activities that are not directly related to the work itself, but that must be included in the overall effort for the abatement to be successful. These activities include lead hazard evaluation, planning, cleaning, clearance, and waste disposal and are covered elsewhere in these *Guidelines*. The reader must study and understand the material in these other chapters prior to undertaking an abatement project. This chapter alone does not provide all the information necessary to complete a successful abatement job. When abatement is performed inadequately, or without sufficient protection, lead exposures to children increase (Amitai, 1987; Chisholm, 1985; Farfel, 1990; Rabinowitz, 1985a). When performed properly, abatement is known to be effective (Amitai, 1991; Staes, 1994; HUD, 1991; Jacobs, 1993a; Farfel, 1994a; Staes and Rinehart, 1995).

Abatement refers to any measure designed to permanently eliminate lead-based paint or lead-based paint hazards in accordance with standards established by the U.S. Environmental Protection Agency (EPA) pursuant to Title IV of the Toxic Substances Control Act (TSCA). Abatement strategies include removal of lead-based paint; enclosure of lead-based paint; encapsulation of lead-based paint (according to the standards and procedures set forth in Chapter 13); replacement of building

components coated by lead-based paint; removal of lead-contaminated dust; removal or covering of lead-contaminated soil with a durable covering (not grass, gravel, or sod, which are considered interim control measures); and preparation, cleanup, disposal, post-abatement clearance testing, recordkeeping, and monitoring (if applicable).

More than any other abatement method, on-site paint removal involves the greatest degree of disturbance and dust generation. Therefore, on-site removal of lead-based paint from a substrate should be carried out only if abatement rather than interim control is required and no other abatement method is feasible. For example, removal of paint from metal doorframes may be the only feasible abatement option, especially if the frames cannot be removed or enclosed and the paint cannot be stabilized. Paint removal may increase the level of lead in household dust and make effective cleaning more difficult. Even if dust clearance standards are met, any increase in leaded-dust levels over baseline levels means some increase in exposure. Furthermore, all paint removal methods leave behind some residues embedded in the substrate, which could continue to pose a hazard if the surface from which the paint is removed is later disturbed. Therefore, paint removal is the most invasive of abatement methods and should be avoided if possible.

Abatement also offers the greatest challenge to planning, since it is often performed in the context of other building construction work, while interim controls are more likely to be performed alone or as part of other maintenance work.

In fact, many forms of abatement require special construction skills in addition to protective measures and dust control techniques. For example, one of the most common forms of lead-based paint abatement is window replacement. Abatement contractors need to possess adequate carpentry skills to install (for example) new windows, as well as the demolition, dust containment, and cleaning skills held by abatement contractors. While providing some guidance, this chapter is not intended to impart carpentry, painting, resurfacing, and other construction knowledge required for most types of abatement. Abatement contractors should either subcontract this type of construction work or acquire the necessary construction skills before the job begins. Of course, all construction work must be performed in accordance with local code requirements and all abatement work must be done by certified firms and individuals.

Many forms of abatement can be integrated into construction work, which provides an opportunity to install systems that will have long-term impact. For example, whenever building components, such as doors and windows, are replaced, the *Guidelines* recommend that they be replaced with products that are more energy efficient. This will help reduce energy consumption and increase cost efficiency.

EPA has established standard training curricula and regulations for the training and certification of all individuals engaged in lead-based paint risk assessment, inspection, and abatement, and minimum performance standards for the purpose of certifying individuals who supervise lead abatement projects and conduct clearance examinations. EPA's regulations are generally implemented through State, Tribal, or territorial programs. All abatement contractors and firms must be certified to perform this type of work, and all abatement workers and supervisors must be trained and certified. Certification of abatement contractors and completion of clearance examinations by independent, certified risk assessors, lead-based paint inspectors or sampling technicians, ensures that abatement work is conducted properly and safely.

For exterior work, as an optional quality control procedure, consider collecting pre-abatement soil samples, which may not be analyzed until post-abatement soil samples have been collected, analyzed and compared to clearance standards. If post-abatement soil levels are below applicable

limits, the pre-abatement samples need not be analyzed. Soil sampling is not required by EPA regulations as part of clearance. This is an optional activity (see Chapter 15).

B. Prohibited Abatement Methods

HUD and EPA prohibit certain techniques (see 24 CFR 35.140, and 40 CFR 745.227(e)(6), respectively) because they are known to produce extremely high levels of lead exposure and make dwellings difficult to clean up. In addition, for abatement in federally-owned and assisted residences, HUD prohibits an additional technique if toxic volatile chemical stripping compounds are used, in order to prevent hazardous levels of the chemicals in the air of the residence being abated. See Table 12.1. State and local regulations may also prohibit some or all of these techniques or other techniques.

These *Guidelines* recommend strongly against the use of uncontained hydroblasting. Removal of paint using this method can spread paint chips, dust, and debris beyond the work area. Pressure washing is also discouraged. Contained pressure washing at less than 5,000 pounds per square inch (PSI) can be done within a protective enclosure to prevent the spread of paint chips, dust, and debris. Water runoff should also be contained (see Chapter 8).

Table 12.1 Prohibited Lead-Based Paint Abatement Methods.

1. Open flame burning or torching (includes propane-fueled heat grids).
2. Machine sanding or grinding without HEPA local vacuum exhaust tool.
3. Abrasive blasting or sandblasting without HEPA local vacuum exhaust tool.
4. Heat guns operating above 1100° F or charring the paint.
5. Dry scraping (except for limited surface areas).
6. Paint stripping in a poorly ventilated space using volatile stripper.

C. Vacuum Cleaning

In this chapter, vacuum cleaning is recommended a number of times. These *Guidelines* recommend that a HEPA-filtered (high-efficiency particulate air) vacuum should be used if possible, but that a high-quality household or commercial vacuum should be used if a HEPA vacuum is not available. (Note that, for RRP work, EPA's RRP Rule requires that any vacuum cleaners used be HEPA-filtered; see Chapter 11.) See Section III.A of Chapter 14 for a discussion of factors in choosing an effective vacuum cleaner and Section V of Chapter 11 for cleaning of carpets.

D. Periodic Monitoring and Reevaluation

Among the advantages of abatement compared to interim controls is that ongoing monitoring by the owner is either unnecessary (in the case of complete lead-based paint removal) or relatively

simple (in the case of enclosure or encapsulation). Failures of enclosures and encapsulations are relatively easy to observe visually. (Failures should be repaired immediately. See Chapter 6.) Also, whereas professional independent reevaluation may be required at 2-year intervals for some federally assisted multi-family properties that have been treated with interim controls or standard treatments, such reevaluation is not necessary for properties that have had all lead-based paint abated. This is true even if lead-based paint has been enclosed or encapsulated, *provided* ongoing visual monitoring and lead-safe maintenance are performed by the owner in assisted units as recommended in Chapter 6. (Also see Chapter 5 on reevaluation.)

Abatement can be undertaken after lead-based paint inspections or risk assessments determine the presence of lead-based paint or other lead hazards (see Chapters 3, 5 and 7 for a description of the differences between risk assessments and inspections). If this initial evaluation phase is not completed, then all painted surfaces must be presumed to contain lead-based paint. This presumption may be cost-effective if it is likely that all surfaces that might be treated contain lead-based paint or if the housing unit is to be rehabilitated and all surfaces and components will be either covered or replaced.

The cost of a carefully conducted lead-based paint inspections or risk assessments, however, is usually recovered by a more focused abatement effort, especially when component replacement or enclosure is considered. The cost savings of a more targeted abatement effort based on complete testing are noteworthy in the case of abatement as opposed to interim controls, because the costs of abatement are initially much higher than interim controls.

Recordkeeping

Recordkeeping is essential for all abatement methods. The location of enclosed or encapsulated lead-based paint must be made known to future residents and owners, who may undertake remodeling or repair efforts that could disturb the remaining lead-based paint and thereby create a lead-based paint hazard. Depending on the jurisdiction, the location of enclosed or encapsulated lead-based paint may need to be filed with the appropriate municipal agency for future reference when the agency needs to issue construction permits for renovation. Provide proper disclosure and notification to current tenants as well (see Appendix 6).

E. Types of Abatement

This chapter covers four types of abatement:

- ◆ Building component replacement.
- ◆ Enclosure systems (this section does not include encapsulation, which is addressed in Chapter 13).
- ◆ On-site and off-site paint removal.
- ◆ Soil removal or covering.

The available information on paint abatement methods is summarized in Table 12.2. The reader should not conclude that a particular method is not permitted simply because it is not discussed here. With the exception of the prohibited techniques listed above, new techniques should be developed, studied, and reported to HUD, the Centers for Disease Control and Prevention (CDC), EPA, and other

Government agencies for distribution to the public.

F. Encapsulation

Encapsulants are coatings or rigid materials that rely on adhesion to a lead-based painted surface and are not mechanically fastened to the substrate. Encapsulants are considered separately in Chapter 13. *Enclosures* (not to be confused with encapsulants) are defined as durable, rigid construction materials that are mechanically fastened to the substrate with screws, nails, or other mechanical fastening system that can be expected to last at least 20 years under normal conditions. (See Section III of this chapter on enclosures.) These *Guidelines* do not consider encapsulation to be the same as enclosure. Depending on the particular circumstances and product, encapsulation can be either a form of paint stabilization (an interim control) or abatement (see Chapter 13).

G. Relationship to Renovation, Repainting, Remodeling, Rehabilitation, Weatherization, and Other Construction Work

Many forms of abatement involve the same physical work as other types of construction often performed in housing. In many cases, only the intent of the work differs. Lead-based paint abatement is intended to produce conditions that prevent lead poisoning. Other construction work is intended, among other things, to improve aesthetic living conditions, bring the dwelling up to code, preserve historical evidence, and promote energy efficiency. For example, depending on its intent, window replacement could be considered to be a lead-abatement method, renovation work, or energy conservation/weatherization work.

HUD's Lead Safe Housing Rule requirements vary depending on the type and amount of federal housing assistance (see Appendix 6) (HUD, 1999). The Rule applies to certain private owners and specific federally-funded housing activities. Individuals at the State or local level who are responsible for making determinations about weatherization or rehabilitation projects must have a clear understanding of the federal requirements applicable to specific funding sources. DOE-funded weatherization work is considered to be "renovation" under EPA's RRP rule (See Chapter 4; see also DOE, 2002).

It is well known that lead-based paint-disturbing activities have the potential to create dust-lead hazards. Therefore, regardless of funding source, HUD strongly recommends that all activities disturbing known or presumed lead-based paint use trained workers, lead-safe work practices and undergo a clearance examination.

While the intentions of each of these activities differ, experience shows that many of them can be combined in order to yield savings. In the public housing program, for example, most of the abatement occurs in the context of housing modernization or rehabilitation work. This approach has proven to be feasible and cost effective.

Congress recognized the wisdom of combining lead abatement with rehabilitation work. Under Title X, any residential construction job receiving more than \$25,000 per dwelling unit in Federal rehabilitation funds is **required** to have all lead-based paint hazards on the property abated. If \$5,000 to \$25,000 per dwelling unit in Federal rehabilitation funding is received, either interim controls or abatement must be implemented (HUD, 2009).

Finally, lead abatement procedures cannot guarantee that children will not be exposed to lead in the future. Enclosure systems or encapsulants could fail, exposing the hazard again. Soil coverings could also fail, or other sources of lead could recontaminate the soil, resulting in exposures. Surfaces that were made cleanable may deteriorate or may not be kept clean, allowing leaded dust to re-accumulate to

hazardous levels. Nevertheless, abatement constitutes the most extensive and protective intervention currently available. If practiced properly, abatement will greatly reduce the risk of lead poisoning.

II. Building Component Replacement

Building component replacement is defined as the removal of doors, windows, trim, and other building items that contain lead-based paint hazards and their replacement with new lead-free components. Component replacement is the most desirable abatement method because it offers a permanent solution to the lead-based paint problem for the particular component(s); but it may not be feasible for all of the LBP present. If done properly, it also minimizes contamination of the property and exposure of the workers. In addition, building component replacement can be integrated into general building rehabilitation activities. Components, such as doors and windows, should be replaced with more energy efficient models, which will help to reduce energy consumption and increase cost efficiency. In some cases, component replacement may cost less than abatement, especially when ongoing maintenance and energy costs are considered. Component replacement may be more expensive, however, especially for historic preservation projects, as new building components that match the originals may have to be custom made. For some historic preservation projects, replacement may not be permitted (see Chapter 18).

The skills required to perform building component replacement properly are similar to those of the skilled carpenter. For example, it is important to know how the various building components were joined so that they can be taken apart with minimal contamination and damage to adjoining surfaces.

The owner may choose to simply remove certain types of components without replacement. This is acceptable as long as applicable codes are observed. HUD does not recommend reinstalling salvaged building components containing lead-based paint in other properties unless the lead-based paint is removed.

A. Worksite Preparation

The appropriate worksite preparation level should be selected based on the size of the building component, its state of deterioration, and the ease of removal. The more deteriorated the component and the larger the surface area to be disturbed, the higher the worksite preparation level should be. Certified risk assessors or certified abatement supervisors or trained project designers may determine the appropriate worksite preparation for a project (see Chapter 8).

1. Security

Security of the premises is an important issue. If windows and doors are removed but not replaced on the same day, it may be necessary to install temporary barriers over window and door openings to prevent vandalism and theft over night. Therefore, every effort should be made to remove and replace doors and windows on the same day.

Table 12.2 Comparison of Lead-Based Paint Abatement, Component Removal and Enclosure

	Abatement and Removal						Enclosure			
Attributes	HEPA Needle Gun	Heat Gun	HEPA Sanding	Remove/ Replace	Caustic Paste/ Solvent	Off-site Stripping	Plywood Paneling	Gypsum	Prefab Metal	Wood, Metal, Vinyl Siding
Skill Level	High	Moderate	Moderate	High	Moderate	Moderate	Moderate	Moderate	High	Moderate
Aesthetics (1)	Erodes surface	Gouges	Gouges/ roughens	Good	Gouges	Good	Good	Good	Good	Good
Applicability	Very low, limited to metal and masonry	Wide, can damage some components	Low, limited by surface contour	Wide, dependent on skill	Wide, can damage some components	Low, components only	Wide, walls	Wide, walls and ceilings	Varied, limited by components	Wide, walls
Lead Presence	Largely removed	Largely removed	Largely removed	Removed	Largely removed	Largely removed	Remains	Remains	Remains	Remains
Generation of Hazardous Waste (2)	Low to moderate	Low to moderate	Low to moderate	Low	High	High, but maintained off-site	Low	Low	Low	Low
Weather Limitations	Moderate	High	Moderate	Minimal	High	None	Minimal	Minimal	Minimal	Minimal
Applicable to Friction Surface	Some	Yes	Some	Yes	Yes	Yes	No	No	Yes	No
Surface Speed of Methodology	Slow	Slow	Slow	Moderate	Slow	Can be slow, requires coordination	Moderate	Moderate	Moderate	Moderate
Training Required	High	Moderate	Moderate	High	Moderate	Moderate	High	High	High	High
Capital Required	High	Low	Moderate	Moderate	Low	Low	Low	Low	High	Moderate
Worker Protection Required (3)	High	High	High	Moderate	High	Moderate	Low	Moderate	Low	Low
Finish Work Required	Tentatively	Moderate	Moderate	Low	Moderate	Moderate	Wide	Wide	Limited	Wide
Product Availability	Limited	Moderate	Limited	Wide	Moderate	Limited	Moderate	Moderate	Wide	Wide
Durability	Long	Long	Long	Long	Long	Long	Moderate	Moderate	Moderate	Moderate
Labor Intensity	High	High	High	High	High	Moderate	High	High	High	High
Overall Safety (3)	Moderate	Moderate	Moderate	Very high	Moderate	High	High	High	High	High
Surface Preparation	None	None	None	None	Minimal- adjacent areas	Minimal-hardware removal	Minimal	Minimal	Minimal	Minimal
Cost	High	High	High	High	High	High	Moderate	Moderate	High	Moderate

Notes: (1) – The degree of damage to the surface will depend on the expertise of the operator.

(2) – Concentrated lead-based paint waste or sludges from paint removal using caustic or organic solvent removers have to be TCLP tested to determine if they are hazardous waste. See Chapter 10.

(3) – Any construction work involves increased safety risks.

2. Planning for Waste Storage

While most lead hazard control work in housing is exempt from hazardous waste regulation, discarded architectural components must still be properly managed (see Chapter 10). All building components coated with lead-based paint should be stored in a secure, locked area, as should all lead-contaminated waste until it is disposed of. They should not be sold or released to anyone who might reinstall them in another dwelling unless all of the lead-based paint is removed first. Therefore, it is important to identify where waste will be stored and how it will be secured during the project. (See Section II.D, Transportation and Storage of Waste, below.)

B. General Procedures for Building Component Replacement

- ◆ Using a garden sprayer or atomizer, lightly mist the component to be removed with water to help keep the dust down during the removal process. Before applying the water, be sure there are no electrical circuits inside the component. (If electrical circuits are present inside the component, they must be turned off and disconnected before removal. No water mist should be applied even if electrical circuits are turned off or de-energized.)
- ◆ Using a utility knife or other sharp instrument, carefully score all affected painted seams. This will provide space for a pry instrument and will minimize paint chipping and dust generation during removal.
- ◆ Remove any screws or other fasteners. Using a flat pry instrument and a hammer, carefully pry the affected building component away from the surface to which it is attached. The pry bar should be inserted into the seam at the nail (or other fastening device) at one end of the component and pressure applied. This process should be repeated at other fastening locations until the end of the component is reached. The component will be removed intact and chip and dust generation will be minimized when prying is done this way. A pry point pad or softener may be required to minimize damage to adjoining substrates. Wider replacement trim can sometimes be used to cover adjacent area damage.
- ◆ As there is often a considerable amount of leaded-dust underneath or behind the component being removed, begin cleanup immediately after the individual component has been removed.
- ◆ Carefully remove or bend back all nails (or other fastening devices) and wrap the component in durable, puncture-resistant plastic sheeting and seal with duct tape. Wrapping components in plastic may not be necessary if the dwelling is vacant and if the truck and the pathway to the truck are lined with plastic. Use a vacuum to remove any dust that may have accumulated behind the components as soon as they have been removed. Vacuuming may be performed by another person while the removal is underway. Preparing the area for the new component (e.g., squaring, reducing, or enlarging openings) may also release accumulated dust that should be removed. Dispose of wrapped components properly.
- ◆ Bring new lead-free components into the work area only after all dust-generating activity is complete and the dust has been cleaned up by at least one vacuuming.

C. Removal and Replacement Procedures for Specific Components

1. Baseboards, Casings, and Other Trim

The term “other trim” applies to such components as window casings, interior sills (stools), aprons, door casings, baseboards (including caps and shoe moldings), chair rails, exterior fascia, soffits, shutters, and crown moldings (see Figure 12.1). Components with lead-based paint should be removed as described in the previous section.



FIGURE 12.1 Removing and Replacing Trim: interior (left), exterior (right).

New lead-free components should be installed in a professional manner using standard carpentry practices. In situations where trim is being applied to lead-based painted walls, ceilings and floors that were enclosed, or casings for windows or doors where the jambs have been enclosed, the trim should be back-caulked before installation as an added precaution. Back-caulking refers to the application of caulk to the perimeter of the backside of rigid building materials to seal them before installation, preventing leaded-dust from entering the living space through cracks and crevices. Use a high quality caulk that is warranted for at least 20 years.

2. Windows

The term “window” applies to the sash, the stop and parting beads, window jambs, door frame and trim. Affected components should be removed as described in Section B. Window replacement can involve the removal of a wooden or metal unit and the installation of a wood, vinyl, or metal unit in its place (see Figure 12.2 and 12.3). If the jamb is not removed, it can often be enclosed by the new window frame system, which should be caulked and fastened. The remaining exterior portion of the jamb, if any, can be wrapped with coil stock (aluminum or vinyl or equivalent) after back-caulking. In situations where window units must be replaced in kind (e.g., historic preservation), the jambs should be removed and replaced also to make sure that no friction surfaces coated with lead-based paint remain. Generally, friction surfaces should not be painted.



FIGURE 12.2 Protecting the interior of a unit for exterior window abatement.



FIGURE 12.3 Replacement window system.

Depending on the building construction, it may be possible to remove the entire window system. The new lead-free components should be installed in a professional manner using standard carpentry practices. Windows may be replaced from the interior or exterior of the property. If windows are replaced from the exterior and only exterior clearance is planned, the interior of the unit must be protected by polyethylene sheeting.

3. Interior and Exterior Doors

Interior and exterior doors include the doorstops, door jambs and door frame (see Figure 12.4). Affected components should be removed as described above. Typical door replacement usually involves the removal of a wooden unit and the installation of a pre-hung wooden unit in its place. In this type of door replacement, the jamb is rarely removed, but is usually saved and enclosed with the new doorjamb after back-caulking. Wooden jamb extensions or coil stock, properly back-caulked, can be used to enclose any remaining portion of the jamb. In situations where pre-hung door units are not permissible (e.g., code requirements, historic preservation regulations), the original jamb should also be removed and replaced, if possible, to make sure that no friction surfaces coated with lead-based paint remain. If the jamb cannot be replaced, the stop should be removed and replaced with new material after the old jamb is carefully stripped.

Primers on Metal Components

In regard to whether lead-containing primers applied at the factory to metal doors, door frames, railings and other metal building components could create a hazard to people, if it can be determined that the lead on metal doors and frames resides only in the primers, and that the primers were factory applied and are in sound condition, then the primers themselves need not be abated or removed. This is an exception to the general lead hazard control requirement. However, finish coats of paint that cumulatively contain lead of 1 milligram per square centimeter or greater, or the alternative standard of 0.5 percent by weight or greater, are treated as lead-based paint. If laboratory analyses of samples of the field-applied finishes are negative (no lead-based paint), the metal doors and frames do not require abatement but should be monitored to ensure that

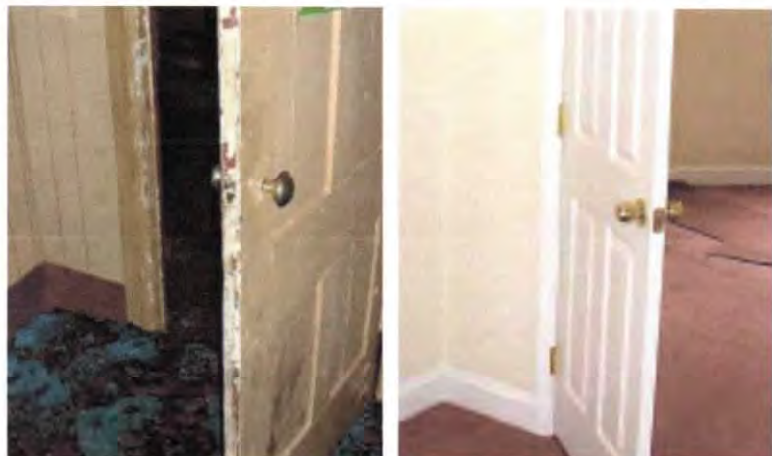


FIGURE 12.4 Pre-and post-abatement interior doors.

the lead-bearing primer does not become defective. If the base metal is exposed while sampling the field-applied finish paint, then the existence of a permanent bond cannot be assumed and the entire sample should be analyzed for presence of lead. Any damage to the primer resulting from sample collection should be repaired immediately in a manner that restores the integrity of the primer coat.

For the metal doors and frames under this exception, primers should be intact and doors should be operating properly, free from impact or abrasion between moving parts that will damage any surfaces. If this exception for factory-applied primers is used, risk assessors should advise property owners or building managers of the importance of continued monitoring of the paint surfaces to ensure that

subsequent surface deterioration or other factors do not result in exposing defective lead-based paint surfaces (the primers). Under this exception, property owners or building managers must commit to a plan for ongoing monitoring of the condition of the painted surfaces. The subsequent appearance of rust indicates a failure of the paint and primer, and the component must be abated.

Although unlikely, adhesion of the primer could be a problem. A simple "x" cut or crosshatch test will show if this is a problem. If adhesion is poor, the paint will tend to flake away from a cut. An adhesion test should also give an indication of the number of coats; color of finish versus primer (which would be orange if pigmented with red lead or bright colors such as yellow if pigmented with lead chromate); and thickness of layers. Of course, other colors of lead-based paint may also be present. Any damage resulting from an adhesion test should be repaired immediately in a manner that restores the integrity of the primer and finish coats to prevent subsequent deterioration.

When it can be determined that lead-based paint is present in a field-applied coating over an intact factory-applied primer, and paint removal is the abatement method of choice, only the field-applied finish coatings need to be removed. An intact primer need not be removed.

4. Kitchen and Bathroom Cabinets

Old lead-based painted kitchen and bathroom cabinets can be removed and replaced. Affected cabinets should be removed as described above. Lead-based paint on walls to which cabinets are attached should not be disturbed during cabinet removal. Applying masking tape around the cabinet perimeter and vacuuming immediately after removal will help to control leaded-dust.

5. Railings

Railings include the railing caps, banisters, posts and spindles (balusters), and newel posts that can be removed and replaced (see Figure 12.5). Railings may or may not be part of a stair system. Affected components should be removed as described in Section B. New lead-free components should be installed in a professional manner using standard carpentry practices. Metal railings and other grillwork can be removed and taken off-site for contained abrasive blasting or other forms of paint removal, then reinstalled after repainting. See Section II.C.3, above, regarding lead-containing factory-applied primers.

6. Exterior Siding

Many materials are used on a dwelling's exterior walls. Materials of concern are generally painted wood or brick. Under most conditions, deteriorated siding identified as a lead hazard will be abated through enclosure without removing the original material. However, in restoration or historically significant projects, it may be replaced. Siding is now available that closely resembles wood. If the siding is to be replaced, the affected siding should be removed. Care must be taken to avoid contamination of soil walkways, window air conditioners, and the building interior (see Figures 12.6 and 12.7).



FIGURE 12.5 A metal railing before abatement.



FIGURE 12.6 Installation of replacement siding.



FIGURE 12.7 Certified workers are needed to replace siding when the project's intent is lead abatement.

7. Interior Walls

If abatement is performed along with gut rehabilitation, old lead-based painted interior walls and ceilings may be removed and replaced. This activity, unlike those previously described, is more like demolition work. In addition to the layers of heavy duty plastic used to protect the floors from contamination, sheets of plywood should be placed over the plastic to protect it from damage during aggressive demolition, and to make cleanup of debris easier. Prior to demolition, affected areas should be sprayed lightly with water. Workers should wear ribbed rubber boots when walking on slippery, wet plastic. If ladders must be used, the plastic should be punctured to provide secure anchoring of the footings to the surface underneath. Ladder footings should not be placed on top of the plastic because this will create a slip hazard. Excessive water should not be applied, and the creation of puddles and streams that may flow through breaks or gaps in the containment should be prevented.

Removing plaster walls as a means to remove all of the old lead-based paint generates a great deal of dust. Unless this is required as part of a renovation occurring at the time of the abatement, the option of enclosure should be considered when determining abatement strategies.

D. Transportation and Storage of Waste

Building component replacement and demolition generate a considerable amount of waste material. Lead-contaminated building components and demolition debris should be handled carefully (see Chapter 10). Bulk debris such as doors, windows, and trim should be wrapped in durable puncture resistant plastic sheeting and sealed with tape. Smaller debris should be swept into heavy duty plastic bags after spraying. Exterior ground surfaces must also be protected. Outside storage needs to be secure and protect the ground (see Figure 12.8)

All debris should be removed from the site as soon as possible. In larger jobs where a dumpster is being used, it may be possible to eliminate the wrapping and bagging of bulk debris as long as the dumpster has a lockable lid and is lined with plastic and secured with a fence and signs.



FIGURE 12.8 Line surfaces with plastic in the work area (left) and pathways (right)

Contaminated building components and demolition debris should be transported in covered vehicles to an appropriate disposal facility. Old building components coated with lead-based paint should not be recycled unless the paint is removed beforehand. See Chapter 10 for a full discussion of waste disposal.

III. Enclosure Methods

A. Definition

Enclosure is the installation of a rigid, durable barrier that is mechanically attached to building components, with all edges and seams sealed with caulk or other sealant. Surfaces with lead-based paint are enclosed to prevent access and exposure and to provide a dust-tight system. Unlike encapsulation, the enclosure system is not dependent on the painted surface of the substrate for its durability. Enclosures should have a design life of at least 20 years. While adhesives are frequently used for initial mounting purposes and for assistance in covering the lead-based painted surface with the enclosure material, it is primarily mechanical fasteners that give enclosures their longevity.

Standard construction materials are employed to create a solid and relatively rigid end product (see Appendix 7.2 for a description of materials commonly employed for lead-based paint enclosure). The primary differences between enclosure for lead-based paint and ordinary construction include careful sealing of all edges, joints, and seams to create a dust-tight (not necessarily air-tight) enclosure; site containment; worker safety (particularly during any needed surface or substrate repairs); and special cleanup. There is generally little or no hazardous waste disposal and little degradation of the lead-based paint as part of the enclosure process, unless substrate repairs are necessary. The hazard and expense of removing deteriorated paint can be avoided when the enclosure material is mounted flush to a structurally sound lead-based painted substrate and all the seams are sealed. This method produces little leaded-dust (HUD, 1991). These advantages hold down labor costs compared to paint removal and building component replacement, although cleanup and clearance are still required. A lower level of containment can often be used as less dust is generated.

For broad surfaces such as walls, ceilings, floors, and siding, enclosure is often considerably cheaper and less hazardous than building component replacement and paint removal. However, enclosure does not remove lead-based paint from the property; instead, it makes the dwelling lead-safe.

B. Longevity of Enclosures

There is little doubt that hurricanes, earthquakes, tornados, and flooding can substantially compromise an enclosure's viability. Less dramatic but more common events can also increase the risk of lead exposure, such as damage to the enclosure by the occupant or water damage from a leaking roof, overflowing tubs, or broken pipes. Any type of enclosure is potentially vulnerable to water damage. Future occupants can also be threatened by remodeling endeavors that break through the enclosure.

1. Labeling of Surfaces to be Enclosed

A few simple procedures should be followed to promote lead safety in case an enclosure is breached. The surface to be enclosed should be labeled with a warning, "Danger: Lead-Based Paint." The label, spray-paint, or stamp lettering should be in permanent ink.

A durable drawing of the property floor plan should be mounted on a sturdy metal or wood base and affixed with screws to a wall in the utility room next to the electrical panel or at any other closet location that can be easily seen by maintenance personnel (see Figure 12.9). The drawing should be covered with plastic for protection. Enclosures should be highlighted on the diagram and identified as hazardous. (For a multi-family property, another copy of the drawing should be maintained in the property management office's file.)

2. Unsound Substrates

Any substrate material can be enclosed, including plaster, concrete block, brick, and concrete. All soft, moveable, or otherwise structurally unsound structural members should be repaired prior to enclosure if they are needed to support the enclosure. If repair is not feasible, then the defective area will need to be removed and enclosure will not be possible. Hazards associated with preparing the site for enclosure increase as more remedial work is needed. Structural repairs may require lead-based paint removal or component replacement, with all the accompanying safety protocols these practices entail. If the substrate is sound but the paint is deteriorating, stabilization or removal of deteriorated paint before the enclosure is installed should *not* be done because it will generate dust.

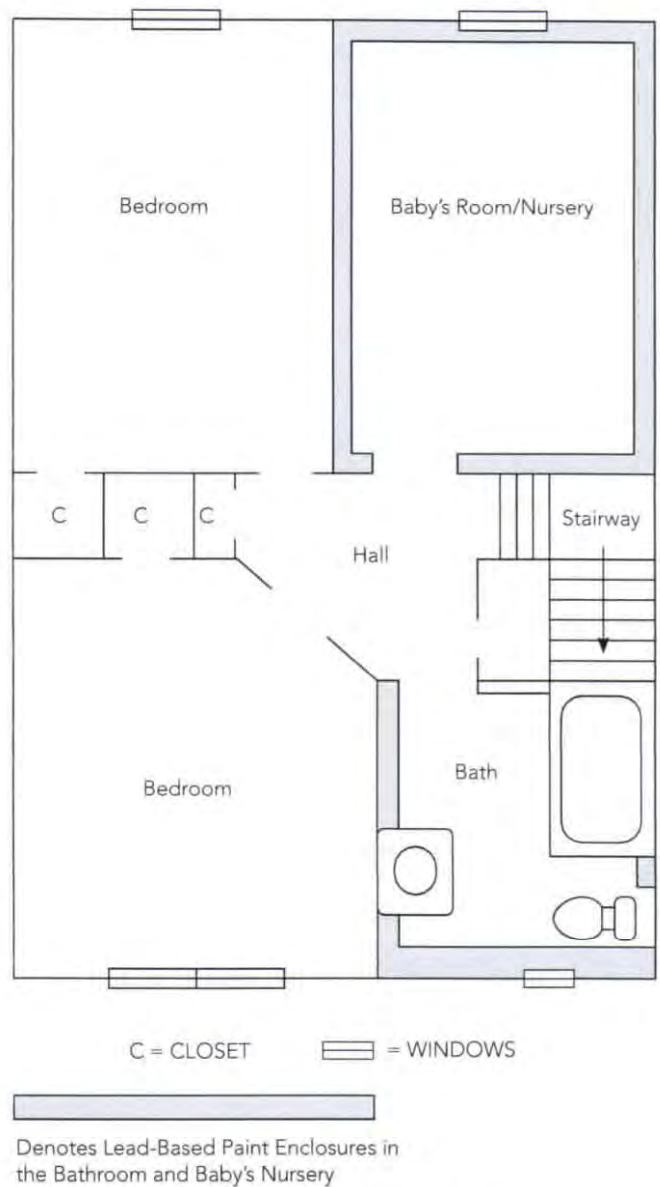


FIGURE 12.9 Example of a Diagram Showing the Location of Lead-Based Paint Enclosures.

3. Ongoing Monitoring and Reevaluation

Because the building components used for enclosure may be impacted during building use, or may shift or deteriorate, the property owner or manager must arrange for regular monitoring and repairs, as needed. Visual monitoring should be performed no less often than every two

years. If signs of wear or deterioration are apparent from visual assessments or other observations by maintenance and repair workers or during any reevaluation examination, the enclosure should be repaired using lead-safe work practices using a certified firm and workers, followed by clearance. In addition, residents should be instructed to notify management of the need for repairs on a timely basis. For HUD-assisted housing that is subject to periodic reevaluation, the monitoring of the performance of the enclosure should be part of that reevaluation to determine if deterioration or failure of the enclosure has occurred since the previous reevaluation.

C. Interior Surface Enclosure Materials

1. Wood Paneling

Wood paneling is an appropriate enclosure material, except for ceilings. It is of limited use, however, because of the difficulty of sealing seams around electrical outlets, switch boxes, and heating, ventilation, and air conditioning (HVAC) registers. There should be no gaps in the seams, outlets, boxes, and registers, which should all be screwed directly to the paneling and to any framing behind the panels. All seams should be caulked. Paneling made of composite board backing materials is vulnerable to dampness, particularly in below-grade situations such as basements. In some instances, the use of these materials may violate building and/or fire codes. On the other hand, plywood paneling may be stronger, more impact resistant, and more water resistant than other enclosure materials, such as drywall.

Paneling can be glued and mechanically fastened directly to the substrate, but the appearance is improved when the area to be covered is first furred or framed out and the paneling is anchored to these braces. The paneling should not extend past the depth of door or window frames or other trim pieces. Baseboards can be removed and the new cove base then glued directly to the paneling. Even heavy grades of paneling flex and vibrate when receiving mild impact. Over time, this could compromise the seal of the seams that join the paneling with other building components. Joints and edges must be fully supported; furring strips should be installed at the appropriate distance from each other, usually 12 inches apart. All seams at these transition points should be caulked before panel trim and corner moldings are installed as finish pieces.

2. Laminated Products

Laminated wall sheeting products, such as Marlite™, are designed to withstand surface moisture and are commonly used in bathrooms and kitchens. Their surfaces have a high sheen and clean easily. However, they may become defective when moisture gets behind the board's placement. This can occur from a leaking pipe or a seam opening in the bathtub/shower area. When a significant leak is detected, the enclosure must be reexamined.

3. Rigid Tile and Brick Veneers

Plastic and ceramic tile, synthetic brick and stone veneers, and other similar products are either glued or cemented directly to the painted surface. These products qualify as rigid encapsulants rather than enclosures because they are not mechanically fastened to the substrate. Regardless of whether they are enclosures or encapsulants, they tend to be inappropriate for broad application: The cost associated with labor and materials is often prohibitive for anything more than incidental use.

4. Drywall and Fiberboard

The steps to install drywall and fiberboard are shown in Table 12.3 and detailed specifications are provided by the Gypsum Association in Washington, DC (202-289-5440) Application and Finishing of Gypsum panel Products (GA-216-04). Available at <http://www.gypsum.org/download.html>.

Gypsum drywall or fiberboard is a very common and cost-effective interior finish. It is not difficult to locate skilled workers to install this product. Training materials are available from trade groups (Gypsum Association, 2004). When applied directly to a surface, the drywall is generally glued in place with construction adhesives and then mechanically fastened to the studs or structure behind the plaster. The screws must be long enough to go through the drywall, the plaster, and the wire mesh or lath and extend an inch into the stud or structure. To avoid having dust escape from the screw hole as the drilled screw displaces plaster, a dab of shaving cream can be applied to the area to be drilled.

Moisture-resistant greenboard should be installed in damp areas. It is difficult to completely control the long-term damaging effects of a severe moisture problem without invasive waterproofing and/or water diversion from the exterior of the property. Any type of enclosure is potentially vulnerable to water damage.

Table 12.3 Steps To Install Drywall and Fiberboard on Interior Walls.

- ✦ Check to make sure the depth of the trim will accommodate the thickness of the drywall (minimum of 3/8 inch preferred). If it does not, this method may not be suitable.
- ✦ Set up the plastic containment of the work area (see Chapter 8).
- ✦ Remove any trim being disposed of, and install the drywall over any cavity left by the removed moldings, except large cavities over 16 inches in any direction. Repair any structural deficiencies.
- ✦ Repair or remove any "soft" wall areas. Removal of painted plaster generates a great deal of leaded-dust.
- ✦ Use construction adhesive to glue the drywall directly to the surface being enclosed.
- ✦ Screw the drywall to the studs behind the existing wall. Caulk all seams that meet molding.
- ✦ Use extension rings to bring out electrical devices flush with the new gypsum based drywall and retrofit any HVAC registers. Caulk all seams.
- ✦ Tape and finish the drywall.
- ✦ Prime and paint the finished area, as well as the unenclosed surfaces in the same room so that all walls match the new installation. (See specifications and recommendations from the Gypsum Association.)

Quarter-inch thick drywall tends to conform to the contours and imperfections of the original substrate or wall, compromising the appearance of the finished product. To avoid this, use of 3/8-inch thick (minimum) drywall is recommended. The enclosed wall may in fact look much improved over the original wall. If the original wall surface is highly irregular, it may be necessary to install furring strips 12 inches apart and use 1/2-inch thick drywall to improve the appearance. If 1/4-inch thick drywall is used, it must be applied in accordance with the manufacturer's specifications (Gypsum Association, 2004).

D. Interior Building Components Suitable for Enclosures

All joints between drywall pieces should be taped and spackled with joint compound. Wherever the drywall meets wood framing or any other finish material (including electrical devices and HVAC registers), the seams should be sealed with a caulk or other sealant that has at least a 20 year warranty. Similarly, where sealed pipes penetrate an enclosure, the opening around the pipe must be sealed. Drywall is painted when installation is complete. Fastening schedules are available from industry trade groups (Gypsum Association, 2004).

1. Wood Trim and Drywall

The profile of the wood trim on windows and doors must be evaluated before overlaying an adjacent wall with drywall; the wall finish should protrude past the depth of the moldings. In homes built before 1960, this problem is less frequent because the trim tended to be more ornate and generally of thicker wood. Regardless of age, the problem is more likely to occur in multi-family public housing and institutional settings where the construction is basic and trim is thin.

If the drywall overlay is too thick, it may be possible to remove the baseboard and run the drywall to the floor. The baseboard can then be reinstalled over the new drywall (unless the baseboard itself presents a lead hazard, in which case it should be replaced). Obviously, care must be taken to avoid breaking the original baseboard during its removal. The seam at the bottom of the drywall should be sealed with caulk prior to the installation of the baseboard or cove base.

2. Electrical Outlets and Vents

All electrical devices, including switches and outlets, will need extension rings to bring those fixtures out flush with the new drywall overlay. A sealant or caulk should be used at cutouts for electrical boxes. Similarly, all grillwork at openings for heat vents and cold air returns should be retrofitted. These are minor but necessary steps in the drywall enclosure process.

3. Ceilings

Ceilings are more difficult to enclose than walls. Drywall applied directly to the ceiling will frequently result in an uneven appearance because there may not be a smooth transition from one board edge to the next. The solution is to draw a chalk line, usually every 16 inches on center, so that metal hat channels (or metal furring channels) or wood furring strips can be screwed into each ceiling joist. Three- to four-inch screws should be used to ensure that the screw penetrates the hat channel, plaster (or other substrate), and the wire mesh holding the plaster enough to bite firmly into the joist. The hat channel may be shimmed to get a perfectly level finished surface.

Next, the drywall should be affixed to the hat channel for an excellent finished product. An

extension ring will be needed for ceiling light fixtures. Prior to lowering the ceiling slightly, the contractor should be confident that there is no interference with the top of ornate, oversized window frames, pipes, vent covers, or crown moldings. The overall height of the lowered ceiling should conform to building code clearances.

All screws for furring channels or strips must penetrate into the ceiling joists prior to installation of the drywall. On occasion, some multi-family housing or commercial buildings converted to residential use may have cast-in-place, reinforced concrete ceilings. Anchoring supports for the new ceiling may not be practical in these instances. Though this construction is generally very strong, a structural engineer should be consulted about attaching a drywall system to the concrete. On-site architectural or engineering advice is needed on a case-by-case basis to determine if this approach is appropriate.

Acoustical lay-in panels (drop-in ceilings) do not constitute lead-based paint enclosures; they will not adequately guard against the escape of leaded-dust into the living space and cannot be sealed.

4. Floors

Lead-based painted floors should be enclosed with 1/2-inch or thicker plywood or other underlayment (see Figure 12.10). The joints in underlayment should be flash patched. Shoe molding running along the baseboard should be removed before plywood installation and reinstalled when the finished floor is completely in place. If the shoe molding contains lead-based paint, new shoe molding should be installed since new molding is inexpensive and more cost effective than removing the paint from the old shoe molding. This will ensure that all floor covering

runs tight to the baseboard and the joints at vertical surfaces are covered by the quarter-round molding. The plywood should be covered with vinyl tile or sheet goods to provide a cleanable surface. Covering the plywood with wall-to-wall carpeting is generally not recommended because the carpet does not provide a sealed top cover and is harder to clean. Vinyl floor coverings should be finished off with a metal threshold at all doorways or at any access to an uncovered open floor to protect the exposed edge. When placing tile over old flooring, a row of nails (preferably screws) should be run a few inches apart in a straight line over each joist before the plywood is put down. Old floor nails often lose much of their grip, which results in squeaky floorboards. This movement can in turn cause the edges of floor tile to lift in spite of the plywood underlayment that was installed. It is most important to remember that all the plywood sheets must be installed flush with each other. Gaps must be filled with flash patching cement. Also, a bead of caulk should be run at the edge of every board before it is set in place. All nails must be hammered flush and all dirt vacuumed thoroughly; otherwise small lumps will eventually appear in the soft vinyl finish goods.

If the floor to be enclosed is poured slab or cast-in-place concrete, the surface will have to be predrilled to accept each screw that anchors the plywood enclosure. A structural engineer should be consulted for situations other than slab-on-grade construction. Floor adhesive can offer an added measure of reinforcement and sealant. Each screwhead should be just



FIGURE 12.10 Install underlayment and new flooring as a suitable LBP enclosure method. The personal protective equipment is for a high-dust project.

below the level of the underlayment top surface and, along with the seams, should be covered with a smooth coat of flash patching cement to prevent dimples in the vinyl top cover.

5. Stairs

Dirt and loose paint should be removed prior to enclosure. Defective paint should be wet scraped and vacuumed; protective gear should be worn by the workers; and the work area should be contained with 6-mil plastic (or equivalent). In multi-family housing, common stairways must be accessible to residents and workers during the construction work to avoid a fire code violation.

Wooden steps with lead-based paint should be completely covered with vinyl or rubber treads and risers. These materials should have a minimum specification that would qualify for Federal Housing Administration (FHA) product approval or should be commercial grade. The vinyl should be stapled as well as glued with floor adhesive to avoid sagging. Long staples are preferred to reinforce the tread cover at this critical point and prevent the vinyl from being pulled up by the toe of a shoe. Metal bull nosing can also be used at this wear point.

In addition, long staples or metal bull nosing should be used at the end of the vinyl that butts up tight to the wood riser of the next step.

Plywood can be used to cover step risers and squared-off treads. Plywood is also useful as additional protection, supplementing the vinyl covers mentioned above. Precast concrete steps will have to be drilled, screwed, and glued to anchor the covers in place.



FIGURE 12.11 Enclosed stairs.

6. Pipes

Painted pipes can be enclosed with the same tape used to make plaster casts, which provides a hard-finished end product. Loose paint and dirt should be safely removed first. The wrapped tape should overlap itself so that it is not dependent on adhering to the painted surface.

Pipes can also be enclosed with drywall. However, this type of enclosure will insulate and limit the ability of radiator pipes carrying steam or hot water to contribute to household heating.

7. Door Frames

Preformed metal door buck or frame covers come in standard sizes to accommodate most components, and as such they can be used to enclose both wood and metal door frames, either interior or exterior. All seams must be caulked. Primers on such bucks should be lead-free.

8. Plywood Enclosures

Knee walls, painted structural supports, and trim such as baseboards, skirt boards, and stringers can be enclosed with plywood that is cut to fit tightly. These items should be sealed with

adhesive and nailed. All joints should be caulked.

E. Exterior Enclosure Systems

1. Siding

Vinyl or aluminum siding may be used to enclose painted exterior surfaces. In addition, porch columns (both square and round) and porch ceilings can be enclosed with these materials. Aluminum coil stock can be used on soffits, fascia, bargeboard, decorative crown moldings (though original detailing will be lost), door and window frames, parapets, and other moldings. All seams need to be caulked and back-caulked. Soffit coverings under roof areas often need to be vented to prevent dry rot (see Figure 12.12). However, as old paint degrades behind this covering, a small amount may migrate through the vents. Breathable cloth materials such as Tyvek™ or an equivalent are available in rolls for this purpose and can be installed before the aluminum covering is put in place. The breathable cloth materials will help prevent leaded-dust from escaping through gaps in the new siding, although it will be necessary to leave attic vents uncovered to permit adequate ventilation. Vent openings should not be covered with Tyvek™ or other similar covering. Because siding may not provide an airtight enclosure, rigid or flexible dust barriers like Tyvek™ should be installed before broad surface enclosure. Perforated metal stock should not be used to enclose soffits, fascia, or eaves as the enclosure is not dust

Create a dust-tight seal

Paint deteriorates more quickly behind an enclosure. All edges of an enclosure—especially the bottom—must be sealed well.

Seal the bottom edge

- ✦ Caulk the enclosure material at the bottom
- ✦ Back-caulk the nail and baseboard in place.
- ✦ Back-caulk, bottom-caulk, and nail the shoe molding in place.

Seal the seams and other edges

- ✦ Back-caulk all the seams that aren't taped and spackled. Use a high quality adhesive caulk.
- ✦ Use a "J-channel" where drywall meets a finished surface. A J-channel is a final strip attached to the rough edge of drywall to make a finished edge. It's called a "J-channel" because of its shape. Caulk the outside edge so it seals with the finished surface. Screw the drywall in place.

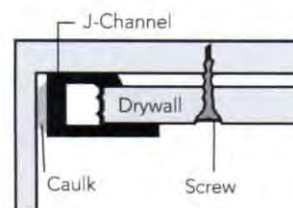
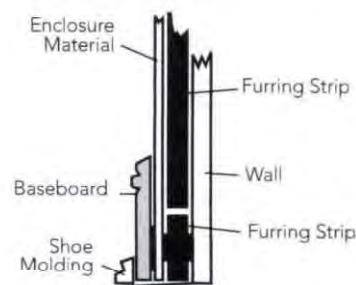
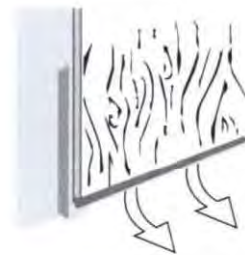


FIGURE 12.12 Seal All Seams for Enclosure.

tight. Rotten or loose wood and any other defective substrate must be repaired or replaced to provide a sturdy foundation for the siding installation and edges.

2. Windows

For standard sized windows, snap-in replaceable aluminum and vinyl tracks are available. These devices help eliminate the painted friction point (and thus the generation of leaded-dust) where the moving sash abrades the painted surface. The track covers should be pressed into a bead of caulk at each joint. Painted sashes should be planed to remove lead-based paint and then reinstalled (see Chapter 11, Section IV). Friction surfaces on windows should not be painted.

Window troughs should be covered with fitted metal and screwed into place. Again, the metal should be pressed into a bead of caulk at the joints and edges.

3. Exterior Walls

Board products made of various materials (e.g., synthetic fiberboard, wood byproduct composites, and cementitious materials) are commonly used in the construction industry for exterior purposes. These heavy, sometimes brittle coverings often have resins, fiberglass, or other durable ingredients that make them resistant to weathering and may require little maintenance, including painting. An added benefit of using these products is that they may have thermal insulation value. The products are best installed over flat surfaces that are not soft, crumbling, unstable, or otherwise defective. A defective substrate must be repaired prior to enclosure. All joints need to be sealed after installation.

Properly installed, natural or synthetic brick and stone veneers can be used to enclose exterior walls. In addition, stucco can be used as a covering material using wire mesh to physically anchor the cement to solid building components. A defective, weak surface needs to be stabilized before covering. Vinyl and aluminum siding are usually the least expensive options.

F. Summary

Enclosures are solid materials that are physically anchored to building components and that cover lead-based paint. Enclosure usually involves common construction techniques and has a 20-year design life. The enclosure abatement option is an effective, stable remedy for minimizing the danger of lead-based paint exposure. Because any barrier can be breached, annual monitoring by the owner and reevaluation by a certified risk assessor or inspector technician are necessary.

Enclosure may be less hazardous and cheaper than paint and building component removal. There is less dust generated and little hazardous waste disposal. Unlike encapsulation, the enclosure is not dependent on the adhesion of the underlying coats of paint on the substrate surface for its durability, nor does it require deteriorated paint removal or surface cleaning and deglossing before installation.

Drywall is often a cost-effective interior finish, and aluminum or vinyl siding provides an acceptable exterior barrier. Aluminum coil stock is effective for enclosing outside trim. Floors require underlayment and vinyl or other sheet finish goods. Vinyl or rubber tread and riser coverings are recommended for steps.

IV. Paint Removal Methods

A. Introduction

Paint removal means the separation of the paint from the substrate using heat guns, chemicals, or certain contained abrasive measures, either on-site or off-site. As an abatement technique, paint removal is usually reserved for limited areas and for those surfaces where historic preservation requirements may apply.

While paint removal can be performed safely and effectively, it also demands the highest level of control and worker protection for several reasons. Paint removal usually creates the greatest hazard for the worker, either from the hazards associated with the removal process (e.g., heat, chemicals, and sharp tools) or from the lead that becomes airborne or is left as a residue on the surface after removal. On-site paint removal will usually be a high-dust job. Prepare the worksite in accordance with the guidance in Chapter 8. Lower levels are possible if the size of the area to be treated is small (see Chapter 8). Because of the lead residues left behind by all paint-removal methods, particularly on porous surfaces such as wood or masonry, more extensive cleaning is usually required to meet clearance criteria. Paint removal methods also generate a significant amount of waste and may be the most costly of all lead abatement methods (HUD, 1991).

All work involving lead-based paint should be performed in a manner that minimizes all dust production. All high-dust paint removal operations should be avoided, and all work be planned and designed to reduce all dust generation. Using work practices and procedures such as wet work practices and the use of tools with attached HEPA-vacuum exhaust will help protect children, workers and residents.

In spite of these limitations, paint removal has the benefit of a low reevaluation failure rate. If some lead-based paint is left in the dwelling, its condition will need to be monitored by the owner (see Chapter 6).

B. Prohibited Methods

Certain methods of lead-based paint removal are absolutely prohibited, either because of unacceptably high worker exposures to lead or release of lead into the environment through production of dust or fumes or both.

1. Open Flame Burning or Torching

Burning, torching, fossil fuel-powered heat plates, welding, cutting torches, and heat guns operating at temperatures greater than 1100°F are prohibited as a means of paint removal because of the high temperatures generated in the process. So-called heat plates (those using propane to heat a grid, which in turn heats the paint) are also prohibited because of the high temperatures generated. At these temperatures, lead fumes may be produced.

Lead fumes are formed when lead is heated into a gas. The gas cools when it comes into contact with the cooler surrounding air and condenses into very small particles. These particles travel easily, are readily inhaled and absorbed into the body, and are difficult to cleanup. Several researchers have found that worker exposures are extraordinarily high when doing this kind of work (NIOSH, 1992a; Jacobs, 1991b; Rekus, 1988). The fumes may also travel throughout

the dwelling, contaminating all surfaces with which they come into contact. Other hazardous substances may be released from the paint film using heat.

Using cutting torches to remove fire escapes, railings, or other metal components coated with lead-based paint is also prohibited unless the paint is removed first. Similarly, welding of painted metal components (such as pre-primed structural steel) is prohibited by Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1926.354(d)).

2. Machine Sanding or Grinding Without a HEPA Exhaust Tool

Machine sanding or grinding is prohibited (regardless of the grit used) because of the large volume of leaded-dust generated (see Figure 12.13). As a result of these methods, workers have been exposed to extremely high leaded-dust levels, and blood-lead levels in resident children have increased (Amitai, 1991; Farfel, 1990; Jacobs, 1991b). However, machine sanding with a HEPA abatement exhaust tool is permitted and is discussed further below. Extensive dry hand sanding is not recommended, but wet sanding can be done if no electrical outlets are nearby. Limited dry sanding or scraping near electrical circuits is permitted.

3. Abrasive Blasting or Sandblasting

Traditional abrasive blasting or sandblasting is prohibited in residential structures, regardless of whether the abrasive material is recycled or if the area is fully contained. These methods

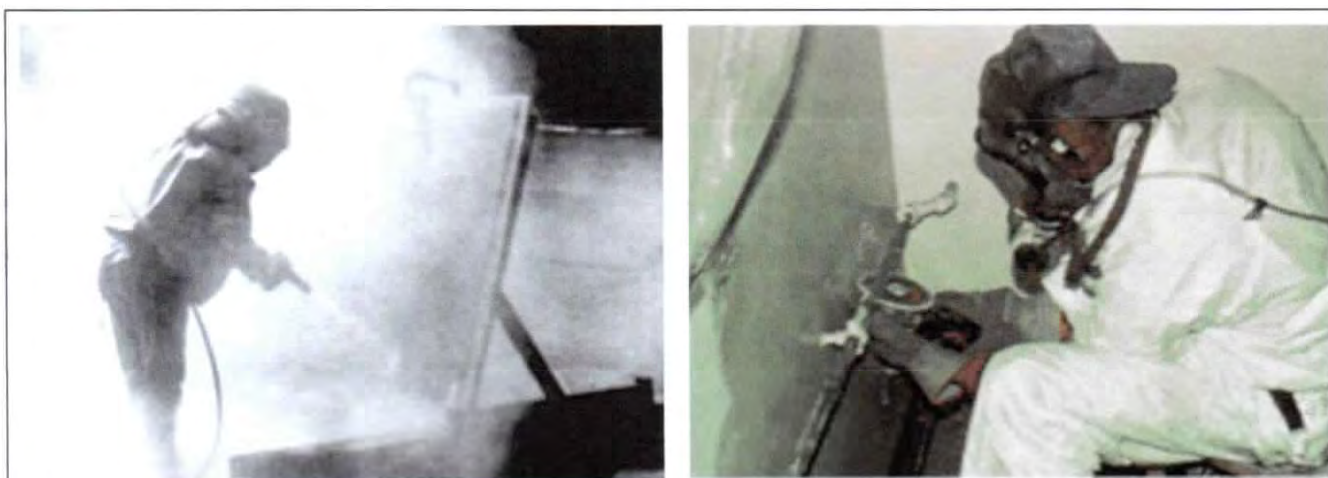


FIGURE 12.13 Prohibited work practices (traditional abrasive blasting (left) and grinding without HEPA exhaust).

produce widespread dust contamination; full containment is nearly impossible to maintain and guarantee in a residential environment. Abrasive blasting should only be done using HEPA vacuum local exhaust equipment, discussed below.

If abrasive blasting must be done in a residential structure, the area must be sealed and placed under negative pressure with enough clean fresh air so at least 10 times the volume of air in

the contained space is brought in to the space and, after filtration, exhausted from it each hour (i.e., the ventilation rate is at least 10 air changes per hour) to ensure the dust can be controlled. If the exterior must be blasted, the entire building must be covered with a tent and placed under negative pressure with at least 10 air changes per hour. In both cases, all exhaust air must be passed through a HEPA filter. Fresh air should be provided to the containment zone at a lower rate than the exhaust airflow to maintain the negative pressure zone.

4. Heat Guns Above 1100° F

Heat guns operating above 1100° F or charring the paint should not be used. See discussion of operating heat guns below 1100° F in section IV.C below.

5. Dry Scraping

Dry scraping is not recommended because of the large volume of particulate matter that is generated (including high levels of leaded-dust).

The two situations where dry scraping is appropriate are scraping surfaces near electrical outlets, which cannot be wet scraped because of the obvious electrocution hazard, and scraping when using a heat gun as this cannot be done wet. For both of these cases, dry scraping is only appropriate for limited surface areas.

6. Chemical Paint Stripping in a Poorly Ventilated Space

Workers should not remove paint in poorly ventilated space when using a volatile stripper that is a hazardous substance in accordance with regulations of the Consumer Product Safety Commission (CPSC) at 16 CFR 1500.3 and/or a hazardous chemical in accordance with the OSHA regulations at 29 CFR 1910.1200 or 1926.59, as applicable to the work. (This practice is prohibited by HUD regulations but not explicitly by EPA regulations as of the publication of the second edition of these *Guidelines*.)

Paint strippers with methylene chloride should be avoided. OSHA has found that adults exposed to methylene chloride "are at increased risk of developing cancer, adverse effects on the heart, central nervous system and liver, and skin or eye irritation. Exposure may occur through inhalation, by absorption through the skin, or through contact with the skin." (62 FR 1493, January 10, 1997). OSHA's permissible exposure limit for methylene chloride in air was reduced in 1997 from 500 to 25 parts per million (29 CFR 1910.1052 for general industry, and the identical 29 CFR 1926.1152 for construction). Methylene chloride cannot be detected by odor at the permissible exposure limit, and organic vapor cartridge negative-pressure respirators are generally ineffective for personal protection against it.

Alternative paint strippers may be safer, but have their own safety and/or health concerns, so all paint strippers must be used carefully. Always follow precautions provided by the manufacturer. It is especially important that people who use paint strippers frequently not use such chemicals in a poorly ventilated area. If good ventilation is not possible, professionals equipped with protective equipment should perform the work in accordance with CPSC regulations (16 CFR 1500.3) and/or OSHA's hazard communications standards (29 CFR 1910.1200 or 29 CFR 1926.59, which are identical) and with any substance-specific standards applicable to the work.

CPSC and EPA recommend that people who strip paint provide ventilation by opening all doors and windows and making sure there is fresh air movement throughout the room ("What You Should Know About Using Paint Strippers," CPSC Document 4423, and EPA Document EPA 747-F-95-002). (www.cpsc.gov/CPSPUB/PUBS/423.html)

C. Recommended Methods of Paint Removal

1. Heat Guns

Open flame burning is prohibited, so removal methods using heat are limited to electric powered flameless heat guns (see Figure 12.14).

Before beginning work, fuses and an adequate electrical supply should be verified. Larger fuses should not be installed because of the possibility of creating a fire hazard. A portable electric generator may be needed, especially if several heat guns will be required. Care should be exercised around wallpaper, insulation, and other flammable materials. An accessible garden hose with a pressure-release spray nozzle, a crowbar to remove smoldering wood, and a long-handled sledgehammer to open up walls exposed to smoldering insulation should be readily available. Under OSHA regulations (29 CFR 1926.150), a fully charged ABC-type 20-pound (minimum) fire extinguisher must be available within 100 feet of the work area. Work should be conducted only in well-ventilated spaces. Other hazardous materials may be released when old painted surfaces are heated (NIOSH, 1992a).

While there is little risk that dangerous levels of lead fumes will be produced at temperatures below 1100°F, significant airborne particulate lead is generated by the accompanying scraping of the paint. Also, significant amounts of potentially harmful organic vapors can be released from the action of the heat upon the paint, even at temperatures below 1100 °F. For this reason, air-purifying respirators should be outfitted with both a HEPA-filtered cartridge and an organic vapor cartridge. Organic vapor cartridges may not be available for some powered air-purifying respirators.

Depending on the size of the area and the substrate, paint removal by heat gun can be a slow, labor-intensive process and may result in a high final clearance failure rate if used extensively and without proper cleanup. Removing paint completely, particularly from crevices, requires attention to detail. Significant leaded residue may remain on surfaces unless cleanup is thorough. Heat guns do not appear to be particularly effective on metal or masonry substrates, which are too porous to be scraped effectively; the heat may cause small particles to fly up and hit the worker, causing burns or eye damage. Although heat guns work well on wood, they will usually damage drywall and plaster.

Workers may tend to place the nozzle of the heat gun too close to the surface, burning out the heating elements prematurely, sometimes inadvertently even if they have been trained not to do so. One way to prevent this is to attach a small metal wire cage or extension tube to the



FIGURE 12.14 Using a heat gun to remove paint is labor-intensive.

end of the heat gun to prevent it from being placed too close. For most heat guns, the optimal distance from the surface is 3 to 6 inches. The heat gun is recommended only for limited surface areas in well-ventilated spaces. Other problems with heat guns include additional fire hazards from dry rot, insulation, and dust, especially in window troughs, roof areas, and hollow porch columns. Scraping often leaves the substrate very rough and may singe adjacent wallpaper. Telephone wires mounted on baseboards can melt, and heat can crack glass with a cold exterior or dry glazing.

To use heat guns properly, allow the heat stream leaving the gun to merely soften the paint. Do not allow the paint film to scorch or smoke. Scrape the loose paint off the surface at the very first sign of paint softening, blistering, or bubbling.

2. Mechanical Removal Methods

HEPA Sanding

HEPA sanders are valuable for surface preparation prior to repainting. As chemical stripping sometimes raises the grain of the wood and some removal methods are not effective at removing all visible traces of paint, some sanding prior to repainting may be needed. Manual sanding can generate significant levels of airborne and settled lead-dust; airborne levels more than 10 times OSHA's permissible exposure limit, have been observed (Zhu, 2012). Therefore, HEPA-assisted sanders are recommended whenever sanding must be done. HEPA sanders do not work well on detailed moldings. In such situations, chemical stripping, use of a heat gun or offsite removal may be suggested.

HEPA sanding uses traditional electric sanders, such as disc sanders or orbital or vibrating sanders, equipped with specially designed shrouds or containment systems that are placed under a partial vacuum (also known as local exhaust ventilation). All exhaust air is passed through a HEPA filter (often using an ordinary HEPA vacuum) to reduce the amount of airborne particulate lead (see Figure 12.15). The HEPA vacuum must be correctly sized to provide adequate airflow to permit the system to operate properly. If hoses are longer than normal, a larger HEPA vacuum may be needed to handle the increased pressure drop.

There are two main types of HEPA sanders. The first uses a flexible shroud to surround the sanding head, with the HEPA vacuum hose attached to the shroud. The shroud must be



FIGURE 12.15 HEPA-filtered power tools.

in constant contact with the surface to be effective. If the shroud extends beyond the surface being sanded, large amounts of particulate lead will be released into the air. In addition, this configuration makes it impossible to sand to the edge of protruding surfaces, such as baseboards or window and door casings.

The second type of HEPA sander pierces the sandpaper with holes through which the vacuum draws the dust. This allows the instrument to be used to the edge of protruding surfaces. However, care must be exercised to keep the sandpaper flat on the surface. Neither one of these methods is completely effective; respirators are always recommended. Worker fatigue can also prevent the worker from holding the tool flush with the surface, making it necessary to provide frequent breaks or rotate workers.

Wet Scraping



FIGURE 12.16 Wet scraping (left)

FIGURE 12.17 Scraping tools (right).

Wet scraping is feasible on most surfaces and results in lower lead exposures than dry scraping. Since surfaces near electrical outlets should never be moistened (due to the electrocution hazard), these areas should be dry scraped.

Wet scraping can be performed by using a spray bottle or sponge attached to a paint scraper (see Figure 12.16 and 12.17). Wet scraping is often used to remove loose and flaking paint before paint film stabilization or encapsulation. If wet scraping is employed as an abatement technique, a more durable covering than new paint is needed. Working a few square feet at a time, the worker should mist

the surface lightly using a garden sprayer or plant mister. Loose material should be scraped from the surface and deposited on the containment plastic with a paint scraper. Damp paint chips should be cleaned up as soon as possible so that they are not tracked throughout the work area or crushed beneath the feet of workers.

Scraper blades should be kept sharp to minimize abrasion and gouging. Additional scraper blades should be on hand and should be selected for the type of surface being scraped. To obtain a smooth finish, it may be necessary to follow wet scraping with wet sanding. A variety of scraping tools are available from hardware and paint supply stores.

HEPA Vacuum Blasting

HEPA vacuum blasting is simply abrasive blasting with a shroud under a vacuum that is attached to the blast head. All exhaust air is passed through a HEPA filter, using a properly sized HEPA vacuum system. Vacuum blasting is appropriate for metal, brick, concrete, and other masonry surfaces. To date, attempts to use the process on wood, plaster, and other soft materials have



FIGURE 12.18 Vacuum blasting is not often used on housing.



FIGURE 12.19 Needle Gun with HEPA Exhaust Ventilation.

not been successful, as they usually cause severe substrate damage.

Various blasting media can be used (e.g., aluminum oxide, metal shot, walnut shells) depending on the type of substrate. Blast heads, usually a brush-type arrangement, come in various sizes and shapes. The blast head must remain in continuous contact with the surface to avoid dispersal of both the blast medium and particulate lead (see figure 12.18). The equipment can be outfitted with a device that separates the blast media from the paint, effectively recycling the blast material, and dramatically reducing the volume of waste. This is particularly important because the blast material should be disposed of very carefully (see Chapter 10).

Use of the equipment for long periods of time can result in worker fatigue, particularly if working with the arms above the head. Fatigue can cause a worker to momentarily lose contact with the surface, resulting in the release of leaded dust, so the goal is to minimize the degree to which workers must reach above their shoulders. Scaffolding and platforms should be constructed to minimize such stress, and frequent work breaks should be taken. Vacuum blasting is not typically used in interior residential work.

HEPA Vacuum Needle Gun

The HEPA vacuum needle gun is similar to vacuum blasting in concept but avoids the use of a blast medium (see Figure 12.19). In the vacuum needle gun, metal needles rapidly pound against the painted surface, dislodging the paint. The HEPA vacuum, which is connected to the gun head, draws paint chips and dust into the vacuum, minimizing the dispersion of the particulate.

The needle gun is appropriate for metal surfaces but may cause significant damage to masonry. Problems of worker fatigue are similar to those encountered in vacuum blasting. Losing shroud contact with the surface

can cause the deposition of significant amounts of chips onto the containment surface. Chips should be cleaned up as soon as possible following the work to avoid tracking.

One way of maintaining the seal with the surface is to select the proper shroud for the shape of the surface treated. At least one manufacturer (Penntek) has developed different shrouds for corners, edges, and flat surfaces. Needle guns are not effective in capturing large paint chips, so use of plastic sheeting underneath is required.

3. Chemical Removal Methods

Chemical removal may result in less leaded dust generation than other removal methods. It is often used in situations where historic preservation requirements apply. However, it may leave leaded residues on porous surfaces, which may pose a hazard to resident children in the future.

One study has demonstrated that windows treated with chemical paint removers had high leaded-dust levels a few months after treatment, even though cleanup and clearance had

been conducted properly (Farfel, 1992).

Other drawbacks to chemical removal include high cost and potential harm to workers from splashes and chemical burns if proper gloves, face shields, and clothing are not provided and used (see Figure 12.20).

Proper ventilation is necessary when using chemical paint removal. Plastic may not be effective in protecting floors and may have to be augmented by paper or cardboard. Chemical residues can be tracked into other areas on workers' shoes if proper decontamination is not conducted.

Adjacent surfaces, especially plaster, can also be damaged. High humidity may retard the chemical remover's effectiveness. If protective clothing is penetrated

and becomes matted against the skin, it must be removed *immediately*. A full shower is strongly recommended.

Off-site Paint Removal

Off-site paint removal is preferred so that most of the contamination and residues are generated away from the dwelling. The general approach is as follows.

Building components to be stripped must first be removed from the building. Misting with water prior to removal will help minimize the amount of airborne lead. The painted seam between the component and the wall should first be cut with a utility razor knife to minimize damage to the adjacent plaster. If there is more than one similar component, each component should be labeled to identify exactly where the component came from, eliminating the need for changing doors or other retrofitting problems.

Potential damage to components during stripping includes damage to hardware (this should be removed before stripping), broken glass, loss of glue joints and fillers, damage to wood fibers (wood swelling), and raising of the wood grain. The component may even fall apart and have to be blocked and re-glued. Old glazing compounds on windows may also be weakened. The stripping firm should be instructed to *thoroughly* wash and neutralize the components after stripping.

Before materials are returned from the paint stripper, they should be wrapped in heavy duty plastic and sealed with tape. This will minimize contamination of those handling the materials (lead residue may remain on the surface). Materials should remain sealed until other on-site dust-generating activities are concluded and the dust cleaned up.

Before reinstallation, the treated components should be cleaned using the standard vacuum/wet clean/vacuum cycle to remove any residues left by the paint stripper. Components must be completely dry before repainting. Always check the pH (acidity or alkalinity) after cleaning and *before* repainting.



FIGURE 12.20 Workers should wear protective clothing when using chemicals.

On-site Paint Removal

Many paint removers must be allowed to remain on the surface anywhere from 1 hour to a day or more to accomplish effective stripping.

Most paint removers are efficient within a limited temperature range and may be completely ineffective in cold weather. The contractor must therefore be certain of weather conditions before outdoor application. Also, rain or snow can cause environmental contamination from the lead and the chemical remover.

Paint removers are either caustic (corrosive) or non-caustic. The non-caustic chemical removers are generally safer to use than the caustic ones (assuming they do not contain methylene chloride). Material Safety Data Sheets should always be consulted to determine potential chemical hazards.

When using chemical strippers, securing the area where the strippers are used and the areas where they are stored is important, particularly with caustics, to prevent injuries to people who may gain access to the work area. Caustic paint removers can cause severe skin burn and eye damage to workers, other adults and children who may gain access to the work area. Pain receptors in the eyes are not as sensitive to caustic substances as they are to acids, so workers may suffer damage without immediately realizing it.

Personal protective equipment should be appropriate to the chemical paint stripping work being done; see Chapter 9, Worker Protection.

An abundant source of water within the abatement area for quick drenching or flushing injurious corrosive chemicals from skin or eyes is required by OSHA regulations (29 CFR 1910.151(c)). The water can come from a tap or portable eyewash station(s) (see Figure 12.21).

If contact with the eyes occurs, a full 15-minute rinse of the eyes is necessary on-site *before the individual leaves to seek medical attention* because permanent damage to the eyes occurs quickly. While 15 minutes may seem excessive, a quick rinse is ineffective, and permanent damage usually occurs on the way to seek medical attention.

Usually, non-caustic strippers are not as effective at removing multiple layers of paint in a single application compared to the caustic products. When using non-caustic removers, small areas should be tested before full-scale treatment to determine their efficacy. For vertical surfaces, adhesion of the liquid or gel type paint removers should also be tested to determine runoff potential (particularly a problem in warm weather). Most caustic paint removers work best on nonporous surfaces such as steel. They generally should not be used on aluminum or glass surfaces.

Paint removers that contain volatile substances should be used only in areas equipped with mechanical ventilation and only when workers are properly equipped with gloves, face shields, protective clothing, and respirators, as needed.

The paint remover should be applied with a spatula, trowel, brush, or spray gun. Spray gun use should be minimized because they increase



FIGURE 12.21 Eye- and body-wash stations are required when working with corrosive or irritant chemicals.

worker exposures. The time the remover must stay on the surface will depend upon the number of layers of paint, the type of paint, the temperature, and the humidity, and can range from a few hours to a day or more. The paint remover should not be allowed to dry out. Some manufacturers provide a polyethylene or paper blanket that is pressed into the surface to retard drying; others contain a film that is formed on the surface of the paint remover as it sits to prevent drying. Caution must be used when applying the paint remover overhead to avoid its dripping onto workers below.

After the appropriate period of time, the softened paint should be removed using a scraper or putty knife and the material deposited in a watertight and corrosion-proof container (usually supplied by the manufacturer). The waste should be managed and disposed of in accordance with the guidance in Chapter 10.

With wood surfaces, it is important to complete the entire neutralization and cleaning process without letting the surface dry. If the wood dries before cleanup is complete, the pores in the wood may close, locking potentially significant lead residues inside. When repainting, some of the lead residue may leach into the new paint.

Alkali neutralization and residue removal are accomplished as follows. Immediately after paint removal (while wood surfaces are still damp), the surface should be thoroughly scrubbed with a solution of glacial acetic acid. Use of vinegar to neutralize the alkali should be avoided because vinegar may be inadequate as a neutralizing agent and will also result in a significantly larger volume of liquid (and potentially hazardous) waste.

Glacial acetic acid is hazardous and can cause skin burns and eye damage. It should be used carefully and only with neoprene, nitrile, rubber, or PVC gloves; chemical-resistant clothing; eye shields; a NIOSH-approved acid gas cartridge; and a HEPA filter on air-purifying respirators.

The damp, stripped surface should be thoroughly scrubbed with the acetic acid solution. The solution should be monitored with pH litmus paper and discarded if the pH exceeds 6. After use, the solution should be placed in corrosion proof containers and treated as potentially hazardous waste. Sponges and other cleaning materials should not be reused but deposited in heavy duty (double 4-mil, or single 6-mil) trash bags that are sealed, labeled, and put in a secure waste storage area.

Following neutralization, the damp surface should be thoroughly scrubbed with a detergent and water. Scrubbing should continue until no residues are visible. The cleaning solution should be changed when it becomes dirty. Following the detergent scrub, a clean water wash should be performed to remove residue. The pH of the water wash should be checked after use. If the pH exceeds 8, further neutralization of the surface with the acetic acid solution is necessary prior to repainting since an alkaline surface will cause the new paint to fail in a matter of days or weeks.

Surfaces should be completely dry before repainting. For wood surfaces, this may take several days to a week. If the moisture has raised the grain and sanding of wood surfaces is required before repainting, a HEPA sander should be used.

Since porous surfaces such as wood or masonry may still have slight alkali residues, some types of oil paints should not be used after caustic paint remover application. To do so may result in saponification (a "soap-making" reaction between the paint and the substrate, leading to rapid

paint failure). Therefore, latex paints are probably most appropriate. Wood surfaces (especially exterior ones) can deteriorate after paint removers have been applied, making new paint difficult to apply. Also, the new paint may not last long on deteriorated substrates. Some old plasters with a high pH (that is, highly alkaline) may require primers that are no longer manufactured, so a special sealant may be needed on such surfaces. The specific paint remover manufacturer should be contacted for further guidance on appropriate paints to use.

High-pressure water removal of caustic paint removers should be avoided because control of solid and liquid contamination is difficult. Release of solids or liquids into the soil is likely to result in costly cleanup. Care must be used when applying caustic paint removers to friction surfaces, such as window jambs. Such surfaces are often weathered, making residue removal even more difficult. If these residues are embedded in a coat of new paint, the friction caused by opening and closing the windows can lead to the release of leaded-dust.

D. Waste Disposal

Wastes produced during paint removal may be highly concentrated, but low in volume. The toxic characteristic leaching procedure (TCLP) test should be used to determine if the waste is hazardous. See Chapter 10, Housing Waste, and the EPA regulations. Many local jurisdictions pick up small amounts of hazardous waste on certain days. If off-site paint removal is performed, the waste is the responsibility of the facility performing the removal.

V. Soil and Exterior Dust Abatement

A. Introduction

Lead-contaminated soil and exterior dust have been shown to cause elevations in blood-lead levels of children in a number of studies (EPA, 1993c). Exposure to lead in soil and exterior dust can occur both outside during play and inside from soil and dust carried into houses on shoes, clothing, pets, or by other means.

Soil can become contaminated over a period of years from the shedding of lead-based paint on nearby buildings, windblown leaded-dust from adjacent areas, and fallout of leaded-dust from the atmosphere (either from a local point source or from leaded gasoline emissions in the past). Uncontrolled paint removal from nearby houses or painted steel structures can also result in contaminated soil (controlling soil lead levels should be a consideration in every exterior lead-based paint abatement project).

Soil lead hazards are determined by measuring the concentration of lead in the soil, examining the location and use of the soil, and determining the degree to which the soil is "bare" (see Chapter 5). For a yard or area to require hazard control, a total of at least 9 square feet of bare soil must be present. Any size bare area in a play area containing more than 400 µg/g of lead is a hazard. Appendix 13.3 contains details on a sampling method to measure lead in soil. When assessing the condition of the surface cover, it is important to determine why the soil is bare. Bare soil is common in the following areas and circumstances:

- ◆ Heavily used play areas.
- ◆ Pathways.
- ◆ Areas shaded by trees or buildings.
- ◆ Areas with damaged grass.
- ◆ Drought conditions.

Measuring the lead content of soil will aid in the selection of an appropriate abatement method that has a reasonable likelihood of being maintained. Soil **abatement** (as opposed to interim controls) is generally appropriate when lead is present in extraordinarily high concentrations (more than 5,000 µg/g), use patterns indicate exposures are likely, or interim controls are likely to be ineffective (e.g., planting grass in high-traffic areas). Soil interim controls are covered in Chapter 11, Section VI. This section describes soil treatments that should be effective for at least 20 years.

Pre-abatement soil samples should be collected but not necessarily analyzed until post-abatement soil samples have been collected, analyzed, and compared to clearance standards. If post-abatement soil levels are below applicable limits, the pre-abatement samples need not be analyzed (see Chapter 15).

B. Soil Abatement Methods

Soil abatement methods include:

- ◆ Soil removal and replacement followed by off-site or on-site disposal; including covering with clean soil (Mielke, 2006; Mielke, 2011).
- ◆ Soil cultivation (rototilling).
- ◆ Soil treatment (e.g., organic matter, chemical, phytoremediation) and replacement.
- ◆ Paving with concrete or asphalt.

Soil removal is discussed in detail below; however, before choosing to remove contaminated soil, other treatment options should be considered. The advantages of using soil treatment methods (as opposed to soil removal) are three-fold (Elias, 1988):

- ◆ The costs of hauling large quantities of contaminated soil are eliminated or greatly reduced.
- ◆ Disposal sites for soil are not needed except for a much smaller volume of wastes generated during the treatment process.
- ◆ The need for uncontaminated replacement soil is greatly reduced.

1. Soil Removal and Replacement

For most soil removal projects, removal of 6 inches of topsoil is adequate. The depth of soil lead contamination is usually restricted to the top of the soil, with contamination decreasing markedly below the top few inches. However, in urban areas it is not uncommon for the contamination to extend to up to 1 or 2 feet in depth. This may be because these areas were once the

location of buildings contaminated with lead-based paint. Alternatively, past practices may have resulted in a gradual buildup of the elevation of the soil grade over time. In such circumstances, the removal of the top layer of soil may leave behind contaminated soil at lower depths. In mixed residential/ industrial areas, or where industry once existed, the depth of the contamination may vary widely. The desired decision on the depth of removal should also consider the depth of soil disturbance during the course of usual activities, such as gardening. If the top layer of soil will not be penetrated, then it should not be necessary to remove lead-contaminated soil at deeper levels, since there will be no exposure.

For practical purposes, properly conducted soil removal to a depth of 6 inches should suffice in urban residential areas that are restricted to grass, shrubs, or shallow gardens. However, the depth of soil contamination should be assessed at each site, and the decision regarding depth should be made based on the results of the soil sampling and anticipated use of the land. For most residential areas, the depth of removal will not exceed 6 inches (Jones, 1987; Ontario, 1987; Stokes, 1987 and 1988). Records of the soil sampling and abatement that occurs should be maintained with the permanent records of the property. These records will alert property owners who are planning excavations to depths below the abatement depth, such as for water or sewer line work, to use caution to avoid contaminating the surface soil with excavated soil. The owners should be advised to sample the soil below the abatement depth to determine the lead concentrations so that procedures can be implemented to segregate this deeper soil, if contaminated, and to use it as fill for the deeper areas of the excavation when the work is completed. With EPA's standard for the maximum allowable lead concentration in replacement soil being that it is less than 400 $\mu\text{g/g}$, the lead concentration in the replacement soil must be less than that concentration; it is advisable that, where feasible, it be half or less than that, i.e., 200 $\mu\text{g/g}$ or less, to provide a precautionary safety factor.

1. **Types of Equipment** – Removal and replacement of soil in residential abatement situations may take place in both large and small sites. Some urban yards are very small, consisting of only a few square feet; others are larger, but are sometimes surrounded by buildings. Therefore, residential soil abatement will often require the use of extensive manual labor in addition to mechanical soil removal. When soil is removed by hand, it generally can be loaded into wheelbarrows and then off-loaded to other vehicles to be transported to the disposal site. Rather than off-load the wheelbarrows to dump trucks, it is usually more efficient to dump the soil directly into roll off containers, which are then loaded onto trucks for transport to the disposal site.
2. **Sod and Seeded Grass Maintenance** – All grass sod planted as part of the abatement process should be maintained until the end of the growing season. This maintenance should include initial frequent watering to establish the rooting of the sod and germination of the grass seed, followed by watering on a regular basis to keep the grass in a healthy state. Under some conditions, seeding the soil may be practical, but often it is not realistic to restrict use of the soil area for the length of time needed to establish newly seeded grass.
3. **Identify Utilities** – The owner or contractor should contact the local coordinated information source for all utilities before beginning work to obtain exact locations of all underground utility lines. If a utilities information service does not exist in the community, the individual utilities should be contacted directly. In addition, the Common Ground Alliance's (CGA's) One Call Systems International committee maintains an 811 telephone number which will notify local utility companies about the intent to dig so that, within a few days, they can "send a locator

to mark the approximate location of your underground lines, pipes and cables, so you'll know what's below – and be able to dig safely" (<http://www.call811.com/how-811-works/default.aspx>). CGA also maintains an on-line interactive map (<http://www.cga-onecall.com/map/>) and a state-by-state listing (<http://www.call811.com/state-specific.aspx>) of contact information for "one call" centers for each U.S. state and Canadian province that should be able to help with finding underground service lines.

4. **Protect Utilities** – Care should be taken to protect existing utilities during abatement to prevent any damage to existing underground and overhead utilities and to prevent any harm to human life and property. If a contractor is used, the owner should require the contractor to protect the existing utilities and to make good any damage to these utilities as quickly as possible.
5. **Existing Fences** – Care should be taken while removing existing fencing for worksite access. Such fencing should be salvaged and reinstalled (if it does not contain lead-based paint) to the satisfaction of the owner. In some cases, fencing may have to be replaced.
6. **Protection of Adjacent Areas** – When working adjacent to excluded areas, including sidewalks, fences, trees, and patios, the soil should be excavated at a slope away from the excluded areas of less than 2 percent so that contamination does not wash or roll into the excluded area.
7. **Inclement Weather** – Removal and/or replacement operations should be suspended at any time when satisfactory control of the overall operation cannot be maintained on account of rain, wind, or other unsatisfactory weather or ground conditions. Determination of such conditions should be made by the owner or project consultant. When such conditions exist, the work area should be cleaned up immediately and work suspended. High winds can disperse contaminated soil and dust to off-site areas and runoff from rain can carry contamination outside the abatement area.
8. **Vehicle Operation** – Prior to hauling contaminated soil, a vehicle operation plan should be prepared for the equipment and hauling vehicle operators, which includes but is not limited to information on the cleaning of vehicles, securing of tarps and tailgates, ticketing of trucks, unloading of material, and handling of spilled soil.

All trucks, hauling vehicles, and containers loaded with contaminated soil should be inspected for loose material adhering to the outside of the body, chassis, or tires before departure from the worksite. Such material should be cleaned up before the vehicle leaves for the disposal site. If the truck tires made contact with the contaminated soil, they should be cleaned before the trucks leave the work area. The tires should be brushed off on a plastic sheet and the contaminated soil loaded onto the truck or returned to the lot being excavated.

Soil should be loaded directly into dump trucks or disposal containers from the worksite. If possible, there should be no "double-handling" of contaminated material, such as shoveling the soil into a wheelbarrow, moving it to another location, dumping it, and shoveling it again into another container. This double handling not only wastes time but also increases the likelihood of spreading the contamination and tends to make site cleanup more difficult. The trucks should have secure fitting tarps and sealed tailgates to reduce leakage as much as possible.



FIGURE 12.22 Replacing resident pathway after soil removal.

- 9. Soil Replacement and Cleanup** – Prior to soil replacement, all walks, driveways, lanes, and streets adjacent to the excavation area should be cleaned of all contaminated soil (see Figure 12.22). All loose soil should be scraped, washed, and swept from the above-mentioned surfaces. No clean soil should be placed down until all contamination has been removed from these areas.

At the completion of the workday, all loose contaminated soil within the limits of the work area should be collected. The collected soil should be transferred to a dump truck or other container for subsequent disposal.

All hard surfaces, such as sidewalks, paved driveways, and patios, should be cleaned at the completion of each workday. This daily cleanup should consist of scraping, washing, vacuuming, and wet sweeping all soil from the above-mentioned surfaces.

Cleanup procedures should begin early enough so that they can be completed before the end of the workday.

- 10. Prevention of Contamination from Underlying Soil** – Regardless of the depth of removal, the possibility of contamination of the replacement soil from the underlying unexcavated soil exists, particularly from future activities. One way to minimize this occurrence is by laying a water-permeable fabric (geotextile) or similar lining at the bottom of the excavated areas to provide a visual demarcation between replaced soil and original soil (Weitzman, 1993). This liner can serve as a warning for persons digging in the future to exercise caution so that contaminated soil beneath the liner does not become mixed with the replacement soil.

- 11. Contaminated Soil Load Manifest System** – In order to keep track of the contaminated soil being hauled away from the site, a load manifest system should be used to keep an exact record of the time and location of disposal. The manifest should consist of a two-part ticket, with one ticket given to the owner at the time of truck departure and the other held by the hauler. The disposal site ticket should be presented to the site owner or inspector technician before the end of the workday on which the material was deposited in the dump site. The purpose of the manifest system is to ensure that the contaminated soil is not used as fill in other residential areas. Soil waste should be managed and disposed of carefully; it may be considered hazardous as a result of a TCLP test (see Chapter 10, Housing Waste).

- 12. Final Grade** – The final grades of replaced soil should be 2 inches above existing grades to allow for settling and to ensure that all drainage is away from existing structures.

- 13. Existing Vegetation** – A number of precautions are needed to protect existing vegetation, such as bushes and trees. It is advisable to tie trees and shrubs to ensure stability. Hand tools are needed to scrape soil from around roots without undermining or damaging them. Any large roots should be left undisturbed.

- 14. Tool Contamination** – To minimize the cross-contamination between excavation and

replacement worksites, separate tools should be provided for the excavation and replacement activities. A less-expensive alternative is to employ an acceptable method for decontamination of tools, workers' clothing, and footwear. The decontamination should include physically removing as much soil as possible and then washing and rinsing the contaminated items with water.

All workers should clean their boots thoroughly before leaving the work area. The soil removed from boots should be disposed of either in a truck used for hauling contaminated soil or left in the worksite.

15. Prevention of Off-site Movement of Contaminated Soil – Contaminated soil should be removed from the site as soon as possible to prevent wind and water erosion. To prevent off-site migration and to avoid the possibility of tampering by children, piles of contaminated soil should not be left on-site overnight. Wind erosion can occur on any site. Water erosion is more likely on hilly sites or during heavy precipitation. Exposed sites can be covered with plastic and secured in place to prevent off-site migration of contaminated soil. An alternative method is to wet down the site at the end of the workday to prevent wind erosion. Similar problems will be encountered when contaminated soil is stockpiled during the day prior to disposal at the end of the day. In this case, wind and water erosion should be controlled by using a combination of plastic sheeting and silt fencing.

16. Site Control – The following precautions should be taken:

- ✦ To prevent the spread of contaminated soil, secure working limits should be defined for each area of excavation. Access to this area should be restricted to authorized personnel with entrances and exits controlled.
- ✦ The abatement work area should be enclosed with temporary fencing or adequate barricades to prevent unauthorized personnel or animals from entering the work area.
- ✦ Yellow caution tape should be installed across doors leading to abatement areas.
- ✦ Access routes to homes should be maintained at all times. Such routes should not require passing through the area of excavation.
- ✦ The removal of a partial grass cover in preparation for the laying of sod or grass seeding may temporarily increase the amount of bare contaminated soil. On-site exposure could result when children play on the exposed soil. Abatement workers can control this during the day by means of adequate site control. However, control is difficult, if not impossible, after the end of the workday. Lead hazard warning signs should be posted to warn residents.
- ✦ In order to minimize inconvenience to residents and neighbors and to minimize exposure, abatement of a particular site should be completed within 1 workday.

2. Soil Cultivation

Soil lead concentration often decreases with increasing depth, so soil mixing can be considered to be an abatement strategy. If the average lead concentration of the soil to be abated is below 1,200 µg/g, thorough mixing is an adequate abatement method. Pilot testing may be necessary to determine the type of mixing process needed. Rototilling may not be effective.



FIGURE 12.23 Preparing to pave high traffic area.

3. Paving

If contaminated soil is present in high-traffic areas, the soil can be covered by a high-quality concrete or asphalt (see Figure 12.23). In this case, contaminated soil need not be removed before paving. Normal precautions associated with thermal expansion or contraction and traffic load should be considered. Hard surfaces are not appropriate in play areas where falls are possible from slides, jungle gyms, etc. The Consumer Product Safety Commission has developed recommendations for fall surfaces in public play areas (e.g., addressing the need for impact attenuating protective surfacing under and around equipment, installation and maintenance procedures, and general hazards presented by protrusions, etc. CPSC, 2008; www.cpsc.gov/CPSCPUB/PUBS/325.pdf).

4. Other Soil Treatment Methods Under Study

HUD has funded studies to investigate other potential methods to reduce soil lead hazards. Plants can reduce the soil lead level (phytoremediation) but their use has not been widely tested or applied. The use of chemical additives (e.g. phosphate) to reduce the biological availability of lead appears to be attractive, but studies are continuing.

C. Exterior Dust Control

Lead in exterior dust can be a source of exposure to children because it can be tracked inside and carried on the skin, especially the hands (Bornschein, 1986). For example, in older urban areas in Cincinnati, exterior leaded-dust concentrations are on average about four times higher than interior leaded-dust concentrations, and exterior lead surface loadings are much higher than for interior dust (Clark, 1993). Just as children can be directly exposed to leaded-soil, they can also be exposed to exterior leaded-dust. Exterior dust can also migrate by various means (children, adults, pets, or wind) to the interior of homes where there are many opportunities for exposure to children. Exterior leaded-dust concentrations up to 50,000 $\mu\text{g/g}$ (equivalent to 5 percent lead in dust) have been measured in urban areas in the EPA Soil Lead Abatement Demonstration Project (EPA, 1993c).

If only an individual property is involved in the exterior dust-control activity, the type of equipment that can be used will be limited by the size of the area involved and the person responsible for the area. Owners are not required to clean streets, for example. Because of the mobility of exterior dust, the length of time that the dust cleanup remains effective will be limited by the size of the abatement area and therefore may need to be repeated periodically.

Exterior dust control consists of two components:

- ◆ Controlling sources of lead-contaminated dust.
- ◆ Removing lead-contaminated dust from paved areas.

Without adequate control of the sources of lead in exterior dust, recontamination of the exterior areas will occur. Studies of a schoolyard area indicated that leaded-dust concentrations equaled pre-abatement levels within 1 year in Winnipeg, Ontario (Stokes, 1988). Recontamination of some paved areas in Cincinnati occurred within a few days (Clark, 1991), indicating that repeated cleaning and control of the *sources* of the lead are necessary.

1. Types of Equipment

Exterior dust cleanup consists of removing as much dust and dirt as possible from all paved surfaces on the property or properties involved. Lead-contaminated dust can be found on paved surfaces such as sidewalks, patios, driveways, and parking areas. For multiple adjacent properties that are being abated, cleanup of streets, alleys, or other common areas should be considered, although this is normally a municipal responsibility. Brick paved areas present the biggest challenge in removing exterior dust because they contain numerous cracks. For individual properties, hosing off walkways and play areas periodically may reduce exterior leaded-dust levels.

In order to meet this cleaning challenge, it is necessary to have available the most efficient hard-surface vacuum cleaning equipment. Many commercial contract cleaning firms located in urban areas have such equipment.

There are several different types of suitable paved-surface cleaning machines:

- ✦ Hand-pushed vacuum cleaners.
- ✦ Vacuum-assisted sweepers, which are similar to the traditional broom sweeper, with the added feature of a slight vacuum that assists in controlling dust and transporting material from the broom bristles to the hopper.
- ✦ Vacuum sweepers, which lift material from paved surfaces – some are equipped with curb brushes to assist in transporting the material from the edge of the cleaning area to the vacuum head and into the hopper.
- ✦ Trucks equipped with strong vacuums and large HEPA filters for the exhaust.

EPA research has found that regenerative air machines, which depend on rapidly moving air to capture particles from the surface of the pavement, frequently remove only a small fraction of the dust and thus may not be suitable for lead abatement work (Pitt, 1985).

2. Evaluation of Equipment

A number of pavement-cleaning machines were tested as part of the Cincinnati Soil Lead Abatement Demonstration Project (Clark, 1993). The machines tested were the vacuum-assisted sweeper, the vacuum sweeper, and the regenerative air machine. Initial tests demonstrated that several machines operated above the 90 percent efficiency level. A machine performing at the 90 percent efficiency level will pick up 90 percent of the available dirt after two passes. Equipment tested involved both large machines suitable for streets and parking lots and some walk-behind, vacuum-assisted broom sweepers suitable for sidewalks and other smaller areas. Several larger machines performed at or above the 90 percent efficiency rate. Some of the smaller walk behind sweepers did not perform at an acceptable level of efficiency.

Care must be taken when emptying the collected dust from the machines. The most appropriate method to minimize dust release is to dampen the contents of the hopper using an accessible hose. If water is to be used for dust control, it will be necessary to devise a means of containing excess water. This can be achieved by placing 6-mil polyethylene plastic on the ground where the equipment is being emptied and carefully collecting the water after the hopper has been emptied. It is also necessary to perform this activity in a secure area so that children are not exposed.

3. Removal of Heavy Accumulation

The first step in cleaning an area should be the removal of heavy accumulations of dust and debris. The heavily accumulated areas can be cleaned either by manually removing the material with scrapers, shovels, or brooms, or by vacuuming the heavily accumulated areas if vacuuming proves to be adequate in removing the contamination. Just as in handling lead-contaminated soil, the heavy accumulations of exterior dust should be dampened.

4. Vacuum Cleaning

Small areas, such as sidewalks and patios that are inaccessible to larger cleaning machines, may be cleaned with an acceptable vacuum cleaner (see Chapter 14 for discussion of vacuum cleaners). Surfaces should be vacuumed continuously until no additional visible dust is being removed by further vacuuming.

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Plan de Trabajo de una
Monitoria arqueológica
Museo Histórico de Quebradillas

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31 de julio del 2023

I. Introducción

El presente documento es la Propuesta Técnica para un Plan de Trabajo de Protección Arqueológico e inspección de Monitoreo Arqueológico (El Plan) cumpliendo con la sección 106 del National Historic Preservation Act of 1966 y con la ley 112 y con el Reglamento para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico (Reglamento 8932) para el proyecto denominado Museo Histórico de Quebradillas, localizado en el barrio Pueblo de Quebradillas

Este Plan fue recomendado de acuerdo a los resultados del estudio Fase IA realizado por los arqueólogos Andrés Príncipe y Fernando Alvarado en abril del 2022 y del formulario PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM, INVESTMENT PORTFOLIO FOR GROWTH PROGRAM (IPG), section 106 NHPA Effect Determination, presentado para este proyecto.

Durante la inspección de la superficie realizada en el estudio Fase IA, se pudo observar una estructura histórica (el proyecto) localizada en el casco urbano de Quebradillas y en la parte posterior, se localizó un piso en cemento que resulta ser la parte superior de un pozo séptico de la propia estructura. Teniendo en cuenta la localización del proyecto y la alta probabilidad de evidenciar recursos históricos en el subsuelo en contraste con las obras propuestas. El Plan de Trabajo dentro de la monitoria, estará enfocado en velar, documentar, proteger cualquier recurso identificable en los límites del proyecto durante las obras de excavación y demolición propuestas.

La monitoria cumplirá con los requerimientos del proyecto durante los movimientos de terreno, demoliciones y/o excavaciones propuestas. El Plan de Protección de Recursos Arqueológicos es necesario para ser efectuado durante las obras de demolición del proyecto, movimientos de terrenos, o mientras existan posibilidades de impacto a las estructuras históricas aledañas y/o en el subsuelo. Teniendo en perspectiva lo anteriormente mencionado, y con el propósito de documentar y proteger cualquier elemento prehistórico o histórico que existiese en el área. Este plan de monitoria arqueológica vendrá a complementar los trabajos que allí se ejecuten, con el fin de recobrar toda la información histórica relevante.

II. Descripción del Proyecto

El proyecto propuesto tiene por objeto la remodelación y rehabilitación del edificio existente ubicado en Honorio Hernández, frente a la plaza principal de Quebradillas para convertirse en el “Quebradillas Museo Histórico”. El proyecto consiste en la restauración y acondicionamiento de un edificio histórico para convertirse en el Museo Histórico de Quebradillas. En la actualidad el edificio carece de techo.

En términos generales, se propone utilizar el antiguo edificio existente, repararla (incluyendo un techo nuevo) destinar el primer piso a Museo Histórico y el segundo piso a oficina y archivo. La propiedad se encuentra frente a la Plaza de Recreación del Municipio de Quebradillas. En la parte de atrás, un espacio destinado a baño tiene columnas de sustentación muy deterioradas, incluyendo el piso del segundo piso esta deteriorado. El suelo de la primera planta es de terrazo y serán conservados.

El proyecto contempla la demolición de una parte del edificio existente. Esta porción corresponde a una adición al edificio para proporcionar un baño adicional en el segundo nivel. Esta porción de la estructura tiene deterioro estructural que requiere demolición. Las columnas y las vigas tienen acero estructural expuesto y corroído. El proceso para la demolición de esta porción será realizado con herramientas manuales. Esto se debe a que no hay acceso a la parte trasera para permitir el uso de equipo mecánico, como una retroexcavadora pequeña.

A partir de la demolición, se realizarán las excavaciones para los cimientos de la extensión propuesta. Las zapatas diseñadas corresponden a zapatas extendidas a una profundidad de 2 pies (0,6097 metros). Los cimientos ocupan una parte del patio de 100.875 pies cuadrados (9,38 metros cuadrados). área. Esto incluye utilizar el área de 132,25 pies cuadrados (12,292 m²) previamente impactada por el construcción del baño del segundo piso hace años.

En el primer piso, se propone demoler una parte del muro existente (lado oeste) para dotar acceso desde la estructura existente a la ampliación propuesta. La demolición consiste en cortar un área de 10,5 pies cuadrados (0,9759 m²) debajo de la ventana existente para crear 25,333 pies cuadrados (2,354 m²).

También se propone derribar dos muros interiores por la parte posterior correspondientes a los baños existentes en el primer piso. Como parte del trabajo requerido para los dos nuevos baños, será necesario cortar la losa y el piso de concreto existente para instalar la tubería para el sanitario alcantarillado.

En el frente del primer piso (salón principal) se propone demoler un escalón interior para crear escalones uniformes a la altura requerida. El escalón mide 3 pies por 1 pie. En el segundo nivel solo se propone la demolición del baño. En cuanto a la fachada principal, se utilizará agua a no más de 60 psi y cepillo para limpiar la superficie. A partir de la limpieza se realizarán los trabajos de pintura, utilizando el color original (color salmón). El techo del segundo nivel (porción existente, en forma de martillo), mantendrá los niveles y descargas como las existentes, según la huella en el límite de los muros.

La nueva construcción consta de un bloque de concreto de 23.25 pies (7.088 m) por 10.25 pies (3.125 m) y expansión del bloque para incluir una sala de exposición en el primer piso y proporcionar acceso al patio trasero. En el segundo piso hay dos baños y un pasillo. Además, se crearán dos nuevos baños en el primer nivel en la parte trasera del edificio. Ocuparán un área de 11'-10" por 8'-0" (94.667 pies cuadrados o 8.8 m²) y tendrán acceso solo desde adentro. El sistema eléctrico y de plomería del edificio existente será reemplazado y/o actualizado. Se sustituirán o modernizarán las instalaciones eléctricas y de fontanería del edificio y se instalará un techo acústico suspendido. En el segundo nivel se propone reparar los huecos de las puertas con mortero y un nuevo metal. En el patio se propone construir una terraza en forma de L que ocupa un espacio de 206 pies cuadrados (19.148 m²). El lote donde se ubica el proyecto tiene una superficie de 233 metros cuadrados. Los dos pisos de la estructura existente tiene un área de ocupación de 1,304 pies cuadrados (121,2076 metros cuadrados). El nuevo el área de ocupación será de 1,627 pies cuadrados (151,2307 metros cuadrados).

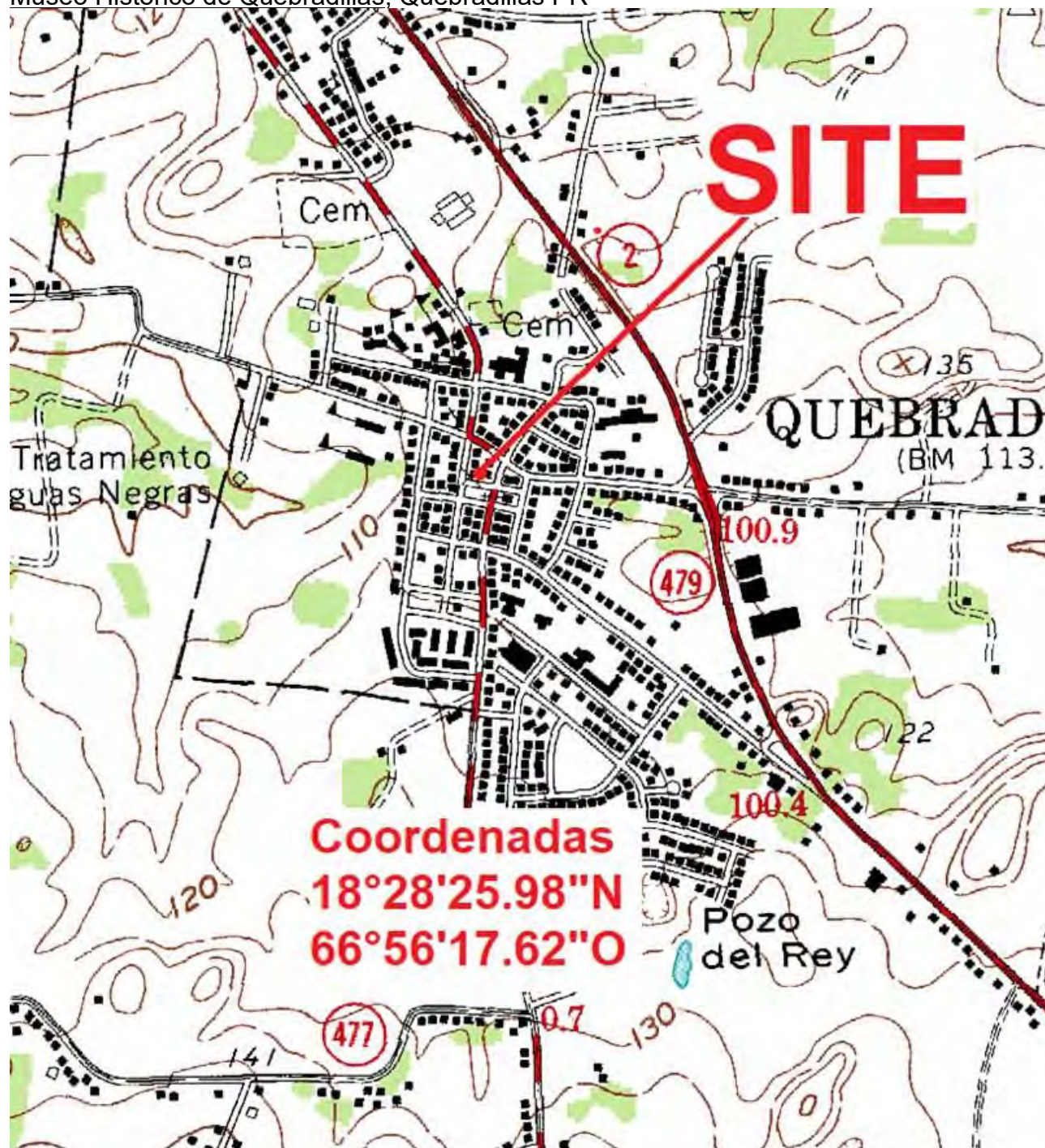


Figura #1
Localización del proyecto y Recursos culturales identificados.

III. Descripción general de la Monitoría Arqueológica. (Reglamento 8932, ICP)

A. Consiste en una supervisión continua por parte de un arqueólogo durante trabajos de excavación, remoción de pisos y demolición de estructuras, en áreas donde existen recursos arqueológicos o hay la posibilidad de encontrarlos. Por lo general se realiza en áreas urbanizadas como calles y carreteras o al interior de estructuras, que no permiten realizar excavaciones arqueológicas sistemáticas previas a la demolición o construcción del proyecto, por lo que se aprovechan las excavaciones que realiza el contratista como parte del proyecto, para identificar, evaluar y documentar cualquier hallazgo de naturaleza arqueológica.

B. La supervisión también pretende evitar impactos negativos a los recursos arqueológicos identificados y documentados en fases previas de investigación.

C. La supervisión arqueológica debe ser realizada por un Investigador Principal cualificado por el Consejo y que sea SOI-qualified, o sea, que cumpla con Secretary of the Interior Professional Qualifications Standards for Archaeology established in 36CFR Part 61, para realizar estudios arqueológicos.

D. El desarrollo efectivo de una supervisión arqueológica exige un entendimiento y acuerdo claro entre el Gerente de Construcción (Construction Manager (CM), Gerente del proyecto (Project Manager o PM), Administrador de subvenciones (Grant Manager o GM), el Arqueólogo Monitor (Archaeologist Monitor (AM), ICP/OECH y cualquier otro organismo público o privado que requiera su involucramiento:

1. No deberán llevarse a cabo excavaciones, demoliciones o movimientos de terreno sin la presencia de un arqueólogo cualificado.
2. En caso de haber excavaciones simultáneas en diferentes áreas del proyecto, se deberá contar con un arqueólogo en cada área.
3. Cuando se detecte algún elemento arqueológico, deberán detenerse los trabajos de excavación o construcción en esa área inmediatamente, hasta tanto, el arqueólogo encargado realice la documentación del hallazgo y dé el visto bueno para continuar con los trabajos.

4. La documentación de los hallazgos podría requerir que se extiendan las excavaciones para exponer y definir completamente el hallazgo.
5. Se deberá, en la medida de lo posible, conservar y proteger el hallazgo.
6. En el caso de elementos inmuebles o sus remanentes, deberá hacerse todo el esfuerzo posible por adaptar el diseño del proyecto y evitar el impacto negativo al hallazgo. Este deberá ser protegido y conservado *in situ*. Es deseable que el mismo sea integrado al proyecto y puesto en valor de algún modo, en coordinación con el investigador principal y el ICP/OECH

IV. Objetivos de la monitoría arqueológica.

La monitoría arqueológica deberá realizarse teniendo en cuenta los siguientes objetivos:

- A. Localizar, evaluar y documentar los recursos arqueológicos durante el desarrollo del proyecto.
- B. Recuperar la mayor información y materiales arqueológicos posibles durante los trabajos de excavación y construcción.
- C. Conservar y poner en valor los recursos arqueológicos localizados y documentados.
- D. En el caso que el recurso arqueológico no pueda ser conservado *in situ*, conservarlo mediante la documentación.

V. Alcance de Servicios

El Plan de Protección de Recursos Arqueológico persigue cumplir con la Sección 106 del “U.S. National Historic Preservation Act” del 1966, modificación (36 CFR, Part 800) (SHPO), y con las disposiciones la Ley 112 del Consejo de Arqueología Terrestre y la *Guía oficial para investigaciones arqueológicas* del Programa de Arqueología del Instituto de Cultura Puertorriqueña del 2017, según enmendado.

El requerimiento de los estudios de monitoría arqueológica es ordenado con el objetivo de cumplir con las leyes federales y estatales con respecto al patrimonio arqueológico terrestre. Este tipo de estudio y metodología de campo se practica, usualmente, para proteger recursos culturales que se infiere pudiesen estar localizados en el subsuelo que será removido por obras de construcción.

El trabajo de campo y la presencia de un arqueólogo calificado dentro de la monitoria es requerido cuando se realicen tareas de demolición, excavación y movimiento de terreno, según requeridas por el proyecto. Los resultados de la supervisión arqueológica deben ser presentados en Informes de Progreso Mensuales, al PM y GM. El GM será responsable de entregar los informes a las agencias concernientes. El resultado final será expuesto en un Informe Final, posterior al fin de las labores en el campo. Ese Informe Final incluirá el resultado de las excavaciones en el campo, el análisis de material recuperado, si alguno, y la investigación histórica, entre otros. El Informe Final incluirá los comentarios y recomendaciones del GM y de las agencias concernientes que sean necesarios, de acuerdo con el Reglamento 8932 del ICP, incluyendo a SHPO.

El estudio arqueológico propuesto debe ser hecho de acuerdo a los parámetros establecidos por las agencias reguladoras. El trabajo de campo a realizarse tiene, como propósito principal, localizar todos los sitios arqueológicos relacionados a culturas prehispánicas o coloniales que existan dentro del área del proyecto, que pudiesen ser impactados, afectados o destruidos por el desarrollo propuesto.

VI. Método y ejecución de los trabajos de campo

A. Antes de que comience la demolición, excavación o movimiento de terreno

1. El Gerente de Construcción (Construction Manager (CM) notificará al Gerente del proyecto (Project Manager o PM), y al Administrador de subvenciones (Grant Manager o GM), la fecha de inicio de las actividades propuestas. El PM, es responsable de la coordinación entre el CM y el Monitor Arqueológico (Archaeologist Monitor (AM)).

2. Antes de que comience cualquier demolición o construcción, el PM, CM, GM y el AM tendrán una reunión inicial para discutir el procedimiento para seguimiento arqueológico, incluido el protocolo de coordinación entre el AM y el Contratista. El AM proporcionará una orientación sobre los recursos culturales y los recursos potenciales y su tratamiento adecuado. El AM explicará qué actividades de demolición requieren de monitoría arqueológica.
3. El PM, CM, GM y el AM completarán y firmarán una declaración que describa las actividades que no podrán realizarse sin la presencia del AM, demostrando su comprensión y compromiso de seguir los procedimientos de seguimiento arqueológico.
4. Antes de comenzar las labores de construcción, el Monitor debe documentar el estado del edificio histórico por medio de descripciones verbales y fotos. Se debe dar atención particular a las etapas constructivas de la propiedad y a cualquier otra estructura asociada que pueda existir. Se debe verificar que el dibujo de planta esté correcto y que incluya todo lo que se observa. Esta data se incluirá en el informe final.

B. Durante la construcción

Dentro de los parámetros anteriormente descritos, y para poder cumplir con el ámbito de los requerimientos especificados, se deberá realizar los siguientes procesos, que representan el marco metodológico de la presente propuesta.

1. El AM llevará un diario con el registro de las actividades realizadas: actividades realizadas, ubicación de hallazgos arqueológicos, presencia de materiales arqueológicos, presencia de elementos estructurales, estratigrafía, etc. Su tarea principal será velar por que las actividades del contratista no impactan los recursos arqueológicos. El AM completará el formulario de registro diario de actividades y un registro fotográfico. Estos formularios se adjuntarán al informe final como apéndice.

2. El AM tendrá la autoridad para dirigir la excavación del contratista. En otras palabras, el arqueólogo tendrá el poder de instruir al operador del contratista sobre cómo proceder cuando entienda que existe la posibilidad de impactar un recurso arqueológico. El operador de la excavadora debe cumplir con las solicitudes del arqueólogo, como excavar lentamente, remover poca tierra a la vez y detener la excavación para evaluar un hallazgo.

3. Luego de las labores de demolición y del levantamiento de pisos, el Monitor documentará cualquier elemento asociado a la ocupación anterior del edificio histórico, como cimientos de muros, trincheras de construcción y depósitos artefactuales. La cantidad, el tamaño y la ubicación de las unidades de excavación dependerán del tamaño y la complejidad del elemento que se esté documentando. La documentación incluirá una descripción detallada del hallazgo, el contexto, la procedencia horizontal y vertical, fotografías y dibujos, si fuera necesario. Esta documentación se realizará en un plazo razonable, procurando no afectar en lo posible al calendario del proyecto. Cualquier elemento podrá ser demolido y retirado una vez la documentación realizada por el Monitor sea aprobada por el GM. La información registrada se incluirá en el informe final.

4. Si se identifica un hallazgo arqueológico inesperado o significativo, el arqueólogo informará inmediatamente al CM, al PM y al GM. El GM notificará a SHPO y al ICP en un periodo de 24 horas luego de recibir la evaluación preliminar del AM.

a. En estos casos el procedimiento sugerido es el siguiente:

1. El monitor debe hacer una evaluación preliminar del hallazgo, donde incluya ubicación, extensión vertical y horizontal, contexto, fotos y dibujos, y un plan de trabajo de cómo se debe implementar una evaluación del hallazgo (tipo, cantidad y ubicación de unidades de excavación, por ejemplo).

2. El Monitor debe enviar este documento al PM y GM en un periodo de 24 horas de hacer el descubrimiento. El GM deberá comentar el plan de trabajo en un periodo similar luego de recibido.
 3. El Monitor implementará el plan de trabajo tras recibir el visto bueno del GM. Luego de completar el trabajo de campo, el Monitor deberá preparar un Informe de fin de campo resumiendo los resultados, determinando la elegibilidad al RNLH del recurso y con una recomendación de cómo evitar, minimizar o mitigar el efecto adverso.
 4. El GM notificará a SHPO y al ICP de la determinación de elegibilidad. Si no es elegible, las actividades de construcción podrán comenzar con los trabajos a menos que SHPO o el ICP no estén de acuerdo con la determinación y así lo notifiquen en un periodo de 48 horas. Si se determina que el recurso es elegible, se deberá aplicar los criterios de efectos adverso. Si no hay un efecto adverso, se seguirá el mismo proceso indicado arriba. Si hay un efecto adverso se deberá implementar una Documentación arqueológica (Fase II). El Monitor deberá elaborar un plan de investigación, el cual será sometido al GM para comentarios. Éste se podrá implementar una vez recibido el visto bueno de las agencias pertinentes.
- b. En caso de que se encuentre un enterramiento humano.
1. Se deben detener los trabajos inmediatamente.
 2. Se notificará al CM, PM y GM de inmediato, y a la Policía y Forense de ser necesario.
 3. Se deben proteger los restos de cualquier daño.
 4. El GM notificará a SHPO y al ICP dentro de las 24 horas siguientes a la identificación de los restos.

5. Durante la documentación arqueológica, el procesamiento de artefactos arqueológicos, si los hubiera, será realizado simultáneamente con el trabajo de campo. Los artefactos serán lavados, clasificados, analizados y documentados gráficamente. Si es necesario, se llevará a cabo una investigación documental para analizar e interpretar los hallazgos. Se incluirá un resumen de estas actividades en el informe mensual. Los artefactos deben curarse y procesarse de acuerdo con los estándares establecidos.
6. Si durante la construcción, una propiedad histórica se ve afectada de manera imprevista, el CM deberá detener el trabajo de inmediato, e informar al PM, GM y al AM. El AM, junto con el GM, evaluarán los efectos imprevistos y aplicarán los criterios de efecto adverso en un plazo no superior a 24 horas. Si se determina que el efecto es adverso, el AM y el GM proporcionarán recomendaciones sobre cómo evitar, minimizar o mitigar dichos efectos adversos. El GM consultará al ICP/SHPO sobre las recomendaciones antes de su implementación.
7. El AM deberá presentar informes mensuales al PM y GM desde la ejecución de esta documentación hasta que se completen los trabajos de construcción dentro de los 10 días siguientes al último día calendario del mes. Se preparará un informe de visitas mensuales, incluyendo fotografías del área de interés. El GM será responsable de entregar a las agencias concernientes.
8. Si luego del inicio del proyecto se agrega alguna obra adicional de construcción o se realiza algún cambio en los planos constructivos, el CM y PM, antes de realizar las obras, deberá informar al equipo de arqueología. El AM y el GM, evaluarán estos trabajos y aplicarán los criterios de efectos adversos. En caso de que se determine que el efecto es adverso, el AM brindará recomendaciones para evitar, minimizar o mitigar dicho efecto adverso. Estas recomendaciones serán consultadas con el ICP/ SHPO antes de su implementación.

C. Luego de la construcción, demolición, excavación y/o movimiento de terreno

Finalmente se redactará un informe final, el cual incluirá todo lo sucedido en el proyecto, incluyendo los trabajos realizados, planos dibujos de perfiles, fotografías, los hallazgos (si alguno) documentado y los procesos de conservación. Todo según dispuesto en la Sección 106 y este Plan de Trabajo.

Se notificará al ICP/SHPO cuando se completen las obras de construcción. Esta comunicación indicará la fecha estimada de entrega del informe. Una vez finalizadas las obras de construcción, el AM realizará una inspección final, donde documentará fotográficamente las condiciones finales.

Se debe preparar un informe final técnico. Este informe debe incluir una descripción del trabajo realizado, los trabajos de construcción que fueron supervisados arqueológicamente y la documentación de cualquier hallazgo inesperado, si lo hubiera. También debe incluir la documentación final del estado de la propiedad junto con una comparación del estado final del edificio con el estado inicial. Se enviará una copia digital del borrador del informe a al GM dentro de los 60 días calendario posteriores a la finalización del trabajo. El GM evaluará el informe y luego de ser aprobado será enviado al ICP/SHPO para su evaluación.

VII. Cualificación profesional

El AM para cumplir satisfactoriamente con los trabajos de la monitoría debe cumplir con los requisitos del Reglamento 8932 Consejo para la Protección del Patrimonio Arqueológico Terrestre del ICP y con Secretary of the Interior Professional Qualifications Standards for Archaeology established in 36CFR Part 61.

VIII. Bibliografía

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