ENVIRONMENTAL ASSESSMENT for HUD-funded Proposals

Project Identification:	PR-LIHTC-00024 **VISTA AL NORTE** CAMINO PIEDRAS BLANCAS SECTOR PIEDRAS BLANCAS BARRIO PUEBLO GUAYNABO, PR
Preparer:	**ARCH. JORGE L. SALA MORALES** **ARCON LLC**
Responsible Entity:	**PUERTO RICO DEPARTMENT OF HOUSING (PRDOH)**
Month/Year:	**April 10, 2023**

ENVIRONMENTAL ASSESSMENT

Responsible Entity: [24 CFR 58.2(a)(7)]	PUERTO RICO DEPARTMENT OF HOUSING (PRDOH)
Certifying Officers: [24 CFR 58.2(a)(2)]	JUAN CARLOS PEREZ-BOFILL SALLY Z. ACEVEDO-COSME PEDRO DE LEON RODRIGUEZ MARIA T. TORRES-BREGON IVELISSE LORENZO ANGEL GABRIEL LOPEZ GUZMAN SANTA RAMIREZ PERMIT AND ENVIRONMENTAL COMPLIANCE OFFICERS CDBG-DR PROGRAM
Project Name:	CONDOMINIO VISTA AL NORTE
Project Location:	CAMINO PIEDRAS BLANCAS SECTOR PIEDRAS BLANCAS BARRIO PUEBLO GUAYNABO, PR
Estimated Total Project Cost:	$29,734,781.00
Grant Recipient: [24 CFR 58.2(a)(5)]	PUERTO RICO HOUSING FINANCE AUTHORITY (PRHFA)
Recipient Address:	CALLE ALDEBARAN 638 URB. ALTAMIRA SAN JUAN, PR 00901
Project Representative:	ARQ. SEGUNDO RAFAEL CARDONA COLOM
Telephone Number:	(787) 791-9090
Email:	CARDONA@SCF-PR.COM

CONDITIONS FOR APPROVAL:

(List all mitigation measures adopted by the responsible entity to eliminate or minimize adverse environmental impacts. These conditions must be included in project contracts and other relevant documents as requirements). [24 CFR 58.40(d), 40 CFR 1505.2(c)]

The following conditions and mitigation measures must be adopted throughout the construction:

1. Permits – Prior to construction commencement, the developer must have the final construction permit available as amended to include the final construction cost and Environmental Quality Board requirements and/or its exclusions. The developer must also acquire and maintain all required federal, Puerto Rico and local permits and endorsements and must ensure compliance with all conditions stipulated in them.
2. A significant deviation from the scope of work calls for a re-evaluation of the application for funding under the National Environmental Policy Act.
3. Comply with all mitigation measures established in permits and agency endorsements.
4. Comply with mitigation measures as specified in the "Determinacion de Cumplimiento Ambiental para Evaluacion Ambiental".
5. Contractor must detain all construction work if archaeological deposits and/or elements of historical value are encountered during any phase of the construction. Contractor must inform the ICPR, SHPO and Contracting Officer within 24 hours of the finding. No work may resume until consultation is complete and authorization has been granted to continue.
6. Contractor must implement and maintain the CES plan for the control of erosion and sedimentation.
7. Outfit all equipment with mufflers.
8. Comply with noise ordinance as established in the "Reglamento para el Control de la Contaminación por Ruido de la Junta de Calidad Ambiental".
9. Contractor must detain any an all-construction work if any above ground and/or below ground water sources are encountered during the construction effort and shall notify the DRNA immediately upon such findings.
10. Contractor must take preventive measure to ensure that storm water does not carry organic and/or inorganic materials (oil, fuel spills, etc.) into neighboring bodies of water.
11. Contractor must take preventive measures to prevent construction dust from becoming a nuisance to neighboring populations.
12. Interior auditory environment shall not exceed a day-night average sound level of 45 decibels. Attenuation measures to meet these interior goals shall be employed where feasible.
13. Waste material and debris will be stored in 55-pound containers placed on site. The material will be disposed of in an authorized landfill by the contractor.
14. Developer and contractor must implement 'Best Management Practices' as proposed by the US Department of Interior in their updated Blanket Clearance Letter for Federally sponsored projects, USDA Rural Development dated October 24, 2019.
15. Recycling should be implemented during construction and enforced as per standards set by the Department of Natural and Environmental Resources (Departamento de Recursos Naturales y Ambientales- DRNA).

BREAKDOWN OF FUND SOURCES

Tax Credit Capital	Permanent Loan	Other Sources	CDBG-DR	Total Cost
6,914,920.00	-0-	-0-	22,819,861.00	29,734,781.00

ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
AAA	Puerto Rico Water and Sewage Authority (Autoridad de Acueductos y Alcantarillados)
ABFE	Advisory Base Flood Elevation
ACM	Asbestos Containing Materials
ACT	Department of Transportation (Autoridad de Carreteras)
ADS	Solid Waste Authority (Autoridad de Desperdicios Sólidos)
AEE	Puerto Rico Electric Power Authority (Autoridad de Energia Eléctrica)
CBRS	Coastal Barrier Resource System
CDBG-DR	Community Development Block Grant – Disaster Recovery
CES Plan	Erosion Control and Sediment Containment Plan (Plan para el Control de la Erosión y Prevención de la Sedimentación)
DRNA	Department of Natural Resources (Departamento de Recursos Naturales)
EA	Environmental Assessment
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
ICPR	Institute of Puerto Rican Culture (Instituto de Cultura Puertorriqueña)
LBP	Lead Based Paints
LIHTC	Low Income House Tax Credit
LOMA	FEMA Letter of Map Amendment
NCRS	Natural Resources Conservation Service
NPDES	National Pollutant Discharge Elimination System
PRASA	Puerto Rico Water and Sewage Authority (Autoridad de Acueductos y Alcantarillados)
PRDOH	Puerto Rico Department of Housing (Departamento de La Vivienda)
RECs	Recognized Environmental Conditions
SFHA	Special Flood Hazard Area
SHPO	Stage Historic Preservations Office
SOW	Scope of Work
SSA	Sole Source Aquifers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

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1. PROJECT DESCRIPTION

A. Statement of Purpose and Need for the Proposal: [40 CFR 1508.9(b)]

Puerto Rico is short of suitable affordable housing for numerous low-income populations including, but not limited to, the working population, single parent families and young adults. Throughout the past decade PR has been wrought by an economic recession that has been further tainted by hikes in construction costs, the implementation of new taxes, the degradation of the islands credit rating and new fiscal controls over government spending.

Furthermore, Hurricanes Irma and Maria stormed through the island in September of 2017 damaging hundreds of thousands of homes along the way. All together, these conditions have led to a shortage in affordable housing and present powerful obstacles to low-income families in their search for safe, sanitary and secure homes.

The purpose of this endeavor is to assist in providing suitable, resilient affordable housing to low-income families of Guaynabo and the ‘Metro’ area.

B. Description of the Proposal: Include all contemplated actions that are either geographically or functionally a composite part of the project, regardless of the source of funding. [24 CFR 58.32, 40 CFR 1508.25]

The following excerpt has been extracted from the developer's project narrative:

State Housing Plan and/or PR Disaster Recovery Action Plan

The State Housing Plan and the PR Disaster Recovery Action Plan, prioritize the need of providing housing for low and moderate-income families in the island. Accordingly, the State Plan lays out the need of affordable housing for the working population, elders, single parent families and young adults.

The Municipality of Guaynabo (the "Municipality") has a high demand of affordable multifamily housing rental units. The proposed project, VISTA AL NORTE (the "Project") is precisely for the new construction of affordable multifamily housing units for the low- income population. This Project will provide a decent household to low-income families, not met by any other property in the Municipality. The Project is not targeted for elders, but units are available for them. Moreover, elders are not prohibited from living with additional family members and could qualify to live in this Project. The privilege location correlates with revitalization efforts, opportunity areas or growth center in the City of Guaynabo.

The Project will be located in a vacant property [the "Site"] at the Municipality. The Joint Regulation for the Evaluation and Expedition of Development-Related Permits Use Land and Business Operation from Puerto Rico Planning Board (June 7, 2019) has classified the Site as an urban soil and is designated as an Urban Residential Zone (the "R-U"). The R-U zoning district identifies current residential areas and/or high population density areas classified as urban or developable, that are near main centers of economic activity. Due to the development of the area in which they are located, these sites have or can be assisted with infrastructure such as sewerage, water, electric power, and transportation system, among other.

The Project is designed to accommodate low income families in (2bedroom/2bathroom and 1 bedroom/1 bathroom) housing units, with the exclusive advantage of living in a modern and elegant building with affordable rents, located at walking distance from the urban center. The Project includes the construction of a public transit stop, improvement of sidewalks and signage in compliance with applicable accessibility standards and local codes. These off-site improvements are being made, even though they are not required by a competent authority. Accordingly, the Project is consistent with the public policy of the State Housing Plan, the PR Disaster Recovery Action Plan and Municipal Government of facilitating and promoting accessible housing rent units for families with limited resources. The Project will also apply for Project Based Vouchers if and when available for families which comply with the income limitations.

Site Description

The Site of the Project has a superficial area of 6474.1646 square meters equal to 1.6472 "cuerdas", according to the site survey prepared by the Surveyor Pedro J. Dávila Colón, Lic. 9323. Bounded on the NORTH, with property of Iglesia Cristiana Discípulos de Cristo, on the SOUTH, with Piedras Blancas Street; on the EAST, with property of Iglesia Cristiana Discípulos de Cristo, and on the WEST, with property of Iglesia Cristiana Discípulos de Cristo and Piedras Blancas Street.

The Property described in the above paragraph will be formed by segregation of lot of 1897.1206 square meters from parcel number 31,380, recorded at page 70 of volume 836 of Guaynabo, Registry of Property, Section of Guaynabo, Puerto Rico (Pin Number 114-063-033-11-000) grouped to parcel number 31,381, recorded at page 152 of volume 1437 of Guaynabo, Registry of Property, Section of Guaynabo, Puerto Rico (Pin Number 114-063-033-10-000).

Project Description

The Development of the proposed multi-family housing Project consists of a 13 level structure with a total of 102 apartments. These apartments units will be distributed as follows: 52 – 1 bedroom / 1 bathroom and 50 – 2 bedrooms /2 bathroom. The Project will provide an area with a total of 174 parking spaces of which 20 spaces are for visitors and 13 spaces for handicapped.

The Project includes the construction of a public transit stop, improvement of sidewalks and signage in compliance with applicable accessibility standards and local codes. These off-site improvements are being made, even though they are not required by a competent authority. The Project will be equipped with 245 solar collector panels and 240 kilowatts storage capacity provided by 40 batteries. This system is capable of maintaining uninterrupted electrical capacity for common areas, elevators, and water pumps for a full 24-hours cycle. For rainy days, the additional power source to compensate the loss of solar power will come from the power company and in the absence of power from the grid; batteries will be reflagged by a diesel electrical generator. Potable water cistern has a capacity for 3 days of water supply at a rate of 100 gals per day per apartment. Apartments will be equipped with storm resistant windows able to withstand the wind pressure criteria required by code. This Project is designed to provide dignified living environments for low-income families and individuals following high design standards.

Project Amenities & Unique Characteristics

The Project will have the following amenities: Playground Area; Ballroom; Gym, Laundry Area and Administrative Office. It will also have a fence around its perimeter and electronic controlled access.

One of the strategic advantages of the location of the Project is its distance to the Urban Center, which is approximately seven (7) minutes walking. It's strategically located and accessible from various avenues like: State Road 169, David Urbina Avenue, and up to Martinez Nadal Express Way. These avenues always give the Project direct congestion free access to Guaynabo, Caguas and Bayamon.

Another unique advantage is that this site is located about 994 meters from the Town Square; 1495 meter from Guaynabo Medical Mall (Diagnostic and Treatment Center); 850 meter from

Traditional Town Market; 230 meter from Urban Elementary School; 516 meter from Anamalis Pharmacy and 770 meter from Federal Post Office.

Market Demand

Vista al Norte provides resilient housing for families affected by past hurricanes because of substandard housing. Providing resilient, code compliant housing contributes to stability both physical and emotional for families that would otherwise will be affected by future extreme weather and seismic events. Utilization of solar energy for common areas, water cisterns and emergency electric generator will contribute to better and safer living standards in the event of electrical power outages and water shortages.
Housing accessible to low income families and individuals with these characteristics are more consistent in the Municipality of Guaynabo.
According to the Project Market Study, the potential demand for rental of multifamily housing units as indicated by the Primary Market Area [PMA] is of approximately 8,331 units for 2018. The Market Study projections for 2023, occupancy date of the project indicate that the Potential Demand for rental multifamily housing would be of 7,776 units. This estimate considers that 50% of renter's households will have incomes of 50% or below of the AMI.

Financial Structure

The construction of the Project will be financed with 4% Low Income Housing Tax Credits [LIHTC], proceeds of tax exempt obligations in the amount of $6,914,920.00; Community Development Block Grant for Disaster Recovery (CDBG-DR) funds in the amount of $22,819,861.00; Interim Construction Loan in the amount of $15,000,000.00. The estimated total development cost is $29,734,781.00. The gap between the proceeds from tax credits will be financed with CDBG-DR funds. This Site is suitable for affordable housing and its development will provide leveraging of funds.

Contemplated actions include:

- Site Preparations and Earthworks
- Construction of parking and site infrastructure which includes a storm sewer system.
- Construction of building in reinforced concrete and masonry. It includes a cistern tank and retention tank
- Hook up to existing infrastructure:
    - Electricity
    - Aqueduct & Potable Water Supply
    - Sanitary Sewer
    - Roads and Sidewalks
    - Telephone & Cable: Communications

C. Existing Conditions and Trends: Describe the existing conditions of the project area and its surroundings, and trends likely to continue in the absence of the project. [24 CFR 58.40(a)]

The proposed construction site lies in a vacant lot with a superficial area of 6,474.1646 square meters located in the outskirts of the Guaynabo's city center. It is approximately 1,000 meters from the city Town Square. It is readily accessible, supported by adequate utilities infrastructure, and near the commercial, institutional, and healthcare facilities necessary support a healthy residential community.

The site has been vetted by local agencies and the proposed project has been positively accepted for its intended use. Puerto Rico's debt crisis accompanied by current economic trends and development efforts suggest that in the absence of this project the site would remain undeveloped until funding is secured.

2. FINDING: [58.40(g)]

☑ **Finding of No Significant Impact**
(The project will not result in a significant impact on the quality of the human environment)

☐ **Finding of Significant Impact**
(The project may significantly affect the quality of the human environment)

Preparer Signature: _____

Date: April 10, 2023

Name/Title/Agency: ARCH. JORGE L. SALA
ARCON, LLC

RE Approving Official Signature: _____

Date: April 13, 2023

Name/Title/Agency: Santa D. Ramírez Lebrón
Permits and Environmental Compliance Specialist
PUERTO RICO DEPARTMENT OF HOUSING CDBG-DR PROGRAM

3. STATUTORY CHECKLIST: [24CFR §58.5]
Record the determinations made regarding each listed statute, executive order or regulation. Provide appropriate source documentation. Note reviews or consultations completed as well as any applicable permits or approvals obtained or required. Note dates of contact or page references. Provide compliance or consistency documentation. Attach additional material as appropriate. Note conditions, attenuation or mitigation measures required.

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
Historic Preservation [36 CFR 800]	Yes ☐ No ☒	A letter from SHPO dated December 11, 2020 directed towards Lauren Poche, and for this particular project, states that SHPO supports a finding of NO HISTORIC PROPERTIES AFFECTED within the project's area of potential effects. Furthermore, the Instituto de Cultura Puertorriqueña has evaluated the project as presented by the developer and concluded that the possibility that the project will impact any archaeological and/or historical resources is minimal. Therefore, the department has no objection to the development of this project as formally makes this stated in their recommendations letter dated October 6, 2020. No adverse effects are anticipated. **See App B Exhibit E – SHPO Documents** **See App B Exhibit F – Instituto de Cultura Puertorriqueña**
Floodplain Management [24 CFR 55, Executive Order 11988]	Yes ☐ No ☒	The selected site is not located in a floodplain. As presented in Flood Map Number 72000C0730H with an effective date of 4/19/2005, it stands within the Zone X defined as an area determined to be outside the 500-year flood by FEMA. Therefore, this factor is in compliance with Executive Order 11988. **See App A Exhibit 1 – FEMA Firmette** **See App A Exhibit 1.1 – ABFE Map**

Wetlands Protection [Executive Order 11990]	Yes ☐ No ☒	The project site is not located on any riparian nor wetlands. Furthermore, a permit won't be required as per Section 404 of the Clean Water Act for the project will not require the discharge of dredger or fill material into wetlands. No adverse effects are anticipated. **See App A Exhibit 2 – Wetlands Map**
Coastal Zone Management Act [Sections 307(c), (d)]	Yes ☐ No ☒	Puerto Rico's coastal zone generally extends 1,000 meters (one kilometer) inland. The project site is located over 5 miles from the nearest coastline. No adverse effects are anticipated. **See App A Exhibit 3 – Coastal Zone Management – DRNA** **See App A Exhibit 3.1 – Coastal Zone Management – Vulnerability Viewer** **See App A Exhibit 3.2 – Coastal Zone Management - Distances**
Sole Source Aquifers [40 CFR 149]	Yes ☐ No ☒	According to the US Environmental Protection Agency's Source Water Protection, Sole Source Aquifer Protection Program. There are no Sole Source Aquifers n Puerto Rico No adverse effects are anticipated. **See App A Exhibit 4 – Sole Source Aquifers**
Endangered Species Act [50 CFR 402]	Yes ☐ No ☒	The U.S. Fish and Wildlife Service determined that this project qualifies for the blanket clearance letter. Please see the 'Self-Certification' letter stamped by the USFWS and signed by the Caribbean EA Field supervisor on September 17, 2020. No adverse effects are anticipated. **See App A Exhibit 5 – Endangered Species & Ecology**
Wild and Scenic Rivers Act [Sections 7(b), (c)]	Yes ☐ No ☒	Puerto Rico has approximately 5,385 river miles. Only 8.9 miles of three rivers are designated as wild & scenic. The portions of these rivers that qualify under the are located more than 20 miles east of the project site. They are not in harm's way from this project. The proposed activities will not directly affect nor impact the rivers. No adverse effects are anticipated.

		See App A Exhibit 6 - Wild and Scenic Rivers
Air Quality [Clean Air Act, Sections 176(c) and (d), and 40 CFR 6, 51, 93]	Yes ☐ No ☒	The project site is located within a PM10 Nonattainment area. There is an approved LMP, EPA letter on Guaynabo meeting the criteria for a LMP and PM10 emissions, and a 40 CFR Part 52 and 81 Approval and Promulgation of Implementation Plans: Guaynabo PM10 Limited Maintenance Plan and Redesignation Request. Emissions during the construction should be limited to that of construction equipment and are assumed to be of minimal impact. No adverse effects are anticipated. **See App A Exhibit 7 – Air Quality** **See App B Exhibit D – PM10 Limited Maintenance Plan**
F**armland Protection Policy Act** [7 CFR 658]	Yes ☐ No ☒	The proposed project calls for construction in a vacant lot that lies within a populated and developed, mixed use, urban area of Guaynabo. The soil is not classified as prime farmland. 1% of the soil is considered farmland of statewide importance but it is limited to two separate small areas on the fringe of the property. One is in the south border where the lot meets the street and another one at the northwest corner of the lot flanking the street. “Farmland” does not include land that is committed to urban development. USDA/NRCS regulations contained at 7 CFR Part 658.2 define “committed to urban development” as land with a density of 30 structures per 40-acre area; lands identified as ‘‘urbanized area’’ (UA) on the Census Bureau Map or as urban area mapped with a ‘‘tint overprint’’ on USGS topographical maps; or as ‘‘urban-built-up’’ on the USDA Important Farmland Maps. The industrial, commercial, institutional and residential buildings together with their accessory buildings found in the 40-acre area where the lot is located amass to more than 30 structures. Hence, the area is “committed to urban development”.

		Also, the project has been vetted and endorsed by Puerto Rico's Department of Agriculture. Therefore, no adverse effects are anticipated to farmlands. **See App A Exhibit 11 – NRCS Soils Farmland Classification** **See App A Exhibit 11.1 – Custom Soils Report Excerpt** **See App A Exhibit 11.2 – NCRS Enlarged Map** **See App A Exhibit 11.3 – 30 Structures in 40 Acre Area** **See App A Exhibit 12 – Site Photos** **See App B Exhibit G – Custom Soils Resource Report** **See App B Exhibit H – Dept. of Agriculture Endorsement**
Environmental Justice [Executive Order 12898]	Yes ☐ No ☒	The development is meant to serve the pressing need for affordable housing in Guaynabo's low-income population and counts with the complete support from the Municipality. There are no environmental findings that would adversely affect target populations nor neighbors for Environmental Justice. **App A Exhibit 8 – Environmental Justice**

HUD Environmental Standards		Determination and Compliance Documentation
Noise Abatement and Control [24 CFR 51 B]	Yes ☐ No ☒	A site-specific noise study was carried out to measure noise levels at the project site. The study measured a weighted decibel dB(A) average over a 2-hour 40-minute period between 8am and 10:40am. The result for each of the 3 receivers were below 55 dB (A). No adverse effects are anticipated. **See App B Exhibit B – Noise Assessment**
Toxic/Hazardous/Radioactive Materials, Contamination, Chemicals or Gases [24 CFR 58.5(i)(2)]	Yes ☐ No ☒	A Phase I Environmental Site Assessment dated October 10, 2019, in conformance with the scope and limitations of ASTM 1527-13 determined that there were no Controlled Recognized Environmental Conditions (CRECs) nor Historical Recognized Environmental Conditions (HREC) identified at the subject site. However, it revealed that the site was once used for furniture manufacturing where solvents and adhesives could have been released to the environment. In the absence of evidence of how these materials were handled during the manufacturing process, these activities may constitute a REC to the site. Section 7.2 OPINION of the Phase I Environmental Site Assessment (Phase I ESA) suggests performing a limited sampling event in the location of the former factory. The intent would be to assess the presence of hazardous or petroleum compounds related to the furniture manufacturing activity that once existed on the site. This sampling was performed in March of 2023. The Limited Phase II Ennvironmental Site Assessment (Phase II ESA) rendered that none of the samples collected exceeded the EPA screening levels for Volatile Organic Compounds. No adverse effects anticipated. **See App B Exhibit C – Phase I EA** **See App B Exhibit P – Phase II EA**
Siting of HUD-Assisted Projects near Hazardous Operations [24 CFR 51 C]	Yes ☐ No ☒	The proposal calls for the development of a multi-family residential development in a populated, mixed-use urban area in the city of Guaynabo.

		Project is surrounded commercial, residential, and institutional buildings that do not use above ground storage of explosive or flammable materials. No aboveground storage tanks (ASTs), which could contain explosive or flammable materials are evident within a 1-mile radius of the project site. **See App A Exhibit 12 – Existing Conditions / Site Images**
Airport Clear Zones and Accident Potential Zones [24 CFR 51 D]	Yes ☐ No ☒	The project site is over 7 miles (36,960 feet) from the nearest general aviation airport which goes by the name Fernando Luis Ribas Dominicci, and over 8 miles (42,240 feet) from the nearest joint civil/military airport, known as International Airport Luis Muñoz Marin. It is not within 15,000 feet of a military airport or 2,500 feet of a civilian airport. No adverse effects are anticipated. **App A Exhibit 9 – Airports in Puerto Rico**

Other Factors		Source or Documentation
Flood Disaster Protection Act [Flood Insurance] [§58.6(a)]	Yes ☐ No ☒	As presented in Flood Map Number 72000C0730H with an effective date of 4/19/2005, the site stands within the Zone X defined as an area determined to be outside the 500-year flood by FEMA. Flood insurance is not required. **See App A Exhibit 1 – FEMA Firmette** **See App A Exhibit 1.1 – ABFE Map**
Coastal Barrier Resources Act/ Coastal Barrier Improvement Act [§58.6(c)]	Yes ☐ No ☒	The project site is located over 5 miles from the nearest coastline, approximately 9.5 miles south-southeast of protected area PR-86P and 11 miles southwest from system unit PR-87. No adverse effects are anticipated. The Coastal Barrier Resource System Mapper further confirms that the site is not identified as a 'protected area. **See App A Exhibit 10 – CBRS** **See App A Exhibit 10.1 – CBRS Distances**
Airport Runway Clear Zone or Clear Zone Disclosure [§58.6(d)]	Yes ☐ No ☒	The project site is over 7 miles (36,960 feet) from the nearest civil aviation airport which goes by the name Fernando Luis Ribas Dominicci, and over 8 miles (42,240 feet) from the nearest joint civil/military airport, known as International Airport Luis Muñoz Marin. It is not within 15,000 feet of a military airport or 2,500 feet of a civilian airport. No adverse effects are anticipated. **App A Exhibit 9 – Airports in Puerto Rico**
Other Factors Climate Change		Based upon the project scope, there should be no adverse impact relating to Climate Change.

4. ENVIRONMENTAL ASSESSMENT CHECKLIST

[Environmental Review Guide HUD CPD 782, 24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27]

Evaluate the significance of the effects of the proposal on the character, features and resources of the project area. Enter relevant base data and verifiable source documentation to support the finding. Then enter the appropriate impact code from the following list to make a determination of impact. **Impact Codes**: (**1)** - No impact anticipated; (**2)** - Potentially beneficial; (**3)** - Potentially adverse; (**4)** - Requires mitigation; (**5)** - Requires project modification. Note names, dates of contact, telephone numbers and page references. Attach additional material as appropriate. Note conditions or mitigation measures required.

Land Development	**Code**	**Source or Documentation**
Conformance with Comprehensive Plans and Zoning	2	The plot of land under consideration for this project is currently zoned as R-5, which allows for high-density residential use. The zoning classification is identified in map #57, dated May 2, 2010 of Guaynabo's classification/zoning maps. **See App A Exhibit 14 - Zoning Map**
Compatibility and Urban Impact	2	The project lies within a populated area of mixed occupancies. Single and multi-family homes, commercial, healthcare, industrial and institutional facilities are found throughout the immediate vicinity. The project also conforms to the best interests of a population that are in dire need of affordable housing and with the Municipality's plans to establish land uses. **See App A Exhibits:** **No. 8 - Environmental Justice / Municipal Endorsement** **No. 12 - Existing Conditions / Site Images** **No. 13 - Proposed Building - Renderings**
Slope	1	Proposed site sloped. Construction drawings call for earthworks, that include cut and fill prepare the site for execution of construction works. **See App B Exhibit M – Civil Construction Drawings**
Erosion	1	A potential for some construction related erosion exists. The contractor through strict compliance with a CES plan will control it. There is no anticipated adverse effect on erosion expected because of the development of this new project. **See App B Exhibit M – Civil Construction Drawings**
Soil Suitability	1	Investigation of subsoil reveals that existing site subsoil conditions provide adequate bearing support for the proposed structure. **See App B Exhibit K - Soils Report**
Hazards and Nuisances including Site Safety	1	The project site does not present any construction logistic difficulties to the contractor. Hence, the contractor should not be facing any safety, hazard, or nuisances other than those typical to high-rise construction projects. Nevertheless, the contractor must endeavor to provide a safe environment, on and off-site, throughout the construction. This includes compliance with all safety and environmental

		measures established by, but not limited to, OSHA, EPA and DRNA.
Energy Consumption	1	The demand for electricity generated by the project won't require a major expansion of power facilities nor would it have any anticipated adverse effects. The local power authority (aka PREPA / AEE) has vetted the design documents and endorsed the project. **See App B Exhibit J – PREPA / AEE Endorsement**

Noise - Contribution to Community Noise Levels	1	The proposed project does not differ from the vernacular of the site area. Given that the neighborhood is mixed use with commercial, industrial, and residential structures, the noise contribution to the community produced by the proposed project will be no different to that which already exists. With respects to construction noise, it must be mitigated by standard procedures and measures as requested by Puerto Rico's environmental quality board and required in their 'Reglamento para el Control de la Contaminación por Ruido'.
Air Quality Effects of Ambient Air Quality on Project and Contribution to Community Pollution Levels	1	The site lies within the built environment. The proposed project won't deviate from existing character of the vicinity and won't produce air pollution that will have a significant impact on existing community air pollution levels. The project has been vetted and found in compliance with environmental regulations. With respects to the construction, the contractor must endeavor to minimize construction dust from becoming a nuisance to the neighborhood and environment through mitigation measures that include, but are not limited to, a CES plan to be developed and maintained throughout the full length of the construction. **See App B Exhibit L - Determinación de Cumplimiento Ambiental**
Environmental Design Visual Quality - Coherence, Diversity, Compatible Use and Scale	2	The built environment surrounding the proposed project site serves the residential, commercial, and institutional needs of Guaynabo. Existing architecture is composed of an eclectic blend of modern and contemporary structures of varying scale and aesthetics. The proposed structure is similar in use, scale, and height to the immediate neighbor to the west. It is in full compliance with the zoning requirements and interest of the Municipality's interests for this area. A new building will help to improve the urban fabric of the area. **See App A Exhibits:** **No. 8 - Environmental Justice / Municipal Endorsement** **No. 12 - Existing Conditions / Site Images** **No. 13 - Proposed Building - Renderings**

Socioeconomic	Code	Source or Documentation
Demographic Character Changes	2	The project will be built within a mixed-use, populated sector of Guaynabo. Additional housing will contribute to the Municipalities ongoing effort to attend the demand for affordable housing as well as to attract and maintain a steady population in this district. **See App A Exhibits:** **No. 8 Environmental Justice / Municipal Endorsement** **No. 12 Market Study**
Displacement	2	There will be neither displacement nor adverse socioeconomic effects since the project will be built in the vacant areas of a lot located within a mixed-use area of Guaynabo. No displacement will occur.
Employment and Income Patterns	2	The new building will require maintenance and upkeep. Hence, to operate efficiently, the project requires its own administrative staff and maintenance personnel. This translates into the creation of new jobs. In addition, the new tenants will add to the market for the neighboring hospital and commercial facilities. Hence, potentially improving regional commerce.

Community Facilities and Services	Code	Source or Documentation
Educational Facilities	2	By attracting newcomers to the vicinity, the project should contribute to the well-being of neighboring school's student body.
Commercial Facilities	2	There are numerous pharmacies and commercial facilities throughout Guaynabo's City Center that will benefit from the new potential client base.
Health Care	2	The Guaynabo Professional Hospital in Las Cumbres Ave is 2.3 miles (driving distance), 7-minute drive from the project site. The full-service hospital provides 24 Medical Emergency services. Numerous medical offices and pharmacies are found throughout and around the project.
Social Services	2	The project intends to appease the current excess demand for affordable housing single-headed households in Guaynabo. Qualified participants will receive the financial support for suitable housing within a planned community. The effort conforms to the best interest of the Municipality and its population.
Solid Waste	1	Existing solid waste removal services are available to the existing surrounding commerce, institutional and residential complexes. The proposed project calls for the adaptive reuse of the existing structure. Recycling should be implemented during construction and enforced as per standards set by the Department of Natural and Environmental Resources (Departamento de Recursos Naturales y Ambientales- DRNA).
Wastewater	1	The project will be served by the existing aqueduct infrastructure provided by the local water and sewer service company known as 'La Autoridad de Acueductos y Alcantarillados' (aka AAA or PRASA). PRASA has vetted the project and formally endorsed it. **See App B Exhibit I – PRASA / AAA Endorsement**
Storm Water	1	The selected site is not located in a floodplain. It stands within the Zone X defined as an area determined to be outside the 500-year flood by FEMA. Nevertheless, the design contemplates the collection and distribution of runoff water through: • Roof drains and downspouts • Headwalls. • Catch basins/inlets • Storm sewer retention tank **See App A Exhibits:**

		No. 1 – FEMA Firmette **No. 1.1 – ABFE Map** **App B Exhibit M – Civil Construction Drawings**
Water Supply	1	The project will be served by the existing aqueduct infrastructure provided by the local water and sewer service company known as 'La Autoridad de Acueductos y Alcantarillados' (aka AAA or PRASA). PRASA has vetted the project and formally endorsed it. **See App B Exhibit I – PRASA / AAA Endorsement**
Public Safety Police	1	The nearest police station is within a mile (driving distance / 4-minute drive) from the site.
Public Safety Fire Department	1	The local fire department is within 1.1 miles (driving distance / 3-minute drive) from the site.
Public Safety Emergency Medical	1	The Guaynabo Professional Hospital in Las Cumbres Ave is 2.3 miles (driving distance), 7-minute drive from the project site. The full-service hospital provides 24 Medical Emergency services. Numerous medical offices and pharmacies are found throughout and around the project.
Open Space and Recreation - Open Space	2	Guaynabo's main square (Plaza) is a ¾ mile walk from the project site. It serves as a hub for community gatherings. A few blocks north from the plaza is Paseo Tablado. This is a strip of restaurants, bars, and a stage frequented by the locals.
- Recreation	2	Guaynabo offers diverse resources for recreation including, but not limited to, shopping centers, performing arts centers, sports facilities, theaters, museums, and parks.
- Cultural Facilities	2	Cultural facilities within a mile radius from the site include theaters, churches, sports arenas, and Guaynabo's town square.
Transportation	2	Guaynabo operates and manages a bus network that serves the vicinity of the project site. Puerto Rico in general is served with by what is known as the Public Car System (sp. Carro Público). This is a "mass transit" system composed of cars and vans that transport multiple passengers within cities. They make multiple stops along their routes as they drop-off and collect new passengers. The Guaynabo Public Car Terminal is located 900 meters from the site (11-minute walk). A public transport is included in the construction endeavor. Also, this area is served by private systems.

Natural Features	Code	Source or Documentation
Water Resources	1	No natural water sources will be used. The project will be served by the existing aqueduct infrastructure provided by the local water and sewer service company known as 'La Autoridad de Acueductos y Alcantarillados' (aka AAA). **See App B Exhibit I – PRASA / AAA Endorsement**
Surface Water	1	The selected site is not located in a floodplain. It stands within the Zone X defined as an area determined to be outside the 500-year flood by FEMA. Nevertheless, the design contemplates the collection and distribution of runoff water through: • Roof drains and downspouts • Headwalls. • Catch basins/inlets • Storm sewer retention tank **See App A Exhibits:** **No. 1 – FEMA Firmette** **No. 1.1 – ABFE Map** **App B Exhibit M – Civil Construction Drawings**
Unique Natural Features and Agricultural Lands	1	The project will be in a vacant property that has been designated as an urban residential zone. It is not considered to have unique features nor agricultural value. **See App B Exhibit H - Department of Agriculture**
Vegetation and Wildlife	1	The project will be in a vacant property that has been designated as an urban residential zone. It is covered by dense vegetation. It is flanked by a multifamily, densely populated residential hi-rise on the west, small residential structures on the east, and streets at the north and south. No significant adverse effects are anticipated. **See App B Exhibit O - DRNA Habitat Categorization**

5. LIST OF SOURCES, AGENCIES, AND PERSONS CONTACTED

1. Junta de Planificación de PR
   a. https://gis.jp.pr.gov/ll/bn_DetermStandard.html
2. FEMA Flood Map Service Center
3. National Wetlands Inventory
   a. https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/
4. Coastal Vulnerability Viewer
   a. https://www.arcgis.com/home/webmap/viewer.html?webmap=1d0eff6661f340dcabb0e9928d01ec57
5. United States Environmental Protection Agency
   a. https://www.epa.gov/dwssa
   b. https://nepassisttool.epa.gov/nepassist/nepamap.aspx
   c. John Aponte, Environmental Protection Specialist
6. USA National Wild and Scenic Rivers
   a. www.rivers.gov
7. Google Earth
   a. https://earth.google.com
8. Google Maps
   a. https://maps.google.com
9. USFWS Coastal Barrier Resources System
   a. https://fwsprimary.wim.usgs.gov/CBRSMapper-v2/
10. National Resources Conservation Service
    a. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx
11. Studies, Reports and Endorsements provided by the developer
    a. Project Narrative
    b. Environmental Site Assessment – Phase 1
    c. Soil Study
    d. Noise Study
    e. OGPe
    f. Oficina Permisos Urbanisticos – Guaynabo's Permit Office
    g. Construction Drawings
    h. AAA
    i. AEE
    j. DRNA
    k. Municipality of Guaynabo
    l. Instituto de Cultura Puertorriqueña
    m. State Historic Preservations Office (SHPO)
    n. Fish and Wildlife Services – Blanket Clearance Letter
12. https://gis.jp.pr.gov/mipr/

6. SUMMARY OF FINDINGS AND CONCLUSIONS

a. Alternatives and Project Modifications Considered [24 CFR 58.40(e), Ref. 40 CFR1508.9]

(Identify other reasonable courses of action that were considered and not selected, such as other sites, design modifications, or other uses of the subject site. Describe the benefits and adverse impacts to the human environment of each alternative and the reasons for rejecting it.)

The Municipality is interested in residential developments for affordable housing within its urban limits. Given the character of the community within which it lies, the available infrastructure, access to principal roads and highways, the site's zoning and its readily accessible location, the site is perfectly suitable for the intended use.

Alternatives:

1. Building fewer units could be an option that would reduce noise, air pollution, pollution, traffic, the demand for water and electricity. But this impact has been determined to be minimal. It is not an attractive alternative given that a reduced density would be inconsistent with the municipality's interest in providing for the high demand for affordable housing.
2. A 2nd option would be the rehabilitation of an existing, unused structure within the developed contour of Guaynabo. However, finding such a structure with adequate access, infrastructure, space, zoning, with potential for compliance with the needs of the target market, and within a reasonable budget is unlikely.

b. No Action Alternative [24 CFR 58.40(e)]

(Discuss the benefits and adverse impacts to the human environment of not implementing the preferred alternative).

1. Puerto Rico's debt crisis accompanied by current economic trends and development efforts suggest that in the absence of this project the site would remain undeveloped until funding is secured. The 'No Action' alternative would mean that there are less safe, sanitary, and secure affordable housing units available in a vicinity that is in high demand for them. More people in need of affordable housing will have to live in unsafe dwellings.

7. MITIGATION MEASURES RECOMMENDED

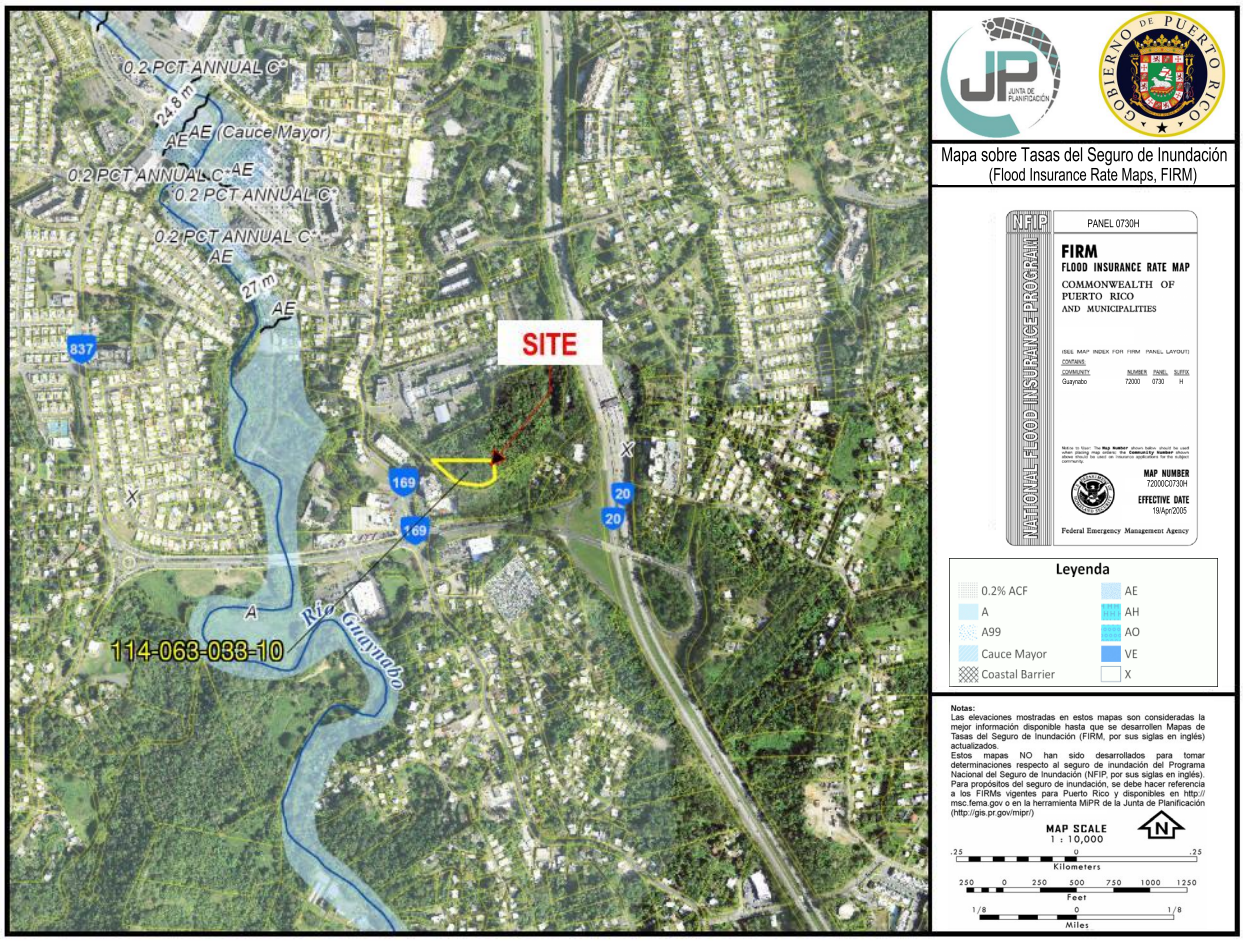
[24 CFR 58.40(d), 40 CFR 1508.20] (Recommend feasible ways in which the proposal or its external factors should be modified in order to minimize adverse environmental impacts and restore or enhance environmental quality.)

1. Comply with all mitigation measures established in permits and agency endorsements.
2. Comply with mitigation measures as specified in the “Determinacion de Cumplimiento Ambiental para Evaluacion Ambiental”.
3. Contractor must detain all construction work if archaeological deposits and/or elements of historical value are encountered during any phase of the construction. Contractor must inform the ICPR, SHPO and Contracting Officer within 24 hours of the finding. No work may resume until consultation is complete and authorization has been granted to continue.
4. Contractor must implement and maintain the CES plan for the control of erosion and sedimentation.
5. Outfit all equipment with mufflers.
6. Comply with noise ordinance as established in the “Reglamento para el Control de la Contaminación por Ruido de la Junta de Calidad Ambiental”.
7. Contractor must detain any an all-construction work if any above ground and/or below ground water sources are encountered during the construction effort and shall notify the DRNA immediately upon such findings.
8. Contractor must take preventive measure to ensure that storm water does not carry organic and/or inorganic materials (oil, fuel spills, etc.) into neighboring bodies of water.
9. Contractor must take preventive measures to prevent construction dust from becoming a nuisance to neighboring populations.
10. Interior auditory environment shall not exceed a day-night average sound level of 45 decibels. Attenuation measures to meet these interior goals shall be employed where feasible.
11. Waste material and debris will be stored in 55-pound containers placed on site. The material will be disposed of in an authorized landfill by the contractor.
12. Developer and contractor must implement ‘Best Management Practices’ as proposed by the US Department of Interior in their updated Blanket Clearance Letter for Federally sponsored projects, USDA Rural Development dated October 24, 2019.
13. Recycling must be implemented during construction and enforced as per standards set by the Department of Natural and Environmental Resources (Departamento de Recursos Naturales y Ambientales- DRNA).

8. APPENDIX A - Exhibits

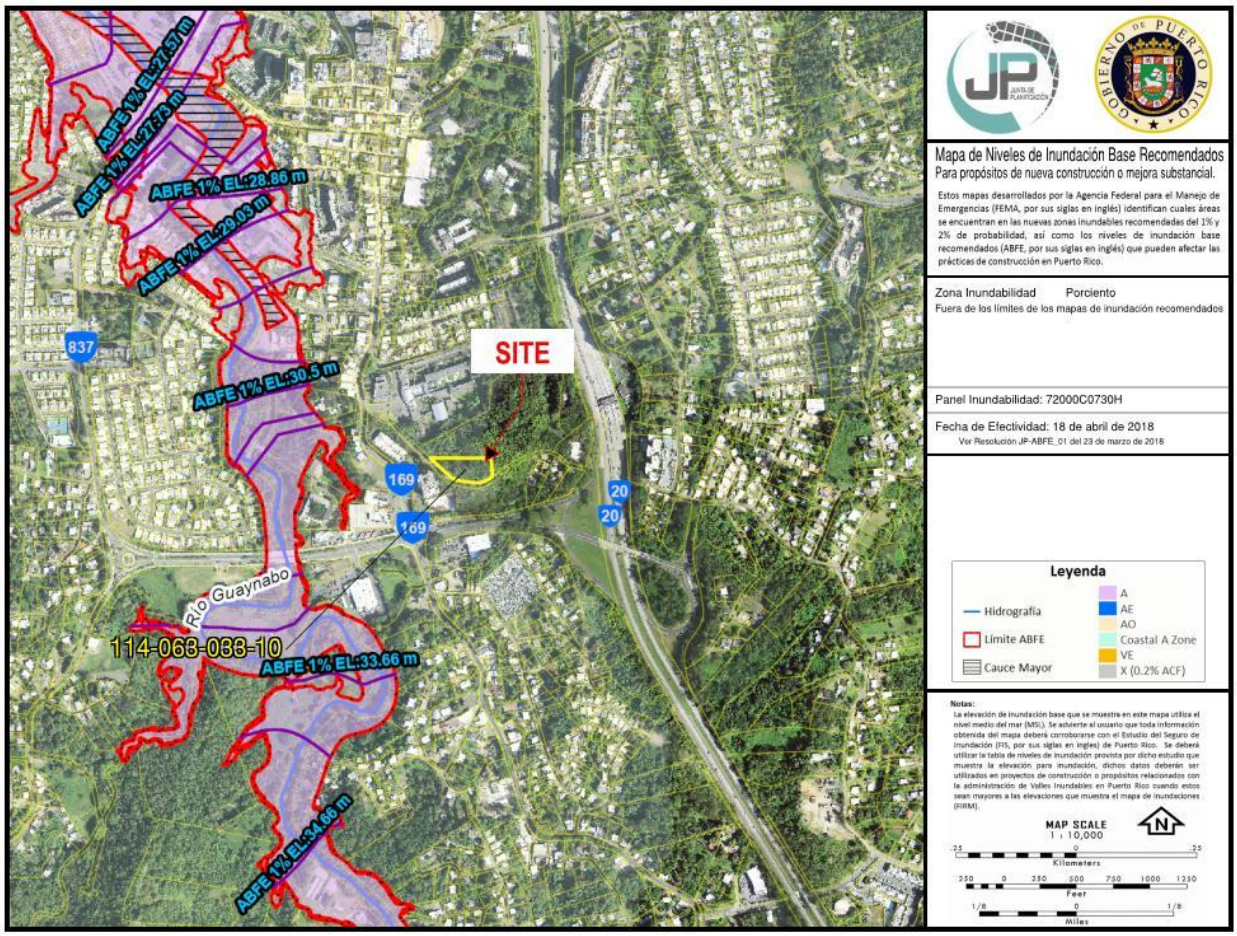
Exhibit No. 1	Floodplain Management - FEMA Firmette
Exhibit No. 1.1	Floodplain Management – ABFE Map
Exhibit No. 2	Wetland Protection – Wetlands Map
Exhibit No. 3	Coastal Zone Management - DRNA
Exhibit No. 3.1	Coastal Zone Management – Vulnerability Viewer
Exhibit No. 3.2	Coastal Zone Management - Distances
Exhibit No. 4	Sole Source Aquifers (SSA)
Exhibit No. 5	Endangered Species and Ecology
Exhibit No. 6	Wild and Scenic Rivers
Exhibit No. 7	Air Quality
Exhibit No. 8	Environmental Justice / Municipal Endorsement
Exhibit No. 9	Airport Hazards / Airports in Puerto Rico Map
Exhibit No. 10	CBRS - Coastal Barrier Resources Act
Exhibit No. 10.1	CBRS Distances - Coastal Barrier Resources Act
Exhibit No. 11	Prime Farmlands – NCRS Soils Farmland Classification
Exhibit No. 11.1	Prime Farmlands – Custom Soil Resource Report
Exhibit No. 11.2	Primer Farmlands – NCRS Enlarged Map
Exhibit No. 11.3	Prime Farmlands – 30 Structures in 40 Acre Area
Exhibit No. 12	Existing Conditions / Site Images
Exhibit No. 13	Proposed Building - Renderings
Exhibit No. 14	Zoning Map

Exhibit No. 1
Floodplain Management - FEMA Firmette



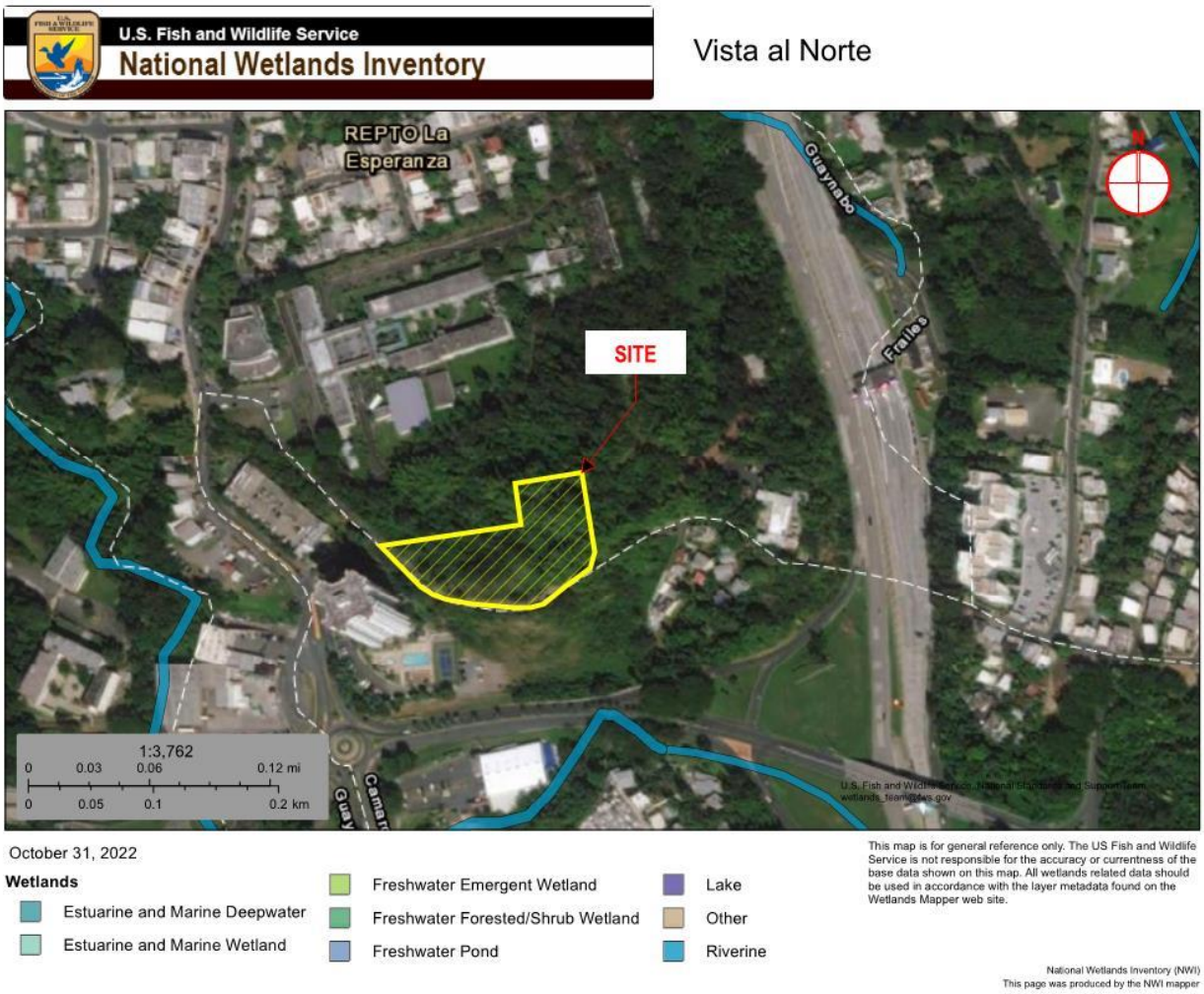
SOURCE: FEMA Flood Map Service Center vía Junta de Planificación de Puerto Rico

Exhibit No. 1.1
Floodplain Management – ABFE Map



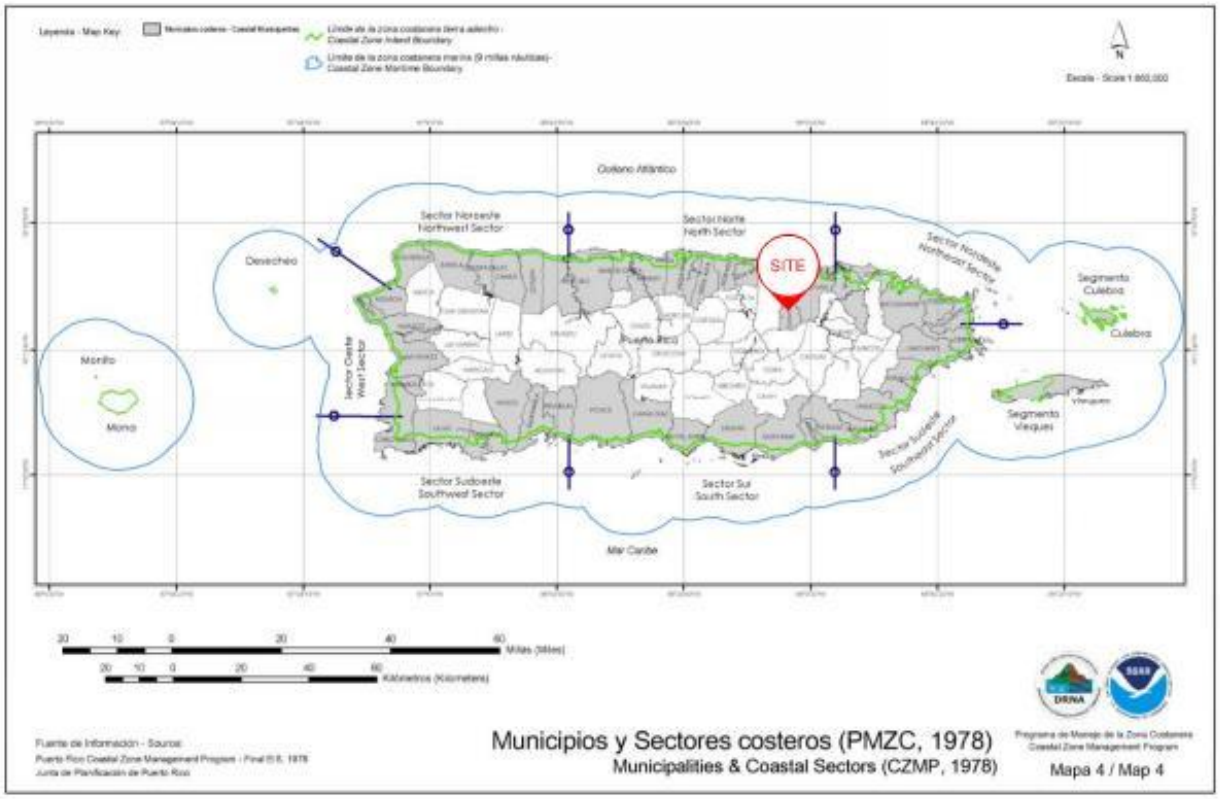
SOURCE: FEMA Flood Map Service Center via Junta de Planificacion de Puerto Rico

Exhibit No. 2
Wetland Protection – Wetlands Map



SOURCE: www.fws.gov/wetlands/data/mapper.html

Exhibit No. 3
Coastal Zone Management – DRNA



SOURCE: Puerto Rico Coastal Zone Management Program (PRCZMP) Plan, September 2009

Exhibit No. 3.1
Coastal Zone Management - Vulnerability Viewer



SOURCE: www.arcgis.com

Exhibit No. 3.2
Coastal Zone Management - Distances



SOURCE: https://nepassisttool.epa.gov/nepassist/nepamap.aspx

Exhibit No. 4
Sole Source Aquifers (SSA)



SOURCE: https://www.epa.gov/dwssa

Exhibit No. 5
Endangered Species and Ecology - USFWS

desarrollos arquitectónicos inc.

Based on the information provided, we determined the project proposed qualifies for the blanket clearance letter. Nevertheless, if the project is modified this office should be contacted concerning the need for the Initiation of consultation under section 7 of Endangered Species Act of 1973.

Reviewer ROMAN RUIZ

EDWIN MUNIZ Digitally signed by EDWIN MUNIZ Date: 2020.09.17 13:19:47 -04'00'

Caribbean ES Field Supervisor

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.

Desarrollos Arquitectonicos, Inc., certifies that the following project Condominio Vista al Norte funded by Departamento de la Vivienda and located at Guaynabo, Puerto Rico 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.
X	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.
X	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.



16.IX.20

Segundo R. Cardona Colom, President
13, Calle 2 Suite
301 Metro Office Park
Guaynabo, PR. 00968-
1730
(787)781-9090

Date

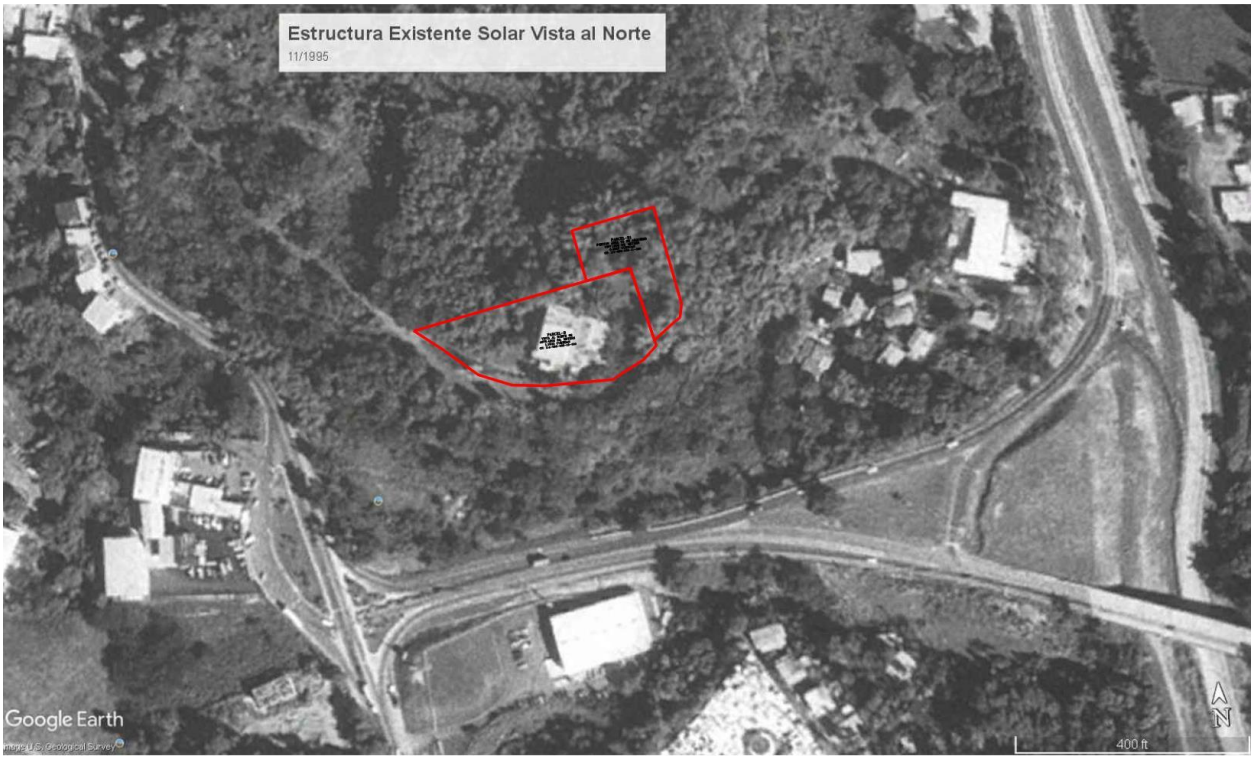

Estructura Existente Solar Vista al Norte
11/1995
Google Earth
400 ft
N

Exhibit No. 6
Wild and Scenic Rivers

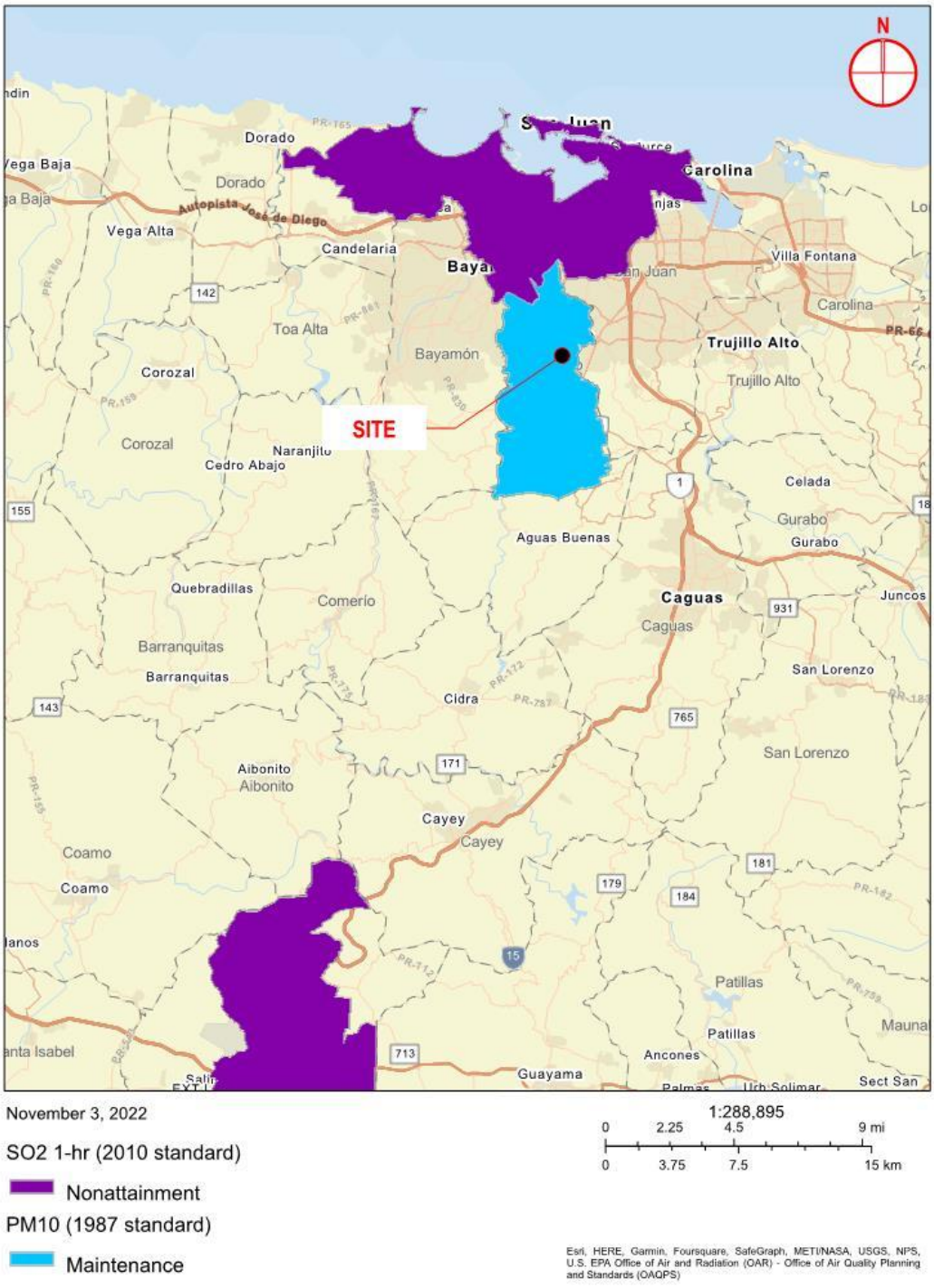
Vista al Norte



SOURCE: https://nepassisttool.epa.gov/nepassist/nepamap.aspx

Exhibit No. 7
Air Quality – Enviromapper

Vista al Norte



SOURCE: https://nepassisttool.epa.gov/nepassist/nepamap.aspx

Exhibit No. 8
Environmental Justice – Municipal Endorsement

GOBIERNO DE PUERTO RICO

Ángel A. Pérez Otero
Alcalde

1 de junio de 2020

Hon. Luis Carlos Fernández Trinchett
Secretario
Departamento de la Vivienda
Avenida Barbosa 606, San Juan, 00923.
lfernandez@vivienda.pr.gov
Tel: 787-274-2527

Estimado Secretario Fernández:

Todos los que laboramos en el Municipio Autónomo de Guaynabo le extendemos un cordial saludo. De igual forma, le deseamos el mayor de los éxitos en sus gestiones diarias en favor de nuestra bella Isla.

Me dirijo a usted informándole sobre los esfuerzos de la firma SCF Arquitectos, cuyo ejecutivo, el Arq. Segundo R. Cardona Colom presentó recientemente ante nosotros su conceptual para el desarrollo de una parcela de terreno propiedad de DASE, Inc. adyacente al camino Piedras Blancas en el barrio Pueblo de Guaynabo; La misma, con una cabida aproximada de 4,678 metros cuadrados, a la cual se le agregara un predio colindante de la Iglesia Discípulos de Cristo de 1,897 metros cuadrados para un total de 6,575 metros cuadrados.

El proyecto que requerirá de una inversión que sobrepasa los veintidós (22) millones de dólares constará de una torre de trece (13) pisos dividida en cincuenta y dos (52) unidades de una (1) habitación y cincuenta (50) de dos (2) habitaciones, con dos (2) baños y un (1) estacionamiento.

La administración del Municipio Autónomo de Guaynabo entiende que su proyecto "Vista al Norte" cumple con los requisitos establecidos en la visión de desarrollo económico municipal y extiende su endoso al mismo.

Dicha firma le solicita asistencia económica a través de Low Income Housing Tax Credits (LIHTC) bajo la sección cuarenta y dos (42) del Código de Rentas Internas, fondos del Community Development Block Grant – Disaster Relief (CDBG-DR) y que se le incluya como opción a los programas de vales o "vouchers" emitidos por su departamento para viabilizar el proyecto.

P.O. Box 7885 Guaynabo, Puerto Rico 00970 / Tel. 787-720-4040 exts • 6101/6103 • Fax 787-790-0707

Es importante resaltar que el proyecto está enfocado en promover rentas asequibles a familias de escasos o limitados recursos uno de los mayores retos a los que se enfrenta nuestro municipio actualmente.

Como de costumbre le agradezco su continuo interés en el desarrollo de nuestro municipio y su apoyo a los esfuerzos del que suscribe.

Cordialmente,



Ángel A. Pérez Otero
Alcalde

c/c *Ing. Dennis G. González*
Secretario Auxiliar Recuperación de Desastres Programa CDBG-DR
dggonzalez@vivienda.pr.gov | 787.274.2527 ext. 6404

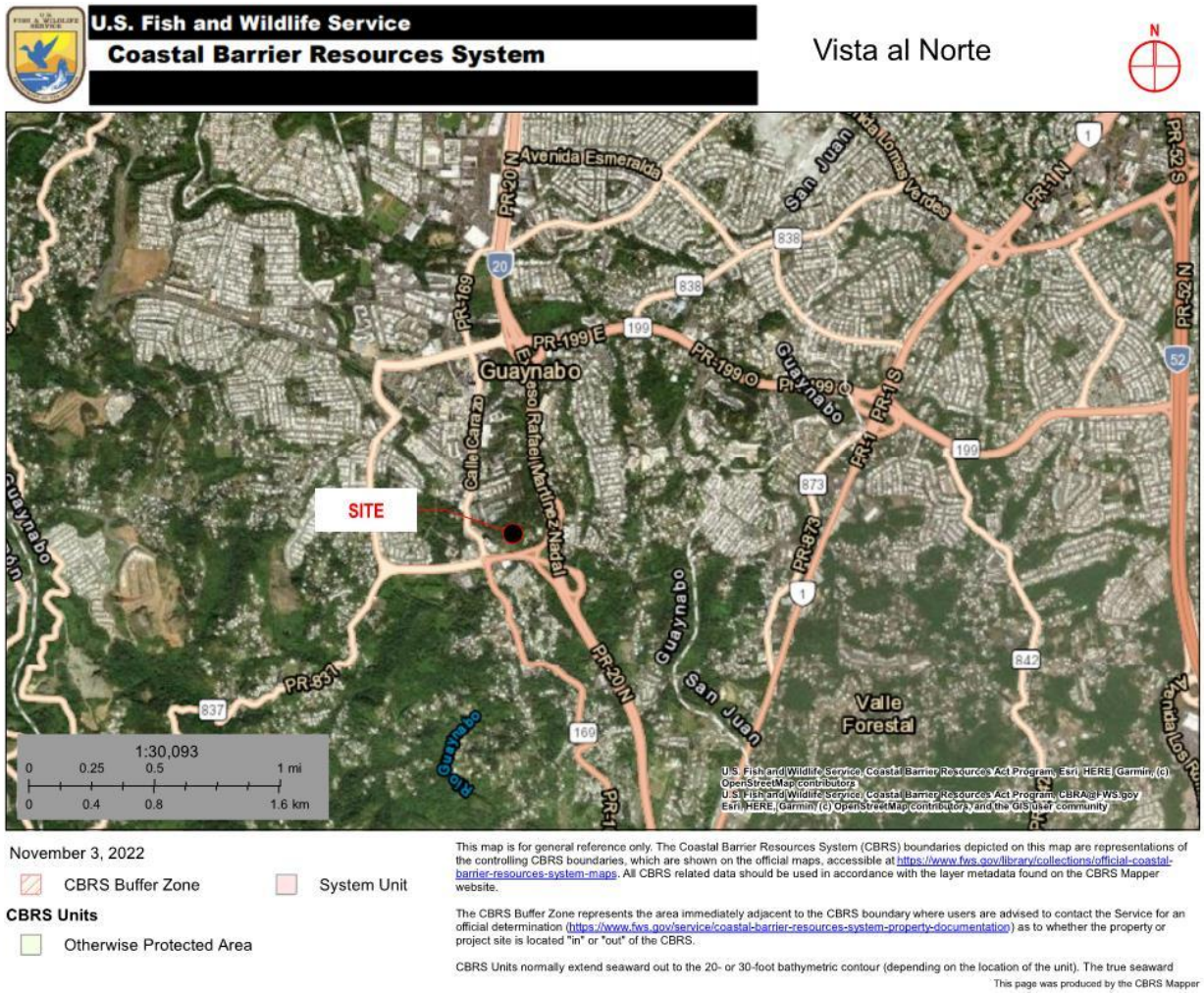
SOURCE: Municipality of Guaynabo

Exhibit No. 9
Airport Hazards / Airports in Puerto Rico Map



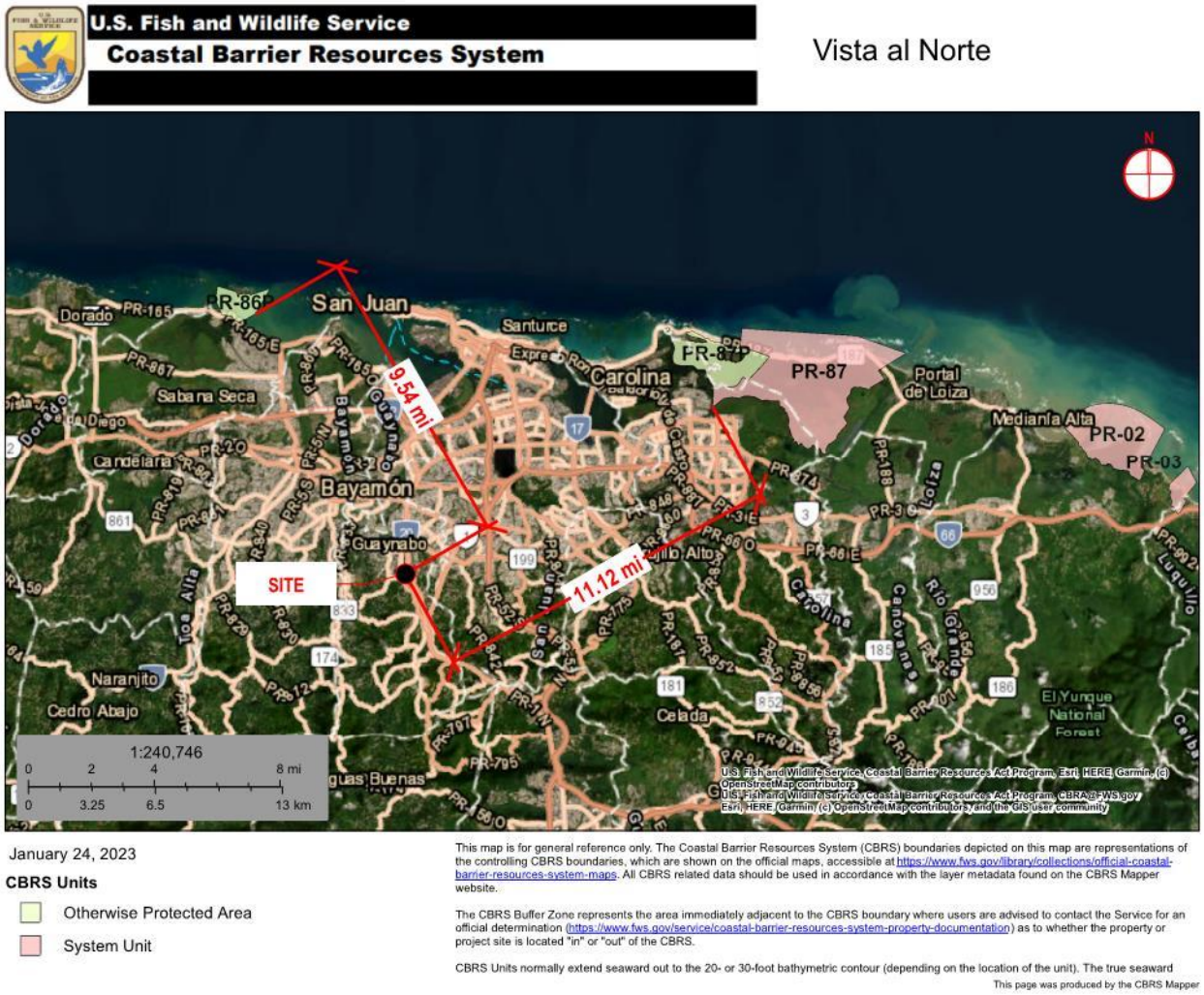
SOURCE: https://nepassisttool.epa.gov/nepassist/nepamap.aspx

Exhibit No. 10
USFWS - CBRS



SOURCE: https://fwsprimary.wim.usgs.gov/CBRSMapper-v2/

Exhibit No. 10.1
USFWS – CBRS Distances



January 24, 2023

CBRS Units

- Otherwise Protected Area
- System Unit

This map is for general reference only. The Coastal Barrier Resources System (CBRS) boundaries depicted on this map are representations of the controlling CBRS boundaries, which are shown on the official maps, accessible at https://www.fws.gov/library/collections/official-coastal-barrier-resources-system-maps. All CBRS related data should be used in accordance with the layer metadata found on the CBRS Mapper website.

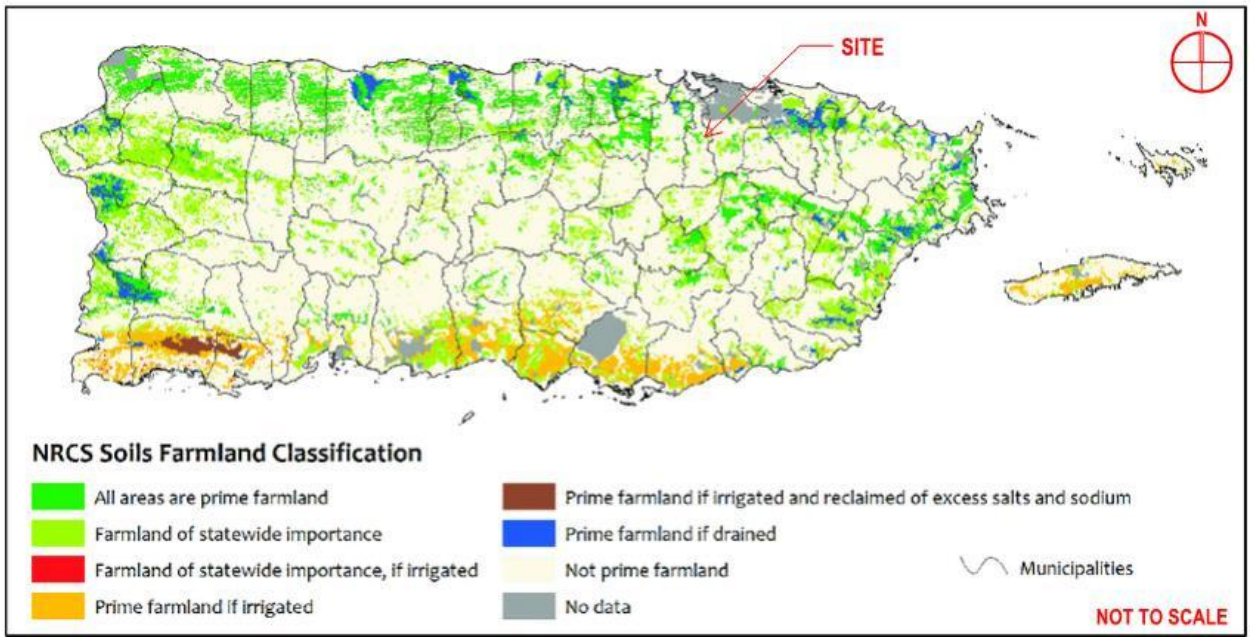
The CBRS Buffer Zone represents the area immediately adjacent to the CBRS boundary where users are advised to contact the Service for an official determination (https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation) as to whether the property or project site is located "in" or "out" of the CBRS.

CBRS Units normally extend seaward out to the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward

This page was produced by the CBRS Mapper

SOURCE: https://fwsprimary.wim.usgs.gov/CBRSMapper-v2/

Exhibit No. 11
Prime Farmlands – NCRS Soils Farmland Classification



SOURCE: Natural Resources Conservation Service Soil Farmland Classification

Exhibit No. 11.1
Prime Farmlands – Custom Soil Resource Report



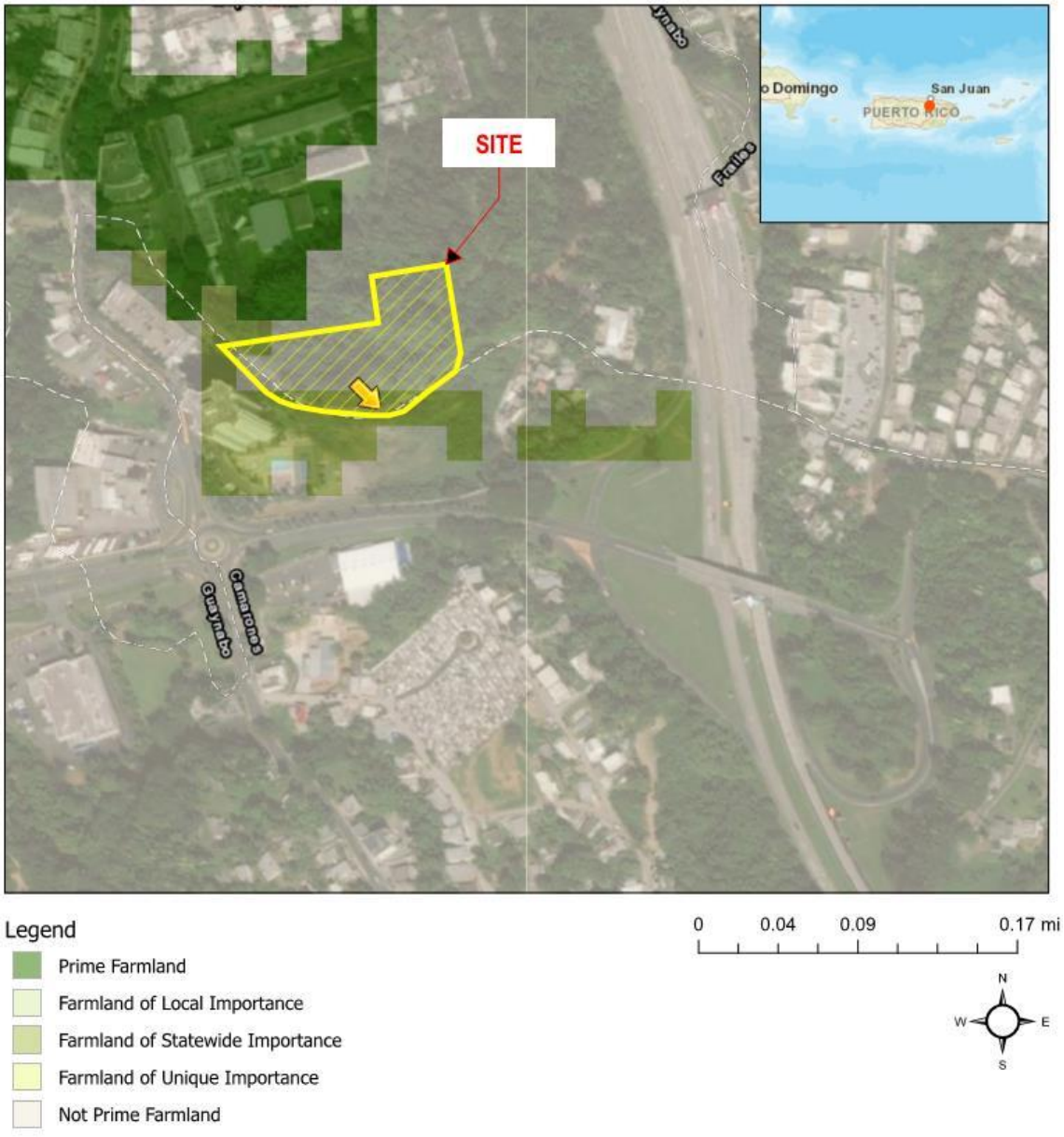
Prime and other Important Farmlands–San Juan Area, Puerto Rico		
Map Symbol	**Map Unit Name**	**Farmland Classification**
MxE	Mucara clay, 20 to 40 percent slopes	Not prime farmland
RpD2	Rio Piedras clay, 12 to 20 percent slopes, eroded	Farmland of statewide importance
RpE2	Rio Piedras clay, 20 to 40 percent slopes, eroded	Not prime farmland

SOURCE: Natural Resources Conservation Service Soil Farmland Classification
https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Exhibit No. 11.2
Prime Farmlands – NCRS Enlarged Map

GOVERNMENT OF PUERTO RICO
Department of Housing

Farmland



SOURCE: Natural Resources Conservation Service

Exhibit No. 11.3
Prime Farmlands – 30 Structures in 40 Acre Area



SOURCE: Google Earth

Exhibit No. 12
Existing Conditions / Site



Drone Footage



SOURCE: Google Earth

Exhibit No. 13
Proposed Building - Renderings

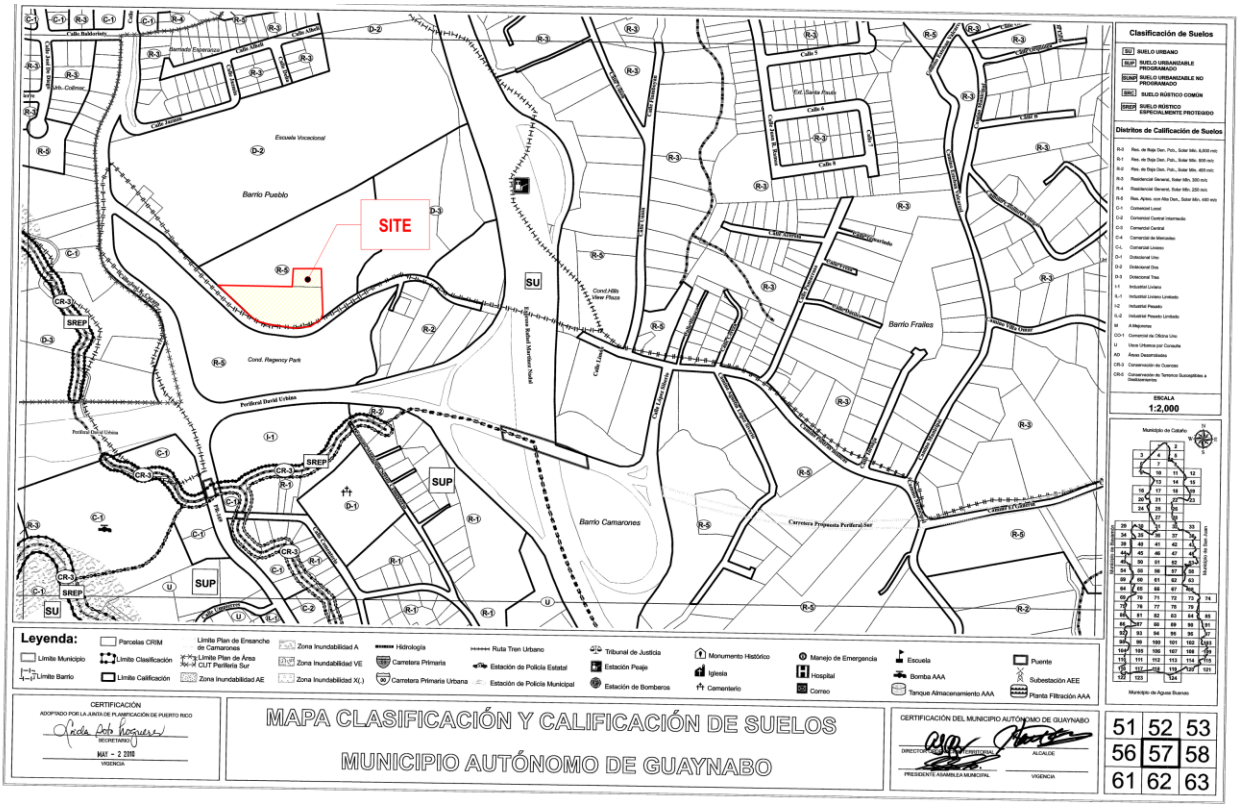


Site
SOURCE: Construction Drawings by Sierra Cardona Ferrer



Proposed Building
SOURCE: Construction Drawings by Sierra Cardona Ferrer

Exhibit No. 14
Zoning Map



SOURCE: https://gis.jp.pr.gov/calificacionvigente/Guaynabo/Guaynabo057.pdf

9. APPENDIX B – Additional Studies and Reports

Exhibit A	Archaeological Study	N/A
Exhibit B	Noise Assessment	See Attachment
Exhibit C	Phase 1 Environmental Assessment	See Attachment
Exhibit D	PM10 Limited Maintenance Plan	See Attachment
Exhibit E	State Historic Preservation Office (SHPO)	See Attachment
Exhibit F	Instituto de Cultura Puertorriqueña	See Attachment
Exhibit G	Custom Soils Resource Report	See Attachment
Exhibit H	Department of Agriculture - Endorsement	See Attachment
Exhibit I	PRASA / AAA Endorsement	See Attachment
Exhibit J	PREPA / AEE Endorsement	See Attachment
Exhibit K	Soils Report	See Attachment
Exhibit L	Determinacion de Cumplimiento Ambiental	See Attachment
Exhibit M	Civil Construction Drawings	See Attachment
Exhibit N	Market Study	See Attachment
Exhibit O	DRNA Habitat Categorization	See Attachment
Exhibit P	Phase II EA	See Attachment

Noise Levels Study – Condominio Vista Al Norte

Piedras Blancas Road Bo. Camarones
Guaynabo, Puerto Rico

Prepared for:

SCF Arquitectos
Guaynabo, Puerto Rico

September 12, 2019
CMA 19211

CMA ARCHITECTS & ENGINEERS LLC 60th SINCE 1959

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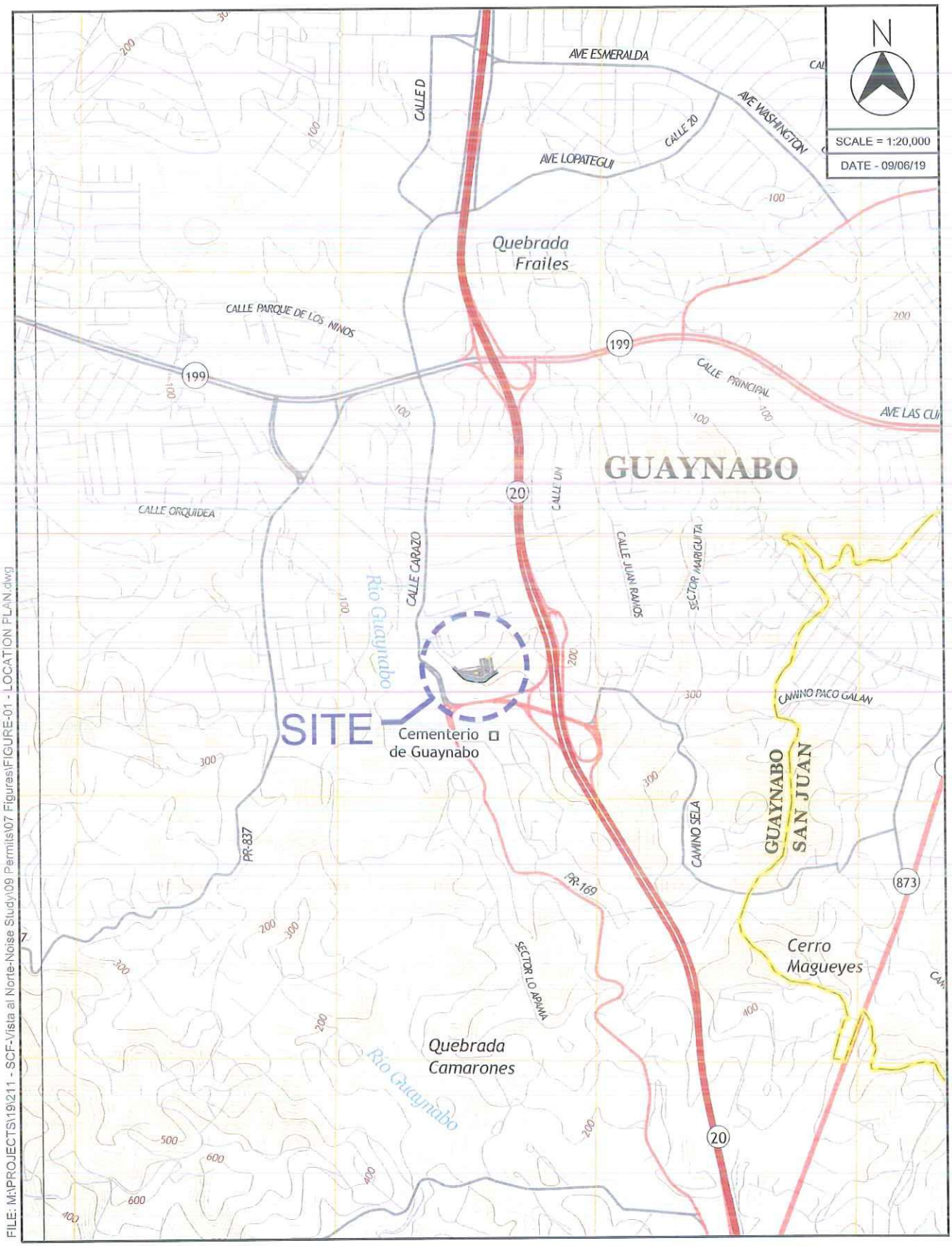
1.0 INTRODUCTION

Vista Al Norte, SE represented by Desarrollos Arquitectónicos proposes the construction of the Condominio Vista Al Norte located at Piedras Blancas road, Camarones Ward, at the municipality of Guaynabo. Figures Number 1 & 2 shows a Location Plan and Aerial Photo depicting the project area. The project will consist of the construction of a three (3) multi-family buildings with 102 apartments and parking area that will occupy an area approximately 6,576 square meters (1.67 cuerdas).

During the endorsement and permit process for the proposed project, the Puerto Rico Highways and Transportation Authority (PRHTA) requested a noise levels study. For that reason, SCF Architects has retained the services of CMA Architects & Engineers LLC to carry out the requested study.

CMA technical personnel obtained the current noise levels on September 4, 2019. The noise was sampled at three (3) strategically located points inside to proposed site.

Using the obtained field data and traffic data provided by PRHTA, the future noise levels at the proposed project were estimated using the Federal Highways Administration TNM v. 2.5.



VISTA AL NORTE

GUAYNABO, PUERTO RICO

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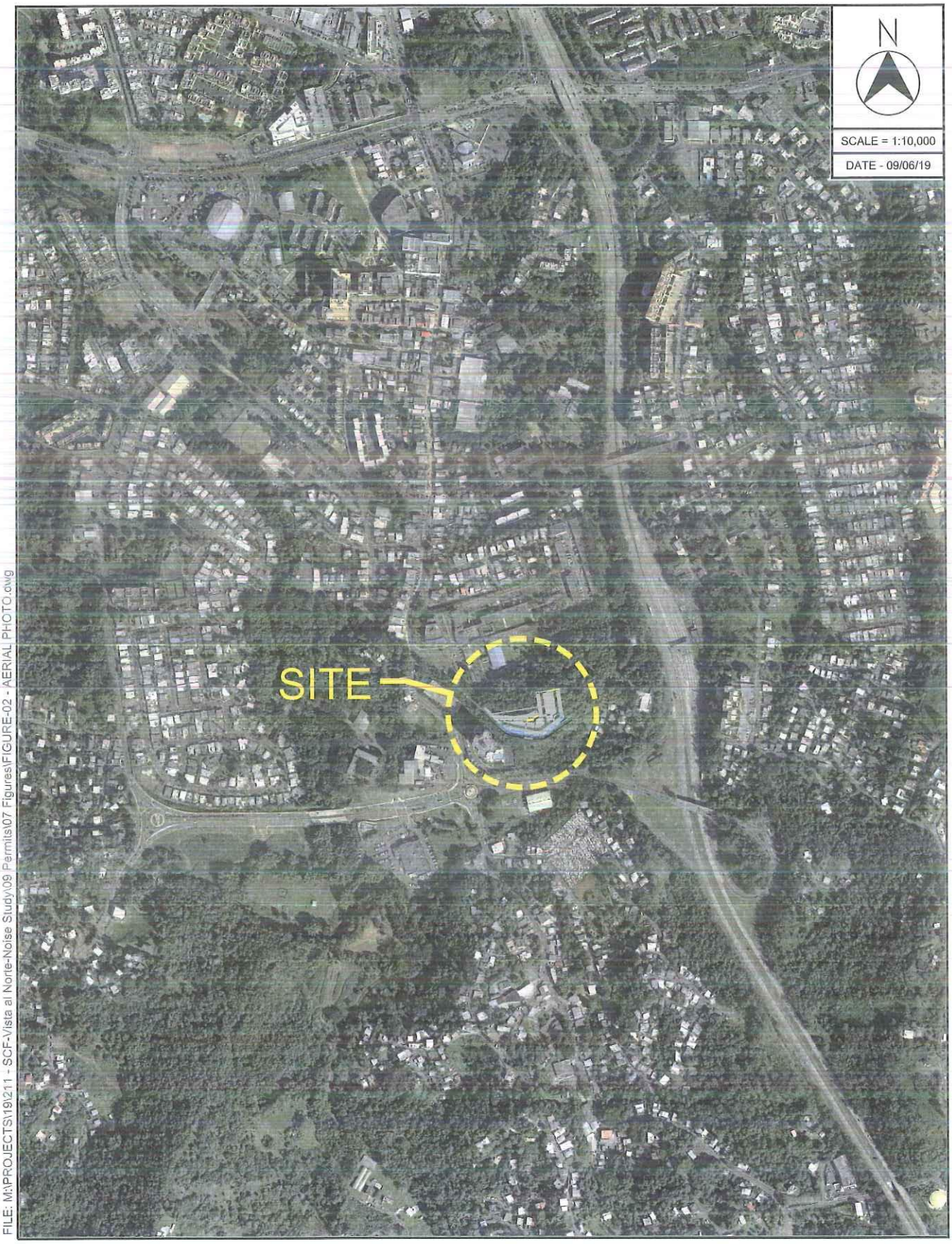
LOCATION PLAN

FIGURE 1



FILE: M:\PROJECTS\19\211 - SCF-Vista al Norte-Noise Study\09 Permits\07 Figures\FIGURE-02 - AERIAL PHOTO.dwg

VISTA AL NORTE

GUAYNABO, PUERTO RICO

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AERIAL PHOTO

FIGURE 2

2.0 REGULATORY BACKGROUND

On May 5, 2011 the Puerto Rico State Department approved the Noise Pollution Control Regulations, as amended, prepared by the Environmental Quality Board (EQB) in order to establish the regulations for the control, reduction and elimination of the noxious noise to the public health and public welfare, according with the Public Policy Environmental Act.

Rule 27 of this Regulation establishes noise emission limits in different zones. Table Number 1 presents the limits.

Table Number 1 - Noise Level Limits [dB(A)]

Emitting Source	Zone I (Residential)		Zone II (Commercial)		Zone III (Industrial)		Zone IV (Quiet)	
	Day Period	Night Period	Day Period	Night Period	Day Period	Night Period	Day Period	Night Period
Zone I	60	50	65	55	70	60	55	50
Zone II	65	50	70	60	75	65	55	50
Zone III	65	50	70	65	75	75	55	50
Zone IV	65	50	70	65	75	75	55	50

The area under study includes residential areas classified as Zone I. The Federal Highway Administration approved Noise Abatement Criteria for different types of activities on July 13, 2011. The following table 2 shows this criterion.

Table Number 2 - Noise Abatement Criteria Hourly A-Weighted Sound Level in Decibels		
Activity	**$L_{eq}(h)^1$**	**Description of Activity Category**
A	57_E	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67_E	Residential
C	67_E	Active sports areas, amphitheaters, auditoriums, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4 (f) sites, schools, television studios, trails, and trail crossings.
D	52_I	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72_E	Hotels, motels, offices, restaurants/bars/and other developed lands, properties and activities not included in A & D

Notes:

1. The L_{eq} (H) Activity Criteria values are for impact determination only and are not design standards for noise abatement measures.

2. Includes undeveloped lands permitted for this activity category

E External areas of the receptors included in this study fall in Category B, C & E.

4.0 METHODOLOGY

To estimate the future noise levels at the project area, CMA used the TNM Noise Prediction Model version 2.5 developed by the Federal Highway Administration and a scaled site plan provided by SCF. The 2011 DTPW Noise Criteria establishes that the TNM models need to be validated when the proposed project is located adjacent to existing state roads. The area under study is located to the north of Piedras Blancas road. The Piedras Blancas road is a municipal with a dead end This road is only used to access several private residences and adults care homes. The vehicular traffic through the Piedras Blancas road is limited. The nearest main road to access the site is approximately 110 meters to the south, David Urbina Avenue. This avenue is a two way road that connects with State Road PR-20 and PR-169. This road is the main noise source at the project area. For that reason, the David Urbina Avenue was used for the required validation of the TNM model.

The DTPW Noise Policy establishes the methodology to carry out this validation. To perform the model validation, a series of noise measures along a project (obtaining three to four noise samples per sampling point) were measured with a simultaneous traffic count . After data collection, the same is included at the computer model and the results obtained from the model are compared to the measured noise levels. If the difference between those results are within ± 3dB(A) for all the measures at all sampling points, then the site modelling can be considered valid and can be used to predict the future noise levels. The results from model validation for the Condominio Vista Al Norte show results that complies with the DTPW requirements. **Appendix A** shows a copy of the Field Data Model Validation and **Appendix B** TNM 2.5 Model Validation Print Out.

Table Number 3 – Model Validation Noise Levels Results

Validation Point	Field Data Average Noise Level [dB(A)]	TNM 2.5 Model Validation Noise Level [dB(A)]	TNM 2.5 Future Noise Level Difference [dB(A)]	Temp. (0F)	Relative Humidity (%)
VP-1	64.7	66.6	1.9	89.9	62.8

In order to carry out the study, a field visit was conducted to measure current noise levels and obtains current traffic volume during traffic peak hour flow. The obtained results were used to determine the impact of the David Urbina Avenue noise traffic to the proposed receivers. Three (3) receivers were chosen along the proposed project limit. The receivers were located at no more than 500 feet (152 meters) measured from the David Urbina Avenue and the proposed project property limit (See Figure Number 3). These receivers are representative of the residential areas located in the project. **Appendix C** shows a copy of the Field Data Noise Study.

To calculate the future levels at the site, the computer modeling program TNM version 2.5 was used. Traffic volume data obtained from the site visit and PR Highways and Transportation historical data. **Appendix D** shows a copy of the TNM 2.5 Print Out for year 2039 Expected Traffic Flow.

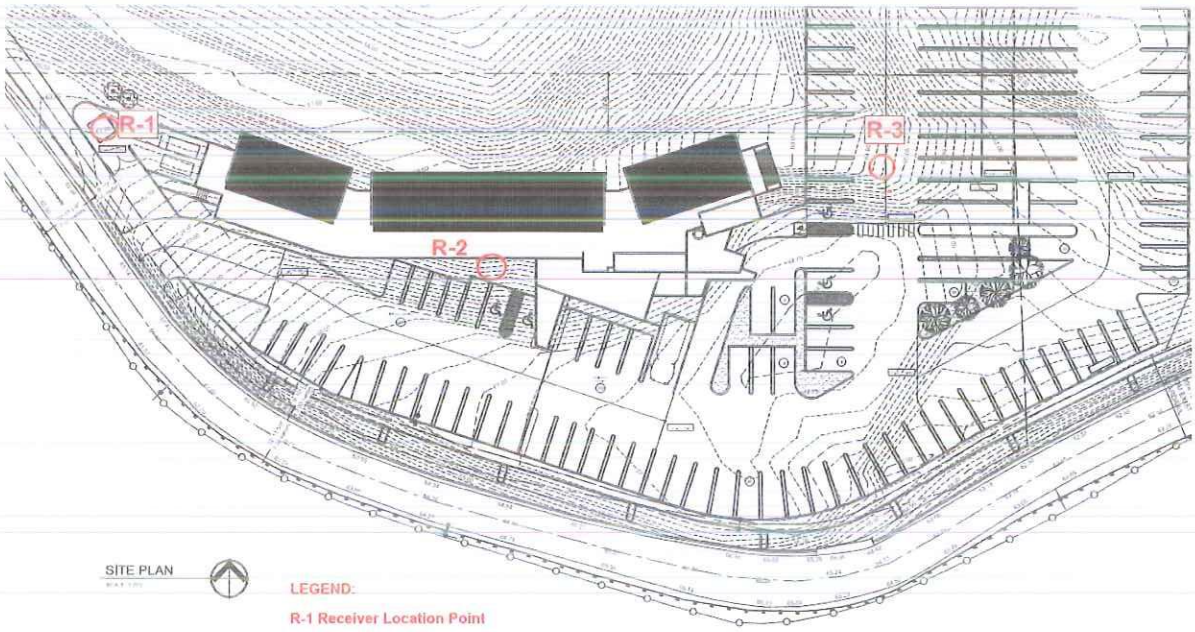


Figure Number 3 : Receivers Location Site Plan

To obtain a basis of the current noise levels at the site, a noise sampling was conducted on September 4, 2019. The following procedure was followed to conduct the noise level measurements in the field:

1. The sound level meter was calibrated using a 94 dB(A) calibrator prior to taking measurements in each of the receivers. The sound level meter is calibrated annually by the manufacturer to maintain the efficiency of the measurements. **Appendix E** shows a copy of the of the annual calibration certificate.
2. The location of the receiver was determined and the distance from the equipment to the emission source was measured.
3. The sound level meter was attached to a 4 feet high tripod.
4. Noise levels were obtained in each receiver by measuring the noise for a period of 30 minutes. At the end of each period, the L_{eq} level of the sound level meter was recorded.
5. The following equipment was used to perform this procedure:
    - Global Positioning System (GPS) Garmin GPS 62stc.
    - Brüel & Kjær 2238 Mediator Sound Level Meter
    - Brüel & Kjær model 4231 Calibrator
    - 4 feet high aluminum tripod
    - Digital camera

4.1 Receivers

The following photos show the receiver's locations were used to determine the current noise levels.



Photo 1- Receiver 1 View to the southeast Piedras Blancas Road proposed project entrance.



Photo 2- Receiver 2 View to the east 11m approximately from the existing road.



Photo 3- Receiver 3 View to the south 40 m approximately from the existing road.

- Validation Receiver: located adjacent to the Regency Apartments project north side, near to David Urbina Avenue.



Photo 4 – View to the west validation receiver location.



Photo 5 – View to the east, main noise source from David Urbina Avenue.

5.0 RESULTS

In order to carry out the study, a field visit was conducted on September 4, 2019 to obtain existing noise levels during typical works day in traffic peak hour flow. The existing noise levels were measured from 8:00 am to 10:40 am. The results were used to determine the impact of the David Urbina Avenue traffic to the proposed project. The receivers are located inside to the property under study, at no more than 500 feet (152 meters) measured from centerline of the David Urbina Avenue. The following table shows the existing noise levels. These levels will be used as the environmental background noise.

Table Number 4 – Current Noise Levels

Receiver	Noise Levels L_{eq}[dB(A)]
1	52.8
2	54.8
3	53.5

Using the previously described methodology at Section 3.0, future noise levels at the receivers were obtained. To use TNM, vehicular flow information landed from the field visits and the PRHTA available data from Highway Performance Monitoring System. The following Table shows the peak hour traffic volumes for current and design years.

Table Number 5 –David Urbina Avenue Estimated Traffic Flow				
Peak Flow [vph]	**Autos**	**Medium Trucks**	**Heavy Trucks**	**Motorcycles**
Year 2019				
1,560	1,529	16	8	7
Peak Flow [vph]	**Autos**	**Medium Trucks**	**Heavy Trucks**	**Motorcycles**
Year 2039				
2,032	1,991	21	10	10

Using the obtained field data and data from the High Performance Monitoring System from the PRHTA Highway Systems Office the traffic volume for year 2019 is 1,560 vehicles per hour in both directions. To estimate the different type of vehicles volume, we used a 98 % of the

peak flow for the regular automobiles flow, 1% of the peak flow to be the medium trucks flow, 0.5% for heavy trucks and 0.5% for motorcycles.

Using the data obtained from the Traffic Analysis, the expected peak hour traffic volume for year 2039 would be 2,032 vehicles per hour in both directions. To estimate the future noise levels, we use historical data from a High Performance Monitoring System from the PRHTA.

5.1 Results Discussion

Using the TNM computer model program the future noise levels were estimated. According to the DTPW Noise policy, the receivers under study are classified as Activity B with maximum recommended noise level of 67 dB(A). The noise maximum levels established by the DTPW noise policy will not be exceed at any of the selected receivers. Table number 6 shows the TNM results for existing and future noise levels.

Table Number 6 – Existing & Future Noise Levels

Receiver Number	Field Data Existing Noise Level [dB(A)]	TNM 2.5 Model Noise Level 2019 [dB(A)]	TNM 2.5 Model Noise Level Difference [dB(A)]	TNM 2.5 Future Noise Level 2039 [dB(A)]	TNM 2.5 Future Noise Level Difference [dB(A)]
1	52.8	54.7	1.9	56.2	3.4
2	54.8	55.6	0.8	57.0	2.2
3	53.5	53.5	0.0	54.7	1.2

5.1.1 Receiver Number 1

The existing noise level at this receiver was 52.8 dB(A), which is below the PRHTA maximum recommended level of 67 dB(A) for Activity B. The projected future noise level at this receiver will be 56.2 dB(A), a 3.4 dB(A) difference. The final result for this receiver is below the recommended maximum level, no control measures are recommended.

5.1.2 Receiver Number 2

The existing noise level at this receiver is 54.8 dB(A), which is below the PRHTA maximum recommended level of 67 dB(A) for Activity B. The projected future noise level at this receiver will be

57.0 dB(A), a 2.2 dB(A) difference. The final result for this receiver is below the recommended maximum level, no control measures are recommended.

5.1.3 Receiver Number 3

The existing noise level at this receiver is 53.5 dB(A), which is below the PRHTA maximum recommended level of 67 dB(A) for Activity B. The projected future noise level at this receiver will be 54.7 dB(A), a 1.2 dB(A) difference. The final result for this receiver is below the recommended maximum level, no control measures are recommended.

6.0 CONCLUSION AND RECOMMENDATIONS

Existing noise levels were measured in accordance with the DTPW Noise Policy dated July 2011 at three different strategic points inside to the project area. The Noise Policy classifies the receivers under study area as Activity B with a maximum recommended noise level of 67 dB(A) at the exterior. According to TNW computer program the future noise levels results will not exceeds the parameters established at the DTPW policy.

This noise levels study was prepared in general accordance with the Noise Policy in the Development and Operation of Transportation Projects prepared by the Puerto Rico Department of Transportation and Public Works dated July 12, 2011. The report and TNM Noise 2.5 modeling was prepared using a site plan prepared by SCF Arquitectos (Sheet No. AS-101, dated), field visits and a traffic analysis obtained from a High Performance Monitoring System prepared by PRTHA . The noise study results and recommendations could be impacted if the project conditions changes.

Respectfully submitted by:



Pedro A. Jaher
TNM user 65316
CMA Architects & Engineers LLC

7.0 GLOSSARY

AADT	Average Annual Daily Traffic
dB(A)	The total sound pressure of all the sounds in decibels as measured in a sound meter with a 20 micro Pascal reference pressure using the sound meter measuring scale A and the unit is expressed as dB(A).
Decibel (dB)	A measuring unit to quantify the sound intensity, equal to 20 times the base 10 logarithm of the sound pressure ratio, measured at the reference pressure, which is 20 micro Pascal.
L_{10}	Scale A sound level that is exceeded by 10% of time during a consideration period.
Equivalent Sound Level (L_{eq})	Equivalent continuous sound level. In other words the constant level, dB(A), that can produce the same sound energy as a variant sound specified in a specified time.
Diurnal Period	Period between 7:01 AM y 10:00 PM
Nocturnal Period	Period between 10:01 PM y 7:00 AM
Noise	Undesired sounds that affect humans in a psychological or physical manner or exceed the limitations established in the Regulation.
NRC	Noise Reduction Coefficient
vph	Vehicles per hour

8.0 REFERENCES

1. Bruel & Kjær, Measuring Sound, Revised September 1984.
2. Bruel & Kjær, Precision Integrating Sound Level Meter – Type 2236, Owner's Manual, Denmark.
4. Environmental Quality Board, Regulation for the Control of Noise Pollution, Version Amended, May 5, 2011.
5. Federal Highways Administration, STAMINA 2.0 / OPTIMA User's Manual, April 1982.
6. Federal Highways Administration, Highway Traffic Noise Analysis and Abatement; Policy and Guidance, June 1995.
7. Federal Highways Administration, Procedures for Abatement of Highway Traffic Noise and Construction Noise, 23 CFR Part 772.
8. Federal highways Administration, Highway Noise in the United States; Problem and Response, August 1997.
9. McGraw Hill, Inc., Standard Handbook of Environmental Engineering, First Edition, 1990.
10. Puerto Rico Highways & Transportation Authority, Noise Policy in the Development and Operation of Transportation Project, 2011.
11. U.S. Department of Transportation Federal Highway Administration (July, 14 2011) High Traffic Noise.https://www.fhwa.dot.gov/environment/noise/noise_compatible_planning/federal_approach/audible_landscape/al04.cfm.
12. Puerto Rico Highways & Transportation Authority, Highway Performance Monitoring System, Office of Highway Systems. 2017 Classification Log.

APPENDIXES

APPENDIX A

FIELD DATA MODEL VALIDATION

CMA
ARCHITECTS & ENGINEERS LLP

Noise Impact Analysis
Field Data Sheet

Project Name: Condominio Vista Al Norte		Date: 09/04/19
Receiver Description & Location: VP-1 Validation Point		
CMA No.: 19211		Start: 10:16
		End: 10:40
	L_{10} = 0 / 68.5 / 67 / 68	L_{eq} = 0 / 64.6 / 63.2 / 66.5
	L_{max} = 0 / 74.9 / 72.7 / 85.6	L_{min} = 0 / 52.4 / 50.3 / 52.3
*Equipment: B&K 2238	Calibrator: B&K 4231	Response: Fast
A-Weighting	Battery Check ✓	Calibration ✓
	Wind Direction: W	Temperature: 89.9
	**Wind Velocity: 14	Elevation: 57m
	Latitude: N18°21'08.6"	Longitude: W066°06'34.6"

*Equipment placed 1.5m (5 feet) above the ground on a tripod. RH 62.8
** No noise reading were recorded when the wind speed exceed a sustained 10 mph.

Regency Apartments
PR-20 / Calle Pedro Blanco
Avenida Osuna Urbina

Default ground: ✓ pavement ___water ___Hard Soil ___Loose Soil ___Lawn ___Field Grass

* Noise sensitive areas typically include residences, school, libraries, churches and temple, hospitals, recreation and sports area, playground, hotel, motels and parks.

5min

TRAFFIC COUNTS AND VEHICULES CLASSIFICATION					
Vehicles	Directions	Quantity			
Automobiles	to Rotonda	53	47	38	51
	to PR-20	52	45	38	49
Medium-duty trucks		4	3	1	1
		4	2	4	2
Heavy-duty trucks		0	0	0	1
		2	2	2	2
Motorcycle		0	0	0	0
		0	0	0	0

Road
30m



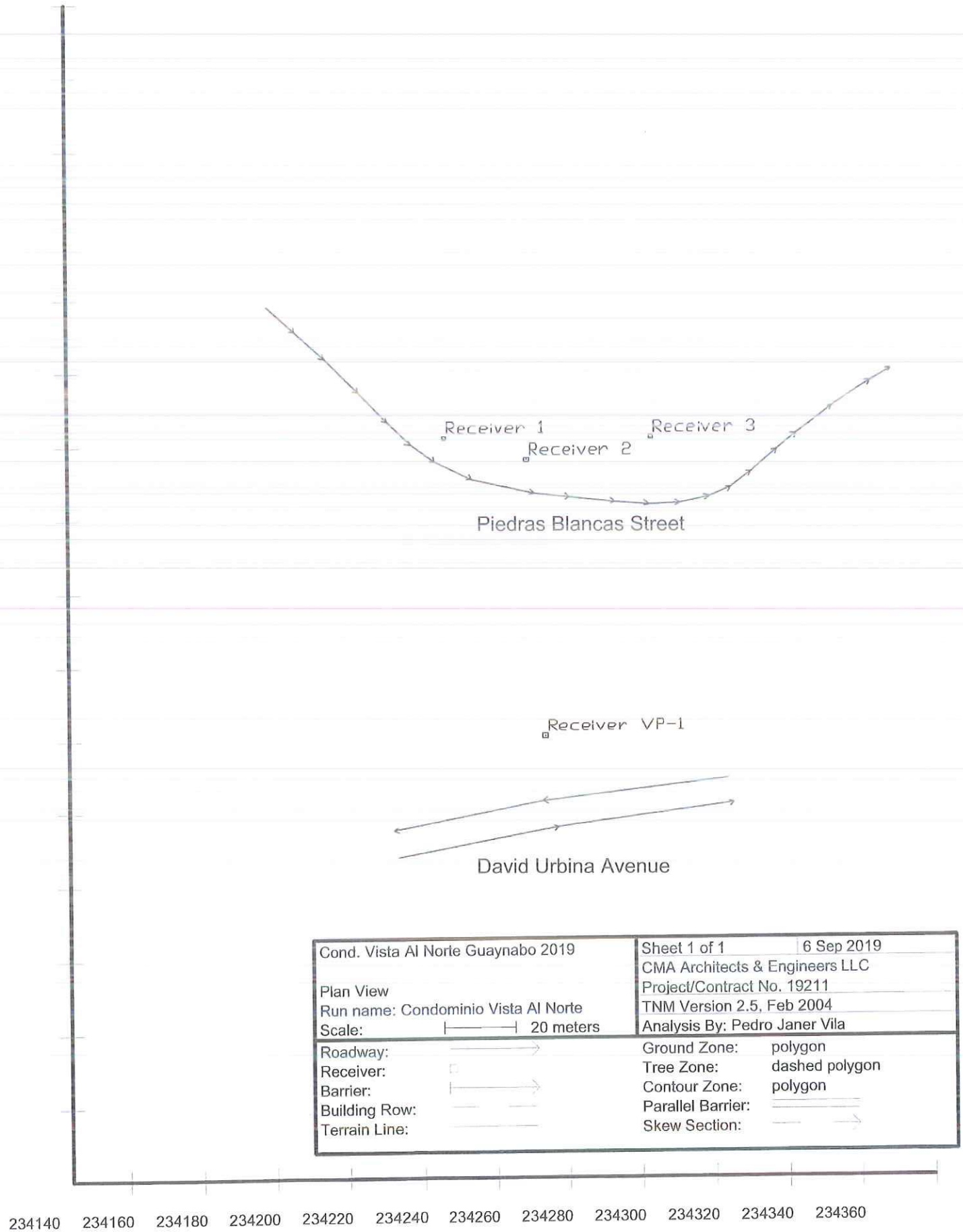
Speed limit on the main line highway: 35mph

Automobile – two axles and four tires
Medium duty trucks –two axles and six tires
Heavy duty trucks – three or more axles

Data Obtained By: Juan Ferd Cord / José García Morales

APPENDIX B

TNM 2.5 MODEL VALIDATION PRINTOUT



Cond. Vista Al Norte Guaynabo 2019	Sheet 1 of 1 — 6 Sep 2019
	CMA Architects & Engineers LLC
Plan View	Project/Contract No. 19211
Run name: Condominio Vista Al Norte	TNM Version 2.5, Feb 2004
Scale: 20 meters	Analysis By: Pedro Janer Vila

Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

CMA Architects & Engineers LLC
Pedro Janer Vila

6 September 2019
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 19211
RUN: Cond. Vista Al Norte Guaynabo 2019
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 28 deg C, 75% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver 3	1	1	53.5	53.5	67	0.0	10	----	53.5	0.0	8	-8.0
Receiver 1	2	1	52.8	54.7	67	1.9	10	----	54.7	0.0	8	-8.0
Receiver 2	3	1	54.8	55.6	67	0.8	10	----	55.6	0.0	8	-8.0
Receiver VP-1	4	1	64.7	66.6	67	1.9	10	----	66.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	4	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

CMA Architects & Engineers LLC
Pedro Janer Vila

6 September 2019
TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: 19211
RUN: Cond. Vista Al Norte Guaynabo 2019

Receiver

Name	No.	#DUs	Coordinates (ground)			Height above Ground	Input Sound Levels and Criteria				Active in Calc.
			X	Y	Z		Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	
			m	m	m	m	dBA	dBA	dB	dB	
Receiver 3	1	1	234,282.8	257,342.0	69.00	1.50	53.50	67	10.0	8.0	Y
Receiver 1	2	1	234,226.2	257,342.0	64.00	1.50	52.80	67	10.0	8.0	Y
Receiver 2	3	1	234,248.9	257,336.1	68.00	1.50	54.80	67	10.0	8.0	Y
Receiver VP-1	4	1	234,253.6	257,261.0	60.00	1.50	64.70	67	10.0	8.0	Y

CMA Architects & Engineers LLC
Pedro Janer Vila

6 September 2019
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND-LEVEL DIAGNOSIS BY VEHICLE TYPE
PROJECT/CONTRACT: 19211
RUN: Cond. Vista Al Norte Guaynabo 2019
BARRIER DESIGN: INPUT HEIGHTS

ATMOSPHERICS: 28 deg C, 75% RH

Receivers

Name	No.	Total LAeq1h dBA	Vehicle Type Name	Partial LAeq1h dBA
Receiver 3	1	53.5	Autos	52.6
			MTrucks	42.4
			HTrucks	43.2
			Buses	
			Motorcycles	38.5
Receiver 1	2	54.7	Autos	53.7
			MTrucks	44.8
			HTrucks	43.5
			Buses	
			Motorcycles	39.1
Receiver 2	3	55.6	Autos	54.8
			MTrucks	44.2
			HTrucks	44.3
			Buses	
			Motorcycles	40.2
Receiver VP-1	4	66.6	Autos	65.9
			MTrucks	54.9
			HTrucks	55.0
			Buses	
			Motorcycles	50.7

CMA Architects & Engineers LLC
Pedro Janer Vila

6 September 2019
TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 19211
RUN: Cond. Vista Al Norte Guaynabo 2019

Roadway	Points		Segment											
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h
Roadway1	point1	1	6	24	1	24	0	0	0	0	0	0
	point2	2	6	24	1	24	0	0	0	0	0	0
	point3	3	6	24	1	24	0	0	0	0	0	0
	point4	4	6	24	1	24	0	0	0	0	0	0
	point5	5	6	24	1	24	0	0	0	0	0	0
	point6	6	6	24	1	24	0	0	0	0	0	0
	point7	7	6	24	1	24	0	0	0	0	0	0
	point8	8	6	24	1	24	0	0	0	0	0	0
	point9	9	6	24	1	24	0	0	0	0	0	0
	point10	10	6	24	1	24	0	0	0	0	0	0
	point11	11	6	24	1	24	0	0	0	0	0	0
	point12	12	6	24	1	24	0	0	0	0	0	0
	point13	13	6	24	1	24	0	0	0	0	0	0
	point14	14	6	24	1	24	0	0	0	0	0	0
	point15	15	6	24	1	24	0	0	0	0	0	0
	point16	16	6	24	1	24	0	0	0	0	0	0
	point17	17	6	24	1	24	0	0	0	0	0	0
	point18	18	6	24	1	24	0	0	0	0	0	0
	point19	19	6	24	1	24	0	0	0	0	0	0
	point20	20	6	24	1	24	0	0	0	0	0	0
	point21	21										
Roadway2	point22	22	1529	56	16	56	8	56	0	0	7	56
	point23	23	1529	56	16	56	8	56	0	0	7	56

INPUT: TRAFFIC FOR LAeq1h Volumes 19211

	point24	24										
Roadway3	point25	25	1529	56	16	56	8	56	0	0	7	56
	point26	26	1529	56	16	56	8	56	0	0	7	56
	point27	27										

CMA Architects & Engineers LLC
Pedro Janer Vila

6 September 2019
TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 19211
RUN: Cond. Vista Al Norte Guaynabo 2019

Roadway	Points		Segment									
Name	Name	No.	User 1		User 2		User 3		User 4		<unknown>	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h
Roadway1	point1	1										
	point2	2										
	point3	3										
	point4	4										
	point5	5										
	point6	6										
	point7	7										
	point8	8										
	point9	9										
	point10	10										
	point11	11										
	point12	12										
	point13	13										
	point14	14										
	point15	15										
	point16	16										
	point17	17										
	point18	18										
	point19	19										
	point20	20										
	point21	21										
Roadway2	point22	22										
	point23	23										

	point24	24										
Roadway3	point25	25										
	point26	26										
	point27	27										

APPENDIX C

FIELD DATA NOISE STUDY

CMA
ARCHITECTS & ENGINEERS

Noise Impact Analysis
Field Data Sheet

Project Name: Condominio Vista Al Norte		Date: 09/04/14
Receiver Description & Location: R-1 ENTRADA A LA FINCA		
CMA No.: 19211		Start: 8:06
		End: 8:36
	L_{10} = 53.5	L_{eq} = 52.8
	L_{max} = 75.9	L_{min} = 48.2
*Equipment: B&K 2238	Calibrator: B&K 4231	Response: Fast
A-Weighting	Battery Check ✓	Calibration ✓
	Wind Direction: W	Temperature: 87.0
	**Wind Velocity: 2.3	Elevation: 40m
	Latitude: N18°21'11.9"	Longitude: W066°06'36.2"

RH - 78.3

*Equipment placed 1.5m (5 feet) above the ground on a tripod.
** No noise reading were recorded when the wind speed exceed a sustained 10 mph.

Condominio Regency
Piedras Blancas Road / Cangrejo Road.

Terminal
PR-164 / PR-20 (Avenida David Urbina)

Default ground: ✓ pavement ___water ___Hard Soil ___Loose Soil ___Lawn ___Field Grass

* Noise sensitive areas typically include residences, school, libraries, churches and temple, hospitals, recreation and sports area, playground, hotel, motels and parks.

Piedras Blancas Road 30min

TRAFFIC COUNTS AND VEHICULES CLASSIFICATION		
Vehicles	Directions	Quantity
Automobiles	← W	3
Medium-duty trucks		
Heavy-duty trucks		
Motorcycle		

Speed limit on the main line highway: 15 mph

Automobile – two axles and four tires
Medium duty trucks –two axles and six tires
Heavy duty trucks – three or more axles

Data Obtained By: Juan Fernandez / José Garcia.

CMA
ARCHITECTS & ENGINEERS LLP

Noise Impact Analysis
Field Data Sheet

Project Name: Condominio Vista Alta Work Guaynabo		Date: 09/04/19
Receiver Description & Location: R-2 Site Center Front		
CMA No.: 19211		Start: 8:40 End: 9:10
	L_{10} = 56.5	L_{eq} = 54.8
	L_{max} = 73.9	L_{min} = 48.5
*Equipment: B&K 2238	Calibrator: B&K 4231	Response: Fast
A-Weighting	Battery Check ✓	Calibration ✓
	Wind Direction: W	Temperature: 85.5°
	**Wind Velocity: 2.2	Elevation: 82m
	Latitude: N18°21'11.4"	Longitude: W066°06'34.5"

*Equipment placed 1.5m (5 feet) above the ground on a tripod. RH 84.9
** No noise reading were recorded when the wind speed exceed a sustained 10 mph.

PR-164 / PR-20
Quebrada David Urbina

Default ground: ✓ pavement ___water ___Hard Soil ___Loose Soil ___Lawn ___Field Grass

* Noise sensitive areas typically include residences, school, libraries, churches and temple, hospitals, recreation and sports area, playground, hotel, motels and parks.

Piedras Blancas Road 30min

TRAFFIC COUNTS AND VEHICULES CLASSIFICATION		
Vehicles	Directions	Quantity
Automobiles	← W	2
	→ E	1
Medium-duty trucks		
Heavy-duty trucks		
Motorcycle		

Speed limit on the main line highway: 15mph

Automobile – two axles and four tires
Medium duty trucks –two axles and six tires
Heavy duty trucks – three or more axles

Data Obtained By: _____

CMA
Architects & Engineers LLP

Noise Impact Analysis
Field Data Sheet

Project Name: Condominio Vista Al Mont		Date: 09/04/14
Receiver Description & Location: R-3 40m Site.		
CMA No.: 1921		Start: 9:16
		End: 9:46
	L_{10} = 55.0	L_{eq} = 53.5
	L_{max} = 93.2	L_{min} = 47.0
*Equipment: B&K 2238	Calibrator: B&K 4231	Response: Fast
A-Weighting	Battery Check ✓	Calibration ✓
	Wind Direction: W	Temperature: 87.5
	**Wind Velocity: 0.8	Elevation: 80
	Latitude: N18°21'12.9"	Longitude: W066° 06'32.6"

RH 74.9

*Equipment placed 1.5m (5 feet) above the ground on a tripod.
** No noise reading were recorded when the wind speed exceed a sustained 10 mph.

PR-09 / PR-24 Avenida David Urbano

Birds

Default ground: ✓pavement ___water ____Hard Soil ____Loose Soil _____Lawn ____Field Grass

* Noise sensitive areas typically include residences, school, libraries, churches and temple, hospitals, recreation and sports area, playground, hotel, motels and parks.

TRAFFIC COUNTS AND VEHICULES CLASSIFICATION		
Vehicles	Directions	Quantity
Automobiles	← W	4
Medium-duty trucks		
Heavy-duty trucks		
Motorcycle		

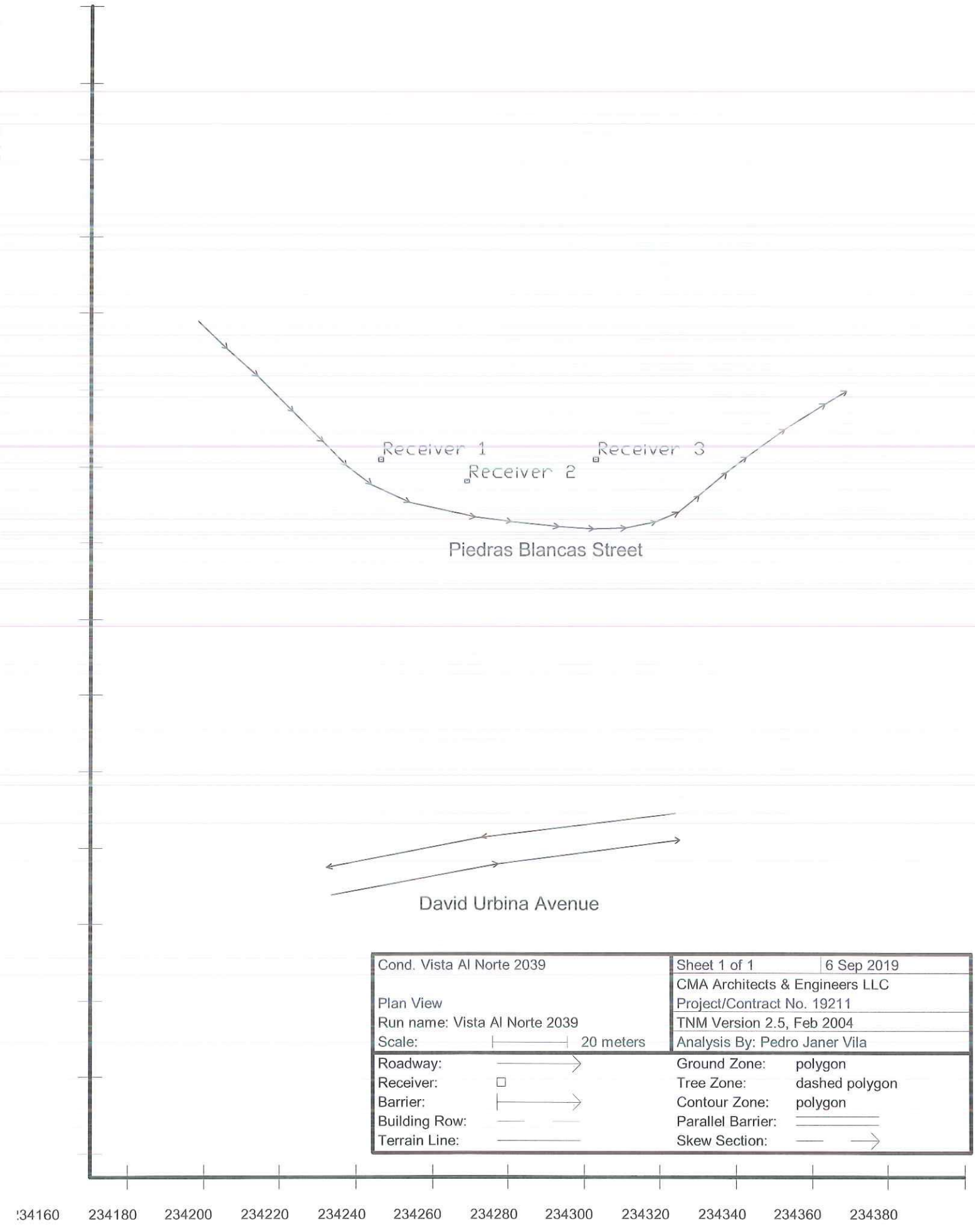
Speed limit on the main line highway: 15mph

Automobile – two axles and four tires
Medium duty trucks –two axles and six tires
Heavy duty trucks – three or more axles

Data Obtained By: Juan Perez / Jose Garcia

APPENDIX D

TNM 2.5 EXPECTED TRAFFIC FLOW PRINTOUT 2039



Cond. Vista Al Norte 2039		Sheet 1 of 1	6 Sep 2019
		CMA Architects & Engineers LLC	
Plan View		Project/Contract No. 19211	
Run name: Vista Al Norte 2039		TNM Version 2.5, Feb 2004	
Scale:	20 meters	Analysis By: Pedro Janer Vila	
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

CMA Architects & Engineers LLC
Pedro Janer Vila

6 September 2019
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 19211
RUN: Cond. Vista Al Norte 2039
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 26 deg C, 75% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	No Barrier LAeq1h Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver 3	1	1	53.5	54.7	67	1.2	10	----	54.7	0.0	8	-8.0
Receiver 1	2	1	52.8	56.2	67	3.4	10	----	56.2	0.0	8	-8.0
Receiver 2	3	1	54.8	57.0	67	2.2	10	----	57.0	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

CMA Architects & Engineers LLC
Pedro Janer Vila

6 September 2019
TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: 19211
RUN: Cond. Vista Al Norte 2039

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			m	m	m	m	dBA	dBA	dB	dB	
Receiver 3	1	1	234,282.8	257,342.0	69.00	1.50	53.50	67	10.0	8.0	Y
Receiver 1	2	1	234,226.2	257,342.0	64.00	1.50	52.80	67	10.0	8.0	Y
Receiver 2	3	1	234,248.9	257,336.1	68.00	1.50	54.80	67	10.0	8.0	Y

CMA Architects & Engineers LLC
Pedro Janer Vila

6 September 2019
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND-LEVEL DIAGNOSIS BY VEHICLE TYPE

PROJECT/CONTRACT: 19211
RUN: Cond. Vista Al Norte 2039
BARRIER DESIGN: INPUT HEIGHTS

ATMOSPHERICS: 26 deg C, 75% RH

Receivers				
Name	No.	Total LAeq1h dBA	Vehicle Type Name	Partial LAeq1h dBA
Receiver 3	1	54.7	Autos	53.7
			MTrucks	43.6
			HTrucks	44.2
			Buses	
			Motorcycles	40.1
Receiver 1	2	56.2	Autos	54.9
			MTrucks	48.0
			HTrucks	44.5
			Buses	
			Motorcycles	40.7
Receiver 2	3	57.0	Autos	56.0
			MTrucks	47.5
			HTrucks	45.3
			Buses	
			Motorcycles	41.8

CMA Architects & Engineers LLC
Pedro Janer Vila

6 September 2019
TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 19211
RUN: Cond. Vista Al Norte 2039

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h
Roadway3	point1	1	8	24	2	24	0	0	0	0	0	0
	point2	2	8	24	2	24	0	0	0	0	0	0
	point3	3	8	24	2	24	0	0	0	0	0	0
	point4	4	8	24	2	24	0	0	0	0	0	0
	point5	5	8	24	2	24	0	0	0	0	0	0
	point6	6	8	24	2	24	0	0	0	0	0	0
	point7	7	8	24	2	24	0	0	0	0	0	0
	point8	8	8	24	2	24	0	0	0	0	0	0
	point9	9	8	24	2	24	0	0	0	0	0	0
	point10	10	8	24	2	24	0	0	0	0	0	0
	point11	11	8	24	2	24	0	0	0	0	0	0
	point12	12	8	24	2	24	0	0	0	0	0	0
	point13	13	8	24	2	24	0	0	0	0	0	0
	point14	14	8	24	2	24	0	0	0	0	0	0
	point15	15	8	24	2	24	0	0	0	0	0	0
	point16	16	8	24	2	24	0	0	0	0	0	0
	point17	17	8	24	2	24	0	0	0	0	0	0
	point18	18	8	24	2	24	0	0	0	0	0	0
	point19	19	8	24	2	24	0	0	0	0	0	0
	point20	20	8	24	2	24	0	0	0	0	0	0
	point21	21										
Roadway4	point22	22	1991	56	21	56	10	56	0	0	10	56
	point23	23	1991	56	21	56	10	56	0	0	10	56

INPUT: TRAFFIC FOR LAeq1h Volumes 19211

	point24	24										
Roadway5	point25	25	1991	56	21	56	10	56	0	0	10	56
	point26	26	1991	56	21	56	10	56	0	0	10	56
	point27	27										

CMA Architects & Engineers LLC
Pedro Janer Vila

6 September 2019
TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 19211
RUN: Cond. Vista Al Norte 2039

Roadway	Points		Segment											
Name	Name	No.	User 1		User 2		User 3		User 4		<unknown>			
			V	S	V	S	V	S	V	S	V	S		
			veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h		
Roadway3	point1	1												
	point2	2												
	point3	3												
	point4	4												
	point5	5												
	point6	6												
	point7	7												
	point8	8												
	point9	9												
	point10	10												
	point11	11												
	point12	12												
	point13	13												
	point14	14												
	point15	15												
	point16	16												
	point17	17												
	point18	18												
	point19	19												
	point20	20												
	point21	21												
Roadway4	point22	22												
	point23	23												

	point24	24										
Roadway5	point25	25										
	point26	26										
	point27	27										

APPENDIX E

NOISE METER
ANNUAL CALIBRATION CERTIFICATE

Brüel & Kjær
North America Inc.

The Bruel and Kjaer Calibration Laboratory
3079 Premiere Parkway Suite 120
Duluth, GA 30097
Telephone: 770-209-6907
Fax: 770-447-4033
Web site address: http://www.bksv.com

ACCREDITED

Calibration Certificate # 1568.01

CERTIFICATE OF CALIBRATION

No.: CAS-400947-P0M1G8-402

CALIBRATION OF:

Microphone: Brüel & Kjær Type 4188 Serial No. 2951151

CUSTOMER:

CMA Architects & Engineers LLP
1509 F.D. Roosevelt Avenue
Guaynabo, PR 00968

CALIBRATION CONDITIONS:

Environment conditions:	Air temperature:	22.4	°C
	Air pressure:	97.733	kPa
	Relative Humidity:	51.4	%RH
Applied polarization voltage:	0 Vdc		

SPECIFICATIONS:

This document certifies that the instrument as listed under "Type" has been calibrated and unless otherwise indicated under "Final Data", meets acceptance criteria as prescribed by the referenced Procedure. Statements of compliance, where applicable, are based on calibration results falling within specified criteria with no reduction by the uncertainty of the measurements. The calibration of the listed transducer was accomplished using a test system which conforms to the requirements of ISO/IEC 17025, ANSI/NCSL Z540-1, and guidelines of ISO 10012-1. For "as received" and "final" data, see the attached page(s). Items marked with one asterisk (*) are not covered by the scope of the current A2LA accreditation. This Certificate and attached data pages shall not be reproduced, except in full, without written approval of the Bruel and Kjaer Calibration Laboratory-Duluth, GA. Results relate only to the items tested. The transducer has been calibrated using Measurement Standards with values traceable to the National Institute of Standards and Technology, National Measurement Institutes or derived from natural physical constants.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær Microphone Calibration System
B&K 9721 with application software WT9649 and WT9650 version 5.2 using calibration procedure: 4188-S-251-FF-01

RESULTS:

[X] "As Received" Data: Within Acceptance Criteria
[ ] "As Received" Data: Outside Acceptance Criteria
[X] "Final" Data : Within Acceptance Criteria
[ ] "Final" Data : Outside Acceptance Criteria

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor k =2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from standards, calibration method, effect of environmental conditions and any short term contribution from the device under calibration.

Date of Calibration: 28 August 2019

Certificate issued: 28 August 2019

Meshaun Hobbs
Calibration Technician

Harold Williams
Quality Representative

Sensitivity

Nominal sensitivity:	-30	dB re. 1V/Pa	+/-	2 dB
Sensitivity at calibration conditions:	-29.62	dB re. 1V/Pa	or	33.04 mV/Pa
Sensitivity at reference conditions:	-29.69	dB re. 1V/Pa	or	32.76 mV/Pa
Uncertainty:	+/- 0.11	dB		
Correction factor K at reference conditions:	3.69	dB		
Calibration Frequency:	251.19	Hz		

Reference Conditions:
Pressure: 101.3 kPa
Temperature: 23 °C
Relative Humidity: 50%

Traceable references

Type	Serial no	Cal. date	Due date	Calibrated by	Trace number
4180	2602440	2019-05-08	2021-05-31	DPLA	M2.10-1304-3.1

Condition "As Received":

Good

Comments:

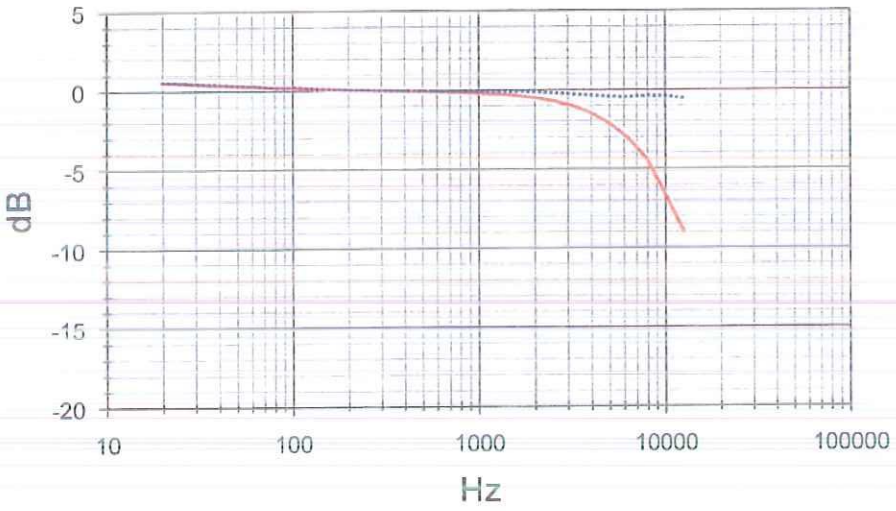
Normalized Frequency Response

Normalization Frequency: 251.19 Hz
Actuator Response is valid at Calibration Conditions
Applied Sound Field Correction: Free-field Correction with Grid at 0 degrees incidence

Frequency [Hz]	Actuator Response [dB]	Sound Field Response [dB]	Combined Uncertainty [dB]	Upper Tolerance [dB]	Lower Tolerance [dB]	Tolerance Exceeded
19.9526	0.51	0.50	0.36	1.00	-1.00	
25.1189	0.47	0.47	0.28	1.00	-1.00	
31.6228	0.39	0.39	0.20	1.00	-1.00	
39.8107	0.34	0.34	0.19	1.00	-1.00	
50.1187	0.29	0.28	0.17	1.00	-1.00	
63.0957	0.25	0.24	0.16	1.00	-1.00	
79.4328	0.18	0.18	0.16	1.00	-1.00	
100.000	0.18	0.18	0.16	1.00	-1.00	
125.893	0.11	0.11	0.16	1.00	-1.00	
158.489	0.07	0.07	0.16	1.00	-1.00	
199.526	0.03	0.02	0.16	1.00	-1.00	
251.189	0.00	0.00	0.02	1.00	-1.00	
316.228	-0.04	-0.03	0.16	1.00	-1.00	
398.107	-0.06	-0.05	0.16	1.00	-1.00	
501.187	-0.09	-0.06	0.16	1.00	-1.00	
630.957	-0.12	-0.08	0.16	1.00	-1.00	
794.328	-0.15	-0.08	0.16	1.00	-1.00	
1000.00	-0.20	-0.09	0.16	1.00	-1.00	
1258.93	-0.26	-0.11	0.16	1.00	-1.00	
1584.89	-0.36	-0.13	0.16	1.00	-1.00	
1995.26	-0.50	-0.17	0.17	1.00	-1.00	
2511.89	-0.71	-0.23	0.17	1.00	-1.00	
3162.28	-1.02	-0.30	0.18	1.00	-1.00	
3981.07	-1.49	-0.39	0.19	1.00	-1.00	
5011.87	-2.15	-0.47	0.19	1.00	-1.00	
6309.57	-3.09	-0.51	0.20	1.00	-1.00	
7943.28	-4.41	-0.42	0.21	1.00	-1.00	
10000.0	-6.66	-0.45	0.27	2.00	-2.00	
12589.3	-9.02	-0.59	0.34	2.00	-2.00	

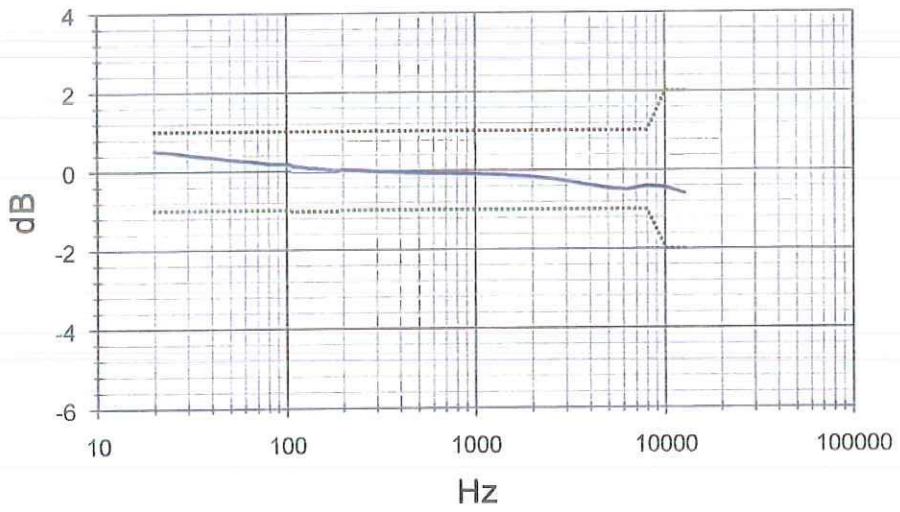
Measured Frequency Response

Solid curve: Actuator response Dotted curve: Sound field response
Applied Sound Field Correction: Free-field Correction with Grid at 0 degrees incidence



Result Response

Solid curve: Sound field response Dotted curves: Tolerance limits
Applied Sound Field Correction: Free-field Correction with Grid at 0 degrees incidence



Brüel & Kjær
North America Inc.

The Bruel and Kjaer Calibration Laboratory
3079 Premiere Parkway Suite 120
Duluth, GA 30097
Telephone: 770-209-6907
Fax: 770-447-4033
Web site address: http://www.bksv.com

ACCREDITED

Calibration Certificate # 1568.01

CERTIFICATE OF CALIBRATION

No.: CAS-400947-P0M1G8-401

CALIBRATION OF:

Calibrator: Brüel & Kjær Type 4231 Serial No.: 2313932
IEC Class: 1

CUSTOMER:

CMA Architects & Engineers LLP
1509 F.D. Roosevelt Avenue
Guaynabo, PR 00968

CALIBRATION CONDITIONS:

Environment conditions:	Air temperature:	21.8	°C
	Air pressure:	97.975	kPa
	Relative Humidity:	49.2	%RH

SPECIFICATIONS:

This document certifies that the acoustic calibrator as listed under "Type" has been calibrated and unless otherwise indicated under "Final Data", meets acceptance criteria as prescribed by the referenced Procedure. Statements of compliance, where applicable, are based on calibration results falling within specified criteria with no reduction by the uncertainty of the measurements. The calibration of the listed transducer was accomplished using a test system which conforms to the requirements of ISO/IEC 17025, ANSI/NCSL Z540-1, and guidelines of ISO 10012-1. For "as received" and "final" data, see the attached page(s). Items marked with one asterisk (*) are not covered by the scope of the current A2LA accreditation. This Certificate and attached data pages shall not be reproduced, except in full, without written approval of the Bruel and Kjaer Calibration Laboratory-Duluth, GA. Results relate only to the items tested. The transducer has been calibrated using Measurement Standards with values traceable to the National Institute of Standards and Technology, National Measurement Institutes or derived from natural physical constants. The acoustic calibrator has been calibrated in accordance with the requirements as specified in IEC60942.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær acoustic calibrator calibration application Software version 2.3.4 Type 7794 using calibration procedure 4231 Complete

RESULTS:

[X] "As Received" Data: Within Acceptance Criteria
[ ] "As Received" Data: Outside Acceptance Criteria
[X] "Final" Data : Within Acceptance Criteria
[ ] "Final" Data : Outside Acceptance Criteria

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with EA-4/02from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the calibrator under calibration.

Date of Calibration: August 26, 2019

Certificate issued: August 26, 2019

Meshaun Hobbs
Calibration Technician

Harold Williams
Quality Representative

Sound Pressure Levels

All stated values are valid at environmental reference conditions

Nominal Level [dB]	Accept Limit Lower [dB]	Accept Limit Upper [dB]	Measured Level [dB]	Measurement Uncertainty [dB]
94	93.80	94.20	94.00	0.12
114	113.80	114.20	114.01	0.12

Frequency

Nominal Frequency [Hz]	Accept Limit Lower [Hz]	Accept Limit Upper [Hz]	Measured Frequency [Hz]	Measurement Uncertainty [Hz]
1000	999.00	1001.00	999.97	0.10

Total Distortion*

Distortion mode: [X] TD* [ ] THD*

Calibration Level [dB]*	Accept Limit [%]*	Measured Distortion [%]*	Measurement Uncertainty [%]*
94	1.00	0.68	0.13
114	1.00	0.16	0.13

Environmental Reference Conditions:

Pressure: 101.3 kPa, Temperature: 23 °C, Relative Humidity: 50%

Instrument List

Type	Description	Serial no	Cal. date	Due date	Calibrated by	Trace number
3560	PULSE Analyzer	2723320	2018-10-22	2019-10-31	KC	CAS-335103-K3P9T8-301
9545	Transfer Microphone	3	2018-11-29	2019-11-30	WS	CAS-341143-N8H3J4-701
4228	Reference Sound Source	1610502	2019-04-05	2021-04-30	W.Shipman	CAS-375162-C8J4Z3-705

During the calibration the calibrator has been loaded by the load volume of the Transfer Microphone. The load volumes for a number of different types of Transfer Microphones are listed in the table below.
For Brüel & Kjær Pistonphones types 4220 and 4228 the result of the SPL calibration has been corrected to be valid for a load volume of 1333 mm^3 . For all other types the result is valid with the actual load volume.

Transfer Microphone Type	Fulfils standard IEC 61094-1 LS	Fulfils standard IEC 61094-4 WS	Load Volume 1" (1/2" mic including DP-0776)	Load Volume 1/2"
4180	yes	yes	1126 mm^3	43 mm^3
4192	-	yes	1273 mm^3	190 mm^3
9545	-	-	1333 mm^3	-

Condition "As Received":

Good

Comments

EXHIBIT C

ERTEC

REPORT

PHASE I ENVIRONMENTAL SITE ASSESSMENT (PHASE I ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER E195613

PREPARED FOR:

MR. SEGUNDO CARDONA, AIA
SCF ARQUITECTOS
POPULAR CENTER 8TH FLOOR
13 CALLE 2, SUITE 301 METRO OFFICE PARK
GUAYNABO, PUERTO RICO 00968

DATE PREPARED:

OCTOBER 10, 2019

PREPARED BY:

ERTEC P.S.C.-ENVIRONMENTAL CONSULTANTS
(ERTEC)
PO BOX 195336
SAN JUAN, PR 00919-5336
PHONE-(787) 792-8902
FAX -(787) 783-5555
ertec@ertecpr.com

ERTEC

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ERTEC

REPORT

PHASE I ENVIRONMENTAL SITE ASSESSMENT (PHASE I ESA)
PROPOSED CONDOMINIO VISTA AL NORTE
PIEDRAS BLANCAS ROAD, PIEDRAS BLANCAS WARD
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER E195613

1.0 SUMMARY

ERTEC, P.S.C-Environmental Consultants (ERTEC) has performed a Phase I Environmental Site Assessment (Phase I ESA) in conformance with the scope and limitations of American Society for Testing and Materials *(*ASTM) Practice 1527-13 at the proposed Condominio Vista al Norte located in Piedras Blancas Road, Piedras Blancas Ward in Guaynabo, Puerto Rico (the Site).

The ASTM E 1527-13 standard defines the term Recognized Environmental Condition (REC) as meaning “the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. Based on this definition, ERTEC has not identified RECs at the subject Site, except for the **use of the Site as a former furniture manufacturer as a REC associated with the Site. For furniture manufacturing coating solvents and adhesives are used that in uncontrolled conditions could cause a release to the environment.**

2.0 INTRODUCTION

On August 29, 2019, Desarrollos Arquitectónicos (DASE) Inc. authorized ERTEC PSC-Environmental Consultants (ERTEC) to conduct a Phase I Environmental Site Assessment (ESA) at the proposed Condominio Vista al Norte (the Site). The Site consists of a parcel of approximately 9,500 – square meters and is located at Piedras Blancas Road, Piedras Blancas Ward in Guaynabo, Puerto Rico. The Site Reconnaissance was conducted on September 5, 2019. This site reconnaissance included a walk-thru of the Site and adjoining areas.

2.1 Purpose

The purpose of this assessment was to identify RECs associated with the Site in accordance with the *American Society for Testing and Materials (ASTM) document E 1527-13 entitled; Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.*

2.2 Detailed Scope-of-Services

The ASTM E 1527-13 standard defines the term **recognized environmental condition** (RECs) as meaning "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not RECs." RECs include hazardous substances or petroleum products even under conditions in compliance with laws. The term does not include ***de minimis*** conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be subject to an enforcement action if brought to the attention of appropriate governmental agencies.

This Phase I ESA was conducted following currently accepted professional standards in accordance with ASTM E-1527-13 that includes the following activities: a file search, regulatory agency inquiries, owner and users inquires, a Site Reconnaissance, and interviews of site personnel. None of the traditional non-scope considerations, listed in ASTM E 1527-13 under Section 13.1.5, were requested by the User to be completed as part of this Phase I ESA.

Whenever possible, supporting documentation has been provided as appendices to this report. Selected documentation referenced in this report may not be presented due to copyright restrictions or cost considerations.

2.3 Significant Assumptions

No significant assumptions were required during the performance of this Phase I ESA.

2.4 Limitations and Exceptions

This report was prepared by ERTEC for and is intended for the exclusive use of the Client (**Desarrollos Arquitectónicos, Inc.**). The report's contents may not be relied upon by any party other than the Client without the express written permission of ERTEC. The report's findings are based on conditions that existed at the time ERTEC conducted the investigation and should not be relied upon to precisely represent conditions at any other time.

No data gaps as defined by ASTM E 1527-13 during the data acquisition activities for this project were identified.

2.5 Special Terms and Conditions

No special terms and conditions apply to the performance of this Phase I ESA.

2.6 User Reliance

This report is for the use and benefit of, and may be relied upon only by Desarrollos Arquitectónicos Inc.

2.7 Site Background Information

2.7.1 Site Location

Information included in the following tables is based on a visual reconnaissance performed as set forth below, interviews, and other references presented in the following sections.

FACILITY GENERAL INFORMATION	
Subject Property Name	Proposed Condominio Vista al Norte
Subject Property Owner	The Parcel appears registered to Vista al Norte, SE.
Subject Property Address	Parcel 8, Camarones Ward, Piedras Blancas Sector, Guaynabo, Puerto Rico (Property Number CRIM 114-063-033-10-000).
Subject Property Location	The subject property is located at the following coordinates: 18° 21' 05.64'' North and 66° 06' 33.28'' West.
Subject Property Operations	At the time of the Site Reconnaissance, the Site is covered with some vegetation. No structures are observed on-site.
Property Size	According to the deed registered at CRIM the property comprises 4,677.16 square meters.
Land Area Description	The Site is in an area of residential and commercial developments.

The Site location map is shown on **Figure 1** (U.S.G.S. Topographic Map of the Aguas Buenas, Puerto Rico Quadrangle, 1977 revised 1982). The Site location and neighboring activities are provided on **Figure 2**. Photographs of the Site obtained during the Site Reconnaissance are provided in **Appendix 1.**

2.7.2 Site and Vicinity General Characteristics

SITE AND VICINITY GENERAL CHARACTERISTIC		
Topography		
Site Elevation	Elevation on the southern area of the site is approximately 55 meters above mean sea level (msl). The site slopes to the north to elevations of approximately 45 meters msl.	Aguas Buenas, Puerto Rico Topographic Map (**Figure 1**).
Surface Runoff/ Topographic Gradient	Surface runoff runs naturally from South to North according to the topography.	Aguas Buenas, Puerto Rico Topographic Map (**Figure 1**) /Site Visit.
Closest Surface Water	The nearest surface water body is an intermittent creek that flows from South to North and is a tributary of the Guaynabo River. The creek is approximately the Rio Guaynabo that runs approximately 870 feet West of the Site.	Aguas Buenas, Puerto Rico Topographic Map (**Figure 1**) /Site Visit.
Geology/Hydrogeology		
Formation	The Site is underlain by the Guaracanal Andesite deposit (Tg) coarse purplish or reddish gray flow breccia in southeastern most exposure, which may be a vent. Formation grades to massive tuff, volcanic breccia, and poorly stratified tuffaceous wacke and conglomerate becoming finer grained and more stratified away from vent area.	USGS Geologic Map of the Aguas Buenas, Puerto Rico Quadrangle (**Figure 3**).
Hydrogeology	Based on Site topography and local geological conditions, local groundwater flow should be towards the West. Based on site and hydrological boundary elevation, groundwater is expected at depths of approximately 70 – 75 feet below ground surface.	Site Visit
FEMA Map		
Floodable Areas	The Site is located in a minimal flood hazard area.	FEMA Firm Map Panel # 72000C0730H, April 19, 2005 and **Appendix 2-1**. (**Figure 4**).

Soil Characteristics		
Soil Type	The soil at the Site is described as Mucara Series. ▪ Surface Texture- Clay ▪ Hydrologic Group- Hydrologic Group: Class D – Very slow infiltration rate. Soils are clayey, have a high water-table, or are shallow to an impervious layer. ▪ Soil Drainage Class – Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.	EDR Radius Map Report with GeoCheck (**Appendix 2-1**)
National Wetlands Inventory Map		
Conditions Wetland	The National Wetlands Inventory Map of the U.S. Fish and Wildlife Service does not disclose the presence of wetland within property boundaries.	US Fish and Wildlife Service Wetlands Map (**Figure 5**).

According to the Federal USGS Well Information System Mapper there are two (2) well (USGS40001045282 and USGS40001045286) between ½-mile and 1-mile from the Site. The wells appear to be inactive monitoring well. No public water supply wells are identified in the Federal FRDS Public Water Well Information System within 1-mile of the Site EDR Radius Map Report with Geo-Check (**Appendix 2-1**).

2.7.3 Current Use of the Site

The Site is currently vacant and partially covered with secondary vegetation. The central area of the Site has been cleared and partially graded.

2.7.4 Descriptions of Structures and Other Improvements

Currently, the subject Site is vacant. A previous structure has been identified at Site in historical aerial imagery.

2.7.5 Current Uses of Adjoining Properties

The areas surrounding the subject Site are primarily residential. Table below describe the structures adjoining the Site.

ADJOINING PROPERTIES USES	
Direction	**Description of Adjoining Properties**
North	Vacant lot of "Discípulos de Cristo" Church. Across the lot the Caribbean Consolidated Schools facility is located.
South	Piedras Blancas road. Across the road, the Regency Park Condominium is located.
East	Vacant lot of "Discípulos de Cristo" Church.
West	Piedras Blancas road. Across the road, the Regency Park Condominium is located.

3.0 USER-PROVIDED INFORMATION

The "User" as defined in this evaluation is **Desarrollos Arquitectónicos Inc.** The user provided a two (2) pages document entitled "Schematic Drawings for Condominio Vista al Norte" prepared by SCF on July 12, 2019. Copy of the mentioned documents are included in **Appendix 3-1**.

A completed User's Questionnaire for Vista al Norte Condominio is attached in **Appendix 3-2**.

3.1 Title Records

The owner (**Desarrollos Arquitectónicos Inc.**) did not provide a deed for the Site. However, the Digital Cadaster of the Property Tax System (CRIM) indicates that the Site is registered at Volume 87, page 810, estate 31381 of the Property registry of Guaynabo. The date of the deed is March 3, 2005. The seller was CBH Development Corp and it

was acquired by Vista al Norte SE by a sales price of $1,000,000. According to the deed registered at CRIM the property comprises 4,677.16 square meters.

3.2 Environmental Liens or Activity and Use Limitations

No Environmental Liens are known by the "User". The "User" did not provide a recent Title Search of the property.

3.3 Specialized Knowledge

The owner and User did not provide any specialized knowledge or experience regarding environmental concerns at the Site.

3.4 Commonly Known or Reasonable Ascertainable Information

No additional commonly known or reasonably ascertainable information was provided by the User for use in the performance of this Phase I ESA.

3.5 Valuation Reduction for Environmental Issues

No valuation reduction environmental issues were provided by the owner for this Site.

3.6 Property Owner Information

No information of the property owner was provided.

3.7 Reason for the Phase I Environmental Site Assessment

This Phase I ESA was performed at the request of **Desarrollos Arquitectónicos Inc.**, as part of the environmental due diligence prior to the development of the property.

4.0 RECORDS REVIEW

The following sections comprise a review of data acquired from different sources including commercially available databases that summarize data from the Environmental Protection Agency (EPA), United States Geological Survey (Topographic Maps and Well databases) and State agencies as well as the PREQB (Underground Storage Tanks, USTs, and Leaking Underground Storage Tanks, LUST) lists. Additional sources include historical aerial photographs databases (Puerto Rico Highway Administration) and open-sources databases (Google Earth™) imagery. These records review is presented in Sections 4.1 (Standard Sources) and 4.2 (Additional Sources, below. A copy of the EDR-provided documents is included in **Appendix 2**.

4.1 Standard Environmental Record Sources

Spill sites, leak sites, and other sites listed by the United States Environmental Protection Agency (USEPA) and other regulatory agencies files are identified in the EDR Radius Map™ Report with GeoCheck® (**Appendix 2-1**). Because of the lack of good spatial precision regarding location information in Puerto Rico, there is some uncertainty to the database output regarding sites, including orphan sites.

The EDR file review of Standard Environmental Record Sources is summarized below.

SUMMARY OF FEDERAL AND STATE AGENCY DATABASE FINDINGS - STANDARD ENVIRONMENTAL RECORD RESOURCE			
Regulatory Database	**Minimum Search Distance**	**Subject property Listed**	**Total Facilities Listed**
National Priorities List (NPL)	1-mile	No	0
Proposed NPL Sites (PROPOSED NPL)	1-mile	No	0
Federal Superfund Liens (NPL LIENS)	Target Property	No	0
Delisted NPL Sites (DELISTED NPL)	1-mile	No	0

SUMMARY OF FEDERAL AND STATE AGENCY DATABASE FINDINGS - STANDARD ENVIRONMENTAL RECORD RESOURCE			
Regulatory Database	**Minimum Search Distance**	**Subject property Listed**	**Total Facilities Listed**
Comprehensive Environmental Response, Cleanup, and Liability Information System (CERCLIS)	0.5-mile	No	0
No further remedial action planned sites removed from CERCLIS (CERC-NFRAP)	0.5-mile	No	0
Corrective Action Report (CORRACTS)	1-mile	No	0
RCRA – Transporters, Storage and Disposal (RCRA-TSDF)	0.5-mile	No	0
RCRA – Large Quantity Generators (RCRA- LQG)	0.25-mile	No	0
RCRA – Small Quantity Generators (RCRA - SQG)	0.25-mile	No	0
RCRA – Conditionally Exempt Small Quantity Generators (RCRA – CESQG)	0.25-mile	No	1
Federal Engineering Controls Registry (US ENG CONTROLS)	0.5-mile	No	0
Federal Institutional Controls Registry (US INST CONTROL)	0.5-mile	No	0
Emergency Response Notification System (ERNS)	Target Property	No	0
State Hazardous Waste Sites (SHWS – State Hazardous Waste)	Not Available	No	Not Available
Leaking Underground Storage Tank Sites (LUST)	0.5-mile	No	1
Registered Underground Storage Tank Sites (UST)	0.25-mile	No	1
Land Use Control Information System (LUCIS)	0.5-mile	No	0

4.1.1 Subject Property

The subject property is not in the databases searched by EDR (**Appendix 2-1**).

4.1.2 Adjacent and Nearby Properties

The following nearby property was listed on the databases searched by EDR (**Appendix 2-1)**:

- Gulf #118 listed in the UST and LUST database located at Road PR-20 and Baldorioty St, La Cumbre Km. 6.0, Guaynabo, PR.

The site is located downgradient of the Site. Groundwater flow in the area has a predominant West-Northwest direction. The Site is located to the South of the facility listed. Consequently, an event of contamination of groundwater from that Site should not represent a hazard to the subject Site.

4.1.3 Orphan Properties

The EDR Report in **Appendix 2-1** identified fifty-six (56) properties in the subject area as orphan properties. Orphan properties are properties whose provided address cannot be identified by the EDR search.

Based on the distance of the facilities to the Site (more than 1-mile), the closest facility is the Gulf Service Station #118 that is downgrading of the subject Site, the facilities do not represent RECs or potential RECs to the Site.

4.2 Additional Environmental Record Sources

The EDR file review of Additional Environmental Record Sources is summarized below:

SUMMARY OF FEDERAL AND STATE AGENCY DATABASE FINDINGS - ADDITIONAL ENVIRONMENTAL RECORD SOURCE			
REGULATORY DATABASE	**MINIMUM SEARCH DISTANCE**	**SUBJECT PROPERTY LISTED**	**TOTAL FACILITIES LISTED**
RCRA – Non-Generators (RCRA – NonGen)	0.25-mile	No	0
Hazardous Materials Information Reporting System (HMIRS)	Target Property	No	0
Incident and Data DOT, Office of Pipeline Safety Incident and Accident data (DOT OPS)	Target Property	No	0
Department of Defense Sites (DOD)	1-mile	No	0

SUMMARY OF FEDERAL AND STATE AGENCY DATABASE FINDINGS - ADDITIONAL ENVIRONMENTAL RECORD SOURCE			
REGULATORY DATABASE	**MINIMUM SEARCH DISTANCE**	**SUBJECT PROPERTY LISTED**	**TOTAL FACILITIES LISTED**
Formerly Used Defense Sites (FUDS)	1-mile	No	0
US Brownfields (US BROWNFIELDS)	0.5-mile	No	0
Superfund Consent Decrees (CONSENT)	1-mile	No	0
Record of Decision (ROD)	1-mile	No	0
Uranium Mill Tailings Sites (UMTRA)	0.5-mile	No	0
Open Dump Inventory (ODI)	0.5-mile	No	0
Toxic Release Information System (TRIS)	Target Property	No	0
Toxic Substances Control Act (TSCA)	Target property	No	0
Federal Insecticide, Fungicide, Rodenticide Act/TSCA Tracking System (FTTS)	Target Property	No	0
Federal Insecticide, Fungicide, Rodenticide Act: Section 7 Tracking System (SSTS)	Target property	No	0
Integrated Compliance Information System (ICIS)	Target Property	No	0
Radiation Information Database (RADINFO)	Target Property	No	0
FIFRA/TSCA Tracking System Administrative Case Listing (HIST FTTS)	Target Property	No	0
Clandestine Drug Labs (CDL)	Target Property	No	0
PCB Activity Database System (PADS)	Target property	No	0
Material Licensing Tracking System (MLTS)	Target Property	No	0
Mines Master Index File (MINES)	0.25-mile	No	0
Facility Index System (FINDS)	Target Property	No	0
RCRA Administrative Action Tracking System (RAATS)	Target Property	No	0
Enforcement and Complaints History Information (ECHO)	Target Property	No	0

4.2.1 Subject Property

The subject property is not listed in the above-mentioned databases.

4.2.2 Adjacent and Nearby Properties

None of the sites are listed as an Adjacent and/or Nearby Property on the additional environmental databases search by EDR. Based on that none of the nearby or adjacent properties are listed in the EDR and did not show evidence of potential RECs it is our opinion the facilities do not represent RECs or potential RECs to the Site.

4.3 Other Database Information Sources

ERTEC reviewed other database sources in addition to the EDR. The databases included the USEPA Envirofacts database, the PREQB Active and Inactive Leaking Underground Storage Tanks List, USGS Geologic Map of the Aguas Buenas, Puerto Rico Quadrangle; CRIM Portal Catastro Digital Map, National Wetlands Inventory Map and FEMA Flood Zoning Maps. The databases were reviewed between September 15, 2019 and September 27, 2019.

4.3.1 USEPA Envirofacts Database

Based on the USEPA Envirofacts database there is one (1) site of environmental concern located within a 1/4-mile radius of the Site identified in the following table.

USEPA ENVIROFACTS DATABASE		
Site	**Location**	**EPA Database**
AA Mufflers Shop	Carr 20 Km 6.4 Guaynabo, Puerto Rico, 00940	EPA Registry Id: PRO007002264

AA Mufflers Shop is located on State Road PR-20 Km 6.4, less than 1/4 – miles east of the subject Site. Due to the location and because are slightly downgradient from the subject Site a release at AA Mufflers Shop is not likely to impact the subject property.

4.3.2 PREQB Active and Inactive Leaking Underground Storage Tank (LUST) Lists

The Active and Inactive Leaking Underground Storage Tanks (LUST) Lists of the Puerto Rico Environmental Quality Board (PREQB) dated 2018 were reviewed as part of the due diligence for the Site. One (1) Active LUST site close to the Site was identified.

- Gulf Station # 118 (UST 86-0317) located at Road PR-20 and Baldorioty St, La Cumbre Km. 6.0, Guaynabo, PR. The service station is approximately 1/4 –mile Northwest from the Site. The site reported replacement of USTs activities on September 24, 1999. This service station is downgradient from the Site and an event of release to subsoil or groundwater should not have impact on the Site.

At the time of preparation of the report the PREQB has not answered about files related to the Site (**Appendix 2-6**). If additional information becomes available ERTEC will provide a Supplementary Report of the Site.

4.4 Physical Setting Sources

4.4.1 Standard Physical Setting Source (US Geological Survey Topographic Map)

Historical US Geological Survey (USGS) Topographic Maps of the Aguas Buenas, Puerto Rico Quadrangle for the years 1946, 1947, 1952, 1955, 1957, 1964, 1969, 1982 and 2013, which include the Site, are presented in **Appendix 2-2.**

4.4.2 Non-Standard Physical Setting Sources

The following Non-Standard Physical Setting Sources were reviewed and are summarized in **Section 2.7.2** Site and Vicinity General Characteristics:

- USGS Geologic Map of the Aguas Buenas , Puerto Rico Quadrangle;

- CRIM Portal Catastro Digital Map;
- National Wetlands Inventory Map; and
- FEMA Flood Zoning Maps.

4.5 Historical Use Information for the Site

4.5.1 Summary of Historical Use

Based on the review of historical aerial imagery from EDR (**Appendix 2-2**), The Puerto Rico Highway Authority (PRHA) and Google Earth™ (**Appendix 4-1**), the Site was vacant in 1937. At 1962 a structure is observed at Site. The structure remains until 1995. After 1995 the lot was observed to be vacant until present.

4.5.2 Historical Sources

4.5.2.1 Aerial Photographs

Aerial photographs of the Site and surrounding area for the years 1937, 1951, 1971, 1981, 1995 and 2005 in stereo pairs were obtained from the PRHA Photogrammetric Database. These aerial photographs are included in **Appendix 4-1.** Single photographs were obtained from EDR for the years 1962, 1967, 1977, 1993, 1995 and 2004 are included in the EDR Aerial Photo Decade Package in **Appendix 2-3**. Below is a summary of the aerial photos review:

YEAR	APPROXIMATE SCALE	SUMMARY OF AERIAL PHOTOGRAPHS
1937	1:18,000	**Subject Property:** The Site appears to be undeveloped with no structures and low-rise vegetation.
		Surrounding Areas: Areas surrounding the Site appear to be mostly undeveloped. Guaynabo downtown is observed approximately 500 meters to the North of the Site.
1951	1:15,000	**Subject Property:** The Site appears to be undeveloped with no structures and vegetation.

YEAR	APPROXIMATE SCALE	SUMMARY OF AERIAL PHOTOGRAPHS
		Surrounding Area: Areas surrounding the Site appear to be undeveloped. Guaynabo downtown has extended along the main road to the South.
1971	1:20,000	**Subject Property:** A large elongated structure is observed at site.
		Surrounding Area: Additional development along the North south east and west of the site are observed. Residential developments as Santa Paula, Sierra Berdecía and others are observed.
1981	1:20,000	**Subject Property:** Site appears in similar conditions as the previously observed.
		Surrounding Area: Across Piedras Blancas road a structure is observed to the South of the Site. Extensive development is observed in areas to the East, North and West of the Site.
1995	1:20,000	**Subject Property:** Site appears in similar conditions as the previously reviewed period.
		Surrounding Area: State Road PR-20 is observed to the East of the Site. Additional commercial and residential areas are observed to the West and South of the Site.
2005	1:11,000	**Subject Property:** The Site appears without the structure previously observed and covered by vegetation.
		Surrounding Area: The private school is observed to the North of the Site. The condominium across Piedras Blancas Road is observed.

In addition to the aerial photos reviewed above, historical photos (**Appendix 2-2**) from the EDR database were reviewed to obtain additional information between the years 1962 and 2004. Following is a summary of the review.

YEAR	APPROXIMATE SCALE	SUMMARY OF AERIAL PHOTOGRAPHS
1962	1" = 500'	**Subject Property:** The Site is observed with a structure on the Southern area close to Piedras Blancas road.
		Surrounding Areas: Road PR-169 is observed to the West of the Site. Guaynabo downtown is observed to the North of the Site.

YEAR	APPROXIMATE SCALE	SUMMARY OF AERIAL PHOTOGRAPHS
1967	1" = 750'	**Subject Property:** Two adjacent structures are observed at Site with a bare ground patio on front.
		Surrounding Area: Across Piedras Blancas road, large earthwork activities and what appear to be vehicles and equipment are observed in a large lot. Guaynabo downtown has extended southward along road PR-169 until being close to the Site. Structures and an access bridge on Sierra Berdecía to the West are under construction.
1977	1" = 500'	**Subject Property:** The Site appears in similar conditions than the previously reviewed period.
		Surrounding Area: lot to he South of the Site under earthwork activities on the previously reviewed period is vacant. New residential developments are observed to the Southeast, East, North and West of the Site.
1993	1" = 500'	**Subject Property:** The Site appears in similar conditions than the previously reviewed period.
		Surrounding Area: Highway PR-20 and a connector to the South of the Site are observed.
1995	1" = 500'	**Subject Property:** The Site appears in similar conditions than the previously reviewed period.
		Surrounding Area: The Sears store is observed to the South of the connector of Highway PR-20. PR-20 is being extended further to the South.
2004	1" = 500'	**Subject Property:** The structures previously observed has been removed from the Site. Site appears to be covered in vegetation.
		Surrounding Area: North of the Site the Urban Elementary School of Guaynabo is observed. The condominium across Piedras Blancas road to the South is observed.

No areas of environmental concern were observed on any of the aerial imagery described above.

4.5.2.2 Sanborn Fire Insurance Maps

Sanborn Fire Insurance (Sanborn) Maps were historically published to assist the fire insurance industry in assessing the potential for fire and explosion hazards associated with developed properties. As a result, these maps often provide information pertaining to potential environmental concerns including, but not limited to, the number, location, size, and contents of liquid storage tanks, locations of chemical storage areas, and location and number of hydraulic hoists. In addition, Sanborn maps provide cultural information such as building type and construction, addresses, and types and locations of utilities. Sanborn maps were not available for the Site as shown in the EDR Certified Sanborn Map Report with certification # 0564-481E-8EA2 provided in **Appendix 2-4**.

4.5.2.3 Property Tax Files

Property tax files were not available for the Site.

4.5.2.4 Recorded Land Title Records

No land titles were provided by Owner or the User.

4.5.2.5 Historical USGS Topographic Maps

Early topographic maps were constructed by physically observing and surveying the land. Topographic maps depicted geologic surface features, roads, buildings, and other aboveground structures. Historical topographic maps for the subject property area for the years 1946, 1947, 1950, 1952, 1963, 1964, 1969, 1982 and 2013 are provided in the EDR Historical Topographic Map Report in **Appendix 2-2**.

The topographic map review is summarized below.

EDR HISTORICAL TOPOGRAPHIC MAP REVIEW	
Map/Year	**Summary of Topographic Maps**
Aguas Buenas, Puerto Rico Quadrangle, Topographic Map, United States Geological Survey (USGS), 1946	**Subject Property:** A small structure appears at the center of the Site.
	Surrounding Area: Piedras Blancas road and State Road PR-25 (actual PR-169) are observed to the East and South of the Site. Scattered structures are located along PR-25 to the South and North of the Site.
Aguas Buenas, Puerto Rico Quadrangle, Topographic Map, United States Geological Survey (USGS), 1947 and 1950	**Subject Property:** The Site appears in similar conditions than in the previous year.
	Surrounding Area: Surrounding areas appear in similar conditions than in the previous year.
Aguas Buenas, Puerto Rico Quadrangle, Topographic Map, United States Geological Survey (USGS), 1952	**Subject Property:** Two small structures are observed at the Site.
	Surrounding Area: Additional structures are observed to the East and North along actual road PR-169.
Aguas Buenas, Puerto Rico Quadrangle, Topographic Map, United States Geological Survey (USGS), 1955	**Subject Property:** The Site appears in similar conditions than in the previously reviewed period.
	Surrounding Area: Surrounding areas appear in similar conditions than in the previous topographic map. Additional structures are observed to the East and South along actual road PR-169.
Aguas Buenas, Puerto Rico Quadrangle, Topographic Map, United States Geological Survey (USGS), 1957	**Subject Property:** The Site appears in similar conditions than in the previously reviewed period.
	Surrounding Area: Surrounding areas appear in similar conditions than in the 1955 topographic map. Scattered structures are observed in lots immediately to the North and west of the Site.
Aguas Buenas, Puerto Rico Quadrangle, Topographic Map, United States Geological Survey (USGS), 1963 and 1964	**Subject Property:** Three structures appear at the Site.
	Surrounding Area: Surrounding areas appear in similar conditions than in the previous topographic map. Additional structures are observed to the East and South along actual road PR-169. Guaynabo downtown has been extended to the North and West.
Aguas Buenas, Puerto Rico Quadrangle, Topographic Map,	**Subject Property:** A large and a small structure are observed on the Site.

EDR HISTORICAL TOPOGRAPHIC MAP REVIEW	
Map/Year	**Summary of Topographic Maps**
United States Geological Survey (USGS), 1969	**Surrounding Area:** Extensive residential developments are observed the Northeast, North and West of the Site.
Aguas Buenas, Puerto Rico Quadrangle, Topographic Map, United States Geological Survey (USGS), 1982	**Subject Property:** The Site appears in similar conditions as in previous reviewed period.
	Surrounding Area: Additional residential and commercial developments are observed to the North and Northwest of the Site.
Aguas Buenas, Puerto Rico Quadrangle, Topographic Map, United States Geological Survey (USGS), 2013	**Subject Property:** No structures are shown at Site.
	Surrounding Area: Structures do not appear in this map. PR-20 is observed to the East of the Site and its southern connector is observed to the South of the Site.

4.5.2.6 Local Street Directories

Local Street Directories are not available for Puerto Rico as shown in the EDR-City Directory Abstract contained in **Appendix 2-5**.

4.5.2.7 Other Historical Sources

The owner did not provide additional historical sources.

4.6 Historical Use Information for Adjacent Properties

Historical aerial imagery (**Appendix 4-1**) and historical USGS topographic maps (**Appendices 2-2** and **2-3**) were reviewed to obtain information regarding the adjacent properties. The information obtained from these sources is provided in **Section 4.5.2.1** Aerial Photographs and **Section 4.5.2.5** Historical USGS Topographic Maps, respectively.

4.7 Radon Potential

The USEPA has not categorized Puerto Rico into one of its three Radon Potential Zones.

5.0 SITE RECONNAISSANCE

5.1 Methodology and Limiting Conditions

On September 5, 2019, Mr. Andrés J. Agrelot of ERTEC performed the on-Site Reconnaissance. Mr. Agrelot was escorted by Mr. Elias Rivera, SCF Architects contact. The purpose of the Site Reconnaissance was to assess the Site and surrounding land uses and to identify recognized environmental conditions (RECs) at the Site, if any. Photographs obtained during the Site Reconnaissance are included in **Appendix 1.** The Phase I ESA Transaction Screen Questionnaire, required by the ASTM E 1527-13 Practice, was completed and included in **Appendix 3-2**. Also, **Appendix 3-3** includes ERTEC's Phase I Environmental Assessment Site Reconnaissance Checklist.

The Site Reconnaissance included a walk thru to identify existing conditions associated with the Site, adjoining facilities, and surrounding areas.

5.2 General Subject Property Setting

PROPERTY RECONNAISSANCE	
Field Personnel	Mr. Andrés J. Agrelot of ERTEC
Reconnaissance Date	September 5, 2019
Escort	Mr. Elias Rivera, SCF Arquitectos contact
SUBJECT PROPERTY DESCRIPTION	
Subject Property Operations	At the time of the Site Reconnaissance, the Site is covered with some vegetation. No structures are observed on-site.

PROPERTY RECONNAISSANCE	
Property Size	According to the deed registered at CRIM the property comprises 4,677.16 square meters.
Land Area Description	The Site is in an area of commercial and residential development.
Description of Structures	At the time of the site visit the Site is vacant.
Subject Property Topographic Relief	Elevation on the southern area of the Site is approximately 55 meters above mean sea level (msl). The Site slopes to the north to elevations of approximately 45 meters msl.
Surface Runoff/ Topographic Gradient	Surface runoff runs naturally from South to North according to the topography.
SUBJECT PROPERTY AREA UTILITIES	
Water	The Site is not currently connected to the PRASA potable water distribution system.
Sanitary Sewer	The Site is not connected to PRASA sewer system.
Wastewater	No process wastewater is currently generated on the subject property.
Storm Water	There are no storm water drains on Site.
Electricity	Several electrical line utility posts were observed near the South of the Site, these are connected to the Puerto Rico Electric Power Authority (PREPA).
Sewage Disposal System	The Site is not connected to PRASA sewer system.
Building Heating	Puerto Rico's tropical climate ordinarily precludes the need for heating.
Building Air Conditioning	No structures exist on Site.
Solid Waste	No solid waste was observed on-Site in the form of stockpiles or drummed materials.

5.3 Observations

Information included in the following table is based on the result of a visual Site reconnaissance, interviews, and other references presented in the following sections. The Site is vacant and partially graded for an upcoming construction. Additional explanations for items marked **"Yes"** are provided in the following table:

VISUAL RECONNAISSANCE OBSERVATIONS			
Category	**Item or Feature**	**Item or Feature Observed**	**Location**
Aboveground Chemical or Waste Storage, Distribution Systems	Miscellaneous small volumes ≤ 5 gallons	No	---
	Evidence of ASTs	No	---
	Drums, barrels, and/or containers ≥ 5 gallons.	No	---
Underground Chemical or Waste Storage, Drainage or Collection Systems	Evidence of USTs or ancillary UST equipment	No	---
	Records of former USTs	No	---
	Sumps, oil/water separators, cisterns, catch basins, and/or dry wells.	No	---
	Septic tanks and/or leach fields.	No	---
	Pipeline markers.	No	---
Electrical Transformers/PCBs	Pad- or pole-mounted transformers.	No	---
	Records of former hydraulic equipment.	No	---
	Existing hydraulic equipment.	No	---

VISUAL RECONNAISSANCE OBSERVATIONS			
Category	**Item or Feature**	**Item or Feature Observed**	**Location**
Evidence of Releases or Potential Releases	Stressed vegetation.	No	---
	Stained soil.	No	---
	Stained pavement or similar surface.	No	---
	Leachate and/or waste seeps.	No	---
	Trash, debris, and/or other waste materials.	No	---
	Dumping or disposal areas.	No	---
	Construction/demolition debris and/or dumped fill dirt.	No	---
	Surface water discoloration, odor, sheen, and/or free-floating product.	No	---
	Strong, pungent, or noxious odors.	No	---
Other Notable Subject Property Features	Surface water control structure pond, lagoons.	No	---
	Quarries or pits.	No	---
	Wells	No	---
	Floor drains.	No	---
	Possible Asbestos Containing Materials (ACMs) and/or lead-based paint.	No	---

5.4 Uses of the Surrounding Area

The current uses of adjacent properties are listed in **Section 2.7.5**.

6.0 INTERVIEW

During the Site Reconnaissance, Mr. Elias Rivera, was interviewed. Information provided by Mr. Rivera was employed to prepare the Site background and other sections of this report. The Phase I ESA Transaction Screen Questionnaire provided in **Appendix 3-2** was also prepared based in information provided by Mr. Elias Rivera.

The property at the time of the site reconnaissance was vacant. Mr. Elias Rivera commented that prior to the new owners (**Desarrollos Arquitectónicos Inc.)** acquiring the property there was a furniture factory at the Site.

The Transaction Screen Questionnaire did not identify environmental concerns on the Site.

7.0 EVALUATION

7.1 Findings

ERTEC has completed this Phase I Environmental Site Assessment (ESA) of the Proposed Condominio Vista al Norte located at Piedras Blancas Road, Bo. Piedras Blancas, Guaynabo, Puerto Rico (the Site).

Based on the information obtained during the file search, site reconnaissance, and interviews with site personnel, the following is a summary of the findings obtained on the subject Site.

Controlled recognized environmental conditions (CRECs) are a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that **has been addressed to the satisfaction of the applicable regulatory authority** (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority),

with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). No CRECs were identified at the subject Site.

A Historical Recognized Environmental Condition (HREC) is defined by ASTM in the E1527-13 standard as "a past release of any hazardous substances or petroleum products that has occurred in connection with the property and **has been addressed** to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)." No HRECs were identified at the subject site.

The ASTM E 1527-13 standard defines the term REC as meaning "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. Based on this definition, **ERTEC has identified the use of the Site as a former furniture manufacturer as a REC associated with the Site. For furniture manufacturing coating solvents and adhesives are used that in uncontrolled conditions could cause a release to the environment. In the absence of actual evidence of how materials were handled during the manufacturing process this activities may constitute a REC to the Site.**

7.2 Opinion

Based on the data gathered during this Phase I ESA investigation ERTEC suggests to perform a limited sampling event in the location of the former factory to assess the presence of hazardous or petroleum compounds related to the furniture manufacturing activity.

7.3 Conclusions

ERTEC has performed a *Phase I Environmental Site Assessment* in conformance with the scope and limitations of ASTM Practice E1527-13 of the Proposed Condominio Vista al Norte located at carr. Piedras Blancas, Bo. Piedras Blancas, Guaynabo, Puerto Rico, *the property.* Any exceptions to, or deletions from, this practice are described in **Section 7.1** of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the property, except for the **use of the Site as a former furniture manufacturer as a REC associated with the Site. For furniture manufacturing coating solvents and adhesives are used that in uncontrolled conditions could cause a release to the environment.**

8.0 NON-SCOPE SERVICES

No non-scope services are identified or recommended as part to this Phase I ESA.

9.0 REFERENCES

1964, United States Geological Survey, Topographic Map of the Aguas Buenas, Puerto Rico Quadrangle, Puerto Rico. 7.5 Minute Series (Topographic), 1 plate.

1965, United States Geological Survey, Watson H. Monroe, Geologic Map of the Aguas Buenas, Puerto Rico, Miscellaneous Investigations Series Map I-565.

2019, US Fish and Wildlife Service, National Wetlands Inventory Map, Guaynabo, Puerto Rico, 1 plate.

2019, Puerto Rico "Centro de Recaudaciones de Ingresos Municipales (CRIM)" Portal Catastro Digital Map.

September 11, 2019, The EDR Radius Map Report with Geocheck, Condominio Vista Al Norte, Guaynabo, PR 00969, Inquiry Number 5785541.2s.

September 11, 2019, The EDR Certified Sanborn Map Report with Geocheck, Condominio Vista Al Norte, Guaynabo, PR 00969, Inquiry Number 5785541.3.

September 11, 2019, The EDR Historical Topo Map Report with QuadMatch, Condominio Vista Al Norte, Guaynabo, PR 00969, Inquiry Number 5785541.4.

September 12, 2019, The EDR Aerial Photo Decade Package with Geocheck, Condominio Vista Al Norte, Guaynabo, PR 00969, Inquiry Number 5785541.8.

September 16, 2019, The EDR City Directory Image Report with Geocheck, Condominio Vista Al Norte, Guaynabo, PR 00969, Inquiry Number 5785541.5.

2019, Envirofacts Search Results, http://oaspub.epa.gov/envirofacts.

10.0 ENVIRONMENTAL PROFESSIONAL SIGNATURE

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR §312, and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and settings of the subject property. I have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. A copy of my resume containing my Environmental Professional qualification is provided in **Appendix 5**.

Andrés Agrelot
Program Manager

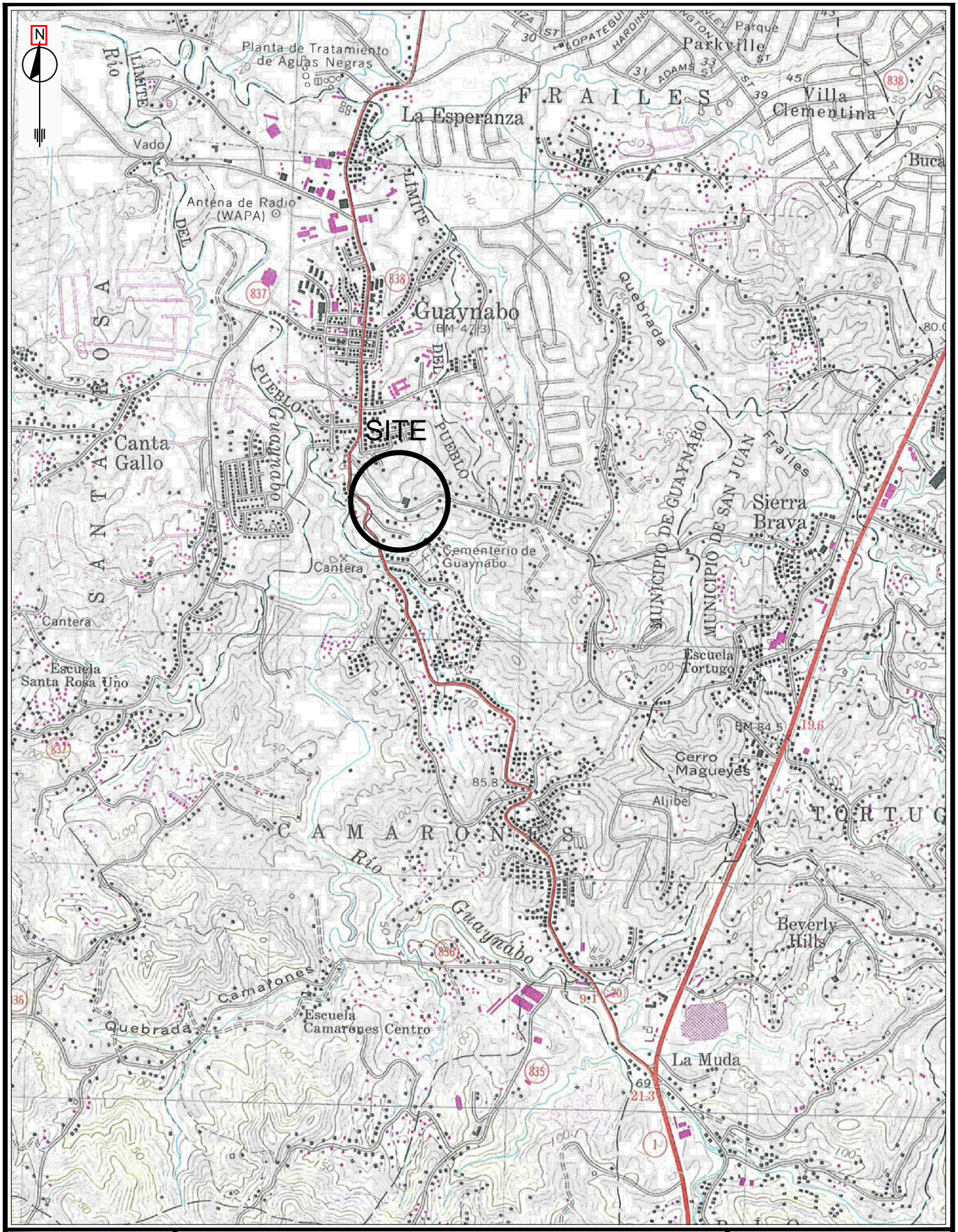
FIGURES

REPORT

PHASE I ENVIRONMENTAL SITE ASSESSMENT (PHASE I ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

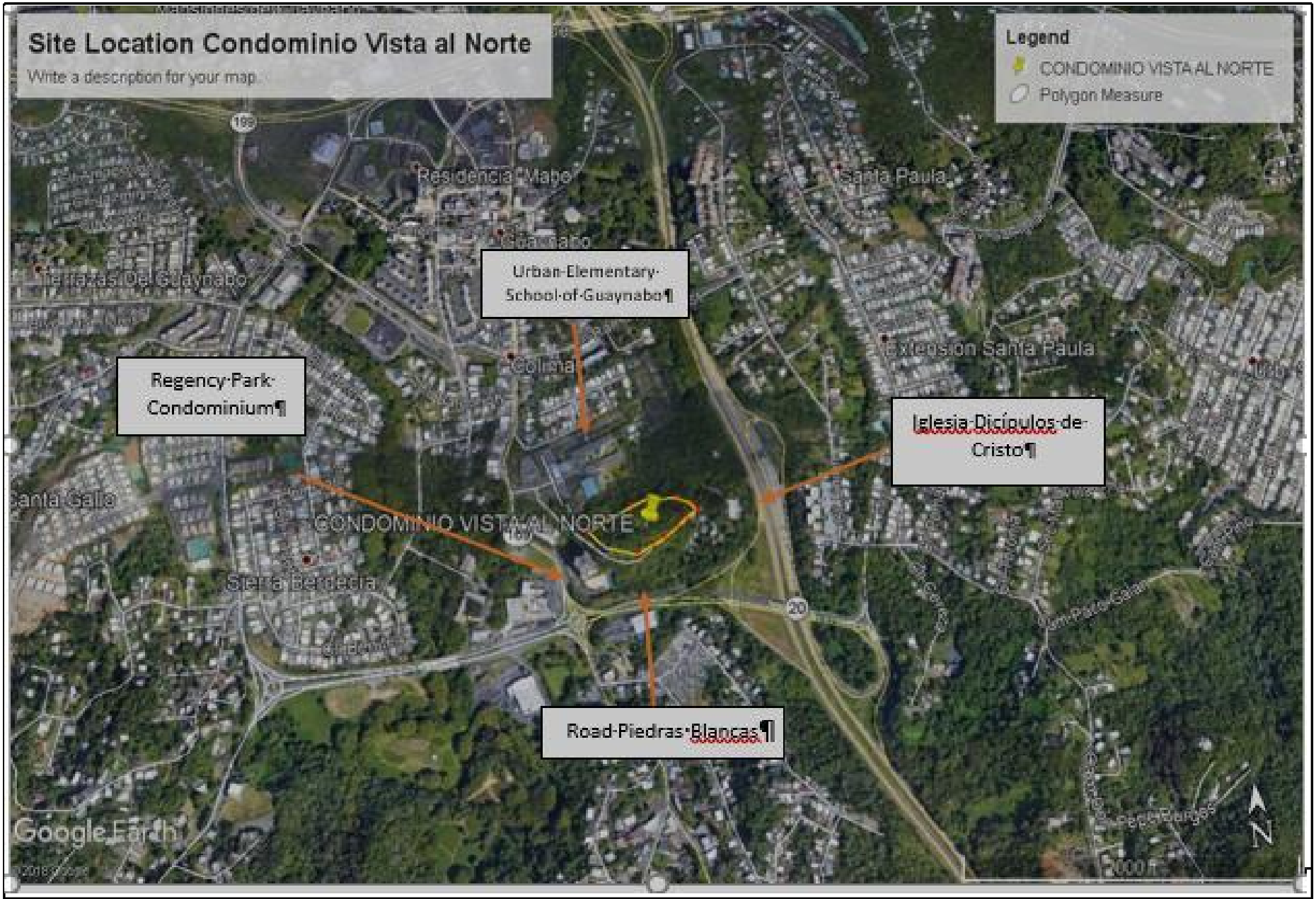
ERTEC PROJECT NUMBER E195613

ERTEC



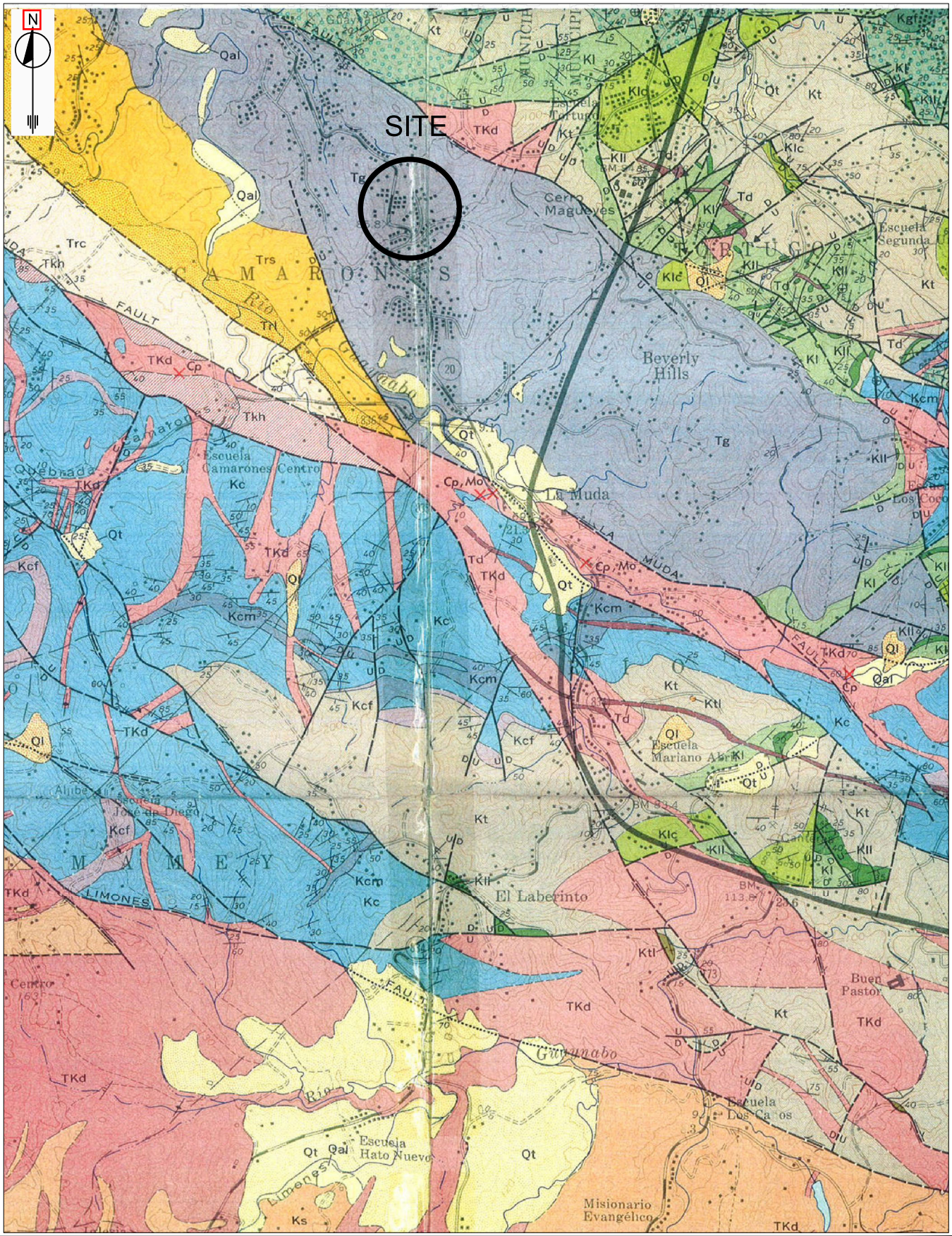
SCALE: 1:20,000	FIGURE 1 - SITE LOCATION MAP
REV.: AA	PHASE I ESA CONDOMINIO VISTA AL NORTE
FILE: FIGURES 1-4	GUAYNABO, PUERTO RICO
DRAWN BY: PCR	
JOB: E-19-5613	

ERTEC
ENVIRONMENTAL RESOURCE TECHNOLOGIES



ERTEC

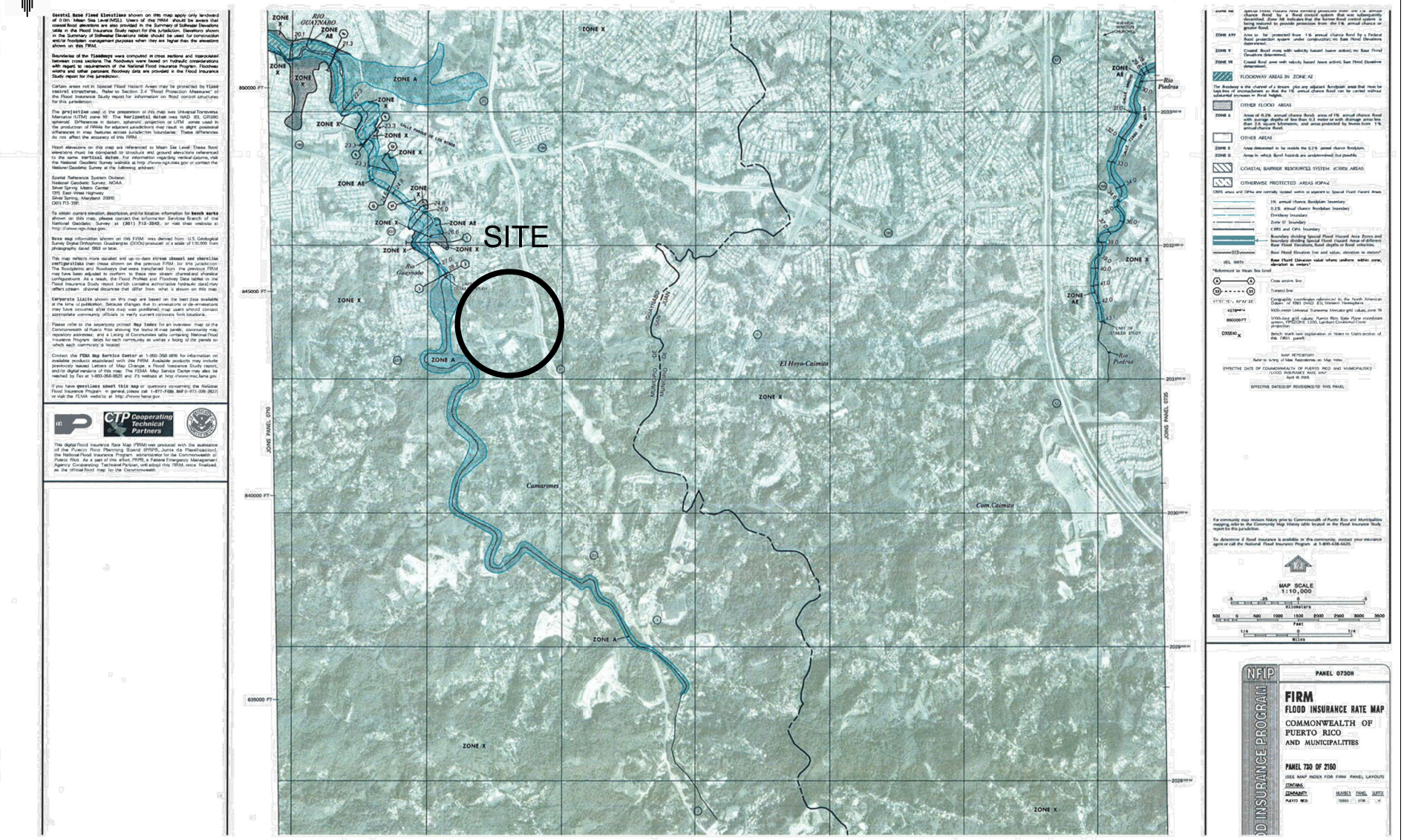
FIGURE 2 – SITE LOCATION AND NEIGHBORING ACTIVITIES
PHASE I ESA CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO
ERTEC JOB NUMBER: 195613



SCALE: 1:20,000	
REV.: AA	
FILE: FIGURES 1–4	
DRAWN BY: PCR	
JOB: E–19–5613	

FIGURE 3 - USGS GEOLOGIC MAP
PHASE I ESA CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO

ERTEC
ENVIRONMENTAL RESOURCE TECHNOLOGIES



SCALE: AS SHOWN

REV.: AA

FILE: FIGURES 1–4

DRAWN BY: PCR

JOB: E–19–5613

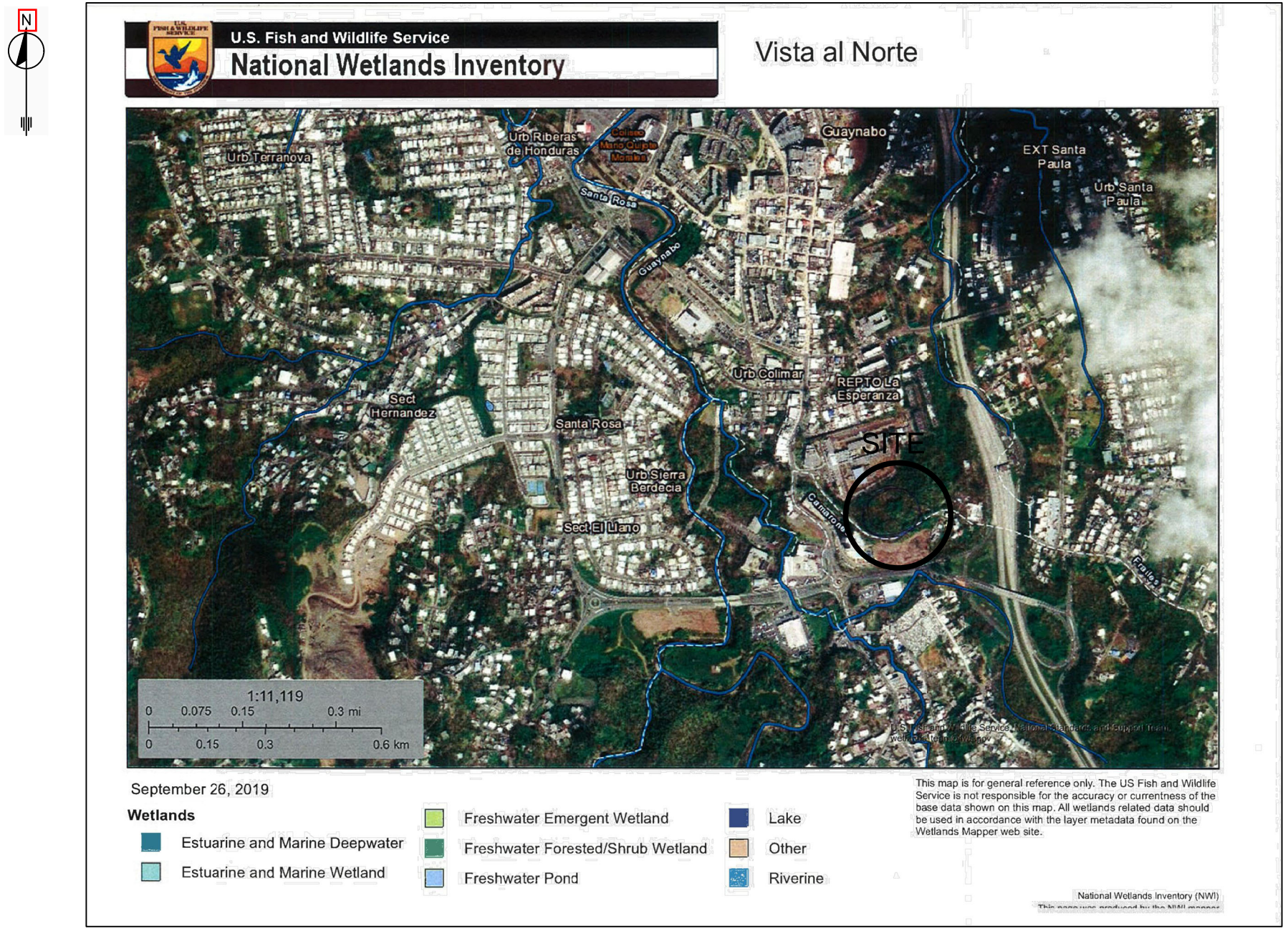
FIGURE 4 FEMA FLOOD MAP

PHASE I ESA CONDOMINIO VISTA AL NORTE

GUAYNABO, PUERTO RICO

ERTEC

ENVIRONMENTAL RESOURCE TECHNOLOGIES



SCALE: AS SHOWN	
REV.: AA	
FILE: FIGURES 1-4	
DRAWN BY: PCR	
JOB: E-19-5613	

FIGURE **5** WETLANDS LOCATION MAP
PHASE I ESA CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO

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ENVIRONMENTAL RESOURCE TECHNOLOGIES

APPENDIX 1

SITE RECONNAISANCE PHOTOGRAPHS

REPORT

PHASE I ENVIRONMENTAL SITE ASSESSMENT (PHASE I ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER E195613

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Photograph 1 – Church Property Area from Outside Road Piedras Blancas



Photograph 2 – Urban Elementary School of Guaynabo

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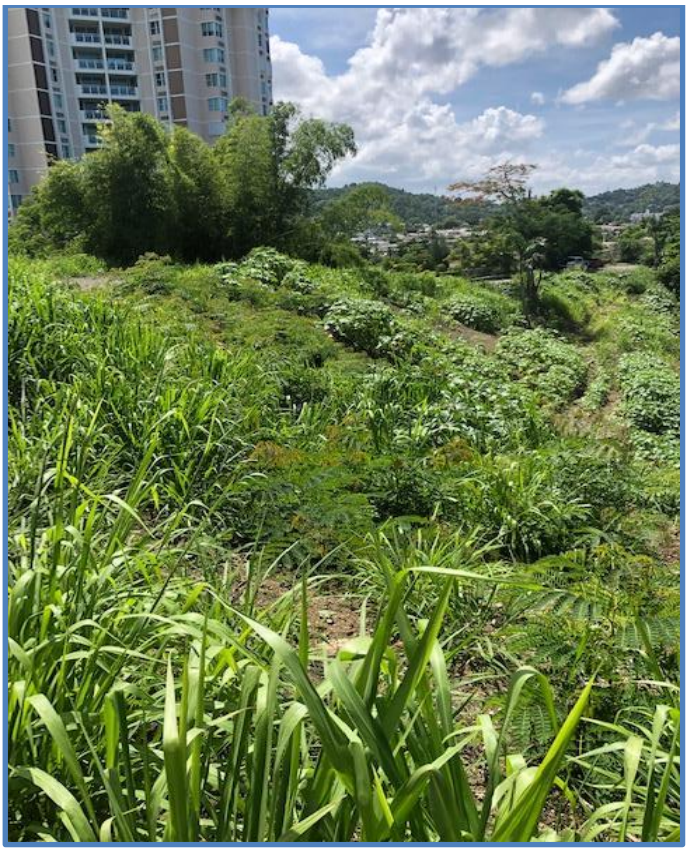
Photograph 3 – Piedras Blancas Road View from East to West South adjacent to South Border of Site



Photograph 4 – West Area of Lot



Photograph 5 – North Area of Site View from East Area



Photograph 6 – North Area of Site View from Eastern Border

ERTEC



Photograph 7 – East Area of Lot Towards Church Area



Photograph 8 – North Area of Lot



Photograph 9 – Urban Elementary



Photograph 10 – Excavation for foundations along the eastern side of the Site



Photograph 11 – West Area of Lot Towards Condominium Regency Park

APPENDIX 2

REGULATORY RECORD DOCUMENTATION

2-1 EDR RADIUS MAP REPORT WITH GEOCHECK
2-2 EDR HISTORICAL TOPOGRAPHIC MAP REPORT
2-3 EDR AERIAL PHOTO DECADE PACKAGE
2-4 EDR CERTIFIED SANBORN MAP REPORT
2-5 EDR CITY DIRECTORY
2-6 LETTER FILE REVIEW

REPORT

PHASE I ENVIRONMENTAL SITE ASSESSMENT (PHASE I ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER E195613

ERTEC

Condominio Vista AL Norte
Piedras Blancas St.
Guaynabo, PR 00969

Inquiry Number: 5785541.2s
September 11, 2019

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	7
Orphan Summary	8
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

PIEDRAS BLANCAS ST.
GUAYNABO, PR 00969

COORDINATES

Latitude (North):	18.3514520 - 18˚ 21' 5.22''
Longitude (West):	66.1088100 - 66˚ 6' 31.71''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	805566.1
UTM Y (Meters):	2031376.2
Elevation:	207 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5964436 AGUAS BUENAS, PR
Version Date:	2013
Southwest Map:	5964464 NARANJITO, PR
Version Date:	2013

MAPPED SITES SUMMARY

Target Property Address:
PIEDRAS BLANCAS ST.
GUAYNABO, PR 00969

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	GULF #118	CARR. 20 & BALDORIOT	UST	Lower	1049, 0.199, NW
A2	GULF # 118	CARR 20 CALLE BALDOR	LUST	Lower	1049, 0.199, NW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls

Federal ERNS list

ERNS Emergency Response Notification System

State- and tribal - equivalent CERCLIS

SHWS This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State and tribal leaking storage tank lists

INDIAN LUST Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

FEMA UST Underground Storage Tank Listing
INDIAN UST Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

INDIAN ODI Report on the Status of Open Dumps on Indian Lands
ODI Open Dump Inventory
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL Delisted National Clandestine Laboratory Register
US CDL National Clandestine Laboratory Register

Local Land Records

LIENS 2 CERCLA Lien Information

Records of Emergency Release Reports

HMIRS Hazardous Materials Information Reporting System

Other Ascertainable Records

RCRA NonGen / NLR RCRA - Non Generators / No Longer Regulated

FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
ECHO	Enforcement & Compliance History Information
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto	EDR Exclusive Historical Auto Stations
EDR Hist Cleaner	EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tanks.

A review of the LUST list, as provided by EDR, and dated 07/27/2018 has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
GULF # 118 Facility Id: 86-0317	CARR 20 CALLE BALDOR	NW 1/8 - 1/4 (0.199 mi.)	A2	7

State and tribal registered storage tank lists

UST: UST Facilities.

A review of the UST list, as provided by EDR, and dated 01/01/2008 has revealed that there is 1 UST site within approximately 0.25 miles of the target property.

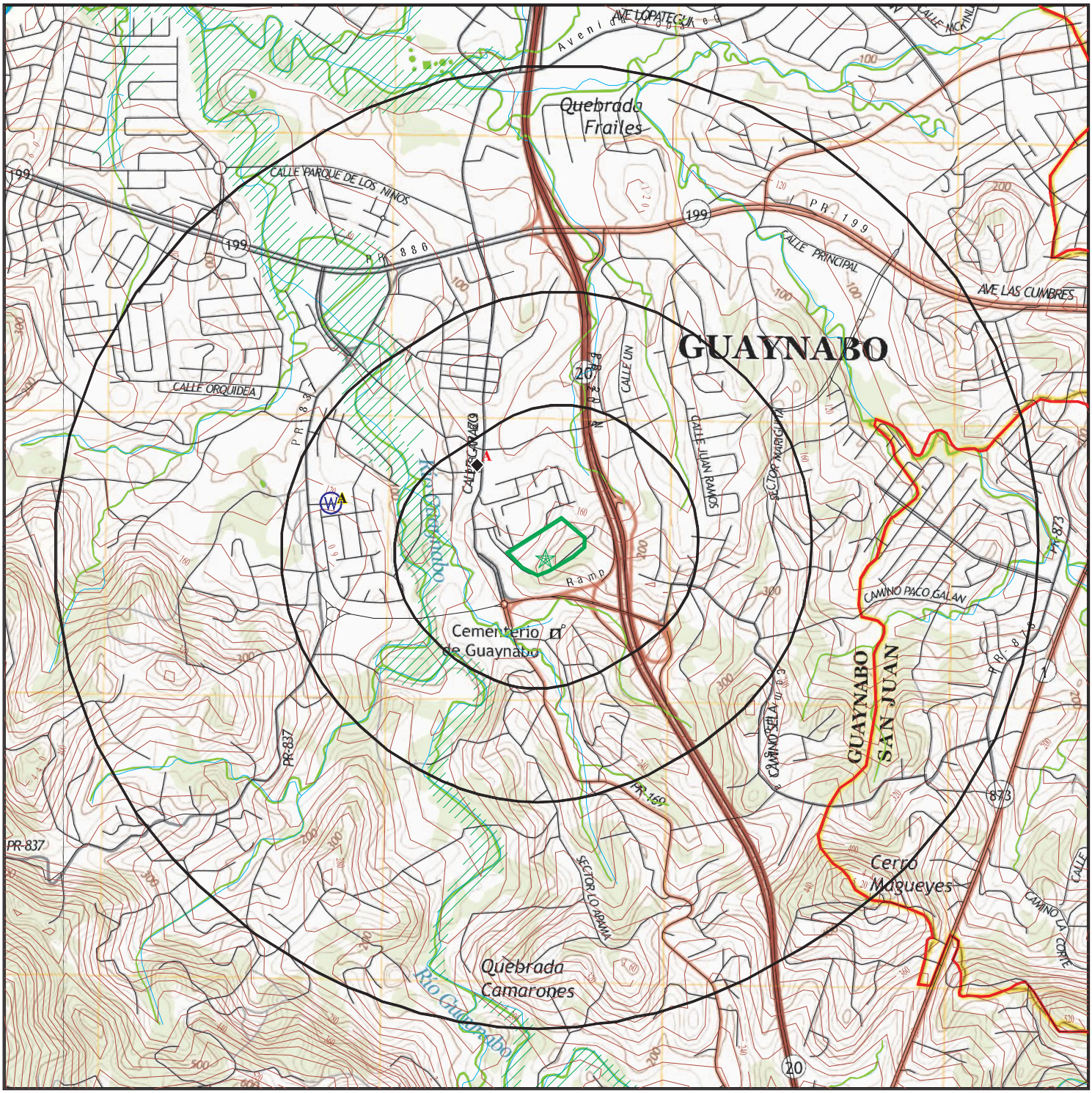
Lower Elevation	Address	Direction / Distance	Map ID	Page
GULF #118 Facility Id: 2-860317 Tank Status: Currently in Use Tank Status: Permanently Out of Use	CARR. 20 & BALDORIOT	NW 1/8 - 1/4 (0.199 mi.)	A1	7

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 56 records.

Site Name	Database(s)
SHELL #4589	LUST
VALLE ESCONDIDO S/S (GULF)	LUST
GSA CENTER	LUST
ESSO CO-002	LUST
HOLLY LAND, INC.	LUST
CITGO LA MUDA	LUST
SHELL #804690	LUST
FORTO CHEMICAL	LUST
PRTC/ REMOTO VII	LUST
TEXACO # 285	LUST
OLYMPIC MILLS INC.	LUST
GULF S/S #301	LUST
RSU LA ELECTRONICA REMOTO	LUST
CDT. DR. A. OLIVERAS GUERRA	LUST
VILLA NEVAREZ S/S #208	LUST
CUPEY S/S #209	LUST
ESSO S/S CO- 218	LUST
URBANO TORRES S/S	LUST
TEXACO #225	LUST
VILCO CHEMICAL	LUST
GASOLINAS PUERTO RICO	LUST
SHELL 3360	LUST
GULF #006	LUST
ESSO 3P-198	LUST
DOMENECH GULF PLAZA #148	LUST
SHELL #2828	LUST
COMPLEJO MEDICO SOCIAL ANTILLANA	LUST
CANTERA S/S	LUST
EX-ESSO CO 182	LUST
OBRAS P BLICAS MUNICIPAL	LUST
PRINCIPADO DRY CLEANERS INC.	LUST
TEXACO S/S #223	LUST
ESSO 2P-341	LUST
ESSO 2P-199	LUST
GULF 436	LUST
GULF #458	LUST
GULF #010	LUST
CENTERS DISEASE CONTROL	LUST
ESSO 3P-219	LUST
GASOLINAS COQUI	LUST
RAMON ACOSTA	LUST
GASOLINA COQUI	LUST
GULF #143	LUST
BANCO POPULAR	LUST
GULF # 304	LUST
CASABLANCA MOTORS	LUST
ESTACION EXP. AGRICOLA	LUST
ESTACION EXPERIMENTAL AGRICOLA	LUST
TOTAL #3304 (ANTIGUO ISLA S/S)	LUST
FEDERAL INDUSTRIES	LUST
LOM SERVICE STATION	LUST
	LUST
BUILDING 445 & 449	LUST
ESCUELA NEMESIO CANALES	LUST
ESCUELA ANTONIO SARRIERA	LUST
ANTIGUA BASE NAVAL	LUST

OVERVIEW MAP - 5785541.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

County Boundary

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Condominio Vista AL Norte	CLIENT:	ERTEC
ADDRESS:	Piedras Blancas St. Guaynabo PR 00969	CONTACT:	OSCAR FONTAN
LAT/LONG:	18.351452 / 66.10881	INQUIRY #:	5785541.2s
		DATE:	September 11, 2019 3:08 pm

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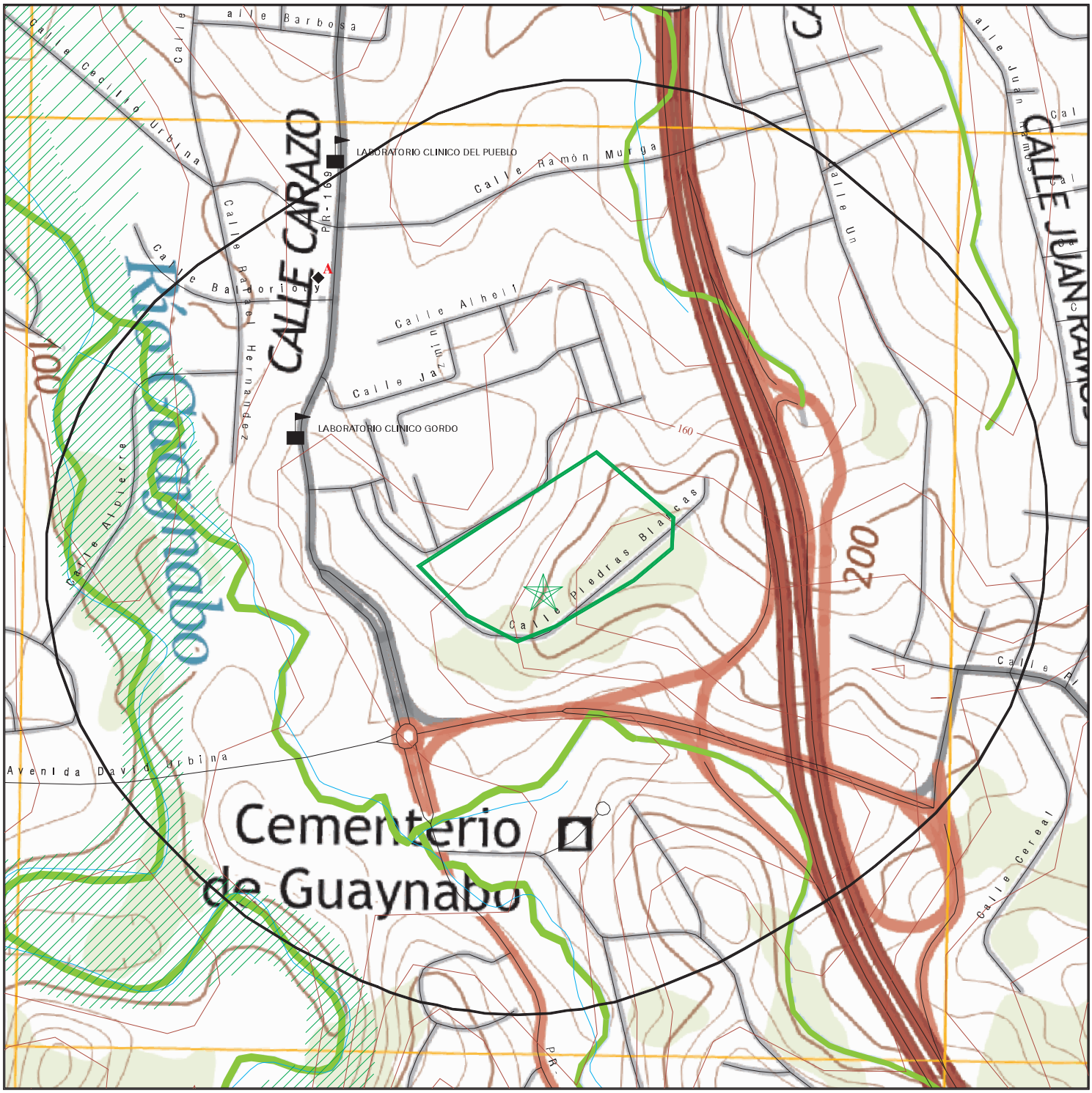
DETAIL MAP - 5785541.2S



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Condominio Vista AL Norte	CLIENT:	ERTEC
ADDRESS:	Piedras Blancas St. Guaynabo PR 00969	CONTACT:	OSCAR FONTAN
		INQUIRY #:	5785541.2s
LAT/LONG:	18.351452 / 66.10881	DATE:	September 11, 2019 3:09 pm

Copyright © 2019 EDR, Inc. © 2015 TomTom Rel. 2015.

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS	N/A		N/A	N/A	N/A	N/A	N/A	N/A
State and tribal leaking storage tank lists								
LUST	0.500		0	1	0	NR	NR	1
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	1	NR	NR	NR	1
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	0	2	0	0	0	2

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

N/A = This State does not maintain a SHWS list. See the Federal CERCLIS list.

A1
NW
1/8-1/4
0.199 mi.
1049 ft.

GULF #118 — **UST** — **U003429646**
CARR. 20 & BALDORIOTY LA CUMBRE KM. 6.0 LA CUMBRE — **N/A**
GUAYNABO, PR 00970

Site 1 of 2 in cluster A

Relative:
Lower

Actual:
130 ft.

UST:

Facility ID:	2-860317
Tank Status:	Currently in Use
Substance Description:	Not reported
Facility ID:	2-860317
Tank Status:	Currently in Use
Substance Description:	Not reported
Facility ID:	2-860317
Tank Status:	Permanently Out of Use
Substance Description:	Used Oil

A2
NW
1/8-1/4
0.199 mi.
1049 ft.

GULF # 118 — **LUST** — **S104904791**
CARR 20 CALLE BALDORIOTY — **N/A**
GUAYNABO, PR

Site 2 of 2 in cluster A

Relative:
Lower

Actual:
130 ft.

PR LUST:

Facility ID:	86-0317
Status:	ACTIVE
Released:	No
Released Date:	Not reported
How Known:	ReplacementActivities
Date Known:	24-Sep-99
Owner Name:	Caribbean Petroleum Corp.
Facility ID:	86-0317
Status:	INACTIVE
Released:	No
Released Date:	03/21/1995
How Known:	Env. Assessment
Date Known:	29-Nov-01
Owner Name:	Gulf-Chevron

Count: 56 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
GUAYNABO	S103553830	SHELL #4589	CARR 20 KM 0.4		LUST
GUAYNABO	S103934125	VALLE ESCONDIDO S/S (GULF)	CARR 834 KM 2.2 BO. HATO NUEVO		LUST
GUAYNABO	S110713196	GSA CENTER	CARR 28 KM 3.8		LUST
GUAYNABO	S107517968	ESSO CO-002	CARR 2 KM 46.2 JUAN DOMINGO		LUST
GUAYNABO	S103554156	HOLLY LAND, INC.	CARR 833 KM 4.7 / GUARAGUAO		LUST
GUAYNABO	S103554060	CITGO LA MUDA	CARR. 1 KM. 23.1/LA MUDA		LUST
GUAYNABO	S104228765	SHELL #804690	CARR. 177 KM. 2.2 LOS FILTROS		LUST
GUAYNABO	S106917781	FORTO CHEMICAL	CARR. 20 KM. 9.1, BO. LOS FRAI		LUST
GUAYNABO	S105073603	PRTC/ REMOTO VII	CARR. 1 KM. 19.1		LUST
GUAYNABO	S106917820	TEXACO # 285	CARR. 20 KM. 6.9, BO. CAMARONE		LUST
GUAYNABO	S106917837	OLYMPIC MILLS INC.	CARR. 20 KM. 3.8, BO. LOS FRAI		LUST
RIO PIEDRAS	S106917818	GULF S/S #301	AVE. BARBOSA #620		LUST
RIO PIEDRAS	S123161995	RSU LA ELECTRONICA REMOTO	CALLE DETROIT # 2 ESQ RAMAL 88		LUST
RIO PIEDRAS	S103554114	CDT. DR. A. OLIVERAS GUERRA	CALLE 8 ESQ. CALLE 45, PARCELA		LUST
RIO PIEDRAS	S103554013	VILLA NEVAREZ S/S #208	CALLE 2 ESQ. CARR 21/ VILLA NE		LUST
RIO PIEDRAS	S103554014	CUPEY S/S #209	CARR 176 KM 1.2		LUST
RIO PIEDRAS	S103553934	ESSO S/S CO- 218	CARR 842 KM 1.2 BO. CAIMITO		LUST
RIO PIEDRAS	S106917727	URBANO TORRES S/S	CARR 1 KM 18.8 BO. TORTUGO		LUST
RIO PIEDRAS	S101442948	TEXACO #225	CARR. #1, KM. 16.6, URB. SANTA		LUST
RIO PIEDRAS	S106917679	VILCO CHEMICAL	CARR. 1 KM. 19.9		LUST
RIO PIEDRAS	S103554095	GASOLINAS PUERTO RICO	RIO PIEDRAS		LUST
RIO PIEDRAS	S103553891	SHELL 3360	RIO PIEDRAS		LUST
RIO PIEDRAS	S103553774	GULF #006	SAN PATRICIO & AVE CENTRAL (RI		LUST
SAN JUAN	S110713205	ESSO 3P-198	AVE BARBOSA ESQ AVE. DE DIEGO		LUST
SAN JUAN	S103553754	DOMENECH GULF PLAZA #148	AVE DOMENECH ESQ. SERGIO CUEVA		LUST
SAN JUAN	S101442863	SHELL #2828	AVE PRINCIPAL, ESQ. MONTECARLO		LUST
SAN JUAN	S105073605	COMPLEJO MEDICO SOCIAL ANTILLANA	AVE. 65 INFANTERIA KM 3.4		LUST
SAN JUAN	S105073590	CANTERA S/S	AVE. BARBOSA #710		LUST
SAN JUAN	S110713201	EX-ESSO CO 182	AVE. 65 INF. KM 1.8, SAN AGUST		LUST
SAN JUAN	S103934118	OBRAS P BLICAS MUNICIPAL	AVE. KENNEDY KM 1.7		LUST
SAN JUAN	S106917835	PRINCIPADO DRY CLEANERS INC.	AVE. BARBOSA #604		LUST
SAN JUAN	S104540010	TEXACO S/S #223	AVE. FERNANDEZ JUNCOS/PARADA 6		LUST
SAN JUAN	S106917714	ESSO 2P-341	AVE. BARBOSA, ESQ. CALLE GUAYA		LUST
SAN JUAN	S106676755	ESSO 2P-199	AVE. BARBOSA ESQ. EMANUELLI		LUST
SAN JUAN	S105840975	GULF 436	CALLE TAPIA ESQ. EDUARDO CONDE		LUST
SAN JUAN	S104904818	GULF #458	CALLE BALDORIOTY & DEGETAU		LUST
SAN JUAN	S101442768	GULF #010	CALLE 52 & 54 RIO PIEDRAS		LUST
SAN JUAN	S103554152	CENTERS DISEASE CONTROL	CALLE 2 CASIA		LUST
SAN JUAN	S103553958	ESSO 3P-219	CALLE 1 ESQ. TIZOL		LUST
SAN JUAN	S104539996	GASOLINAS COQUI	CARR 842 KM 4.1 BO CAIMITO		LUST
SAN JUAN	S105073593	RAMON ACOSTA	CARR 65 DE INFANTERIA KM 6.1		LUST
SAN JUAN	S104228770	GASOLINA COQUI	CARR 176 KM 7.2 CUPEY		LUST
SAN JUAN	S103553752	GULF #143	CARR 845 KM 0.2		LUST

Count: 56 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SAN JUAN	S103553822	BANCO POPULAR	CARR 176 KM 1.4 RIO PIEDRAS		LUST
SAN JUAN	S103553803	GULF # 304	CARR 2 KM 50 AVE KENNEDY		LUST
SAN JUAN	S106917870	CASABLANCA MOTORS	CARR. 1 KM. 13.4 SECTOR EL CIN		LUST
SAN JUAN	S106917764	ESTACION EXP. AGRICOLA	CARR. 1 KM. 12.9 / FINCA SOLIS		LUST
SAN JUAN	S103554049	ESTACION EXPERIMENTAL AGRICOLA	CARR. #1, KM. 12.9		LUST
SAN JUAN	S106917815	TOTAL #3304 (ANTIGUO ISLA S/S)	CARR. 176 KM 8.1, CUPEY ALTO		LUST
SAN JUAN	S106917869	FEDERAL INDUSTRIES	CARR. 1 KM. 13.4 SECTOR EL CIN		LUST
SAN JUAN	S106917650	LOM SERVICE STATION	CARR. 1 KM. 13.5 SECTOR EL CIN		LUST
SAN JUAN	S106917866		ENRIQUE VAZQUEZ #4		LUST
SAN JUAN	S105421708	BUILDING 445 & 449	PARADA 71/2 SAN JUAN		LUST
SAN JUAN	S103554162	ESCUELA NEMESIO CANALES	RES. NEMESIO CANALES		LUST
SAN JUAN	S103554163	ESCUELA ANTONIO SARRIERA	RIO PIEDRAS		LUST
SAN JUAN	S106917846	ANTIGUA BASE NAVAL	SITE 36 / W-5 SECOND FLOOR		LUST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/03/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/13/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 36

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

SHWS: This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: Environmental Quality Board
Telephone: 787-767-8181
Last EDR Contact: 08/22/2005
Next Scheduled EDR Contact: 11/21/2005
Data Release Frequency: N/A

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tanks

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 07/27/2018
Date Data Arrived at EDR: 11/08/2018
Date Made Active in Reports: 01/03/2019
Number of Days to Update: 56

Source: Environmental Quality Board
Telephone: 787-767-8056
Last EDR Contact: 07/26/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 03/08/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/13/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/23/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/12/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 08/26/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Varies

UST: Underground Storage Tank Facilities
Underground storage tank site locations.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 03/26/2008
Date Made Active in Reports: 04/23/2008
Number of Days to Update: 28

Source: Environmental Quality Board
Telephone: 787-767-8056
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Semi-Annually

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 03/08/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/03/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/23/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/12/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/05/2019
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/07/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 06/20/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/04/2019
Next Scheduled EDR Contact: 09/30/2019
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 08/02/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Quarterly

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/30/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 49

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 05/15/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 79

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/23/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/09/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/10/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/16/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/07/2019
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/09/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/18/2019
Next Scheduled EDR Contact: 09/30/2019
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/23/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 09/30/2018
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 106

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/26/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/25/2019
Date Data Arrived at EDR: 05/02/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/22/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 03/20/2019
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 34

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/12/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 07/03/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/20/2019
Date Data Arrived at EDR: 06/20/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 49
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 09/06/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/03/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/09/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/02/2019
Date Data Arrived at EDR: 04/02/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/01/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 04/01/2019
Date Data Arrived at EDR: 04/30/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 100

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 30

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 07/08/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/10/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/30/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/03/2019
Date Data Arrived at EDR: 05/29/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 71

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/27/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/27/2019
Date Data Arrived at EDR: 03/28/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 34

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/10/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 05/03/2019
Date Data Arrived at EDR: 06/05/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 90

Source: EPA
Telephone: (212) 637-3000
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/15/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 04/07/2019
Date Data Arrived at EDR: 04/09/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 07/09/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 79

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Environmental Quality Board in Puerto Rico.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 187

Source: Environmental Quality Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/09/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/16/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CONDOMINIO VISTA AL NORTE
PIEDRAS BLANCAS ST.
GUAYNABO, PR 00969

TARGET PROPERTY COORDINATES

Latitude (North):	18.351452 - 18° 21' 5.23''
Longitude (West):	66.10881 - 66° 6' 31.72''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	805566.1
UTM Y (Meters):	2031376.2
Elevation:	207 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5964436 AGUAS BUENAS, PR
Version Date:	2013
Southwest Map:	5964464 NARANJITO, PR
Version Date:	2013

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

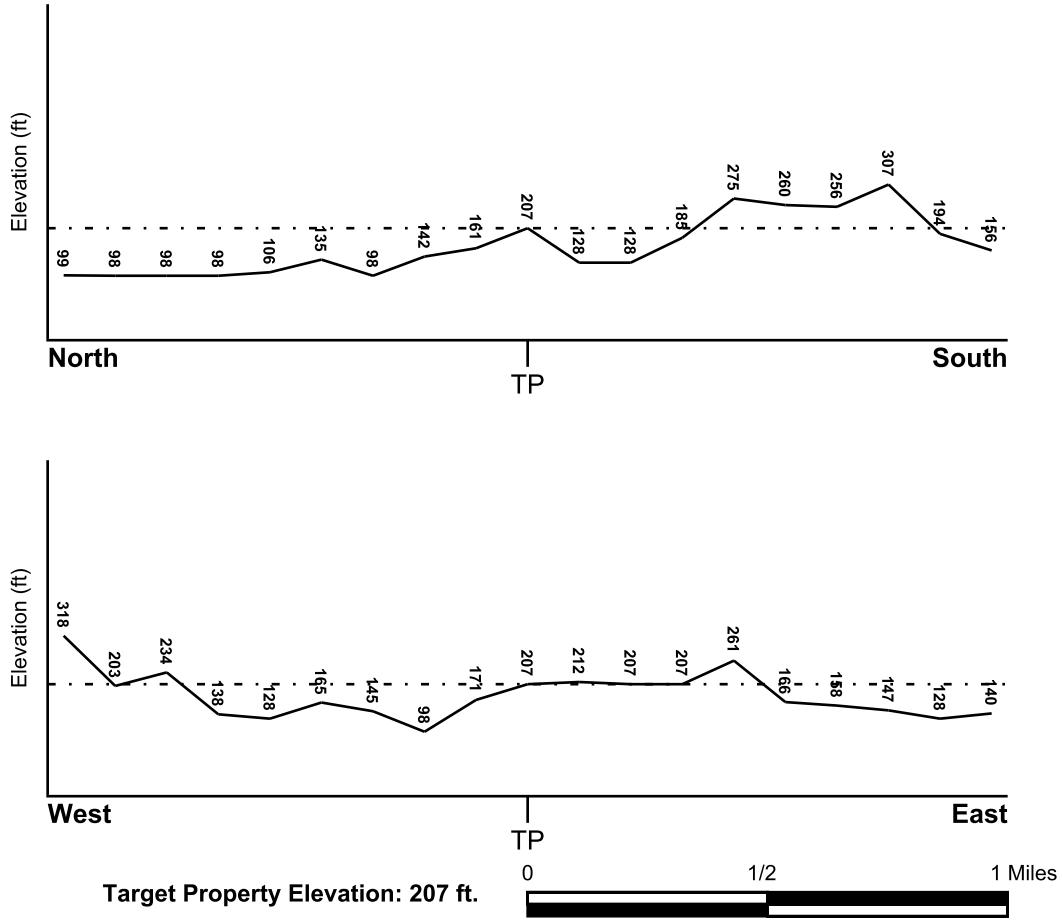
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
7200000111C	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era: -
System: -
Series: -
Code: N/A *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: -

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name: MUCARA

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: HIGH

Depth to Bedrock Min: > 20 inches

Depth to Bedrock Max: > 36 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 2.00 Min: 0.60	Max: 7.30 Min: 5.60
2	6 inches	12 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 2.00 Min: 0.60	Max: 7.30 Min: 5.60
3	12 inches	22 inches	weathered bedrock	Not reported	Not reported	Max: 0.60 Min: 0.20	Max: 0.00 Min: 0.00
4	22 inches	26 inches	unweathered bedrock	Not reported	Not reported	Max: 0.60 Min: 0.20	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: clay loam

Surficial Soil Types: clay loam

Shallow Soil Types: very gravelly - clay loam

Deeper Soil Types: No Other Soil Types

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS40001045282	1/4 - 1/2 Mile WNW
A2	USGS40001045286	1/4 - 1/2 Mile WNW

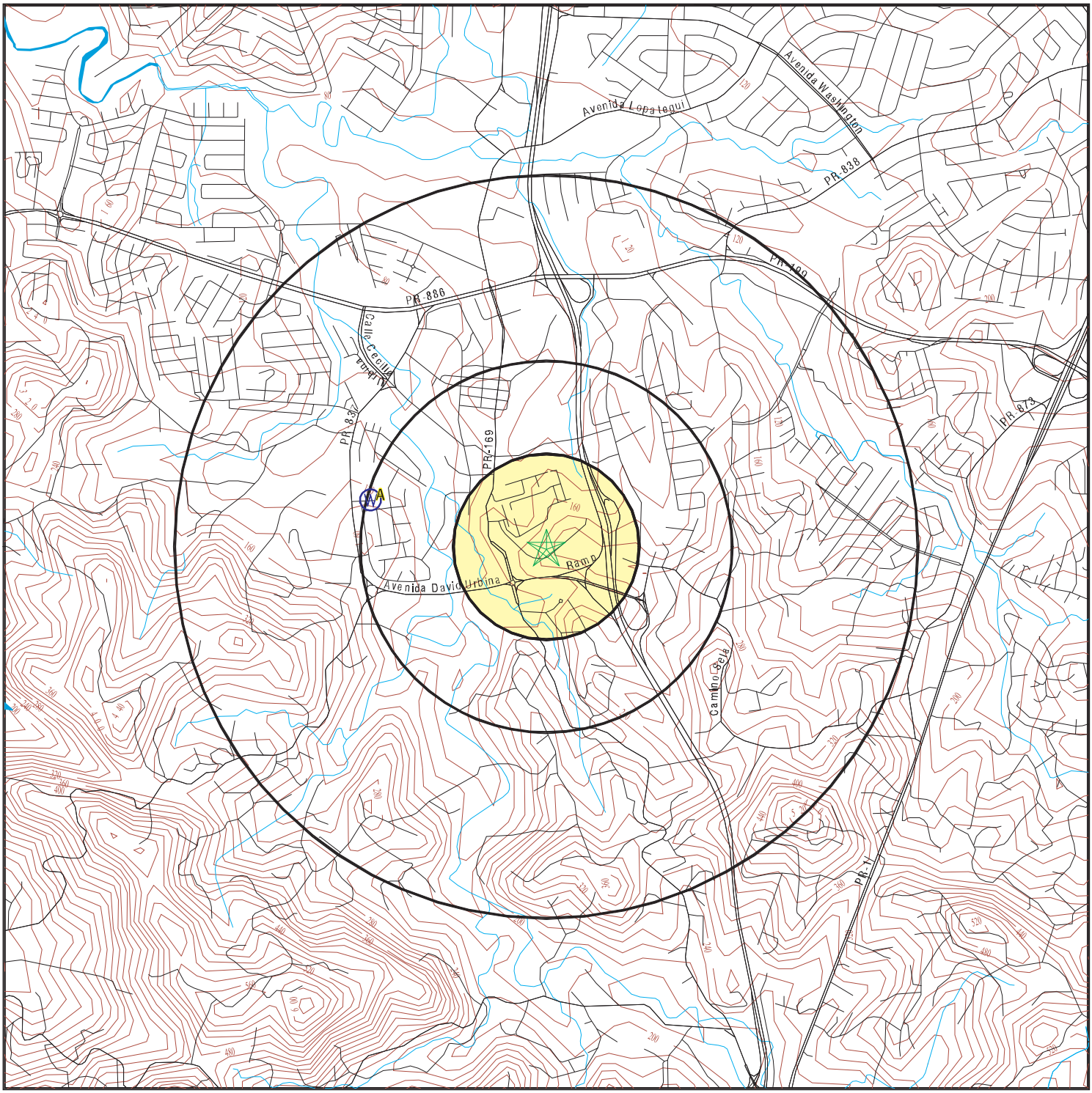
FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

No PWS System Found

Note: PWS System location is not always the same as well location.

PHYSICAL SETTING SOURCE MAP - 5785541.2s



0 1/4 1/2 1 Miles

- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location

N

SITE NAME:	Condominio Vista AL Norte	CLIENT:	ERTEC
ADDRESS:	Piedras Blancas St.	CONTACT:	OSCAR FONTAN
	Guaynabo PR 00969	INQUIRY #:	5785541.2s
LAT/LONG:	18.351452 / 66.10881	DATE:	September 11, 2019 3:09 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
WNW
1/4 - 1/2 Mile
Lower

FED USGS **USGS40001045282**

Organization ID:	USGS-PR		
Organization Name:	USGS Puerto Rico Water Science Center		
Monitor Location:	VBOS WELL, GUAYNABO, PR	Type:	Well
Description:	Not Reported	HUC:	21010005
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	60	Well Depth Units:	ft
Well Hole Depth:	100	Well Hole Depth Units:	ft

A2
WNW
1/4 - 1/2 Mile
Lower

FED USGS **USGS40001045286**

Organization ID:	USGS-PR		
Organization Name:	USGS Puerto Rico Water Science Center		
Monitor Location:	DZAM WELL, GUAYNABO, PR	Type:	Well
Description:	Not Reported	HUC:	21010005
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	1955
Well Depth:	70	Well Depth Units:	ft
Well Hole Depth:	105	Well Hole Depth Units:	ft

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

STREET AND ADDRESS INFORMATION

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Condominio Vista AL Norte
Piedras Blancas St.
Guaynabo, PR 00969

Inquiry Number: 5785541.4
September 11, 2019

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

09/11/19

Site Name:

Condominio Vista AL Norte
Piedras Blancas St.
Guaynabo, PR 00969
EDR Inquiry # 5785541.4

Client Name:

ERTEC
P.O. Box 195336
San Juan, PR 00919
Contact: OSCAR FONTAN

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by ERTEC were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# 12056
Project: Phase I ESA

Coordinates:

Latitude:	18.351452 18° 21' 5" North
Longitude:	-66.10881 -66° 6' 32" West
UTM Zone:	Zone 19 North
UTM X Meters:	805561.58
UTM Y Meters:	2031498.28
Elevation:	186.59' above sea level

Maps Provided:

2013	1946
1982	
1969	
1963, 1964	
1957	
1955	
1952	
1947, 1950	

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2013 Source Sheets



San Juan
2013
7.5-minute, 20000



Naranjito
2013
7.5-minute, 20000



Aguas Buenas
2013
7.5-minute, 20000



Bayamon
2013
7.5-minute, 20000

1982 Source Sheets



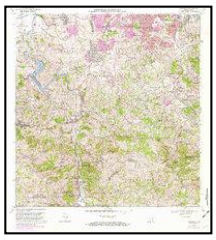
Aguas Buenas
1982
7.5-minute, 20000
Aerial Photo Revised 1977



Bayamon
1982
7.5-minute, 20000
Aerial Photo Revised 1977



San Juan
1982
7.5-minute, 20000
Aerial Photo Revised 1977



Naranjito
1982
7.5-minute, 20000
Aerial Photo Revised 1977

1969 Source Sheets



San Juan
1969
7.5-minute, 20000
Aerial Photo Revised 1967



Naranjito
1969
7.5-minute, 20000
Aerial Photo Revised 1967



Aguas Buenas
1969
7.5-minute, 20000
Aerial Photo Revised 1967



Bayamon
1969
7.5-minute, 20000
Aerial Photo Revised 1967

1963, 1964 Source Sheets



Naranjito
1963
7.5-minute, 20000
Aerial Photo Revised 1941



Bayamon
1963
7.5-minute, 20000
Aerial Photo Revised 1962



San Juan
1963
7.5-minute, 20000
Aerial Photo Revised 1962



Aguas Buenas
1964
7.5-minute, 20000
Aerial Photo Revised 1962

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1957 Source Sheets



Bayamon
1957
7.5-minute, 20000



San Juan
1957
7.5-minute, 20000



Aguas Buenas
1957
7.5-minute, 20000
Aerial Photo Revised 1941



Naranjito
1957
7.5-minute, 20000
Aerial Photo Revised 1941

1955 Source Sheets



Aguas Buenas
1955
7.5-minute, 20000
Aerial Photo Revised 1941

1952 Source Sheets

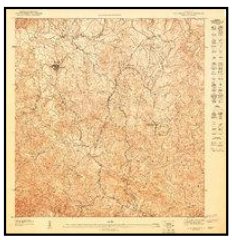


Aguas Buenas
1952
7.5-minute, 30000
Aerial Photo Revised 1941



Naranjito
1952
7.5-minute, 30000
Aerial Photo Revised 1941

1947, 1950 Source Sheets



Aguas Buenas NO
1947
7.5-minute, 10000

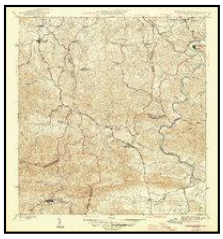


Bayamon SE
1950
7.5-minute, 10000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

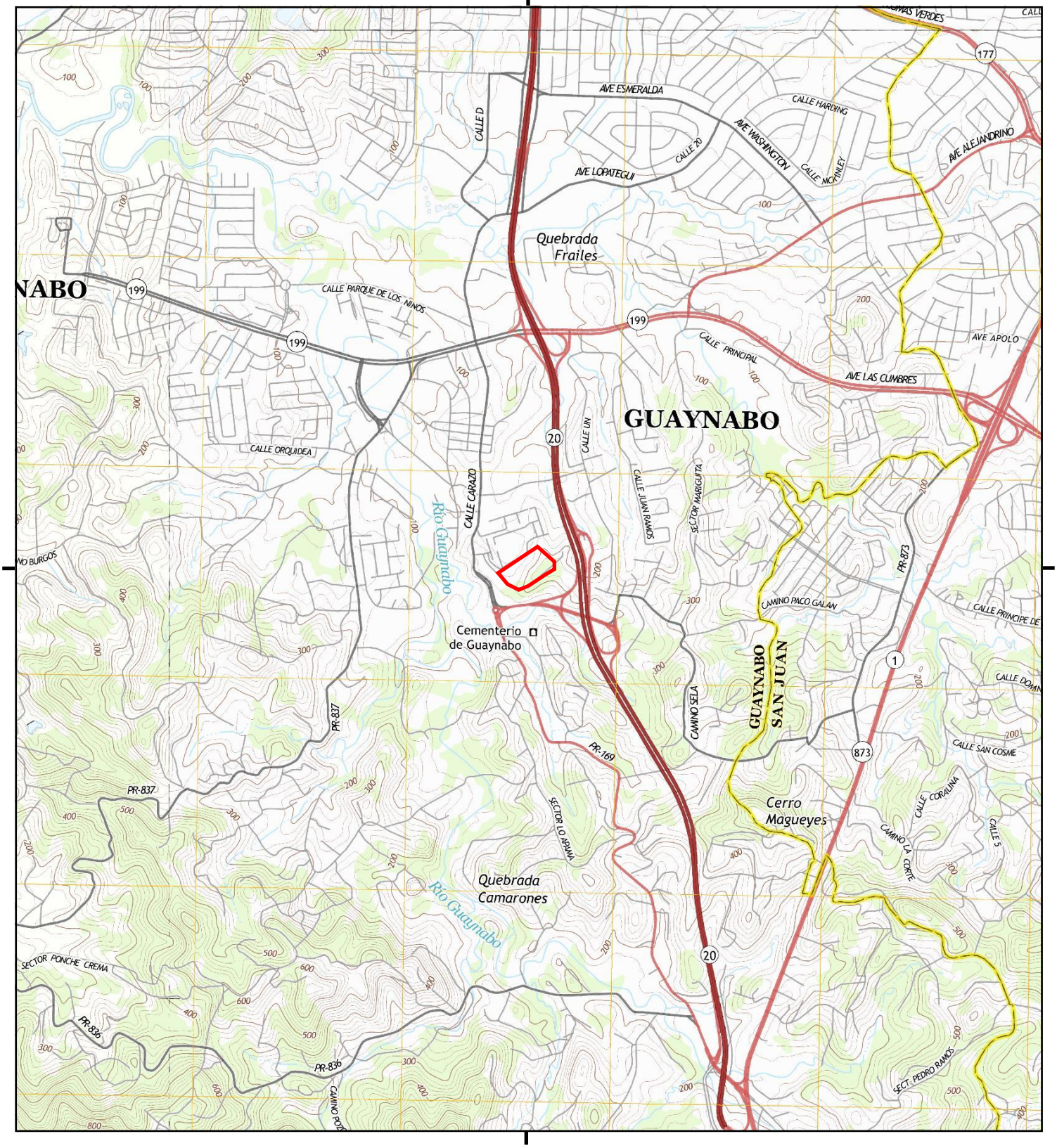
1946 Source Sheets



Aguas Buenas
1946
7.5-minute, 30000



Naranjito
1946
7.5-minute, 30000



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

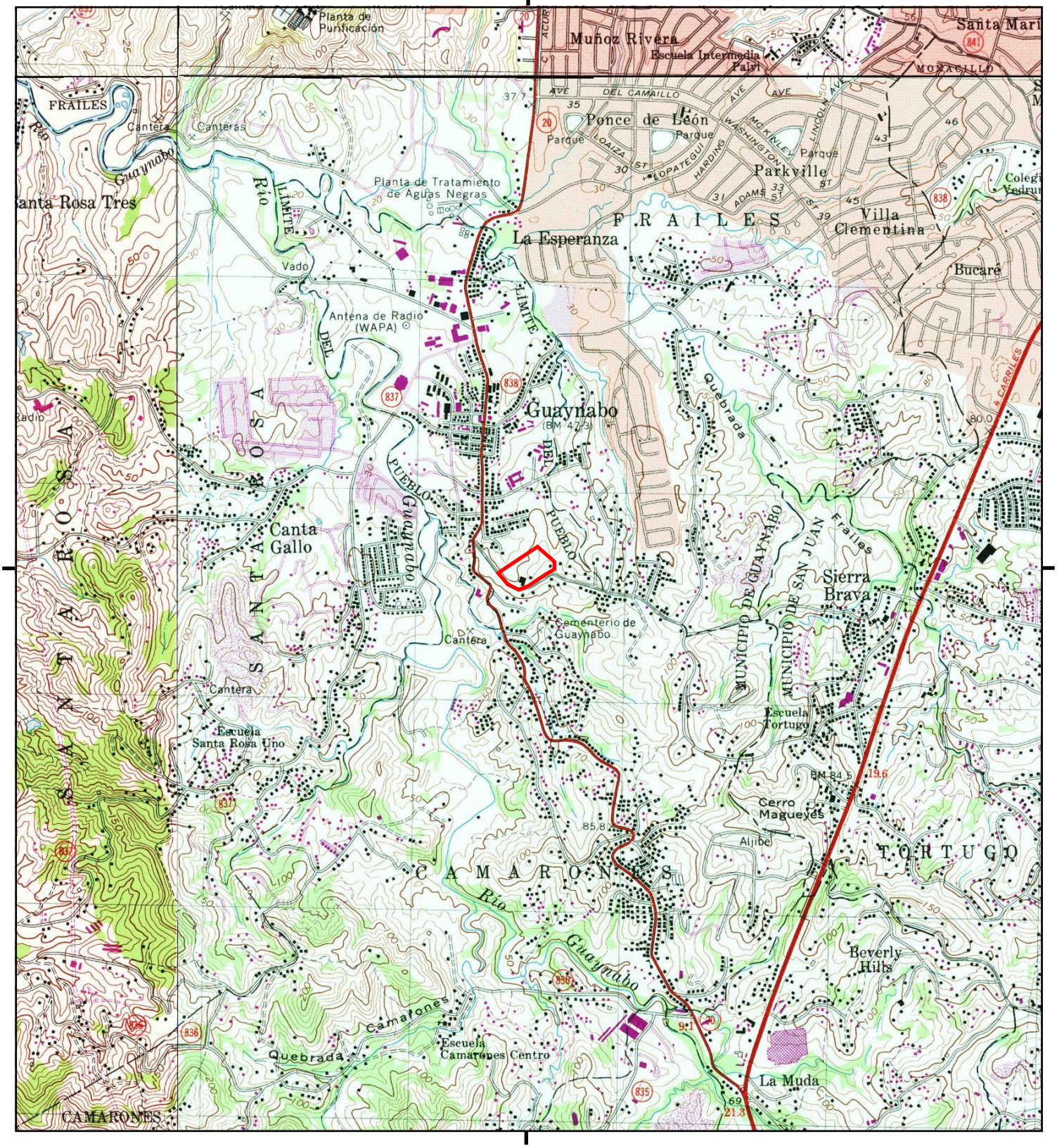
TP, Aguas Buenas, 2013, 7.5-minute
NE, San Juan, 2013, 7.5-minute
SW, Naranjito, 2013, 7.5-minute
NW, Bayamon, 2013, 7.5-minute

SITE NAME: Condominio Vista AL Norte
ADDRESS: Piedras Blancas St.
Guaynabo, PR 00969
CLIENT: ERTEC

N

Historical Topo Map

1982



This report includes information from the following map sheet(s).

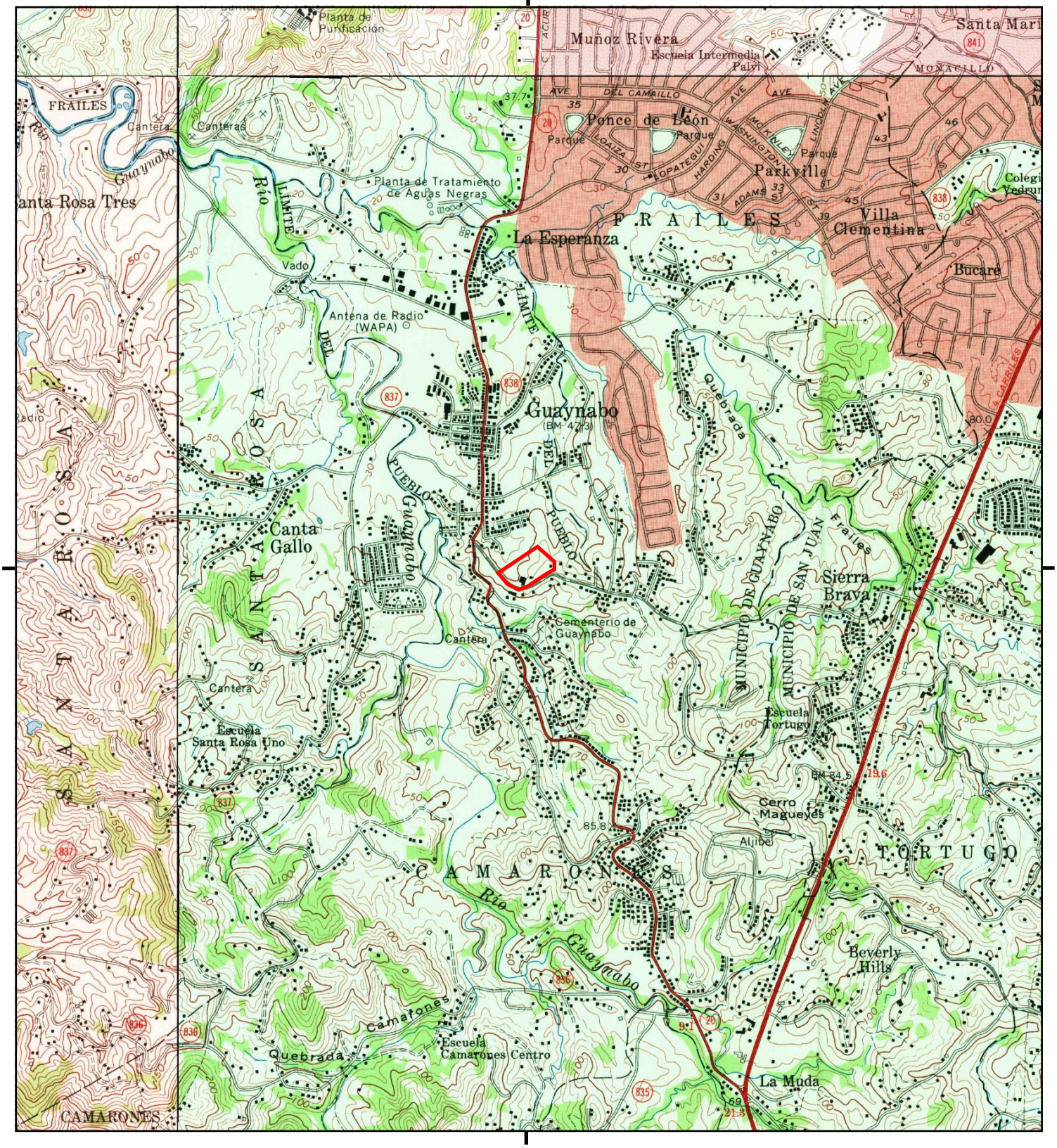
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Aguas Buenas, 1982, 7.5-minute
NE, San Juan, 1982, 7.5-minute
SW, Naranjito, 1982, 7.5-minute
NW, Bayamon, 1982, 7.5-minute

SITE NAME: Condominio Vista AL Norte
ADDRESS: Piedras Blancas St.
Guaynabo, PR 00969
CLIENT: ERTEC

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

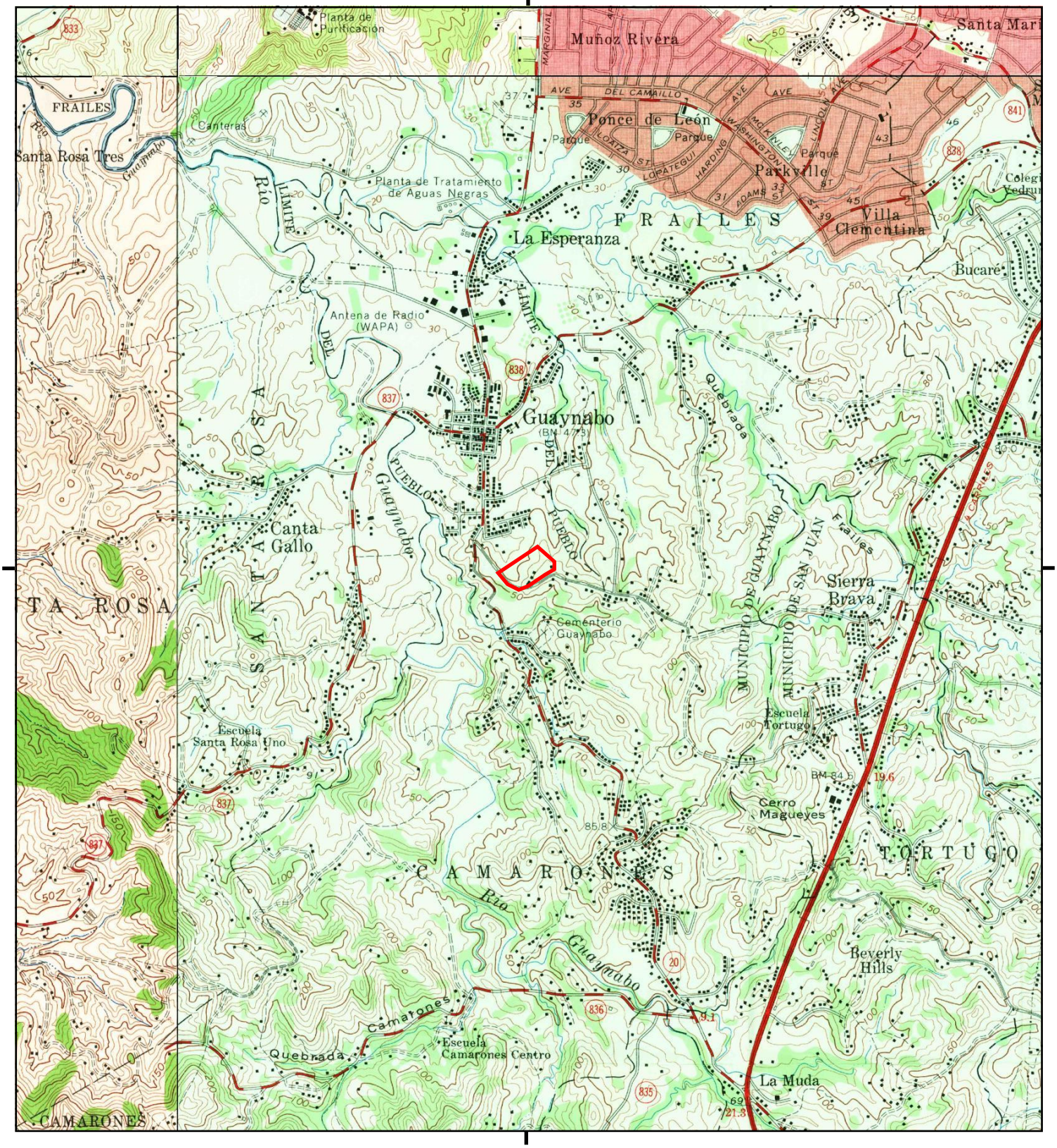
TP, Aguas Buenas, 1969, 7.5-minute
NE, San Juan, 1969, 7.5-minute
SW, Naranjito, 1969, 7.5-minute
NW, Bayamon, 1969, 7.5-minute

SITE NAME: Condominio Vista AL Norte
ADDRESS: Piedras Blancas St.
Guaynabo, PR 00969
CLIENT: ERTEC

N

Historical Topo Map

1963, 1964



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0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

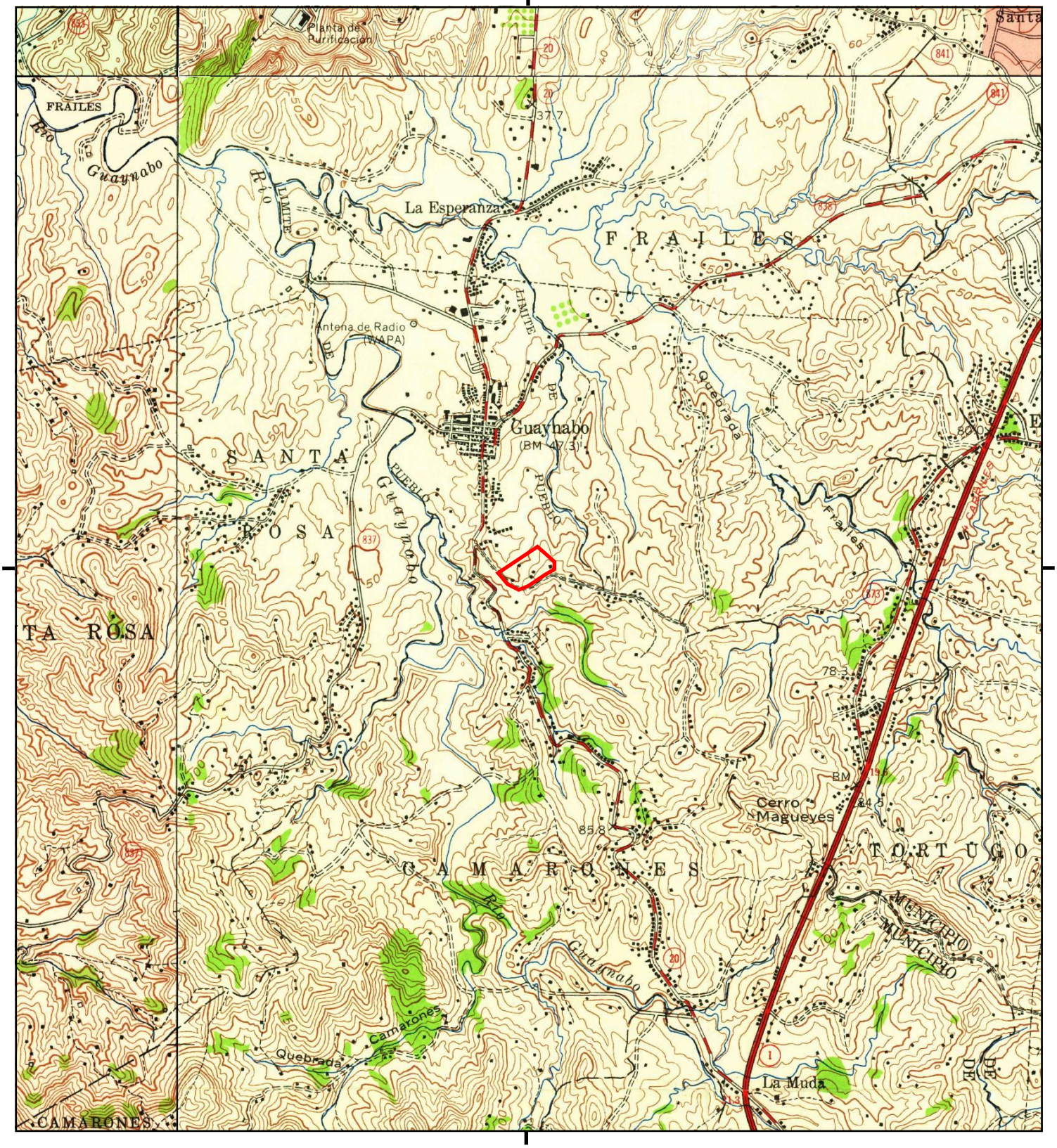
TP, Aguas Buenas, 1964, 7.5-minute
NE, San Juan, 1963, 7.5-minute
SW, Naranjito, 1963, 7.5-minute
NW, Bayamon, 1963, 7.5-minute

SITE NAME: Condominio Vista AL Norte
ADDRESS: Piedras Blancas St.
Guaynabo, PR 00969
CLIENT: ERTEC

N

Historical Topo Map

1957



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

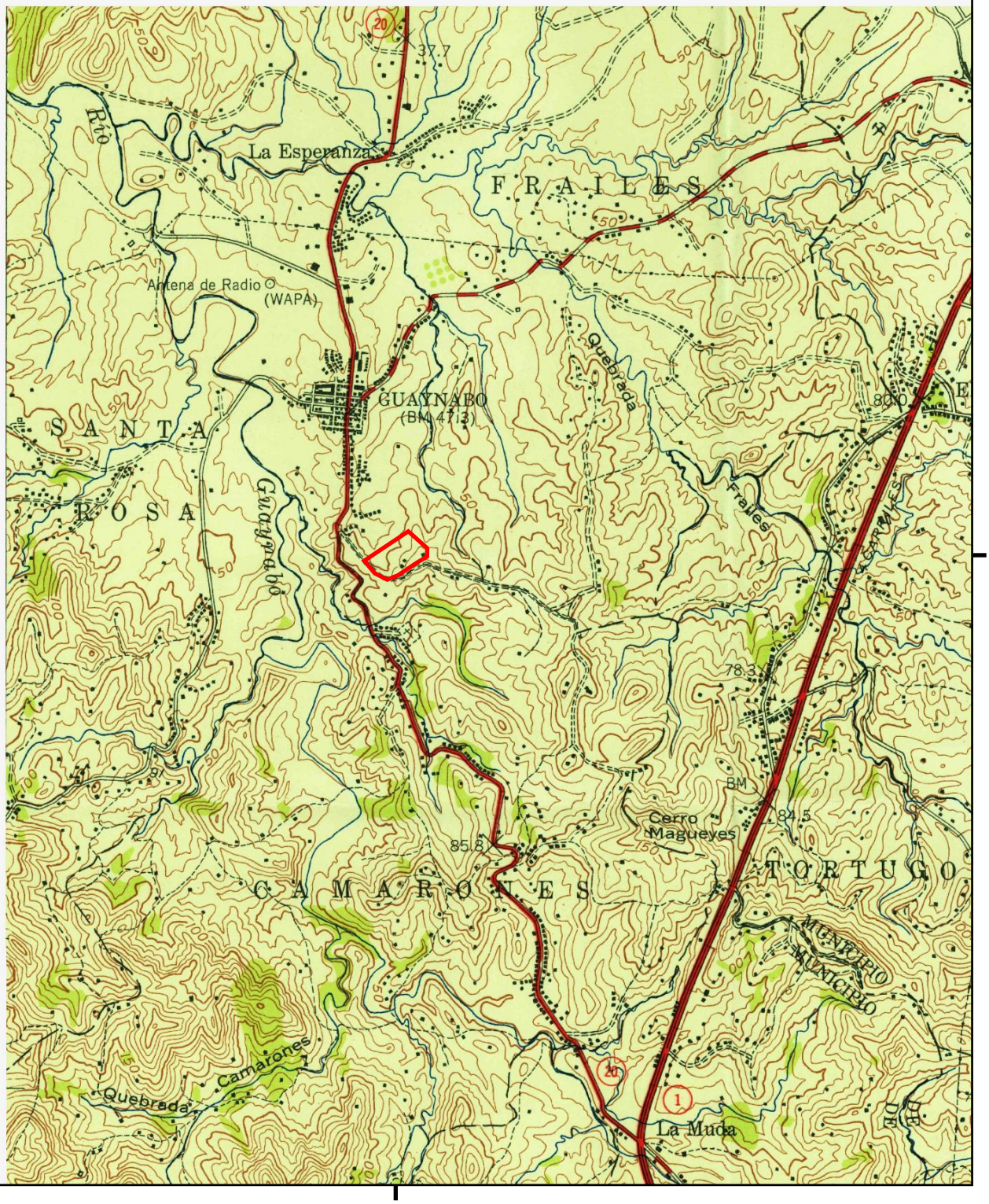
NW N NE
W E
SW S SE

TP, Aguas Buenas, 1957, 7.5-minute
NE, San Juan, 1957, 7.5-minute
SW, Naranjito, 1957, 7.5-minute
NW, Bayamon, 1957, 7.5-minute

SITE NAME: Condominio Vista AL Norte
ADDRESS: Piedras Blancas St.
Guaynabo, PR 00969
CLIENT: ERTEC

N

UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED UNMAPPED



This report includes information from the following map sheet(s).

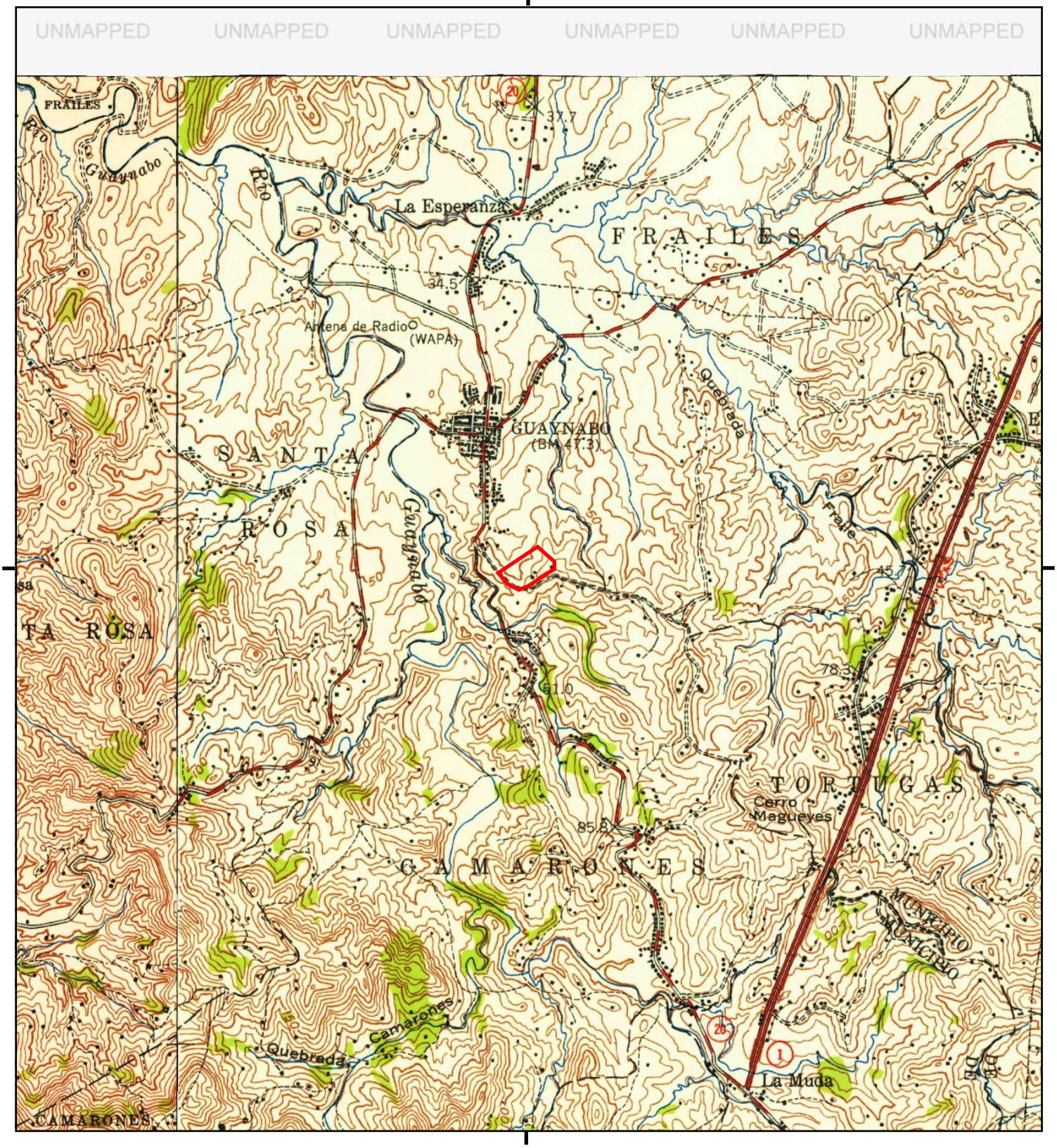
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Aguas Buenas, 1955, 7.5-minute

SITE NAME: Condominio Vista AL Norte
ADDRESS: Piedras Blancas St.
Guaynabo, PR 00969
CLIENT: ERTEC

N



This report includes information from the following map sheet(s).

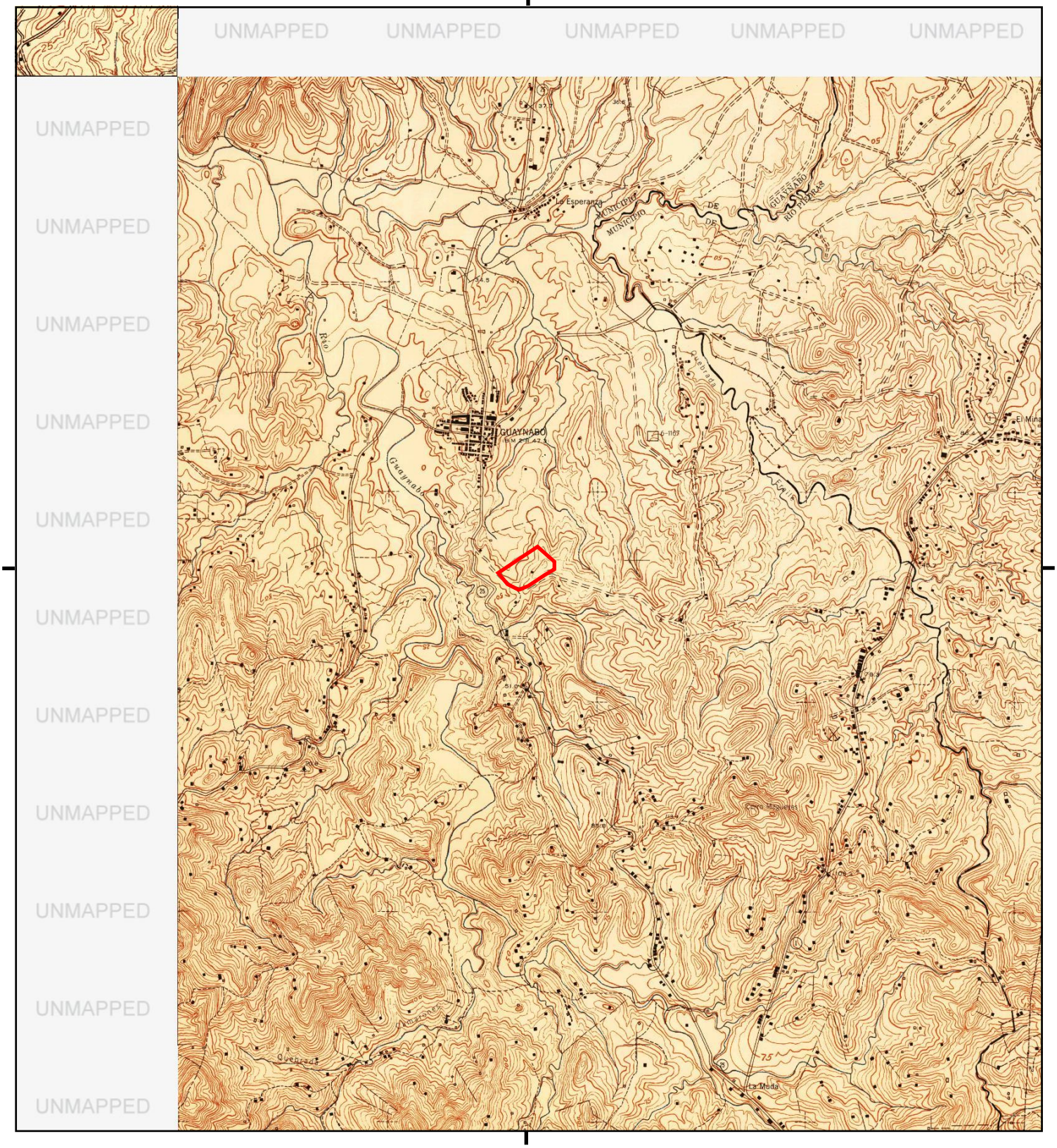
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Aguas Buenas, 1952, 7.5-minute
SW, Naranjito, 1952, 7.5-minute

SITE NAME: Condominio Vista AL Norte
ADDRESS: Piedras Blancas St.
Guaynabo, PR 00969
CLIENT: ERTEC

N



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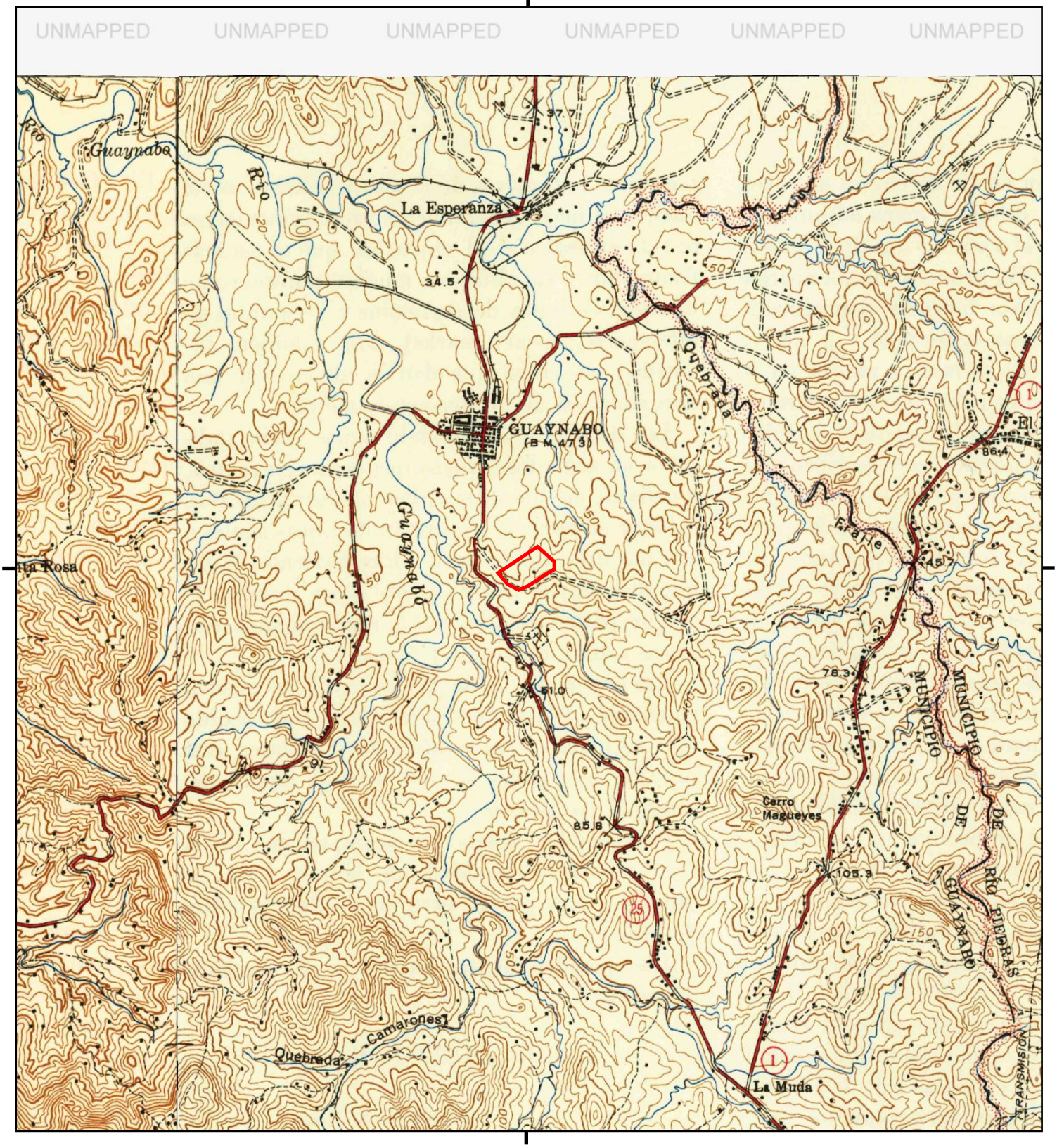
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Aguas Buenas NO, 1947, 7.5-minute
NW, Bayamon SE, 1950, 7.5-minute

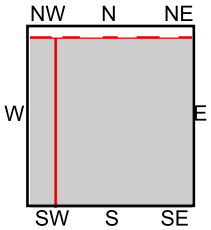
SITE NAME: Condominio Vista AL Norte
ADDRESS: Piedras Blancas St.
Guaynabo, PR 00969
CLIENT: ERTEC

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



TP, Aguas Buenas, 1946, 7.5-minute
SW, Naranjito, 1946, 7.5-minute

SITE NAME: Condominio Vista AL Norte
ADDRESS: Piedras Blancas St.
Guaynabo, PR 00969
CLIENT: ERTEC

N

Condominio Vista AL Norte

Piedras Blancas St.

Guaynabo, PR 00969

Inquiry Number: 5785541.8

September 12, 2019

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

09/12/19

Site Name:

Condominio Vista AL Norte
Piedras Blancas St.
Guaynabo, PR 00969
EDR Inquiry # 5785541.8

Client Name:

ERTEC
P.O. Box 195336
San Juan, PR 00919
Contact: OSCAR FONTAN

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Search Results:

Year	*Scale*	*Details*	*Source*
2004	1"=500'	Flight Date: January 16, 2004	USGS
1995	1"=500'	Acquisition Date: December 01, 1995	USGS/DOQQ
1993	1"=500'	Flight Date: December 12, 1993	USGS
1977	1"=500'	Flight Date: March 24, 1977	USGS
1967	1"=500'	Flight Date: September 25, 1967	USGS
1962	1"=500'	Flight Date: March 03, 1962	USGS

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INQUIRY #: 5785541.8

YEAR: 2004

= 500'

N

EDR

Subject boundary not shown because it exceeds image extent or


INQUIRY #: 5785541.8
YEAR: 1995
= 500'
N
EDR



INQUIRY #: 5785541.8

YEAR: 1993

= 500'

N

EDR


INQUIRY #: 5785541.8
YEAR: 1977
= 500'
N
EDR



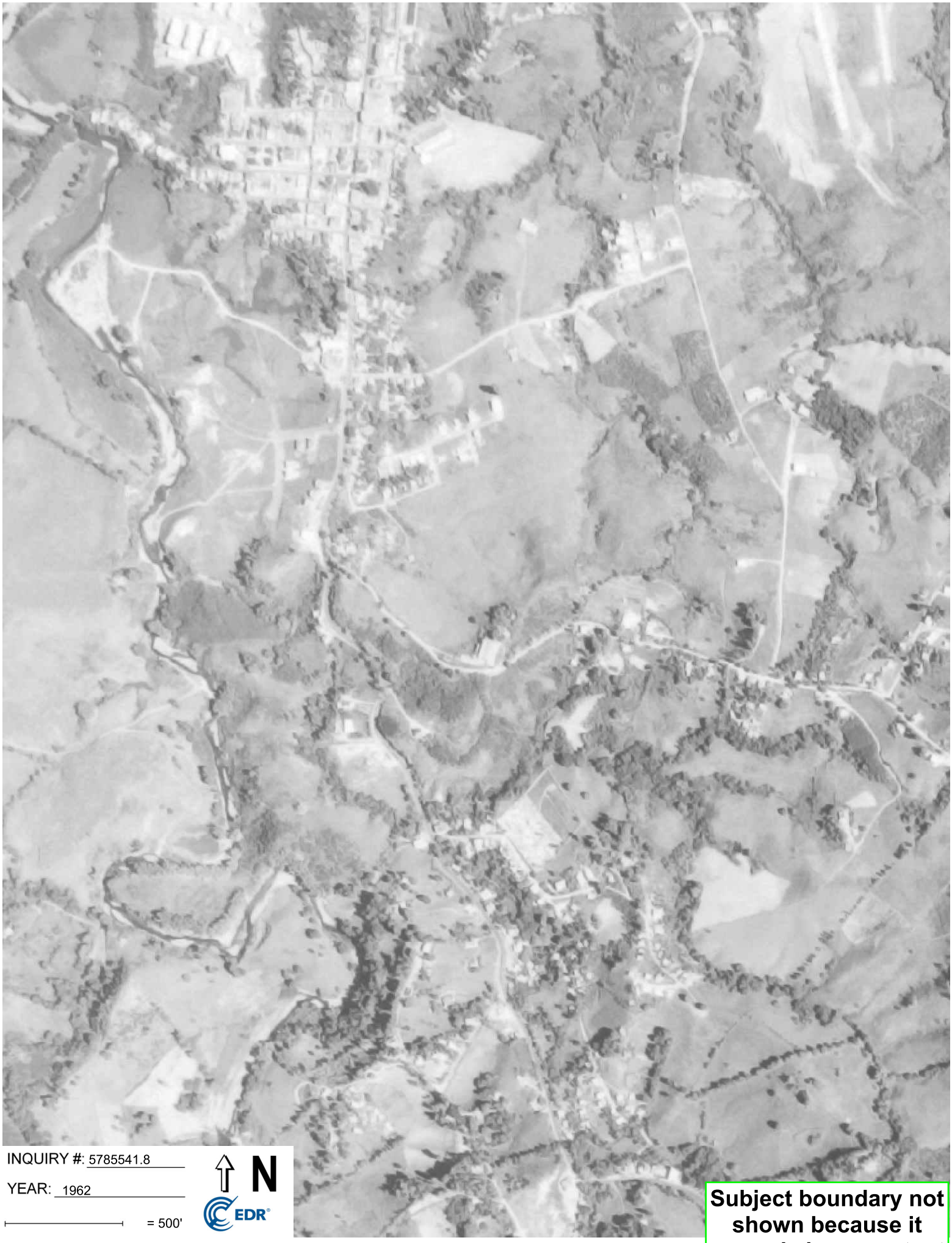
INQUIRY #: 5785541.8

YEAR: 1967

= 500'

N

EDR



INQUIRY #: 5785541.8

YEAR: 1962

= 500'

N

EDR

Subject boundary not shown because it exceeds image extent

Condominio Vista AL Norte
Piedras Blancas St.
Guaynabo, PR 00969

Inquiry Number: 5785541.3
September 11, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

09/11/19

Site Name:

Condominio Vista AL Norte
Piedras Blancas St.
Guaynabo, PR 00969
EDR Inquiry # 5785541.3

Client Name:

ERTEC
P.O. Box 195336
San Juan, PR 00919
Contact: OSCAR FONTAN

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by ERTEC were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 0564-481E-8EA2

PO # 12056

Project Phase I ESA

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 0564-481E-8EA2

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Condominio Vista AL Norte
Piedras Blancas St.
Guaynabo, PR 00969

Inquiry Number: 5785541.5
September 16, 2019

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2014	☐	☑	EDR Digital Archive
2010	☐	☑	EDR Digital Archive
2005	☐	☑	EDR Digital Archive
2000	☐	☑	EDR Digital Archive
1995	☐	☑	EDR Digital Archive
1992	☐	☑	EDR Digital Archive

FINDINGS

TARGET PROPERTY STREET

Piedras Blancas St.
Guaynabo, PR 00969

Year	*CD Image*	*Source*	
PIEDRAS BLANCAS ST			
2014	-	EDR Digital Archive	Street not listed in Source
2010	-	EDR Digital Archive	Street not listed in Source
2005	-	EDR Digital Archive	Street not listed in Source
2000	-	EDR Digital Archive	Street not listed in Source
1995	-	EDR Digital Archive	Street not listed in Source
1992	-	EDR Digital Archive	Street not listed in Source

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*
CALLE CARAZO		
2014	pg. A1	EDR Digital Archive
2010	pg. A6	EDR Digital Archive
2005	pg. A12	EDR Digital Archive
2000	pg. A13	EDR Digital Archive
1995	pg. A15	EDR Digital Archive
CALLE CARAZO 345		
2000	pg. A14	EDR Digital Archive
1995	pg. A16	EDR Digital Archive
CALLE CARAZO APT 152		
2010	pg. A8	EDR Digital Archive
CALLE CARAZO APT 504		
2014	pg. A2	EDR Digital Archive
CALLE CARAZO APT 706		
2014	pg. A3	EDR Digital Archive
2010	pg. A9	EDR Digital Archive
CALLE CARAZO STE 1		
2014	pg. A4	EDR Digital Archive
2010	pg. A10	EDR Digital Archive
CALLE CARAZO STE 913		
2014	pg. A5	EDR Digital Archive

FINDINGS

Year	*CD Image*	*Source*
2010	pg. A11	EDR Digital Archive

CARAZO ST

1992	pg. A17	EDR Digital Archive

City Directory Images

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO 2014

8	FERNANDEZ CHAVEZ FABIOLA
	GUITARS BOUTIQUE
10	ACEVEDO WIDA M
	AYALA MAIRA E
	SM GENERAL CONTRACTORS
11	CRUZ CARBONEL ABDIEL DR
	VENDRELL ROBERTO
25	DOWN TOWN RESTAURANT
31	VISUAL EYE INC
37	DIAZ GAS
42	CLINICA CRDIO VSCLAR DE GYNABO
44	MOLINA MILLET LEONARDO
46	RIVERA VILCHES JOSE F
	TANNING SPA ALFA OMEGA
47	RIVERA RODRIGUEZ LAURA
55	AW FOODS INC
63	ARS SALUTISCORP
64	UNIVISION OF PUERTO RICO INC
	UNIVISION TELEVISION GROUP INC
66	COOPERATIVA DE AHORRO Y CREDIT
67	J G GYNABO TECHNICAL COLLEGE
	PADILLA ANTOLIN J MD GERIATRA
71	GORDO CARRILES LILLIAN M
75	BUFETE ALONSO SANTIAGO
	PAGAN CORTES VILMA I
84	CENTRO DE FORTALECIMIENTO FAMI
100	PR MOBILE LOGISTICS INC
102	LABORATORIO CLINICO DEL PUEBLO
110	EXPLORACLINICA INTEGRA DE
120	JUNITOS EXTERMINATING
136	CARRASQUILLO UMPIERRE MILAGROS
	DAVILA GASPAR M DVM
	DE LA CRUZ AVILES JAIME L
140	FUM CONSTRUCTION S E
142	AGENCIA HIPICA 866

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO APT 504 2014

155 SPRITA SOLUTIONS INC

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO APT 706 2014

155 DAMARIS LAMELA

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO STE 1 2014

136 ROMERO VISARDEN ZENEN

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO STE 913 2014

75 ALONSO OLIVERO RINA

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO 2010

2	QUIZNOS SUB
	RESTAURANT LA SABROSA
6	PEREZ PRATS Y RDRGUEZ RDOLOGIA
8	CARIBBEAN PULMONARY
	FERNANDEZ CHAVEZ FABIOLA
	FITNESS 4 ALL
	GUITARS BOUTIQUE
	REYMUNDI RIVERA VICTOR
10	ACEVEDO WIDA M
	AYALA MAIRA E
11	BARQUERO AUDIOVISL DUPLCDS MUL
	CENTRO DE CONSEJERIA AVANCE
	COUNCIL APSTLES PRPHETS ELDERS
	HOUSE OF WORSHIP INC
	VENDRELL ROBERTO
19	VIO DISTRIBUTION
25	DOWN TOWN RESTAURANT
	SEGUNDO SERRANO AURELIO
31	MARIANI REYES AIXA MD
	VISUAL EYE INC
37	DIAZ GAS
42	CLINICA CRDIO VSCLAR DE GYNABO
	POLICLNICA FAMILIAR DR ALVAREZ
	SERVICIOS MDICOS PSIQUIATRICOS
44	BORIA CARCANO FAUSTO
	CORTES REXACH IVAN J
	LABORATORIO KOPER INC
	MOLINA MILLET LEONARDO
45	BIENMESABE COSINA INTERNACIONL
	RODRIGUEZ REFRIGERATION
46	ALFA & OMEGA STYLE SALONES DE
	RIVERA VILCHES JOSE F
47	RIVERA RODRIGUEZ LAURA
48	NEGRON LUGO PEPE MIGUEL
51	ALBIZU MERCED ANGEL R ATTORNEY
55	AW FOODS INC
62	UNIVISION DE PUERTO RICO INC
63	ARS SALUTISCORP
64	UNIVISION OF PUERTO RICO INC
	UNIVISION TELEVISION GROUP INC
66	COOPERATIVA DE AHORRO Y CREDIT
67	J G GYNABO TECHNICAL COLLEGE
	PADILLA ANTOLIN J MD GERIATRA
70	VO DISTRIBUTION ROPA/DAMAS/AL
71	GORDO CARRILES LILLIAN M
74	ROCED INC
75	BUFETE ALONSO SANTIAGO
80	POLICLINICA DR TOMAS VELAZQUEZ
82	LOS JUANES CAFE
84	CENTRO DE FORTALECIMIENTO FAMI

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO 2010 (Cont'd)

102	LABORATORIO CLINICO DEL PUEBLO
110	EXPLORACLINICA INTEGRA DE
112	BUJOSA CARLOS
120	JUNITOS EXTERMINATING
122	FLORISTERIA CUSIN
124	DE JESUS DAVILA JUAN E
130	ROMAN NIEVES VICTOR
132	XIAO YAN LIANG
134	UNIPIEZAS GUAYNABO
136	CARRASQUILLO UMPIERRE MILAGROS
	DAVILA GASPAR M DVM
	DE LA CRUZ AVILES JAIME L
140	ESCOBAR SOTO MARCELINO
	F U M CONSTRUCTION S E
142	PABON SERRANO JOSE
155	ESCUELA RMAN BLDROTY DE CASTRO

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO APT 152 2010

155 CONCILIO DE JESUSCRISTO BU

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO APT 706 2010

155 DAMARIS LAMELA

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO STE 1 2010

136 ROMERO VISARDEN ZENEN

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO STE 913 2010

75 ALONSO OLIVERO RINA

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO 2005

2	COMMUNITY CONSLT & DEVELOPERS
	ERR COMPUTER SERVICES
	TOTAL QUALITY TOUR MARKETING
6	CENTRO RDOLOGICO ESPECIALIZADO
7	RODRIGUEZ CARLOS CRUZ
8	CARIBBEAN PULMONARY CARE INC
19	FOREVER GIFT SP THNGS CARTERAS
31	TWIN NAILS UNAS ESTETICA
37	DIAZ GAS
44	LABORATORIO KOPER INC
47	JESIEL ELECTRIC CORP
55	E H CLEANERS
	EDMARIS SALON UNISEX
65	ALBIZU MERCED ANGEL R ABOG
66	COOPERATIVA DE AHORRO Y CREDIT
67	J G GYNABO TECHNICAL COLLEGE
70	CENTRO DE VACUNACION
71	GORDO CARRILES LILLIAN M
75	ALONSO OLIVERO RINA
	BUFETE ALONSO SANTIAGO
	DIAZ HERNANDEZ ANDRES
	EDGARDO R JIMENEZ-CALDER
78	ECHOMED VASCULAR CORP
82	PERFUMES & MORE
84	CENTRO DE FORTALECIMIENTO FAMI
88	TALLER SONIA SANTIAGO COSTURA
94	COOPERATIVA AHORRO Y CREDITO
102	LABORATORIO CLINICO DEL PUEBLO
	PEREZ CARDONA NESTOR
110	MANNYS PHOTO COLOR
120	IMPERMEABILIZADORA DEL CARIBE
124	MARRERO JOSE INC
130	ROMAN NIEVES VICTOR
132	ERRE-CE SHOE IMPORT INC
	EURO NOVELTY
	GALERIA EMANUEL
136	CARRASQUILLO UMPIERRE MILAGROS
	DAVILA GASPAR M DVM
	J R PAINT DISTRIBUTOR
	MAGIE FLOWER AND BASKET
	ROMERO VISARDEN ZENEN
140	ESCOBAR SOTO MARCELINO
	F U M CONSTRUCTION S E
144	PASSION INSTITUTE
148	GUAYNABO AL DIA
	L T M INTERNATIONAL CORP
199	GRILLYS INC

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO 2000

2	CATALA-MONGE JORGE L
	COMMUNITY CONSLT & DEVELOPERS
	DIAZ HERNANDEZ ANDRES
8	CARIBBEAN PULMONARY CARE INC
	GUAYNABO HOME CARE PROGRAM
23	SAM MUEBLES DE PR INC
66	COOP DE AHORRO Y CREDITO
80	RAHIM MUSTAFA
86	ORTIZ ORTIZ CARLOS E
88	ME SALVE ISABELA INC
96	TIENDA REY MINEY
102	LABORATORIO CLINICO DEL PUEBLO
124	MARRERO JOSE INC
130	ROMAN NIEVES VICTOR
132	ERRE-CE SHOE IMPORT INC
136	CARRASQUILLO UMPIERRE MILAGROS
	J R PAINT DISTRIBUTOR
	ROMERO VISARDEN ZENEN
140	ESCOBAR SOTO MARCELINO
	F U M CONSTRUCTION S E
142	GORDO CARRILES LILLIAN M

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO 345 2000

44 LABORATORIO KOPER INC

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO 1995

2	CATALA-MONGE JORGE L
	ISPRA INVESTMENT INC
6	HIGH TECHNOLOGY LABORATORY
8	CARIBBEAN PULMONARY CARE INC
	GUAYNABO HOME CARE PROGRAM
11	KOOLEE DE PUERTO RICO INC
	SUPER BARATO GUAYNABO INC
21	ILLUSIONE
23	SAM MUEBLES DE PR INC
66	COOP DE AHORRO
75	IGLESIA CRISTIANA CRECIENDO
80	RAHIM MUSTAFA
86	ORTIZ ORTIZ CARLOS E
88	ME SALVE ISABELA INC
96	TIENDA REY MINEY
124	M & F DISTRIBUTORS INC
	MARRERO JOSE INC
130	ROMAN NIEVES VICTOR
132	ERRE-CE SHOE IMPORT INC
136	CARRASQUILLO UMPIERRE MILAGROS
	RIVERA CORTES JAIME
138	ALVARADO PENA ROBERTO L
140	ESCOBAR SOTO MARCELINO
	F U M CONSTRUCTION S E
142	GORDO CARRILES LILLIAN M
146	FIGUEROA RIVERA MIGUEL

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CALLE CARAZO 345 1995

44 LABORATORIO KOPER INC

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CARAZO ST 1992

6	EL COQUI SPORTSWORLD
8	CARIBBEAN PULMONARY CARE INC
	GUAYNABO HOME CARE PROGRAM
11	KOOLEE DE PUERTO RICO INC
15	RODRIGUEZ SANCHEZ FRANK
20	VILLEGAS VALCARCEL ISMAEL
23	SAM MUEBLES DE PR INC
47	SANTIAGO CANUELA ANTONIO
66	COOP DE AHORRO
75	IGLESIA CRISTIANA CRECIENDO
	INTERAMERICAN DISTRIBUTORS
	VISBAL AVILES MAGDA
78	RIVERA MARIA
80	RAHIM MUSTAFA
86	ORTIZ ORTIZ CARLOS E
94	FUNERARIA VALCARCEL INC
96	TIENDA REY MINEY
124	MARRERO JOSE INC
	MARRERO MONTANEZ JOSE
130	MUEBLERIA EMKAY DE NEW YORK
	ROMAN NIEVES VICTOR
132	VELAZQUEZ JOSE RAMON
134	FUENTES TORRES NEREIDA
136	CARRASQUILLO UMPIERRE MILAGROS
	HI-POINT SHOE CORP
	RIVERA CORTES JAIME
138	R C WORK SHOES
140	ESCOBAR SOTO MARCELINO
	F U M CONSTRUCTION INC
146	FIGUEROA RIVERA MIGUEL

ERTEC
ENVIRONMENTAL RESOURCE TECHNOLOGIES

26 de septiembre de 2019

Lcda. Tania Vázquez Rivera
Presidente
Junta de Calidad Ambiental
PO Box 11448
Santurce, Puerto Rico 00910

TaniaVazquez@jca.pr.gov

c: Sra. Maribel Gallardo

MaribelGallardo@jca.pr.gov

Re: Condominio Vista Alegre
Guaynabo, Puerto Rico

Estimada licenciada Vázquez:

La compañía ERTEC, PSC ha sido contratada por la Compañía SCF Arquitectos para realizar una Investigación Ambiental en el proyecto de referencia en Guaynabo, Puerto Rico.

Para dicha evaluación ambiental se nos requiere revisar toda la información disponible concerniente al historial ambiental en los predios. Por lo tanto, respetuosamente solicitamos si tiene información disponible para revisión del lugar.

Por la presente solicitamos su acostumbrada cooperación para que se nos provea toda la información pública disponible bajo custodia de su agencia, ya sea mediante revisión o copias de la misma.

Se agradece de antemano su pronta atención a este particular.

Cordialmente,

Andrés Agrelot
Gerente de Proyecto

C: Área de Calidad de Aire
Área de Calidad de Agua
Programa Reglamentación sobre Contaminación de Terrenos
Programa de Control de Tanques de Almacenamiento Soterrados
Programa de Control de Inyección Subterránea
Programa Emergencias Ambientales y Superfondo

D190928 E195613

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Tel. (787) 792-8902 • Fax (787) 783-5555

APPENDIX 3

INTERVIEW DOCUMENTATION

3-1 SCHEMATIC DRAWINGS – JULY 12, 2019

3-2 USER'S QUESTIONNAIRE

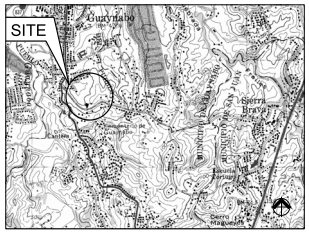
3-3 PHASE I CHECKLIST

REPORT

PHASE I ENVIRONMENTAL SITE ASSESSMENT (PHASE I ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

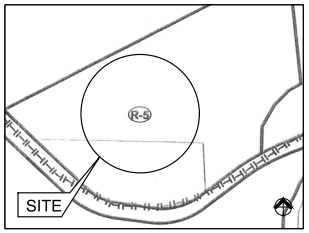
ERTEC PROJECT NUMBER E195613

ERTEC

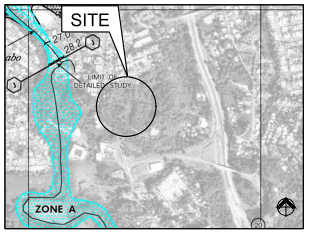


LOCATION
TOPOGRAPHIC QUADRANGLE

LAMBERT COORDS.
X= 186,572.4
Y= 57,480.8



ZONING MAP
Distrito de Zonificación Anterior R-5
Distrito de Zonificación Actual R-A
Residencial de Alta Densidad (Reglamento Conjunto)



FLOODING MAP
SCALE 1:10,000

DRAWING INDEX:

SHEET NO.	DESCRIPTION
AS-101	GENERAL SITE PLAN
AE-101	BELOW GRADE FLOOR PLAN
AE-102	FIRST LEVEL FLOOR PLAN
AE-103	SECOND LEVEL FLOOR PLAN
AE-104	THIRD LEVEL FLOOR PLAN
AE-105	TYPICAL LEVEL FLOOR PLAN 4TH - 12TH
AE-106	13TH LEVEL FLOOR PLAN
AE-107	ROOF PLAN
AE-201	BUILDING ELEVATIONS
AE-202	BUILDING ELEVATIONS
AE-301	BUILDING SECTION AA
AE-302	BUILDING SECTION BB
AE-303	BUILDING SECTION CC

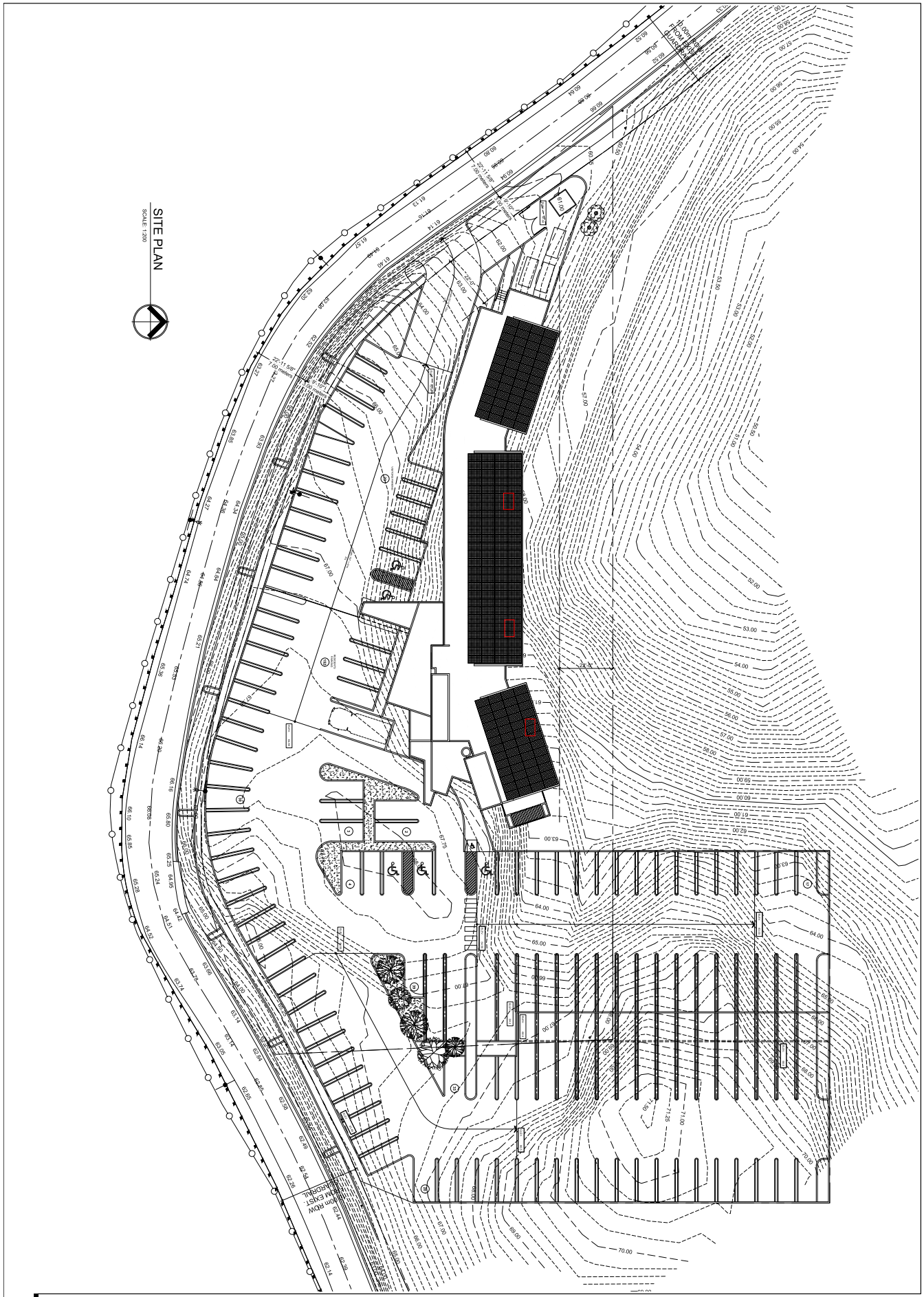


JULY 12, 2019

SCHEMATIC DRAWINGS FOR:
CONDOMINIO VISTA AL NORTE

CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ARCHITECTS
SPACE PLANNERS
INTERIOR ARCHITECTS
Segundo Cardona, F.A.I.A.
13 2nd Street, Metro Office Park
Guaynabo, P.R. 00968-1712



AS-101

ARCHITECTS
SPACE PLANNERS
INTERIOR ARCHITECTS

Segundo Cardona F.A.I.A.

13 2nd Street, Metro Office Park
Guaynabo, P.R. 00968-1712

CONDOMINIO VISTA AL NORTE

GUAYNABO, PUERTO RICO

SITE PLAN

REVISIONS

NO. DATE

THIS DRAWING AND ITS CONTENTS IS THE PROPERTY OF THE OFFICE OF SERRA, CARDONA, FERRER AND SHALL BE USED AS A REFERENCE DOCUMENT AND WORKING INSTRUMENT ONLY BY AUTHORIZED PERSONNEL. ANY TOTAL OR PARTIAL REPRODUCTION OR USE OF SAID DOCUMENT OR THE INFORMATION CONTAINED THEREIN IS STRICTLY PROHIBITED WITHOUT THE APPROPRIATE WRITTEN CONSENT AND SHALL BE RETURNED TO SERRA CARDONA FERRER (C) 1980

Phase I ESA Transaction Screen Questionnaire

Date 9/5/2019 Site Vista al Norte

Completed by A. Agrelot Project Number

Owner☐ Occupant ☐ Observed During Site Visit ☐

Question	Answer	Comment
1a. Is the property used for an industrial use?	Yes ☒ No☐ Unknown☐	Furniture makers
1b. Is any adjoining property used for an industrial use?	Yes ☐ No☒ Unknown☐	
2a. Did you observe evidence or do you have any prior knowledge that the property has been used for an industrial use in the past?	Yes ☐ No☒ Unknown☐	
2b. Did you observe evidence or do you have any prior knowledge that any adjoining property has been used for an industrial use in the past?	Yes ☐ No☒ Unknown☐	
3a. Is the property used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	Yes ☐ No☒ Unknown☐	
3b. Is any adjoining property used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	Yes ☐ No☒ Unknown☐	
4a. Did you observe evidence or do you have any prior knowledge that the property has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	Yes ☐ No☒ Unknown☐	
4b. Did you observe evidence or do you have any prior knowledge that any adjoining property has been used as a gasoline station, motor repair facility, commercial	Yes ☐ No☒ Unknown☐	

Question	Answer	Comment
printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?		
5a. Are there currently any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of >5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on or used at the property or at the facility?	Yes ☐ No☒ Unknown☐	
5b. Did you observe evidence or do you have any prior knowledge that there have been previously any damaged or discarded automotive or industrial batteries. or pesticides, paints, or other chemicals in individual containers of >5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on or used at the property or at the facility?	Yes ☐ No☒ Unknown☐	
6a. Are there currently any industrial drums (typically 55 gal (208 L)) or sacks of chemicals located on the property or at the facility?	Yes ☐ No☒ Unknown☐	
6b. Did you observe evidence or do you have any prior knowledge that there have been previously any industrial drams (typically 55 gal (208 L)) or sacks of chemicals located on the property or at the facility?	Yes ☐ No☒ Unknown☐	
7a. Did you observe evidence or do you have any prior knowledge that fill dirt has been brought onto the property that originated from a contaminated site?	Yes ☐ No☒ Unknown☐	
7b. Did you observe evidence or do you have any prior knowledge that fill dirt has been brought onto the property that is of an unknown origin?	Yes ☐ No☒ Unknown☐	
8a. Are there currently any pits, ponds, or lagoons located on the property in connection with waste treatment or waste disposal?	Yes ☐ No☒ Unknown☐	
8b. Did you observe evidence or do you have any prior knowledge that there have been previously, any pits, ponds, or lagoons located on the property in connection with waste treatment or waste disposal?	Yes ☐ No☒ Unknown☐	
9a. Is there currently any stained soil on the	Yes ☐ No☒ Unknown☐	

Question	Answer	Comment
property?		
9b. Did you observe evidence or do you have any prior knowledge that there has been previously, any stained soil on the property?	Yes ☐ No☒ Unknown☐	
10a. Are there currently any you have any prior knowledge that there has been previously, any stained soil on the property?	Yes ☐ No☒ Unknown☐	
10b. Did you observe evidence or do you have any prior knowledge that there have been previously, any registered or unregistered storage tanks (above or underground) located on the property?	Yes ☐ No☒ Unknown☐	
11a. Are there currently any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the property or adjacent to any structure located on the property?	Yes ☐ No☒ Unknown☐	
11b. Did you observe evidence or do you have any prior knowledge that there have been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the properly or adjacent to any structure located on the property?	Yes ☐ No☒ Unknown☐	
12a. Is there currently evidence of leaks, spills or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the property?	Yes ☐ No☒ Unknown☐	
12b. Did you observe evidence or do you have any prior knowledge that there have been previously any leaks, spills, or staining by substances other than water, or foul odors, associated with any flooring drains, walls, ceilings or exposed grounds on the properly ?	Yes ☐ No☒ Unknown☐	
13a. If the property is served by a private well or non-public water system, is there evidence or do you have prior knowledge that contaminants have been identified in the well or system that exceed guidelines applicable to the water system?	Yes ☐ No☒ Unknown☐	
13b. If the property is served by a private well or non-public water system, is there evidence or do you have prior knowledge that the well has been designated as contaminated by any government	Yes ☐ No☒ Unknown☐	

Question	Answer	Comment
environmental/health agency?		
14. Does the owner or occupant of the property have any knowledge of environmental liens or governmental notification relating to past or recurrent violations of environmental laws with respect to the property or any facility located on the property?	Yes ☐ No☒ Unknown☐	
15a. Has the owner or occupant of the property been informed of the past existence of hazardous substances or petroleum products with respect to the property or any facility located on the property?	Yes ☐ No☒ Unknown☐	
15b. Has the owner or occupant of the property been informed of the current existence of hazardous substances or petroleum products with respect to the property or any facility located on the property?	Yes ☐ No☒ Unknown☐	
15c. Has the owner or occupant of the property been informed of the past existence of environmental violations with respect to the property or any facility located on the properly?	Yes ☐ No☒ Unknown☐	
15.d Has the owner or occupant of the property been informed of the current existence of environmental violations with respect to the property or any facility located on the property?	Yes ☐ No☒ Unknown☐	
16. Does the owner or occupant of the property have any knowledge of any environmental site assessment of the property or facility that indicated the presence of hazardous substances or petroleum products on, or contamination of, the property or recommended further assessment of the property?	Yes ☐ No☒ Unknown☐	
17. Does the owner or occupant of the property know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substance or petroleum products involving the property by any owner or occupant of the property?	Yes ☐ No☒ Unknown☐	
18a. Does the property discharge waste-water (not including sanitary waste or storm	Yes ☐ No☒ Unknown☐	

Question	Answer	Comment
water) onto or adjacent to the property and/or into a storm water system?		
18b. Does the property discharge waste water (not including sanitary waste or storm water) onto or adjacent to the property and/or into a sanitary sewer system?	Yes ☐ No☒ Unknown☐	
19. Did you observe evidence or do you have any prior knowledge that any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials have been clumped above grade, buried and/or burned on the property?	Yes ☐ No☒ Unknown☐	
20. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs?	Yes ☐ No☒ Unknown☐	

The questionnaire answers provided was completed by:

Title: Arquitecto Elias Rivera

Firm: SCF Arquitectos

Address: 13 calle 2, Suite 301 Metro Office Park, Guaynabo P.R. 00968

Phone number: ~~787~~ 939-389-1687

Date: 9/5/2019

Role (s) at the site: Owner / Developer

Numbers of years at the site: 3

Relationship to user (for example, principal, employee, agent, consultant): Developer.

Preparer represents that to the best of the *preparer's* knowledge the above statements **and facts are true and correct and to the best of the** *preparer's actual knowledge* no material facts have been suppressed or misstated.

Signature Andrés Agrelot **Date:** 9/5/2019

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PHASE I ENVIRONMENTAL ASSESSMENT
SITE RECONNAISSANCE CHECKLIST

Always ask permission from site manager prior to photographing the site. Site photographs must include, but are not limited to, the following:

Exterior	Interior
• site property from all property corners • all sides of site buildings • electrical transformers • storage areas and stored containers • well and septic structures • AST and UST structures stained areas	• overall photo of space(s), excluding individual offices • storage areas and stored containers • floor drains, manholes, sumps • wells • boilers/heating units stained areas

SITE INFORMATION

Site Name	Vista al Norte
Site Address, City, State, Zip	Calle Piedras Blancas, Guaynabo P.R. 00968
Site Contact	Segundo Cardona
Site Contact Phone No.	939-389-1687

SITE RECONNAISSANCE

Field Personnel	André's Agrelot
Reconnaissance Date & Time	September 5, 2019
Escort	Elias Rivera

Site Description (Obtain property and building maps from site contact, as available.)

Property Size	9,500 square meters
Description of Structure(s), including size, construction details, construction date, use.	~~13 niveles y parkings~~ No structure are at site during the Phase I ESA

PHASE I ENVIRONMENTAL ASSESSMENT
SITE RECONNAISSANCE CHECKLIST

Surrounding Area Description	X Residential	____ Industrial	X Undeveloped
	____ Retail Commercial	____ Agricultural	____ Other
	If Other, please describe:		
Site and Area Topographic Relief	The site slopes to the northwest If yes, describe:		
Subject Property Operations *(Describe in detail: processes, products manufactured, chemicals used and wastes produced from process, etc.)*	No operations are done. Clean lot with vegetation.		
Site Area Utilities			
Water	Municipal Water Supply	Private Well	
	If private well, please provide the following information: N/A		
	_____ Well Depth _____ Water Depth _____ Well Construction Date		
	Describe any well water testing that has been conducted:		
Sanitary Sewer	Municipal Sewer System	Private Septic System	
	If private septic system, please provide the following information: _____ Drain field _____ Septic Tank _____ System Construction Date		
	Where is septic system located on property: N/A		
Storm Water Drain System	_____Municipal Storm Drain System	_____No Storm Drain Structures	
	If no storms drain structures, describe overland storm flow (ie.ditches, etc.) N/A		

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Process Wastewater	X No process wastewater generated	_____process wastewater generated
	If process wastewater is generated, describe process that generates wastewater, and fate or wastewater. N/A	
Wastewater Treatment	Is wastewater treated on site?	
	Describe general process, tanks, and additives: N/A	
Building Heating/Air Conditioning N/A	_____ Heating Oil	_____ Natural Gas
	_____ Electric	_____ Propane
	If heating oil, please provide the following information: Tank Size, gallons _____ Tank Location _____ Tank Age and Condition _____ Location of Fill Port and Vent Pipe _____	

SITE OBSERVATIONS

CATEGORY	ITEM OR FEATURE	ITEM OR FEATURE OBSERVED?	
Aboveground Chemical or Waste Storage	Miscellaneous small volumes ≤ 5 gallons	_____ Yes	X No
	If yes, please describe (product stored, location, condition, staining):		
	Evidence of aboveground storage tanks	_____ Yes	X No

Aboveground Chemical or Waste Storage	Evidence of aboveground storage tanks			_____ Yes	X No
	Size	Contents	Age	Location	Condition/ Staining

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Drums, barrels, and/or container ≥ 5 gallons If yes, please describe (product stored, location, condition, staining):				_____ Yes	_X_ No
Aboveground Chemical or Waste Storage	Sludge, solid waste or scrap dumpster If yes, please describe (waste description, location, condition, staining):			_____ Yes	_X_ No
	Chemical or waste piping If yes, please describe (include location, condition, staining):			_____ Yes	_X_ No
Underground Chemical or Waste Storage, Drainage or Collection Systems	Evidence of underground storage tanks or ancillary UST equipment			_____ Yes	_X_ No
	Size	Contents	Age	Location	Condition/ Staining
	Sumps, oil/water separators cisterns, catch basins, dry wells If yes, please describe (include type, location, condition):			_____ Yes	_X_ No
	Pipeline markers If yes, location:			_____ Yes	_X_ No
	Evidence of existing or former hydraulic equipment			_____ Yes	_X_ No

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	If yes, describe:		
Electrical Transformers/PCBs	Pad- or pole-mounted transformers If yes, describe (location, condition):	____ Yes	X No
	Records of PCBs/PCB-containing fluids If yes, describe:	____ Yes	X No
Evidence of Releases or Potential Releases	Stressed Vegetation If yes, describe	____ Yes	X No
	Stained Soil If yes, describe:	____ Yes	X No
	Stained pavement or similar surface If yes, describe:	____ Yes	X No
	Leachate and/or waste seeps If yes, describe:	____ Yes	X No
Evidence of Releases or Potential Releases	Ground water monitoring wells If yes, describe:	____ Yes	X No
	Dumping or disposal areas, evidence of buried debris If yes, describe:	____ Yes	X No
	Construction/demolition debris and/or dumped fill dirt If yes, describe:	____ Yes	X No
	Surface water discoloration, odor, sheen, and/or free floating product If yes, describe:	____ Yes	X No
	Strong, pungent, or noxious odors If yes, describe:	____ Yes	X No

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Other Notable Site Features	Wells If yes, describe	____ Yes	X No
	Floor drains	____ Yes	X No
	____ Connected to Sanitary Sewer NO	____Connected to Sanitary Sewer	
	Describe location(s), condition, staining, etc.:		
	Burn pits/incinerators Describe location(s), condition, use:	____ Yes	X No
	Other pertinent features: No structures at site		

ADJOINING PROPERTIES

DIRECTION	DESCRIPTION OF ADJOINING PROPERTY OCCUPANTS, USES AND ADDRESSES		
North	Urban Elementary School of Guaynabo		
	Containers of hazardous materials, petroleum products, or other chemicals observed? If yes, describe:	____ Yes	X No
	Ground water monitoring wells observed?	____ Yes	X No

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PHASE I ENVIRONMENTAL ASSESSMENT
SITE RECONNAISSANCE CHECKLIST

South Piedras blancas road	Containers of hazardous materials, petroleum products, or other chemicals observed? If yes, describe:	_____ Yes	X No
	Ground water monitoring wells observed?	_____ Yes	X No
East Iglesia Cristiana (Discipulos de Cristo) en Guaynabo	Containers of hazardous materials, petroleum products, or other chemicals observed? If yes, describe:	_____ Yes	X No
	Ground water monitoring wells observed?	_____ Yes	X No
West Regency Park complex of apartments	Containers of hazardous materials, petroleum products, or other chemicals observed? If yes, describe:	_____ Yes	X No
	Ground water monitoring wells observed?	_____ Yes	X No

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QUESTIONS FOR PLANT MANGER

Name: Elias Rivera
Title: Architect

LENGTH OF EMPLOYMENT:

1. Are there now or have there ever been dry cleaning solvents or related products, used/stored on the subject property? _____ Yes (indicate time period) __X__ No

   If yes, please describe type of solvent and time period used _____

   _____

   If yes, please describe storage location (interior, exterior, paved, unpaved, stains, photograph all known existing and former storage locations):

   _____

   _____

   If yes, please describe storage method (USTs, ASTs, drums, other):

   _____

   _____

   If yes, please describe use area:

   _____

   _____

2. Are you aware of any release or spills of dry cleaning solvents or related products that have occurred on the subject property? _____ Yes __X__ No
   If yes, please describe (date, amount, location, cleanup activities):

   _____

   _____

3. Are there now or have there ever been petroleum products, hazardous materials or other chemicals used/stored on the subject property? _____ Yes __X__ No
   If yes, Please describe:

   _____

   _____

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Page 8 of 13

4. Are there now or have there ever been petroleum products, hazardous materials or other chemicals used/stored on adjacent properties? _____ Yes __X__ No

   If yes, please describe:

   _____
   _____
   _____

5. Are you aware of any release or spills of petroleum products, hazardous materials or other chemicals that have occurred on the subject property or adjacent properties? _____ Yes __X__ No

   If yes, please describe:

   _____
   _____
   _____

6. Are you aware of any dumping or burying of waste on the subject property or adjacent properties? _____ Yes __X__ No

   If yes, please describe:

   _____
   _____
   _____

7. Are there or have ever been ASTs, USTs, wells, sumps, oil separators, hydraulic hoist, and/or septic systems located on site? _____ Yes __X__ No

   If yes, please describe:

   _____
   _____
   _____

Amur St. A-5, Reparto Landrau, San Juan, PR 00921 - PO Box 195336, San Juan, P.R. 00919-5336
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8. For sumps, oil/water separators, collection pits, trenches and sewers- please describe cleanout schedule (number of times per year)

   N/A

   Are structures inspected when empty? Video logged? Describe results of inspection

   Have any of these structures been refurbished?

9. Have site transformers or hydraulic equipment been tested for PCBs? _____ Yes __X__ No
   If yes, please describe:

   N/A

10. Does fleet maintenance or refueling occur at property or has it in the past? Please describe:

    N/A

11. Does facility launder shop rags? What type? (printing, machine shop, etc.) Describe approximate amount in pounds per year and as a percentage of total laundry. Where are the shop towels stored and what is the condition of the storage area?

    N/A

12. Describe types of cleaners used in laundry process:

    N/A

13. How long has current occupant(s) been at subject property? 3 years
14. When was current building(s) constructed? N/A
15. When the property was first developed? No info
16. Do you have any historical knowledge of uses of adjoining properties? _____ Yes __X__ No

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QUESTIONS FOR PLANT MANGER

Name: _____
Title: _____

LENGTH OF EMPLOYMENT:

1. Are there now or have there ever been dry cleaning solvents or related products, used/stored on the subject property? _____ Yes (indicate time period) _____ No

   If yes, please describe type of solvent and time period used _____

   _____

   If yes, please describe storage location (interior, exterior, paved, unpaved, stains, photograph all known existing and former storage locations):

   _____

   _____

   If yes, please describe storage method (USTs, ASTs, drums, other):

   _____

   _____

   If yes, please describe use area:

   _____

   _____

2. Are you aware of any release or spills of dry cleaning solvents or related products that have occurred on the subject property? _____ Yes _____ No

   If yes, please describe (date, amount, location, cleanup activities):

   _____

   _____

3. Are there now or have there ever been petroleum products, hazardous materials or other chemicals used/stored on the subject property? _____ Yes _____ No

   If yes, Please describe:

   _____

   _____

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Tel. (787) 792-8900 - Fax (787) 783-5555

4. Are there now or have there ever been petroleum products, hazardous materials or other chemicals used/stored on adjacent properties? _____ Yes _____ No

   If yes, please describe:

   _____
   _____
   _____

5. Are you aware of any release or spills of petroleum products, hazardous materials or other chemicals that have occurred on the subject property or adjacent properties? _____ Yes _____ No

   If yes, please describe:

   _____
   _____
   _____

6. Are you aware of any dumping or burying of waste on the subject property or adjacent properties? _____ Yes _____ No

   If yes, please describe:

   _____
   _____
   _____

7. Are there or have ever been ASTs, USTs, wells, sumps, oil separators, hydraulic hoist, and/or septic systems located on site? _____ Yes _____ No

   If yes, please describe:

   _____
   _____
   _____

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8. Have site transformers or hydraulic equipment been tested for PCBs? _____ Yes _____ No

   If yes, please describe:

   _____

   _____

   _____

9. How long has current occupant(s) been at the subject property? _____

10. When was current building(s) constructed? _____

11. When the property was first developed? _____

12. What was prior use(s) of property?

    _____

    _____

    _____

13. Do you have any historical knowledge of uses of adjoining properties? _____ Yes _____ No
    If yes, please describe:

    _____

    _____

    _____

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Notes

ATTACH A SITE SKETCH ILLUSTRATING ALL ROOMS AND AREAS OF THE SITE, INCLUDING AREAS OF: STAINING, SUSPECT PCB-CONTAINING EQUIPMENT, SUSPECT ASBESTOS-CONTAINING MATERIALS (IF PART OF WORK SCOPE), FLOOR DRAINS, SUMPS, USTs, ASTs, DISPENSERS, FILL PORTS, BOILERS, CHEMICAL STORAGE, AND ANY OTHER PERTINENT FEATURES. INCLUDE ADJOINING PROPERTY USES ON SKETCH.

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APPENDIX 4

4-1 HISTORICAL DOT AERIAL PHOTOGRAPHS

REPORT

PHASE I ENVIRONMENTAL SITE ASSESSMENT (PHASE I ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER E195613

ERTEC



SCALE: 1:20,000	
REV.: AA	
FILE: AERIAL PHOTOS	
DRAWN BY: PCR	
JOB: E-19-5613	

APPENDIX 4-1 1937 AERIAL PHOTOGRAPH
PHASE I ESA CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO

ERTEC
ENVIRONMENTAL RESOURCE TECHNOLOGIES



SCALE:	1:20,000
REV.:	AA
FILE:	AERIAL PHOTOS
DRAWN BY:	PCR
JOB:	E-19-5613

APPENDIX 4-1 1951 AERIAL PHOTOGRAPH
PHASE I ESA CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO

ERTEC
ENVIRONMENTAL RESOURCE TECHNOLOGIES



SCALE: 1:20,000	
REV.: AA	
FILE: AERIAL PHOTOS	
DRAWN BY: PCR	
JOB: E-19-5613	

APPENDIX 4-1 1971 AERIAL PHOTOGRAPH
PHASE I ESA CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO

ERTEC
ENVIRONMENTAL RESOURCE TECHNOLOGIES



SCALE: 1:20,000	
REV.: AA	
FILE: AERIAL PHOTOS	
DRAWN BY: PCR	
JOB: E-19-5613	

APPENDIX 4-1 1981 AERIAL PHOTOGRAPH
PHASE I ESA CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO

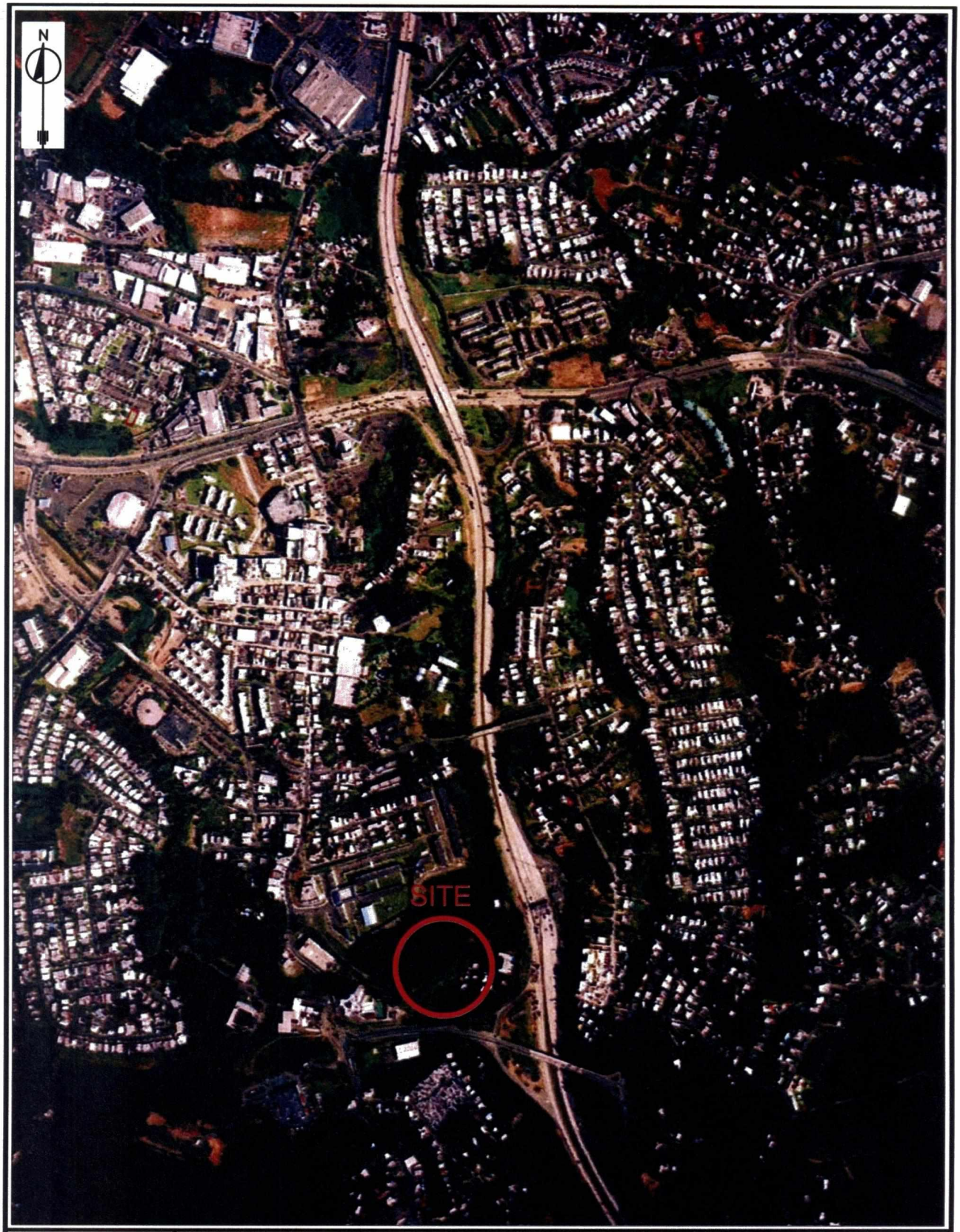
ERTEC
ENVIRONMENTAL RESOURCE TECHNOLOGIES



SCALE:	1:20,000
REV.:	AA
FILE:	AERIAL PHOTOS
DRAWN BY:	PCR
JOB:	E-19-55613

APPENDIX 4-1 1995 AERIAL PHOTOGRAPH
PHASE I ESA CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO

ERTEC
ENVIRONMENTAL RESOURCE TECHNOLOGIES



SCALE: 1:20,000	
REV.: AA	
FILE: AERIAL PHOTOS	
DRAWN BY: PCR	
JOB: E-19-5613	

APPENDIX 4-1 2005 AERIAL PHOTOGRAPH
PHASE I ESA CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO

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ENVIRONMENTAL RESOURCE TECHNOLOGIES

APPENDIX 5

ENVIRONMENTAL PROFESSIONAL QUALIFICATION

REPORT

PHASE I ENVIRONMENTAL SITE ASSESSMENT (PHASE I ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER E195613

ERTEC

ANDRES J. AGRELOT

Palmares de Monteverde aprt 6412, San Juan, PR 00926
andresagrelot_5@hotmail.com
787-667-3904

OBJECTIVE

Seeking full time position at a manufacturing or distribution company to complement my experience and pursue excellence within the framework of business management, environmental management and project management, to diversify and expand my learning experience.

WORK EXPERIENCE

2007-present	Environmental Resource and Technology, PSC Preparation of environmental studies, work on field, HIVAC process, controls and construction of monitoring water wells, Health and Safety Officer.	San Juan, PR
Summer 2012	Florida Caribbean Distillers, inc. helped with the construction of the new product line for juices, helped with the day to day operations of the environmental monitoring of the distillery.	Orlando, FL
Summer 2010	Olein Recovery Corp. Oil recycling plant operation	Yabucoa, PR
2010	Design-Build-Maintenance Group, LLC. Graduating project - Investigation of all phases of construction in a public school remodeling	Arecibo, PR

EDUCATION

2011-2013	Polytechnic University Masters in Environmental Management	San Juan, PR
2006-2011	Polytechnic University Bachelor of Business Administration Construction and Project Management Major	San Juan, PR
2002-2006	Cupeyville High School	San Juan, PR

TRAINING

Certified 40 hour training on HAZPOWER by OSHA

Certified 8 hour API Work Safe Practice Training

Completed American Red Cross Certificate on First AID/ Adult CPR/AED

OSHA 510 Occupational Safety and Health Standards for Construction Industry

Asbestos Inpector

SKILLS

Excellent Computer Skills - Operating Systems - Microsoft Windows/Office, Macintosh OS Software
Fully Bilingual - Spanish and English
Responsible
Fast Learner
Honest
Hard Worker
Initiative
Leadership
Teamwork Oriented

INTERESTS

Golf, Baseball, Basketball, Tennis, Football, Technology, Entrepreneurship

*References available upon request

EXHIBIT D

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

JUN 23 2009

- 10 -

RECIBIDO
6 JUL 2009
Area Calidad de Aire

Pedro J. Nieves Miranda
President
Puerto Rico Environmental Quality Board
Apartado 11488
San Juan, PR 00910

Dear Mr. Nieves,

On March 31, 2009, your agency submitted a limited maintenance plan (LMP) as the maintenance plan in support of the redesignation request for the Municipality of Guaynabo PM10 nonattainment area. This state implementation plan (SIP) revision shows that the Municipality of Guaynabo meets the criteria for establishing a limited maintenance plan and that PM10 emissions are not expected to increase such that the PM10 National Ambient Air Quality Standard would be exceeded over the timeframe of the maintenance plan.

The transportation conformity rule (40 CFR 93) requires that the U.S. Environmental Protection Agency (EPA) conduct a public process and make an affirmative decision on the adequacy of motor vehicle emissions budgets ("budgets") contained in SIP submittals before they can be used by metropolitan planning organizations in transportation conformity determinations. The limited maintenance plan does not set budgets but rather renders budgets as not constraining for the life of the plan. Transportation conformity determinations conducted under the LMP are assumed to satisfy the "budget test" requirement of the transportation conformity rule (40 CFR 93.118) without the need for a regional emissions analysis. This letter is to inform you that we have completed the required public comment period on the adequacy of the limited maintenance plan. In accordance with the procedures and criteria for determining adequacy as outlined in the transportation conformity rule (40 CFR 93.118(e)(4) and 40 CFR 93.118(f)), we are finding the limited maintenance plan for the Municipality of Guaynabo PM10 maintenance area adequate for transportation conformity purposes. This means that the previously approved 1993 budgets will be treated as not constraining for the duration of the maintenance plan and the Puerto Rico Departamento de Transportación y Obras Públicas will no longer be required to conduct a regional emissions analysis to satisfy transportation conformity requirements.

This finding will become effective for conformity determinations 15 days after EPA publishes an announcement of the adequacy determination in the Federal Register. We will be publishing the Federal Register notice announcing our adequacy finding in the near future.

JUNTA DE CALIDAD AMBIENTAL
JUL 01 2009
SECRETARIO DEL PRESIDENTE

If you have further questions, please feel free to contact Marina Castro, of my staff, at (212) 637-3713.

Sincerely,

Ronald J. Borsellino, Acting Director
Division of Environmental Planning and Protection

cc: A. Berrios, PREQB
U. Dabney, FHWA VA
A. Rivera, FTA Region 4
R. Hernandez Gregorat, PRDTOP
R. Fonseca Martinez, FHWA PR/VI

COMMONWEALTH OF PUERTO RICO
Office of the Governor
Environmental Quality Board

President

March 31, 2009

FEDEX
MR. GEORGE PAVLOU
ACTING REGIONAL ADMINISTRATOR
US EPA – REGION 2
290 BROADWAY 25TH FLOOR
NEW YORK NY 10007-1866

Re: **Limited Maintenance Plan 24 Hour Particulate Matter (PM_{10}) National Ambient Air Quality Standards and Redesignation Request for the Municipality of Guaynabo Moderate Non-attainment Area State Implementation Plan Revision**

Dear Mr. Pavlou:

Please find enclosed the referenced document. The information included in the Plan demonstrates that the Municipality of Guaynabo meets the CAA requirements for PM_{10} NAAQS, qualifies and complies with the requirements established in the Limited Maintenance Plan As part of the demonstration of attainment, this maintenance plan will assure continued attainment for ten years after redesignation of the Municipality of Guaynabo.

On January 23, 2009, EQB held a public hearing for the referenced maintenance Plan and redesignation request. The hearing records are included in the enclosed documentation. The plan provides for quality measures in order to maintain National Standards and formally requests EPA to redesignate the Municipality of Guaynabo from moderate PM_{10} non-attainment area to attainment.

If you have any comments and/or need more information, please contact me at 787-767-8056.

Cordially,

Pedro J. Nieves Miranda, Esq
President
Environmental Quality Board

Enclosures

Cruz A. Matos Environmental Agencies Bldg., San José Industrial Park Urbanization
1375 Ponce de León Ave , San Juan, PR 00926-2604
PO Box 11488; San Juan, PR 00910
Tel. 787-767-8181 • Fax 787-756-5906

COMMONWEALTH OF PUERTO RICO
Office of the Governor
Environmental Quality Board

COPY FOR YOUR INFORMATION

President

March 31, 2009

FEDEX
MR. GEORGE PAVLOU
ACTING REGIONAL ADMINISTRATOR
US EPA – REGION 2
290 BROADWAY 25TH FLOOR
NEW YORK NY 10007-1866

Re: **Limited Maintenance Plan 24 Hour Particulate Matter (PM_{10}) National Ambient Air Quality Standards and Redesignation Request for the Municipality of Guaynabo Moderate Non-attainment Area State Implementation Plan Revision**

Dear Mr. Pavlou:

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If you have any comments and/or need more information, please contact me at 787-767-8056.

Cordially,

Pedro J. Nieves Miranda, Esq.
President
Environmental Quality Board

Enclosures

EPA REGION 2
CORRESPONDENCE
CONTROL OFFICE
2009 APR -7 PM 3:39

Cruz A. Matos Environmental Agencies Bldg., San José Industrial Park Urbanization
1375 Ponce de León Ave., San Juan, PR 00926-2604
PO Box 11488, San Juan, PR 00910
Tel. 787-767-8181 • Fax 787-756-5906

Limited Maintenance Plan 24 Hour Particulate Matter (PM_{10}) National Ambient Air Quality Standards and Redesignation Request for the Municipality of Guaynabo Moderate Nonattainment Area State Implementation Plan Revision

ATTACHMENTS

Attachment A	Limited Maintenance Plan 24 Hour Particulate Matter (PM_{10}) National Ambient Air Quality Standards and Redesignation Request for the Municipality of Guaynabo Moderate Nonattainment Area State Implementation Plan Revision
Attachment B	Public Notices
Attachment C	Resolution R-09-5-5 Public Hearing Limited Maintenance Plan 24 Hour Particulate Matter (PM_{10}) National Ambient Air Quality Standards and Redesignation Request for the Municipality of Guaynabo

Attachment A

Limited Maintenance Plan 24 Hour Particulate Matter (PM_{10}) National Ambient Air Quality Standards and Redesignation Request for the Municipality of Guaynabo Moderate Nonattainment Area State Implementation Plan Revision

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD

Limited Maintenance Plan
24 Hour Particulate Matter (PM_{10})
National Ambient Air Quality Standards and
Redesignation Request for the Municipality of
Guaynabo Moderate Nonattainment Area
State Implementation Plan Revision

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Appendices

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Appendix D – Approval and Promulgation of the PM_{10} Implementation Plan for the Commonwealth of Puerto Rico
Appendix E – Calculation Design Value
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Appendix G - PM_{10} Emission Inventory for the Guaynabo Nonattainment Area

Acronyms and Abbreviations

AIRS - Aerometric Information Retrieval System
CAA - Clean Air Act
CFR - Code of Federal Regulations
DOTPW - Department of Transportation and Public Works
DV - design value
EPA - U.S. Environmental Protection Agency
LMP - Limited Maintenance Plan
MOS - Margin of Safety
NAAQS - National Ambient Air Quality Standards
NAMS - National Ambient Monitoring Sites
PREQB - Puerto Rico Environmental Quality Board
RACM - Reasonable Available Control Measures
RACT - Reasonable Available Control Technology
SIP - State Implementation Plan
SLAMS - State and Local Ambient Monitoring Sites
VMT - vehicle miles traveled

1. Executive Summary

The Municipality of Guaynabo is a moderate nonattainment area for the National Ambient Air Quality Standard (NAAQS) for particle matter with a diameter of less than 10 microns in size (PM_{10}). On May 31 1995, the Environmental Protection Agency (EPA) approved State Implementation Plan (SIP) which includes the control strategies demonstrating that the Municipality of Guaynabo would attain the PM_{10} NAAQS by the applicable attainment date of December 31, 1994.

Based on air quality data the Municipality of Guaynabo has not recorded a violation of the PM_{10} NAAQS after the approval of the SIP. Therefore, the Commonwealth of Puerto Rico has prepared a limited maintenance plan for the redesignation of the Municipality of Guaynabo as an attainment area for the PM_{10} NAAQS.

The redesigantion request is based on the requirements established in the memorandum entitled Limited Maintenance Plan for Moderate PM_{10} Nonattainment Areas (LMP) published by EPA on August 9, 2005. This policy is a streamlined process that establishes the criteria and steps that are necessary for the redesignation request and maintenance plan for moderate PM_{10} nonattainment areas such as the Municipality of Guaynabo under §107 of the CAA.

The information included in this plan demonstrates that the Municipality of Guaynabo meets the CAA requirements for PM_{10} NAAQS, qualifies and complies with the requirements established in the LMP. As part of the demonstration of attainment a maintenance plan is included to assure continued attainment for ten years after redesignation of the Municipality of Guaynabo.

The plan is a formal request to EPA to redesignate the Municipality of Guaynabo moderate PM_{10} nonattainment area to attainment.

2. Background

As required by the CAA in 1987, the Environmental Protection Agency (EPA) revised the particulate matter National Ambient Air Quality Standard (NAAQS) from total suspended particle (TSP) to particulate matter less than ten micrometers in diameter (PM_{10}). The standard was changed to better protect public health and the environment.

The primary and secondary NAAQS for PM_{10} for the 24 hour and annual concentration in 1987 were as follows:

Table I-National Ambient Air Quality Standards for Particle Pollution 1990			
Pollutant	**Primary Stds.**	**Averaging Times**	**Secondary Stds.**
Particulate Matter (PM_{10})	50 $\mu g/m^3$	Annual (Arithmethic Mean)	Same as Primary
	150 $\mu g/m^3$	24-hour	Same as Primary

The Clean Air Act, as amended in 1990, required that all areas that have measured a violation of the NAAQS for PM_{10} before January 1, 1989 be designated nonattainment. On November 15, 1990 by operation of law the Municipality of Guaynabo, Puerto Rico was designated nonattainment for PM_{10} and classified as moderate based on violations measured in 1987[1].

On May 31, 1995[2], EPA approved the revision to the State Implementation Plan (SIP) for the purpose of attaining the NAAQS for PM_{10} and became effective on June 30, 1995. The SIP ensured that the PM_{10} for the NAAQS would be attained by December 31, 1994 as required by the CAA[3].

Again, EPA revised the air quality standards for particle pollution in 2006. The EPA decided to retain the existing 24-hour PM_{10} standard of 150 $\mu g/m^3$ and to revoke the annual PM_{10} standard. The EPA made this decision because available evidence does not suggest a link between long-term exposure to PM_{10} and health problems. Therefore, the NAAQS for PM_{10} that the Commonwealth of Puerto Rico has to demonstrate attainment is for the 24 hour standard. The 24 hour standard for PM_{10} is as follows:

Table II-National Ambient Air Quality Standards for Particle Pollution 2006			
Pollutant	**Primary Stds.**	**Averaging Times**	**Secondary Stds.**
Particulate Matter (PM_{10})	150 $\mu g/m^3$	24-hour	Same as Primary

[1] 56 FR 11101, March 15, 1991.
[2] 60 FR28333
[3] §§189(c)(1) and 189(a)(1)(B) of the CAA.

The Commonwealth of Puerto Rico is requesting the redesignation of the Municipality of Guaynabo from nonattainment of the PM_{10} NAAQS the to attainment using the EPA policy entitled, Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas.

The LMP requires that the criteria under § 107(d)(3) (E) of the CAA must be met in order to request that a nonattainment area be redesignated to attainment. The criteria of Section 107(d)(3)(E) of the CAA, includes the requirements that an area must meet to request the redesignation to attainment. The requirements are the following:

(1) The Administrator determines that the area has attained the applicable National Ambient Air Quality Standards;
(2) The Administrator has fully approved the applicable State Implementation Plan (SIP) for the area under section 110(k) of the Act;
(3) The Administration determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation plan, applicable Federal air pollution control regulations, and other permanent and enforceable reductions;
(4) The State containing the area has met all requirements applicable to the area under section 110 and part D of the Act; and
(5) The Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 175 A of the Act.

The following sections discuss the above requirements and provide the basis for the redesignation of the Municipality of Guaynabo 24 hour PM_{10} NAAQS nonattainment area to attainment.

3. Demonstration of Compliance with Section 107(d)(3)(E)

The following is a discussion of the criteria of §107(d)(3)(E) of the CAA included in the LMP.

a. Criteria (1): Attainment Demonstration (The Administrator determines that the area has attained the applicable National Ambient Air Quality Standards)

A demonstration of attainment was included as part of the revision of the State Implementation Plan (SIP) approved in May 31, 1995. The attainment demonstration required PM_{10} moderate nonattainment areas to submit a plan which provided for attainment of the PM_{10} NAAQS as expeditiously as practicable but no later than December 31, 1994.

The Commonwealth of Puerto Rico performed an attainment demonstration using the Industrial Source Complex (ISC2) dispersion model and five years of National Weather Service meteorological data. The EPA guidance recommends that the implementation plan show maintenance of the PM_{10} NAAQS for at least three years beyond the attainment date. The demonstration included in the implementation plan for PM_{10} for the Municipality of Guaynabo indicated that the NAAQS for PM_{10} were attained by December 31, 1994. In addition, the demonstration of attainment of the Commonwealth of Puerto Rico for the Municipality of Guaynabo went beyond EPA's recommendation demonstrating maintenance of the PM_{10} NAAQS until 1999.

Also, the Puerto Rico Environmental Quality Board (PREQB) has established and operated a PM_{10} monitoring network in accordance with the provisions of 40 CFR Part 58. This provides a basis for assessing the attainment status of the Municipality of Guaynabo. Ambient PM_{10} data have been obtained from two monitors located in the northern part of the Municipality of Guaynabo. Table III shows the UTM and Puerto Rico coordinates for each monitor. Table IV summarizes the information from the EPA Aerometric Information Retrieval System (AIRS) Air Quality Subsystem Site Description Inventory.

Table III- PM_{10} Monitoring Network Municipality of Guaynabo

EQB 7	72-061-0001	USGS Building	North: 2039520.62	East: 804645.36
EQB 24	72-061-0005	Electrical Substation	North: 2040520.13	East: 804756.17

Table IV - PM_{10} Monitoring Description from AIRS

EQB 7	1	SLAMS	Industrial	Suburban		8	HI-VOL-SA/GMW-321-B Gravimetric
EQB 24	1	SLAMS	Industrial	Suburban	5	3	HI-VOL-SA321A Gravimetric

Attainment with the 24 hour standard is determined by calculating the expected number of days in a year with PM_{10} concentrations greater than 150 $\mu g/m^3$. The 24 hour standard is attained when the expected number of days with levels above 150 $\mu g/m^3$ averaged over a three year period is less than one or equal to one. Three consecutives years of air quality data is required to demonstrate attainment with the standard.

The attainment date for the Municipality of Guaynabo established by §§188(c)(1) and 189(a)(1)(B) of the CAA was December 31, 1994. The implementation plan submitted for the Municipality of Guaynabo and approved by EPA on M[illegible] 31, 1995 demonstrated that the PM_{10} NAAQS were attained by the attainment date. Also, the Commonwealth of Puerto Rico went beyond EPA's recommendation of demonstrating the maintenance of the PM10 NAAQS beyond three years and demonstrated that the standard will be maintained until 1999.

The air quality data in AIRS for the Municipality of Guaynabo reviewed for the most recent five (5) years demonstrated that no violations were recorded during the period of 2002- 2006. During that time the PREQB under EPA's Natural Events Policy flagged data caused by the Sahara Dust and volcanic ash from the Soufrière Hills located at Montserrat island. In addition, excluding exceptional event flagged data, no violations of the 24 –hour PM10 standard have been recorded during the time period from the December 31, 1994 attainment date to present. Therefore, the Municipality of Guaynabo moderate nonattainment area attained the PM_{10} NAAQS by the attainment date of December 31, 1994, and continue to be in attainment of the standard.

During the time period of 1995 – 2000, the EPA published in the Federal Register various notices identifying those moderate PM_{10} nonattainment areas (those designated in 1990 by operation of law) that did not attain by the December 31, 1994 attainment date. The Municipality of Guaynabo was not included in any of those notices. Therefore, by inference, EPA has determined that the Municipality of Guaynabo has attained the PM_{10} NAAQS.

b. Criteria (2): Full approval of a State Implementation Plan under Section 110(k) (The Administrator has fully approved the applicable State Implementation Plan (SIP) for the area under section 110(k) of the Act.)

Section 110(k) of the CAA establishes the provisions for EPA to review State Implementation (SIP) submittals. As part of the process of approval of the revision of the SIP of the Commonwealth of Puerto Rico held a public hearing on October 15, 1993[4]. The purpose of the public hearing was to accept public comments on the implementation plan for the Municipality of Guaynabo PM_{10} moderate nonattainment area.

After the public hearing the implementation plan was adopted by the Commonwealth of Puerto Rico and became effective on April 2, 1994[5]. On November 14, 1994, a SIP revision was submitted to EPA. The SIP submittal included revisions to the Puerto Rico Regulations for the Control of Atmospheric Pollution (PRRCAP) which includes the following:

Part I: General Provisions
Rule 102 - Definitions

Part II: Approval and Permit
Rule 201- Location Approval
Rule 202 - Air Quality Impact Analysis
Rule 203 - Permit to Construct a Source

Part IV: Prohibitions
Rule 401 - Generic Prohibitions
Rule 402 - Open Burning
Rule 403 - Visible Emissions
Rule 404 - Fugitive Dust
Rule 423 - Limitations for the Guaynabo PM10 Nonattainment Area

The entire SIP revision was reviewed and approved by EPA on May 15, 1995 and became effective on June 30, 1995[6]. According to the information gathered by Puerto Rico Environmental Quality Board, the Municipality of Guaynabo has been attaining the PM_{10} NAAQS since 1995. This means that the Reasonably Available Control Measures (RACM) including the Reasonably Available Control Technology (RACT) and contingency measures adopted in the SIP has been effective strategies to attain the PM_{10} NAAQS.

[4] R-93-27-2
[5] R-94-4-8
[6] 60 FR 28333 – 28338, May 15, 1995.

c. Criteria (3): Improvements in Air Quality due to permanent and Enforceable Emission Reduction (The Administration determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation plan, applicable Federal air pollution control regulations, and other permanent and enforceable reductions.)

The CAA required the Commonwealth of Puerto Rico the development of a SIP for the Municipality of Guaynabo PM_{10} moderate nonattainment area to assure that Reasonably Available Control Measures (RACM) including Reasonable Available Control Technology (RACT) be implemented no later than December 10, 1993. As stated in Criteria (2), the SIP approved by the EPA included measures to comply with the requirements established in the CAA. The following is a summary of the adopted RACM and RACT, which are in place since June 30, 1995:

Reasonably Available Control Measures (RACM)

The analysis of RACM concentrated on measures to control emissions from fugitive dust sources such as reentrained dust from paved roads, unpaved roads and parking lots, and construction sites and other areas from which windblown dust may emanate. The RACMs were implemented by the Commonwealth of Puerto Rico through a Memorandum of Understanding (MOU) between the Puerto Rico Environmental Quality Board and following government entities:

- Department of Transportation and Public Works and the Executive Director of the Highway Authority to maintain and control the reconstruction of existing roads and the construction of new roads, effective July 2, 1993[7];

- Municipality of Guaynabo to pave and maintain the streets, roads and parking areas located in the Municipality of Guaynabo, effective December 13, 1993[8]; and

- the Puerto Rico Port Authority to pave and maintain the streets, roads, and parking areas that lead into the port area in Puerto Nuevo, Guaynabo and San Juan, effective October 14, 1993[9].

The control measures established through the MOUs are consistent with RACM and been implemented since 1993 and are permanent and federally enforceable. Table V includes a summary of the RACM included in Rule 423 of the Regulation of Control for Atmospheric Pollution (RCAP).

[7] 40 CFR Part 52.2720 (c) (35)(i)(B)(2)
[8] 40 CFR Part 52.2720 (c) (35)(i)(B)(3)
[9] 40 CFR Part 52.2720 (c) (35)(i)(B)(4)

Table V - Reasonable Available Control Measures

Reduce particle matter by curb pave or stabilize shoulders for the following highways PR-5, PR-22, PR-24, PR-165 located in the Municipality of Guaynabo	Department of Transportation and Public Works and Puerto Rico Highway Authority	Rule 423 (C) RCAP[10]
Reduce fugitive dust from paved roads by the operation of sweeping machines in the highways listed above at least once per week		
Reduce particulate matter by paving or chemically stabilize any unpaved roads or parking areas and any access points where unpaved traffic surfaces adjoin paved roads in their jurisdiction.	Municipality of Guaynabo	Rule 423 (C) RCAP[11]
Reduce fugitive dust from paved roads by the operation of sweeping machines in the roads, streets and parking areas above at least two times per week		
Reduce particulate matter by paving or chemically stabilize any unpaved roads or parking areas and any access points where unpaved traffic surfaces adjoin paved roads in the following areas: port zone of Puerto Nuevo, Guaynabo, and San Juan	Port Authority	Rule 423(C) RCAP[12]
Reduce fugitive dust from paved roads by the operation of sweeping machines in the roads, streets and parking areas above at least two times per week		
Implementation of engineering good practice for the control of particulate matter emissions during the construction of future projects in port zone of Puerto Nuevo, Guaynabo and San Juan.		

The PREQB acknowledges that the Port Authority is working towards full compliance with the MOU (for example, engineering good practice for the control of particulate matter emissions during the construction of future projects should include measures such as ultra low sulfur diesel fuel and effective exhaust after – treatment retrofits). PREQB will continue its participation in meetings and discussions with the Port Authority in order to achieve full compliance, including meetings for voluntary clean air initiatives with the goal to reduce air pollution from various stationary and/ or mobile sources.

[10] See Appendix A
[11] See Appendix B
[12] See Appendix C

Reasonable Available Control Technology (RACT)

The emission inventory for the Guaynabo PM_{10} nonattainment area identified the sources considered in the RACT analysis. Several minor sources were excluded from the analysis because additional control technology for these sources was determined to be unreasonable since they do not contribute significantly to the modeled exceedances of the PM_{10} NAAQS. However, some sources located outside the Guaynabo nonattainment area were considered in the RACT analysis because they contribute significantly to the modeled exceedances.

The following sources were considered in the RACT analysis performed:

- Molinos de Puerto Rico
- Pan American Grain Mfg. Co. – Army Terminal
- Pan American Grain Mfg. Co. – Amelia Plant
- Agro Ochoa Inc.
- Pan American Grain Mfg. Co. – Arroz Rico
- PREPA Palo Seco
- PREPA Puerto Nuevo
- Caribbean Petroleum Company
- Petroleum Chemical Cantera San Antonio
- Canteras de Puerto Rico

The facilities listed above were grouped into general categories for the purposes of reviewing the technological and economic feasibility of alternative control measures. The categories included were: electric utilities, grain handling and processing facilities, petroleum refineries, asphalt plants, and quarries rock crushing operations.

The adopted control strategies for stationary sources approved by EPA provided the necessary controls measures to attain the PM_{10} NAAQS by December 31, 1994. The control strategies are currently in place and are permanent and federally enforceable. Table VI includes a summary of the RACT included in Rule 423 of the Regulation of Control for Atmospheric Pollution (RCAP).

Table VI - Reasonable Available Control Technology

Grain Handling Facilities	employ proper housekeeping and cleaning procedures throughout the entire facility, cover all trucks at all times when in motion; maintain all ventilation systems and dust collection devices; pave all areas where vehicles travel and maintain such areas according to a Board-approved street cleaning program; prohibit clam loading or unloading of barges or ship; load or unload barges or ships using pneumatic or mechanic telescopic loading spouts in a fully enclosed area except for the space needed to introduce the spout or vent the displace air, both with a ventilation system exhausting to a fabric filter collection device with a minimum collection efficiency of 99.5%; load or unload trucks in fully enclosed sheds or buildings with a ventilation system exhausted to a fabric filter dust collection device with a minimum collection efficiency of 99.5%; clean, separate, handle, convey, transfer, and mill grain in fully enclosed sheds or buildings that meet the proposed EPA Reference Method 30 requirements for total enclosure and vent the enclosure to a fabric filter control device with a minimum collection efficiency of 99.5%.
Stone Quarries and Processing Facility	use, where possible, of water or suitable chemicals for the control of dust in quarrying operations; the application, where possible, of water or suitable chemicals on unpaved roads, materials, stockpiles, and other surfaces which can give rise to airborne dust; compliance with any opacity restriction shall be determined using EPA Reference Method 9 or Method 22 or an other EPA approved method; and the stationary source shall keep maintenance logs that show what repairs were done to the dust suppression system. The stationary source shall also maintain an adequate inventory of spare parts.
Electrical Power Plant	Electrical Power Plant with a capacity greater than 25 megawatts located within the boundaries of or having a significant air quality impact on the Guaynabo PM_{10} Non-Attainment Area, no person shall cause or permit the firing of residual fuel oil with a sulfur content greater than 1.5% (by weight) as a PM_{10} precursor. However, the Board may required a lower sulfur content in the fuel whenever an exceedance to any applicable provision in these regulations is demonstrated to affect the attainment of the National Ambient Air Quality Standards (NAAQS) for PM,o in the designated non-attainment area. This emission limitations supersedes the limitation in Rule 406.

Petroleum Refineries	firing of residual fuel oil with a sulfur content greater than 1.0% (by weight) as a PM_{10} precursor. However, the Board may required a lower sulfur content in the fuel whenever an exceedance to any applicable provision in these regulations is demonstrated to affect the National Ambient Air Quality Standards (NAAQS) for PM,o in the designated non-attainment area. This emission limitations supersedes the limitation in Rule 406.
Facilities that Use asphalt blowing process	no person shall cause or permit the emission of particulate matter unless those emissions are captured and controlled by a control equipment that achieves a 90% removal efficiency.

d. Criteria (4): Clean Air Act Section 110 and Part D requirements (The State containing the area has met all requirements applicable to the area under section 110 and part D of the Act.)

The Commonwealth of Puerto Rico satisfied the requirements under section 110 and part D by the approval of the State Implementation Plan under 40 CFR Part 52 Subpart BBB – Puerto Rico. The SIP and the revisions submitted addressed the attainment and maintenance plans of the National Ambient Air Quality Standards.

For the Municipality of Guaynabo PM_{10} moderate nonattainment area the Environmental Protection Agency approved the SIP revision on May 31, 1995[13]. This SIP revision included a demonstration the area will attain the PM_{10} NAAQS by December 31 1994, and will be maintained through 1999. Also, the SIP revision addressed the control strategies, contingency measures and all New Source Review (NSR) permit requirements for major sources such as the appropriate major source threshold, offset ratio, significance level for modifications and provisions for PM_{10} precursors.

The Commonwealth of Puerto Rico validate that the current air quality regulations in place are sufficient to ensure and maintain the PM10 NAAQS in the Municipality of Guaynabo. Following the date of redesignation to attainment the Commonwealth of Puerto Rico will continue to maintain the NAAQS for a period of ten (10) years at the Municipality of Guaynabo as required by the LMP guidance.

[13] Appendix D

e. Criteria (5): Air Quality Maintenance Plan (The Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 175 A of the Act.)

The Environmental Protection Agency issued a memorandum entitled *Limited Maintenance Option for Moderate PM_{10} Nonattainment Areas* that provides a streamlined process for states seeking redesignation of a moderate PM_{10} nonattainment areas to attainment such as the Municipality of Guaynabo. This option is designed for areas with a little risk of violating the PM_{10} NAAQS and is being termed as a limited maintenance plan (LMP).

In order to qualify with the LMP option the Municipality of Guaynabo should comply with two applicability criteria:

- Criteria 1

The area should be attaining the NAAQS and the average PM_{10} design value for the area, based upon the most recent five years of air quality data at all monitors in the area, should be at or below 40 $\mu g/m^3$ for the annual and 98 for the 24-hr PM10 NAAQS with no violations at any monitor in the nonattainment area.

Answer:

The EPA revised the air quality standards for particle pollution in ∠006. The EPA decided to retain the existing 24-hour PM_{10} standard of 150 $\mu g/m^3$ and to revoke the annual PM_{10} standard. This decision was made because available evidence did not suggested a link between long-term exposure to PM_{10} and health problems. Therefore, the Commonwealth of Puerto Rico has to demonstrate only attainment with the 24 hour standard PM_{10} NAAQS.

The Municipality of Guaynabo demonstrated attainment of the standard by the control measures approved in the 1995 SIP. Since the approval of the SIP no violations have been register in the area.

The 24-hour design value[14] calculated for the years 2002 – 2006 is 85 $\mu g/m^3$. The design value obtained for the 24-hour PM_{10} NAAQS is below the LMP criteria of 98 $\mu g/m^3$.

[14] Appendix E includes the calculation and methodology used to determine the design value for the 24 – hour PM_{10} is the table look up procedure included in chapter 6 Development of Control Strategies of the document entitled the *PM_{10} SIP Development Guideline,* EPA-450/2-86-001, June 1987

- Criteria 2

The area should expect only limited maintenance growth in on-road motor vehicle regional emissions (including fugitive dust) and should have passed a motor vehicle regional emissions analysis test.

Answer:

The methodology used to determine whether the increased emissions from on-road mobile sources could, in the next 10 years, increase the concentration in the area an threaten the assumption of the maintenance is included in Attachment B of the LMP memorandum. The equation set forth in the memorandum is:

$DV + (VMT_{pi} \times DV_{mv}) = MOS$

Where:

DV = the area's design value based on the most recent 5 years of quality assured data $\mu g/m^3$
VMT_{pi} = the projected percent of increase in vehicles miles traveled (VMT) over the next 10 years
DV_{mv} = motor vehicle design value based on on-road vehicle portion of the attainment inventory in $\mu g/m^3$
MOS = margin of safety for the relevant PM10 standard given the area: 40 $\mu g/m^3$ for the annual standard or 98 $\mu g/m^3$ for the 24 hour standard

Using the equation above the following result for the 24 hour PM_{10} standard design value was obtained 88.70 $\mu g/m^3$ which is below the margin of safety of 98 $\mu g/m^3$ established in the LMP guidance.

Therefore, the Commonwealth of Puerto Rico complies with the two criteria set above and qualifies for the LMP approach.

i. Attainment Emission Inventory

The 1990 PM_{10} emission inventory was updated. The attainment emission inventory[15] represents the actual emissions calculated for

[15] Appendix F – Calculation of the Motor Vehicle Regional Analysis Methodology Municipality of Guaynabo

a period of five years from 2002 to 2006 as required by the LMP guidance for the Municipality of Guaynabo.

The permits were reviewed and the actual emissions were calculated for five years, 2002 - 2006. The PM_{10} emissions for point sources were calculated using the reports of Rule 410 RCAP for combustion sources located at the Municipality of Guaynabo. The reports of each industry in accordance with rule 410 of RCAP were used to calculate the PM_{10} emissions of combustion sources. In case reports were not available to determine the emission from a source the maximum fuel oil consumption included in the permit were used. The emissions of the primary geological and grain industries were calculated using the maximum annual production included in the permit.

The emission factors used were from AP-42, permits, Fire Data System and from other sources. The area considered were: oil combustion sources, on site incineration, structural fires, unpaved roads, parking lots, and microinventory. For mobile sources the PM_{10} emissions were obtained from transportation air quality conformity analysis the *2030 Plan of the San Juan Metropolitan Area, September 2005;* and from the document entitled: *Documentation for the Development of Air Toxics Area Source Inventory for Puerto Rico and U.S. Virgin Islands and Onroad Mobile Source for Puerto Rico, Final Report, March 2007.*

Table VI - Summary of PM_{10} Emissions by Source Type Years: 2002-2006 in the Municipality of Guaynabo

Source Type	Actual Emissions (TPY)				
	2002	2003	2004	2005	2006
Point	2365	1501	1474	1650	1647
Area	10.73	10.24	10.62	10.52	10.59
Microinventory	121	121	121	121	121
Motor Vehicle	48.89	45.42	45.45	44.24	44.23
Paved Roads	266.51	302.38	302.59	294.53	294.45
Nonroad Marine Vessels	15.75	15.46	16.51	15.88	15.10
Nonroad Construction Equipment	97.37	97.37	97.37	97.37	97.37
Nonroad Lawn and Garden	9.62	9.62	9.62	9.62	9.62
Nonroad Off-Highway Small Industrial Fuel Combustion	3	3	3	3	3
Nonroad Off-Highway Small Commercial/Institutional Fuel Combustion	4.71	4.71	4.71	4.71	4.71
TOTAL	2942.58	2110.2	2084.87	2250.87	2247.07

The emission inventory demonstrate a reduction in PM_{10} emissions for the years 2003 to 2006 compare with the year 2002.

ii. Control Measures Necessary to Maintain the NAAQS

EQB relied on the measures approved in the 1995 SIP summarized previously to attain the standard. The control measures adopted have proven to be effective at reducing PM_{10} emissions in the Municipality of Guaynabo.

In accordance to the LMP guidance policy, all controls to demonstrate attainment will remain in place through the maintenance plan period. The control measures to attain PM_{10} NAAQS that were approved by EPA on May 31, 1995 (60 FR 28333, May 31, 1995). Therefore, no additional LMP control measures are necessary to maintain the NAAQS.

iii. Maintenance Demonstration

In accordance to the LMP option the area must satisfy the criteria summarized previously. The LMP qualification is base on a statistical analysis such that, when satisfied, demonstration of maintenance is established. The LMP criteria analysis showing that the Municipality of Guaynabo qualifies for the LMP option is found in Appendix E and G. Therefore, the maintenance demonstration of the LMP guidance is presumed to be satisfied.

iv. Monitoring Network

The PM_{10} monitoring network for the municipality of Guaynabo consist of two monitors. These sites are identified as 1) Site Number 7, located at the USGS and Water Resources Building and 2) Site 24, located at the Electrical Substation. These monitors are in close proximity to each other and are representative of the air quality for the area. Also, the Commonwealth of Puerto Rico is been affected by natural events such as the dust from the Sahara desert transported across the Atlantic Ocean and volcanic ash from the Soufrière Hills located at Montserrat island. These natural events affect the air quality in the Municipality of Guaynabo. The natural events are excluded as part of the determination of attainment with the PM10 NAAQS in accordance to the provisions of Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events (exceptional events guideline) and

Appendix K to 40 CFR Part 50. The EQB maintain a background air quality monitor located at the Fajardo area to determine the contribution of the natural events in Puerto Rico.

The monitoring network was developed and maintained in accordance with federal siting and design criteria set forth in 40 CFR Part 58, Appendices D and E and in consultation with EPA. The Commonwealth of Puerto Rico and EQB commit to maintain the monitoring network through the LMP period.

v. Verification of Continued Attainment

The monitoring network located at the Municipality of Guaynabo will be used to verify continued maintenance of the PM_{10} NAAQS through the maintenance plan period.

As required by the LMP policy the EQB will annually recalculate the design value using the most recent five year monitor data in order to verify that the Municipality of Guyanabo continues to qualify for the LMP option. The result will be reported to EPA.

In the event the Municipality of Guaynabo does not continue to qualify for the LMP option, EQB will implement one or more of the LMP contingency measures, described below. If the area fails for a second time to qualify for the LMP option, a full maintenance plan will be prepared as required by the LMP policy.

vi. Contingency Plan

In compliance with the requirements of section 172(c)(9) of the CAA, EQB included contingency measures in the PM_{10} SIP for the Municipality of Guaynabo approved by EPA on May 31, 1995[16]. The contingency measures are procedures established to promptly correct any violation of the PM_{10} NAAQS, which occurs after the redesignation of the area to attainment.

The contingency measures established in Rule 423(D) of RCAP will continue to be in place for the period established by the LMP policy. The following are the contingency measures that are in place and will continue to be in place for the Municipality of Guaynabo:

[16] 60 FR 28335, May 31, 1995.

(1) DOT shall collect data on silt content and dust loadings for highways in Guaynabo Municipality using EPA procedures for better estimating PM_{10} emissions following AP-42 procedures.

(2) Guaynabo Municipality shall require vegetation, chemical stabilization, or other abatement of wind erodible soils.

(3) Diesel fuel oil with a sulfur in fuel level less than 0.3 % shall be use by all vessels while they operate in San Juan Bay which is specifically defined as the navigable waters south of the imaginary line connecting Punta del Morro and Isla de Cabras.

(4) No visible emissions from any vessel shall be permitted in the San Juan Bay except as provided in Rule 403 of this Regulation.

(5) The Port Authority shall implement a street cleaning program or other program to prevent dust from collecting on paved surfaced in their jurisdiction.

(6) The San Juan Municipality must revised the dust and fire abatement programs at its sanitary landfill in order to establish additional pollution abatement controls strategies.

vii. Transportation Conformity

The Department of Transportation and Public Work (DOTPW) of the Commonwealth of Puerto Rico is the agency that ensure that highway projects comply with the transportation conformity rule[17] and the general conformity rule[18] for the Municipality of Guaynabo. Both rules require a conformity demonstration to indicate that expected emissions from planned actions are consistent with the emission budget for the area.

In areas were a LMP criteria is satisfied the emission budget is treated essentially as not constraining for the length of the maintenance period due to the limited potential for emission growth in the nonattainment area. Therefore, the regional

[17] 40 CFR 51 and 93
[18] 58 FR 63214, November 30, 1993.

transportation conformity is presumed. This means that the regional emission analysis and the associated conformity requirements of 40 CFR Part 93.118 and 93.119 are no longer necessary because there is no motor vehicle emission budget established in the SIP, and thus no way to receive a negative conformity decision.

Although, as stated above the regional transportation conformity is presumed and the DTOPW will continue to affirm conformity as required for areas operating under a maintenance plan.

4. Amendments to Rule 102 and 423 of the Regulation for the Control of Atmospheric Pollution

The definition of PM_{10} Non Attainment Area for Guaynabo of Rule 102 of the Regulation for the Control of Atmospheric Pollution (RCAP) is amended to reflect the change in the designation of the Municipality of Guyanabo:

Guaynabo PM_{10} **Maintenance** Area ~~PM_{10} Non-Attainment Area for Guaynabo~~

The entire Municipality of Guaynabo as defined in the Puerto Rico PM_{10} State Implementation Plan (PR-SIP) and in Law 81 of August 30, 1991, **as amended, known as the:** Autonomous Municipality Act

The title of Rule 423 of the RCAP will be amended to reflect the redesignation of the area to a maintenance area and to reflect the May 31, 1995, Rule 423 as it was approved in the of the State Implementation Plan for the Guaynabo area[19].. The following will be the title for Rule 423 of RCAP: Limitations for the Guaynabo PM10 Maintenance Area. After EPA the approval of the redesignation request Rule 423 of RCAP will be amended as follows:

Rule 423 Limitations for the Guaynabo PM_{10} **Maintenance** ~~NonAttainment~~ Area

(A) Any **facility** ~~source~~ within the boundaries of the Guaynabo PM_{10} **Maintenance** ~~Non-Attainment~~ Area or having a significant air quality impact on a PM_{10} Maintenance Area, shall, in addition to meeting all of the prohibitions provided for the Rules 401 through 422, meet the RACT limitations specified in this subsection.

(1) For any grain, ~~sand, soda ash, cement, dust clinker~~ handling and processing **facility** ~~source, or any other material handling or processing source where more than 50% of the particles of the material are less than 1 millimeter (mm) in diameter and the material when handled or processed will emit PM 10 in quantities so as to have a significant air quality impact on the Guaynabo Non-Attainment Area~~, no person shall cause or permit any materials to be received, handled, transported, processed, milled, or stored without taking the following precautions to prevent particulate matter from becoming airborne:

(a) employ proper housekeeping and cleaning procedures throughout the entire facility, including but not limited to, the prompt removal of spilled grain-dust ~~or any other material dust~~ accumulation

[19] 61 FR 31885, June 21, 1996.

by a technique which prevents this material from escaping into the atmosphere.

(b) cover all trucks at all times when in motion;

(c) maintain all ventilation systems and dust collection devices;

(d) pave all areas where vehicles travel and maintain such areas according to a Board-approved street cleaning program;

(e) prohibit clam loading or unloading of barges or ship;

(f) load or unload barges or ships using pneumatic or mechanic telescopic loading spouts in a fully enclosed area except for the space needed to introduce the spout or vent the displace air, both with a ventilation system exhausting to a fabric filter collection device with a minimum collection efficiency of 99.5%;

(g) load or unload trucks in fully enclosed sheds or buildings with a ventilation system exhausted to a fabric filter dust collection device with a minimum collection efficiency of 99.5%;

(h) clean, separate, handle, convey, transfer, and mill grain in fully enclosed sheds or buildings that meet the proposed EPA Reference Method 30 requirements for total enclosure and vent the enclosure to a fabric filter control device with a minimum collection efficiency of 99.5%.

(i) All fabric filter collection devices must be performance tested using:

(1) EPA Reference Method 5-Determination of Particulate Emissions from Stationary Sources (40 CFR Part 60) or;

(2) EPA Reference Method 17-Determination of Particulate Emissions from Stationary Sources (In-Stack Filtration Method) (40 CFR Part 40) or;

(3) EPA Reference Method 201- Determination of PM 10 Emissions (40 CFR Part 51) or;

(4) EPA Reference Method 201A- Determination of PM 10 Emissions (Constant Sampling Rate Procedure) (40 CFR Part 51) or;

(5) EPA Reference Method 202- Determination of Condensible Particulate Emissions from Stationary Sources (40 CFR Part 51) or any other method accepted by EQB.

(j) Depending on averaging times, stack opacities will be determined using:

(1) EPA Reference Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources or any other approved EPA method.

(k) Fugitive emission opacities will be determined using:

(1) EPA Reference Method 22 - Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares (40 CFR Part 60).

(l) Each zone of the fabric filter collection device shall be fitted with a continuous monitor that measures the pressure drop across the zone. During the performance test, the pressure drop readings shall be measured. The operating permit shall specify an operating range for the pressure drop to ensure the optimum operation of the unit.

(m) If the pressure drop across any zone deviates from the permitted pressure drop range, the stationary source shall report the deviations to the Environmental Quality Board. The stationary source will submit quarterly reports identifying all periods of deviation during the quarter and an explanation of what corrective actions were taken. The reports will be due 30 calendar days from the end of each quarter.

(n) Records shall be kept for both the operating parameters and the maintenance plans (for example: "The pressure drop reading shall be recorded once per shift, or more frequently if needed") Once every day, a visual inspection shall be made around each collection device to determine the current conditions. Logs shall be kept on all findings and

on what actions were taken to resolve problems. Stationary sources must maintain adequate inventories for spare parts. Records should be maintained on-site for at least five years and made available to both EPA and EQB inspectors.

~~(e) Any other granulated material that is not covered by this Rule shall be handled in conformity by Rule 404.~~

(2) For any stone quarrying and processing facility, no person shall cause or permit any materials to be handled, transported, crushed, screened, or stored without taking the following precautions to prevent particulate matter from becoming airborne. Such precautions shall include, but are not be limited to:

(a) the use, where possible, of water or suitable chemicals for the control of dust in quarrying operations;

(b) the application, where possible, of water or suitable chemicals on unpaved roads, materials, stockpiles, and other surfaces which can give rise to airborne dust.

(c) Compliance with any opacity restriction shall be determined using EPA Reference Method 9 or Method 22 or an other EPA approved method.

(d) The stationary source shall keep maintenance logs that show what repairs were done to the dust suppression system. The stationary source shall also maintain an adequate inventory of spare parts.

(3) For any Electrical Power Plant with a capacity greater than 25 megawatts located within the boundaries of or having a significant air quality impact on the Guaynabo PM_{10} **Maintenance** ~~Non-Attainment~~ Area, no person shall cause or permit the firing of residual fuel oil with a sulfur content greater than 1.5% (by weight) as a PM_{10} precursor. However, the Board may required a lower sulfur content in the fuel whenever an exceedance to any applicable provision in these regulations is demonstrated to affect the attainment of the National Ambient Air Quality Standards (NAAQS) for PM_{10} in the designated **maintenance** ~~non-attainment~~ area. This emission limitations supersedes the limitation in Rule 406.

(4) For any petroleum refinery located within the boundanes of or having a significant air quality impact on the Guaynabo PM 10 **Maintenance** ~~Non-Attainment~~, no person shall cause or permit the firing of residual fuel oil with a sulfur content greater than 1.0% (by weight) as a PM_{10} precursor. However, the Board may require~~d~~ a lower sulfur content in the fuel whenever an exceedance to any applicable provision in these regulations is demonstrated to affect the National Ambient Air Quality Standards (NAAQS) for PM,o in the designated **maintenance** ~~non-attainment~~ area. This emission limitations supersedes the limitation in Rule 406.

(5) For any facility that uses an asphalt blowing process located within the boundaries of or having a significant air quality impact on the boundaries of the Guaynabo PM_{10} **Maintenance** ~~Non-Attainment~~ Area, no person shall cause or permit the emission of particulate matter unless those emissions are captured and controlled by a control equipment that achieves a 90% removal efficiency.

(i) Compliance with the removal efficiency will be demonstrated by measuring PM_{10} loading at the inlet and outlet of the control device using Methods 201, 201A and/or 202 (40 CFR Part 51 and Part 60 Append A). Compliance with the opacity standards shall be determined using EPA Reference Method 9 (40 CFR Part 60).

(ii) If an afterburner is installed, the temperature in the combustion zone will be continuously monitored and recorded. The monitoring equipment shall have an accuracy of ± 10° Centigrade overs its range. If a scrubber is installed, the pressure drop across the scrubber will be continuously monitored and recorded. The optimum pressure range will be established during the performance testing and will be incorporated in the operating permit.

(B) The owner or operator of any stationary source subject to the limitations of paragraph A) shall:

(1) Submit on the date required by EQB and obtain immediate approval of a compliance plan in which the owner or operator of such stationary source demonstrates compliance with all applicable limitation by the date specified in the State

Implementation Plan and provides for the implementation of RACT requirements. The compliance plan shall be in writing and must include:

(a) the name of the individual responsible for compliance demonstration activities at the stationary source;

(b) a description of the air pollution control system, specific control equipment, stacks, vents, raw materials, fuels, and other items or parameters which will be tested, monitored, sampled, analyzed, or measured to determine that the stationary source is in compliance on a continuous basis;

(c) a description of the specific testing methods, monitoring techniques, sampling and analysis methods, and measurements that will be used to demonstrate compliance on a continuous basis;

(d) a description of other relevant records or reports reasonably needed to demonstrate compliance on a continuous basis;

(e) the frequency of testing, monitoring, sampling, analyzing, or measuring necessary to demonstrate compliance on a continuous basis.

(2) The EQB may review and approve the plan within a thirty (30) day review period, or amend the plan if deemed necessary to assure that compliance will be adequately demonstrated.

(3) Where physical alteration of the stationary source is necessary to achieve compliance, commence construction thirty days after this regulation is approved and complete construction by November 30, 1994. This schedule and a detailed explanation for a physical alteration must be included in the compliance plan.

(4) Implement the compliance plan and demonstrate final compliance with applicable limitations established in the PR-PM_{10} SIP. A responsible official shall certify compliance and shall state, based on information and belief formed after reasonable inquiry, the information certified to is true and accurate.

(C) Memorandum of Understanding (MOU's)

Any agreement or Memorandum of Understanding reach and signed between the Puerto Rico Environmental Quality Board and any other state agency, authority or municipal entity stating those measures or activities define to control and reduce any emission of PM_{10}, and/or a PM_{10} Precursor will be state and federally enforceable by EQB and USEPA, respectively will become part of this regulation and will become a condition in the operating permit of the affected stationary sources.

(D) Contingencies Measures

The following contingencies measures will be enforceable under this Regulation if attainment of PM_{10} air quality standards in the Municipality of Guaynabo are not achieved by December 31,1994:

(1) DOT shall collect data on silt content and dust loadings for highways in Guaynabo Municipality using EPA procedures for better estimating PM_{10} emissions following AP-42 procedures.

(2) Guaynabo Municipality shall require vegetation, chemical stabilization, or other abatement of wind erodible soils.

(3) Diesel fuel oil with a sulfur in fuel level less than **0.05** ~~0.3~~% shall be use by all vessels while they operate in San Juan Bay which is specifically defined as the navigable waters south of the imaginary line connecting Punta del Morro and Isla de Cabras.

(4) No visible emissions from any vessel shall be permitted in the San Juan Bay except as provided in Rule 403 of this Regulation.

(5) The Port Authority shall implement a street cleaning program or other program to prevent dust from collecting on paved surfaced in their jurisdiction.

(6) The San Juan Municipality must revised the dust and fire abatement programs at its sanitary landfill in order to establish additional pollution abatement controls strategies.

~~(E) Sanctions for Non-Compliance~~

~~Any source that is found in violation of any compliance plan approved by the Board or any requirement within such plan will be subject to sanctions specified under Rule 115.~~

COMMONWEALTH OF PUERTO RICO

HIGHWAY AND TRANSPORTATION AUTHORITY

October 30, 2008

Evelyn Rodríguez Cintrón
Manager Air Quality Area
Environmental Quality Board
P.O. Box 11488
San Juan, Puerto Rico 00910

RECIBIDO
14 NOV 2008
27

Re: Unpaved Roads Emission Inventory - Guaynabo

Dear Mrs. Rodríguez Cintrón:

Your Agency recently inquired about unpaved road mileage in the Municipality of Guaynabo, since particulates associated with this type of facilities must be considered in the emission inventory in the area. Regarding this matter we wish to inform the following.

Unpaved roads are a significant element in the road inventory of many States, but not so in Puerto Rico. Because of our climate and topography, unpaved roads last very little (maybe only a few days) before becoming unusable. As a result, there are virtually no unpaved roads in the Commonwealth's and Municipal highway systems.

To confirm this information, we asked our Highway Systems Office to provide us with updated information specifically on the highway inventory for the Municipality of Guaynabo, and no unpaved roads were identified there; notwithstanding that the inventory for the Municipality includes 14.93 kilometers of local roads and 223.84 kilometers of rural roads. These, as well as all the Interstate, Freeways, Expressways, Principal Arterials, Minor Arterials and Collector roads or streets, were paved.

We hope that this information results useful for your analyses.

For any additional details you may reach us at (787) 722-4664.

Cordially,

Gabriel A. Rodríguez-Fernández, PPL, MP, MCIT
Director
Strategic Planning Office

RECIBIDO
NOV 13 '08

APPENDIX A

ESTADO LIBRE ASOCIADO DE PUERTO RICO
OFICINA DEL GOBERNADOR
JUNTA DE CALIDAD AMBIENTAL

ACUERDO INTERAGENCIAL

COMPARECEN

DE LA PRIMERA PARTE: El **Departamento de Transportación y Obras Públicas** y la **Autoridad de Carreteras** (en lo sucesivo denominados como **"El Departamento y la Autoridad"**), esta última adscrita a la primera, siendo ambas agencias del Estado Libre Asociado de Puerto Rico, representadas por su Secretario, Dr. Carlos I. Pesquera, mayor de edad, ingeniero, casado, vecino de San Juan, Puerto Rico y el Director Ejecutivo de la Autoridad de Carreteras y Transportación, Dr. Sergio González Quevedo, mayor de edad, soltero, ingeniero y vecino de Carolina, Puerto Rico.

DE LA SEGUNDA PARTE: La **Junta de Calidad Ambiental** (en lo sucesivo denominada como **"La Junta"**), agencia pública del Estado Libre Asociado de Puerto Rico, representada por su Presidente, Héctor Russe Martínez, mayor de edad, casado y vecino de Morovis, Puerto Rico.

EXPONEN Y CONVIENEN

PRIMERO: La Agencia de Protección Ambiental Federal ha designado al municipio de Guaynabo como área que no cumple con el estándar nacional primario para el contaminante PM_{10} (material particulado inhalable cuyo tamaño no excede de 10 micrones).

SEGUNDO: Que para lograr y mantener la concentración de material particulado fino bajo el estándar anual (promedio aritmético) de la calidad de aire de 50 ug/m^3 en el área de no logro, La Junta tiene que imponer las más estrictas medidas a las actividades que tienen un efecto detrimental sobre la calidad de aire del área de no logro.

TERCERO: La excedencia en la concentración permitida de PM_{10} se debe a la deficiencia o ausencia de medidas para controlar el material particulado generado por diversas actividades, siendo una de ellas el movimiento vehicular en las vías estatales.

CUARTO: Que se ha identificado a El Departamento y la Autoridad como las agencias con jurisdicción sobre las carreteras estatales, y que por lo tanto tiene el control del acondicionamiento de las servidumbres y del mantenimiento de las carreteras estatales existentes, y de la construcción de las nuevas carreteras estatales.

QUINTO: Que El Departamento está autorizado por la Ley Num. 54 de 30 de mayo de 1973 (según enmendada) para asumir las tareas que motivan este acuerdo interagencial.

SEXTO: Que El Departamento y la Autoridad reconocen que deben contribuir para que se alcance y mantenga el estándar nacional de PM_{10} en el área de no logro, y lo hará mediante la implantación de las medidas que se detallarán a continuación. A los fines de contribuir con la reducción de contaminantes en el Área de No-Logro, las siguientes actividades serán realizadas.

SEPTIMO: Que El Departamento y la Autoridad se comprometen a pavimentar y dar mantenimiento a las secciones de las carreteras PR-5, PR-22, PR-24, PR-165 (desde PR-5 hasta PR-2) y PR-28 (en adelante "las carreteras") localizadas dentro de los municipios de Guaynabo y Cataño según se detallan en el Anejo A que acompaña este acuerdo. Esta tarea se realizará conforme lo establecido en los incisos OCTAVO, NOVENO y DECIMO, y siguiendo las mejores prácticas.

1. Realizará un muestreo representativo de vehículos en el Municipio de Guaynabo a los fines de establecer la condición de éstos y las emisiones de contaminantes que generan los mismos. El mismo se realizará durante el año 1994.

2. Realizará mejoras a los paseos de las siguientes vías:

   a. PR-5, Encintados entre la PR-8869 y la PR-22.

   b. Encintados de lados Este de PR-165, desde El Nuevo Día hasta la Rampa Caguas-San Juan de la PR-2.

   c. PR-28, Paseos/Encintados desde la PR-165 hasta Texaco.

OCTAVO: Que El Departamento comprará o gestionará la adquisición de dos (2) máquinas barredoras (en adelante "las barredoras") que operen con agua para barrer las carreteras mencionadas en el inciso SEPTIMO. Las carreteras serán barridas por lo menos una (1) vez a la semana por el tiempo necesario hasta que por acuerdo entre el Departamento y la Autoridad, y la Junta se pueda disminuir la frecuencia.

NOVENO: Que si en algún momento las barredoras se averían simultáneamente, El Departamento realizará gestiones tendentes a repararlas para poder cumplir con la obligación descrita en el inciso OCTAVO.

DECIMO: Que en caso de que la avería de las barredoras no pudiese corregirse con la celeridad necesaria para cumplir con la obligación de barrer las calles una (1) vez en semana, El Departamento enviará brigadas para que limpien, hasta donde sea posible, el exceso de polvo de las carreteras mencionadas en el inciso SEPTIMO.

UNDECIMO: Que El Departamento someterá un análisis de costo respecto a las medidas propuestas en el plan de cumplimiento que someterá a La Junta en virtud de este acuerdo. El referido análisis contendrá información respecto a la viabilidad económica de todas las alternativas que fueron consideradas antes de escoger las medidas propuestas, y las razones que motivaron la selección final.

DECIMOSEGUNDO: Que El Departamento enviará un informe mensual certificando que se han realizado las tareas contenidas en este acuerdo, y conteniendo la fecha, lugar, costo y breve descripción de cada tarea,cualquier inconveniente o situación fuera de control de El Departamento que retrase el trabajo. Este informe será suscrito por el Secretario del Departamento o por un representante autorizado y será presentado utilizando el formato que se acompaña con este acuerdo (ver Anejo B).

DECIMOTERCERO: Que la persona de contacto en El Departamento y la Autoridad para efectos del presente acuerdo lo es el Ing. Jorge Rivera, Jefe de la Oficina de Estudios Ambientales de la Autoridad de Carreteras y Transportación y que como tal será responsable de coordinar con y comunicarle al Secretario de El Departamento sobre cualquier eventualidad relacionada con el presente acuerdo.

DECIMOCUARTO: Que El Departamento se compromete a utilizar las mejores prácticas de ingeniería para controlar las emisiones de materia particulada a la atmósfera en la construcción de carreteras estatales con jurisdicción en el Municipio de Guaynabo.

DECIMOQUINTO: Que las mejores prácticas de ingeniería que se mencionan en el inciso DECIMOCUARTO se refieren a lo siguiente, sin limitarse a ello: humectación continua de los terrenos expuestos a la erosión, utilización de lonas para tapar la carga de los camiones de acarreo, utilización de lonas en estibas de agregados, etc..

DECIMOSEXTO: Que el Departamento y la Autoridad reconocen que la Junta podrá exigirle a estos mediante enmiendas a este acuerdo, que implanten aquellas medidas de contingencia (bajo su jurisdicción) que se describen en el Plan de Implantación Estatal (SIP) y que han sido incorporadas a las enmiendas al Reglamento para el Control de la Contaminación Atmosférica, vigente en la Regla 423; para las actividades a realizarse en el Area de No-Logro (Anejo C) , cuando no se obtenga la reclasificación al Area de No-Logro y sea necesario implantar medidas más restrictivas para reducir las emisiones de materia particulada fina.

DECIMOSEPTIMO: Que la fecha de efectividad del presente acuerdo lo será la fecha en que se firme el mismo y durará hasta tanto el Municipio de Guaynabo recobre la categoría de Logro bajo el Acta de Aire Limpio.

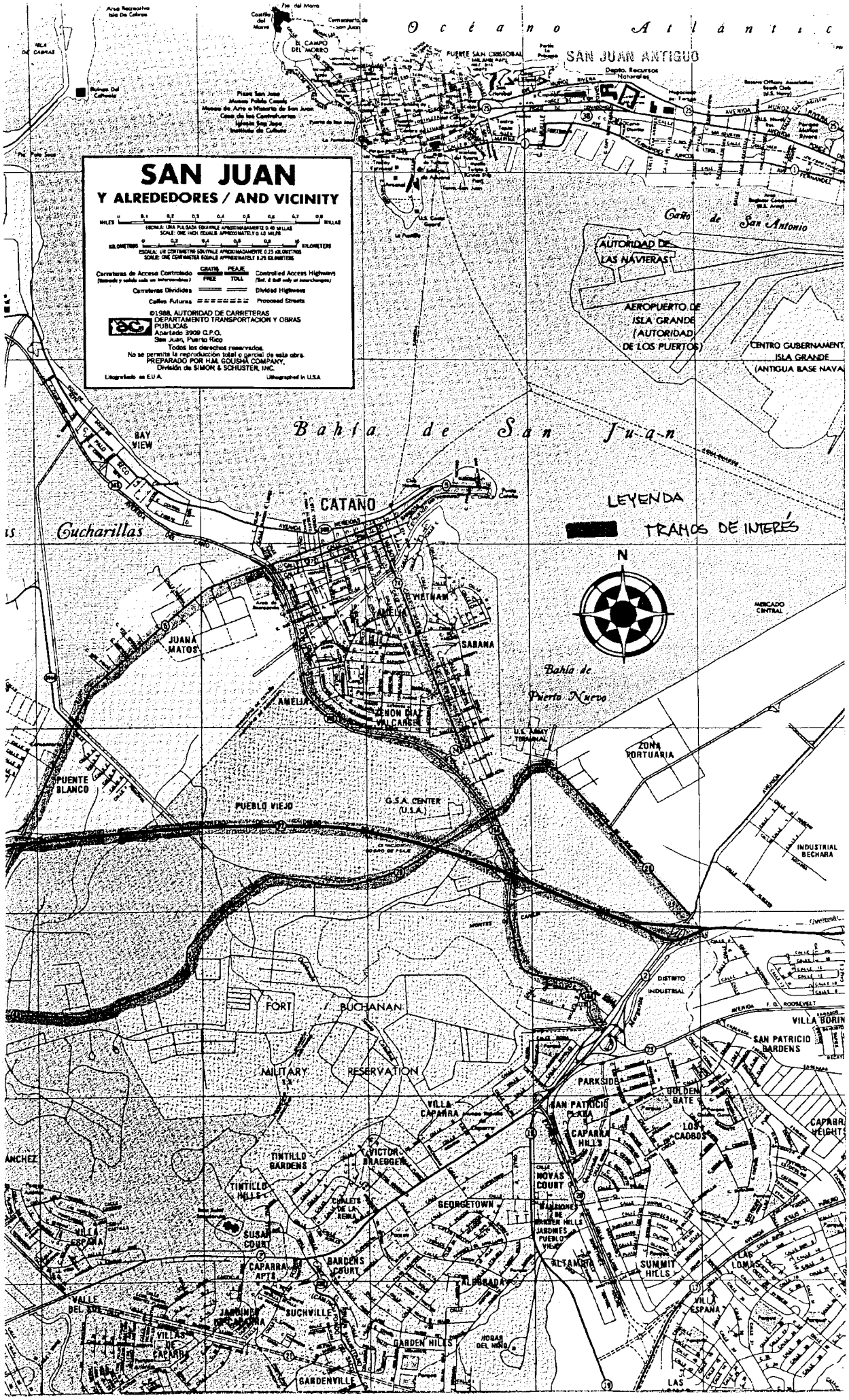
En San Juan de Puerto Rico, hoy día de de 1993.

Carlos I. Pesquera
Secretario
Departamento de Transportación
y Obras Públicas

Sergio González Quevedo
Director Ejecutivo
Autoridad de Carreteras y
Transportación

Héctor Russe Martínez
Presidente
Junta de Calidad Ambiental

ANEJO A


SAN JUAN
Y ALREDEDORES / AND VICINITY
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AUTORIDAD DE LAS NAVIERAS
AEROPUERTO DE ISLA GRANDE (AUTORIDAD DE LOS PUERTOS)
CENTRO GUBERNAMENTAL ISLA GRANDE (ANTIGUA BASE NAVAL)
Bahía de San Juan
BAY VIEW
CATAÑO
Cucharillas
LEYENDA
TRAMOS DE INTERÉS
N
MERCADO CENTRAL
JUANA MATOS
VIETNAM
AMELIA
SABANA
Bahía de Puerto Nuevo
ZENON DIAZ VALCARCEL
U.S. ARMY TERMINAL
ZONA PORTUARIA
PUENTE BLANCO
PUEBLO VIEJO
G.S.A. CENTER (U.S.A.)
INDUSTRIAL BECHARA
DISTRITO INDUSTRIAL
FORT BUCHANAN
MILITARY RESERVATION
VILLA BORIN
SAN PATRICIO GARDENS
PARKSIDE
GOLDEN GATE
SAN PATRICIO PLAZA
CAPARRA HILLS
LOS CAOBOS
VILLA CAPARRA
TINTILLO GARDENS
VICTOR BRAEGGER
TINTILLO HILLS
NOVAS COURT
GEORGETOWN
SUSAN COURT
CAPARRA APTS
GARDENS COURT
ALBORADA
SUMMIT HILLS
LAS LOMAS
VILLA ESPAÑA
VALLE DEL SOL
SUCHVILLE
GARDEN HILLS
HOGAR DEL NIÑO
GARDENVILLE
LAS

ANEJO B

INFORME MENSUAL DE TAREAS REALIZADAS EN EL MUNICIPIO DE GUAYNABO DURANTE EL MES DE _____

FECHA	DESCRIPCION DE [1] LA TAREA	LUGAR/TRAMO	COSTO	COMENTARIOS[2]	PERSONA QUE SUPERVISO TAREA

(1) En caso de que la tarea incluya asfaltar algún tramo, especifique la cantidad de asfalto utilizado.

(2) Incluya cualquier comentario pertinente tal como inconvenientes para realizar la tarea, etc.

CERTIFICO: que el presente informe detalla las tareas realizadas en los lugares y fechas que se mencionan en el mismo.

_____

FIRMA

ANEJO C

PROPUESTA REGLA 423 - LIMITES PARA EL AREA DE NO-LOGRO DE PM_{10} DE GUAYNABO

C) Memorandos de Entendimiento Interagencial

Cualquier convenio o Memorandos de Entendimiento Interagencial logrado y firmado entre la Junta de Calidad Ambiental y cualquier otra agencia estatal, autoridad o entidad municipal que establezca las medidas o estrategias de control definidas para controlar y reducir cualquier emisión de PM_{10} y/o el precursor de PM_{10} será fiscalizable estatal y federalmente por la Junta y la APA respectivamente, se hará formar parte de este reglamento y se hará formar parte del permiso de operación de la fuente afectada.

D) Medidas de Contingencia

Las siguientes medidas de contingencia serán fiscalizadas bajo este Reglamento sino se alcanza cumplimiento con los estandares de calidad de aire de PM_{10} en el Municipio de Guaynabo para el 31 de diciembre de 1994:

1- El Departamento de Transportación recogerá datos sobre el contenido de sedimento y la cantidad de polvo en carreteras del Municipio de Guaynabo utilizando procedimientos de APA en el AP-42 (documento técnico de APA) para un mejor estimado de las emisiones de PM_{10}.

2- El Municipio de Guaynabo proveerá vegetación, estabilización química o cualquier otra disminución de terreno erosivo.

3- Toda embarcación que opere en la Bahia de San Juan, definida como las aguas navegables al sur de la línea imaginaria que conecta a Punta del Morro y la Isla de Cabras, deberá utilizar el combustible diesel con un contenido de azufre menor de 0.3% por peso.

4- No se permite la emisión visible de ninguna embarcación excepto lo que dispone la Regla 403 de este Reglamento.

5- La Autoridad de los Puertos deberá implantar un programa de limpieza de calles o cualquier otro programa que impida que el polvo sea depositado en las superficies asfaltadas bajo su jurisdicción.

6- El Municipio de San Juan deberá revisar los planes de control de incendios y mitigación de polvo en su relleno sanitario municipal de forma que se establescan estrategias adicionales de control de contaminación.

APPENDIX B

ESTADO LIBRE ASOCIADO DE PUERTO RICO
OFICINA DEL GOBERNADOR
JUNTA DE CALIDAD AMBIENTAL

ACUERDO INTERAGENCIAL

COMPARECEN

DE LA PRIMERA PARTE: El Municipio de Guaynabo (en lo sucesivo denominado como "El Municipio"), gobierno municipal del Estado Libre Asociado de Puerto Rico, representada por su Alcalde Héctor O'Neill García, mayor de edad, casado y vecino de Guaynabo, Puerto Rico o su representante autorizado.

DE LA SEGUNDA PARTE: La Junta de Calidad Ambiental (en lo sucesivo denominada como "La Junta", agencia del Estado Libre Asociado de Puerto Rico, representada por su Presidente Héctor Russe Martínez, mayor de edad, casado y vecino de Morovis, Puerto Rico.

EXPONEN Y ACUERDAN

PRIMERO: La Agencia de Protección Ambiental Federal ha designado al Municipio de Guaynabo como área que no cumple con el estándar nacional primario para el contaminante PM_{10} (material particulado inhalable cuyo tamaño no excede de 10 micrones).

SEGUNDO: Que para lograr y mantener la concentración de material particulado fino bajo el estándar anual (promedio aritmético) de la calidad de aire de 50 ug/m^3 en el área de no logro, La Junta tiene que imponer las más estrictas medidas a las activic..des que tienen un efecto detrimental sobre la calidad de aire del área de no logro.

TERCERO: La excedencia en la concentración permitida de PM_{10} se debe a la deficiencia o ausencia de medidas para controlar el material particulado generado por diversas actividades, siendo varias de ellas las emisiones fugitivas debido al movimiento vehicular de camiones y automóviles en las calles municipales en y/o cercanas al Bo. Amelia donde ubican la mayoría de las industrias que manejan productos en granos. Se incluyen, además, las actividades de construcción de obras públicas y/o reparación que realiza el Municiplo.

CUARTO: Que se ha identificado a El Municipio como la entidad legal con jurisdicción específica sobre el mantenimiento y limpieza de las calles y caminos desde y hacia las industrias donde los vehículos tienen acceso, y con jurisdicción exclusiva en lo referente a la construcción de carreteras municipales, pavimentación y mantenimiento (ver Anejo A).

QUINTO: Que El Municipio está autorizado por la Ley Orgánica Municipal, para asumir las tareas que motivan este acuerdo interagencial.

SEXTO: Que El Municipio reconoce que debe contribuir para que se alcance y mantenga el estándar nacional de PM_{10} en el área de no logro, y lo hará mediante la implantación de las medidas que se describen a continuación.

SEPTIMO: Que El Municipio se compromete a buscar los recursos económicos para asfaltar y dar mantenimiento a las carreteras, calles y áreas de estacionamiento en un radio de una (1) milla desde donde ubican las industrias de granos.

OCTAVO: Que El Municipio adquirirá o gestionará la adquisición de dos (2) máquinas barredoras (en adelante "las barredoras") que operen con agua para barrer dos (2) veces en semana (martes y jueves) las áreas mencionadas en el inciso SEPTIMO.

NOVENO: Que el Municipio mantendrá operando permanentemente (1) barredora en dicha área y de sufrir avería será sustituida inmediatamente para poder cumplir con su obligación.

DECIMO: Que en relación a las actividades de asfaltar calles, caminos y areas de estacionamiento que utilizan con regularidad las facilidades industriales de Guaynabo, El Municipio someterá un informe que contenga información y/o estadísticas respecto a cuantas de éstas pueden ser asfaltadas por el Municipio. (ver Anejo B)

UNDECIMO: Que El Municipio someterá un documento donde analice su facultad legal y económica para asfaltar las calles, caminos y areas de estacionamiento, y mantener áreas con vegetación.

DECIMOSEGUNDO: Que El Municipio someterá por escrito un informe mensual certificando que se han realizado las tareas contenidas en este acuerdo, y conteniendo la fecha, lugar, costo y breve descripción de cada tarea . Este informe será suscrito por el Director del Departamento de Obras Públicas Municipales, Director de Control Ambiental o su representante autorizado y deberá recibirse en la Junta de Calidad Ambiental no mas tarde de cinco(5) días calendarios luego de finalizado el trimestre.

DECIMOTERCERO: Que el Departamento y la Autoridad reconocen que la Junta podrá exigirle a estos mediante enmiendas a este acuerdo, que implanten aquellas medidas de contingencia (bajo su jurisdicción) que se describen en el Plan de Implantación Estatal (SIP) y que hasn sido incorporadas a las enmiendas al Reglamento para el Control de la Contaminación Atmosférica, vigente en la Regla 423; para las actividades a realizarse en el Area de No-Logro (Anejo C) , cuando no se obtenga la reclasificación al Area de No-Logro y sea necesario implantar medidas más restrictivas para reducir las emisiones de materia particulada fina.

DECIMOCUARTO: Que la fecha de efectividad del presente acuerdo lo será la fecha en que se firme el mismo y durará hasta tanto el Municipio de Guaynabo recobre la categoría de Logro bajo el Acta de Aire Limpio.

DECIMOQUINTO: Que la implantación de las medidas discutidas en este Acuerdo deberán iniciarse en o antes del 10 de diciembre de 1993 para lograr cumplimiento en o antes del 15 de noviembre de 1994.

En San Juan, Puerto Rico hoy 13 de dic de 1993.

Efrain Pérez Jiménez-A.G.
Alcalde Municipio de Guaynabo
o su Representante Autorizado

Héctor Russe Martínez
Presidente
Junta de Calidad Ambiental

23 de julio de 1993

ACUERDO INTERAGENCIAL ENTRE EL MUNICIPIO DE GUAYNABO Y LA JUNTA DE CALIDAD AMBIENTAL EN RELACION CON EL AREA DE NO-LOGRO CAUSADO POR EL CONTAMINANTE PM_{10} (MATERIAL PARTICULADO)

INFORME DESCRIPTIVO

El área de no-logro comprende el Municipio de Guaynabo, sin embargo, al presente se concentrará el área de trabajo dentro de una extensión de un radio de una milla desde las instalaciones donde se encuentran las industrias de los granos. Esta área es observada en las figuras 1 y 2 de este documento.

Dicha área ha sido dividida en zonas que tienen características en común. Esto se hace con la intención de poder facilitar las labores a realizarse en el área de interés.

En estas zonas se realizarán aquellos trabajos que ordene la Junta de Calidad Ambiental.

A continuación se describirán cada una de estas zonas.

1. Zona I

En esta zona se encuentran ubicadas las industrias de los granos. La misma está comprendida entre los siguientes límites.

a. Ave. Ponce de León
b. Calle Delicias
c. Bahía Puerto Nuevo
d. Ave. Las Palmas

Esta es la zona más crítica.

Los trabajos a realizarse en esta zona son de extrema urgencia. Los mismos comprenderán pavimentación y el uso de barredoras para la limpieza continua de la zona, ya que es un área de tránsito de vehículos pesados.

2. Zona II

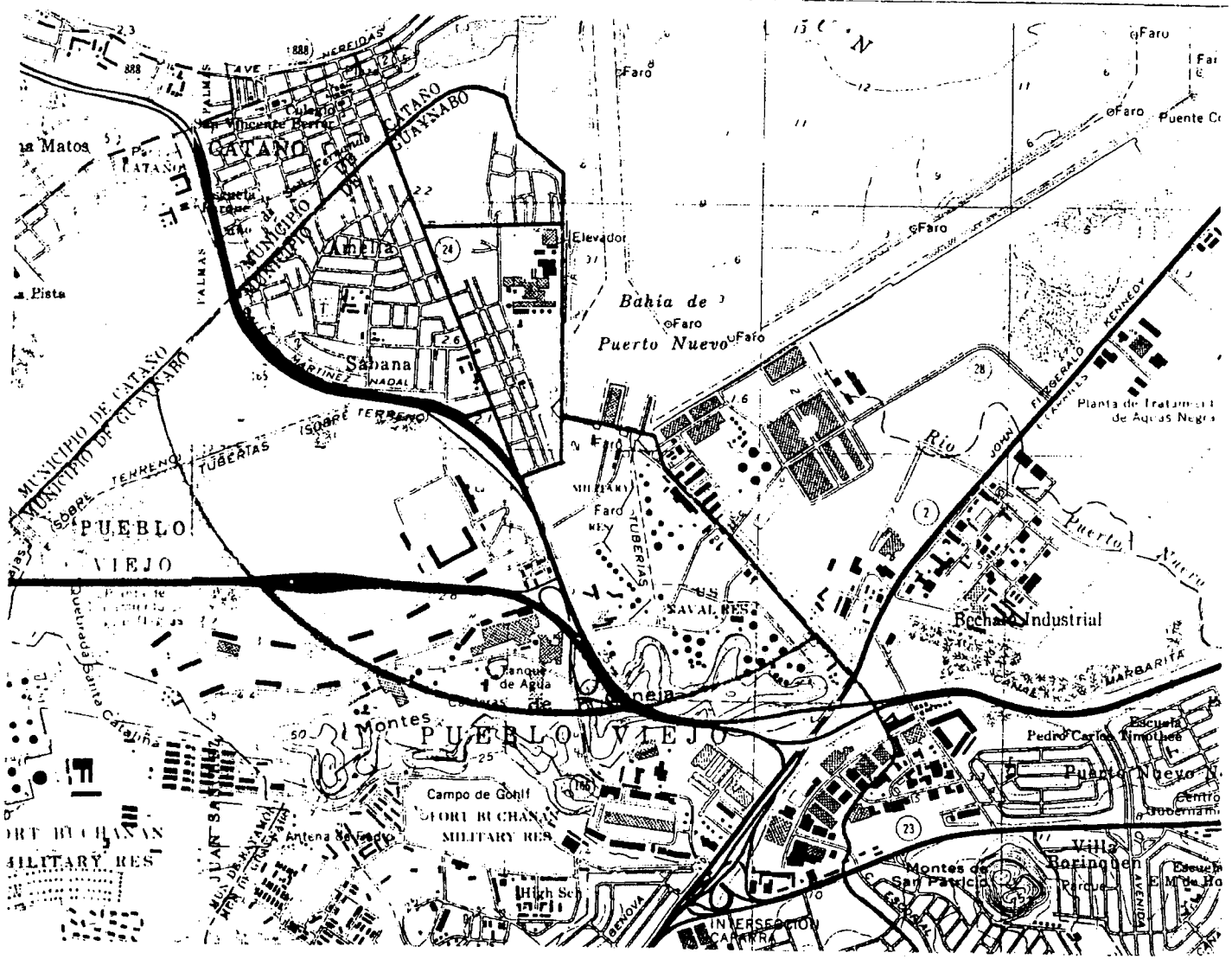
En esta zona se ubica la Barriada Vietnam. Esta barriada a sido construida sin planificación alguna de calles y accesos. El movimiento vehicular es difícil entre cortas y angostas calles. Así lo será también la limpieza y mantenimiento de las calles. En muchas calles no se podrá usar barredoras. La misma comprende los siguientes límites:

a. Ave. Ponce de León
b. Ave. Las Palmas
c. Bahía Puerto Nuevo
d. Límite territorial con Cataño

3. Zona III

En esta zona se ubica el Barrio Amelia. En ella existe el patrón y el tamaño de calles de una urbanización tradicional. En esta zona no deben existir dificultades en llevar a cabo las actividades de limpieza y mantenimiento. La misma comprende los siguientes límites:

a. Ave. Ponce de León
b. Límite territorial con Cataño
c. Calle Martínez Nadal
d. Calle Santa Rosa de Lima

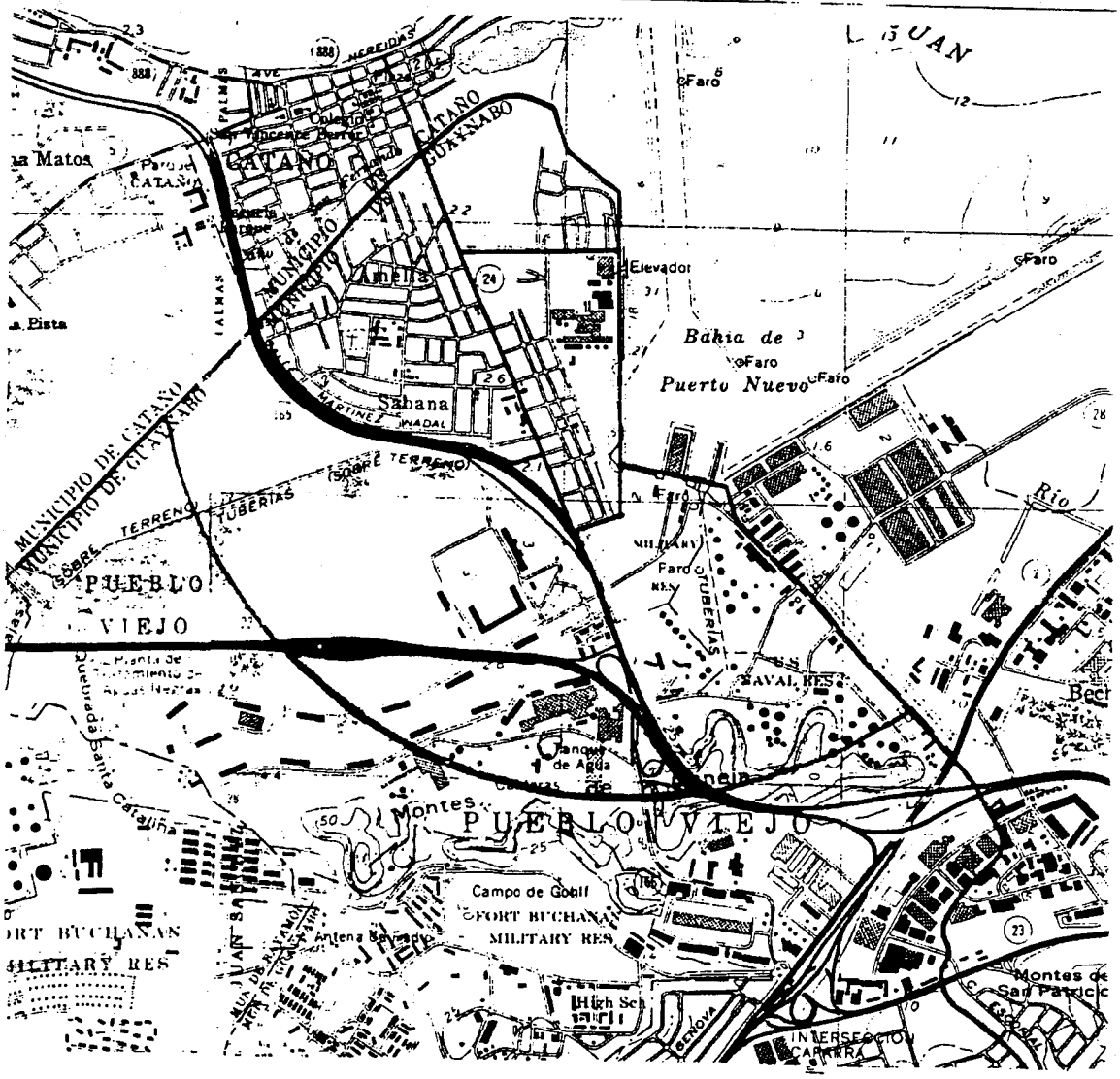


CATAÑO
MUNICIPIO DE CATAÑO
MUNICIPIO DE GUAYNABO
Amelia
Sabana
Elevador
Bahía de Puerto Nuevo
Faro
Puente C
Planta de Tratamiento de Aguas Negras
Río Puerto Nuevo
Bechalo Industrial
PUEBLO VIEJO
Montes de Caneja
Tanque de Agua
Campo de Gohlf
FORT BUCHANAN MILITARY RES
Antena de Fredro
High Sch
INTERSECCIÓN CAPARRA
Montes de San Patricio
Villa Borinquen
Pedro Carlos Timothee
Puerto Nuevo
Escuela
Quebrada Santa Catalina
MARBARITA
KENNEDY
FITZGERALD
JOHN
TUBERIAS
SOBRE TERRENO
MARTINEZ NADAL
PALMAS

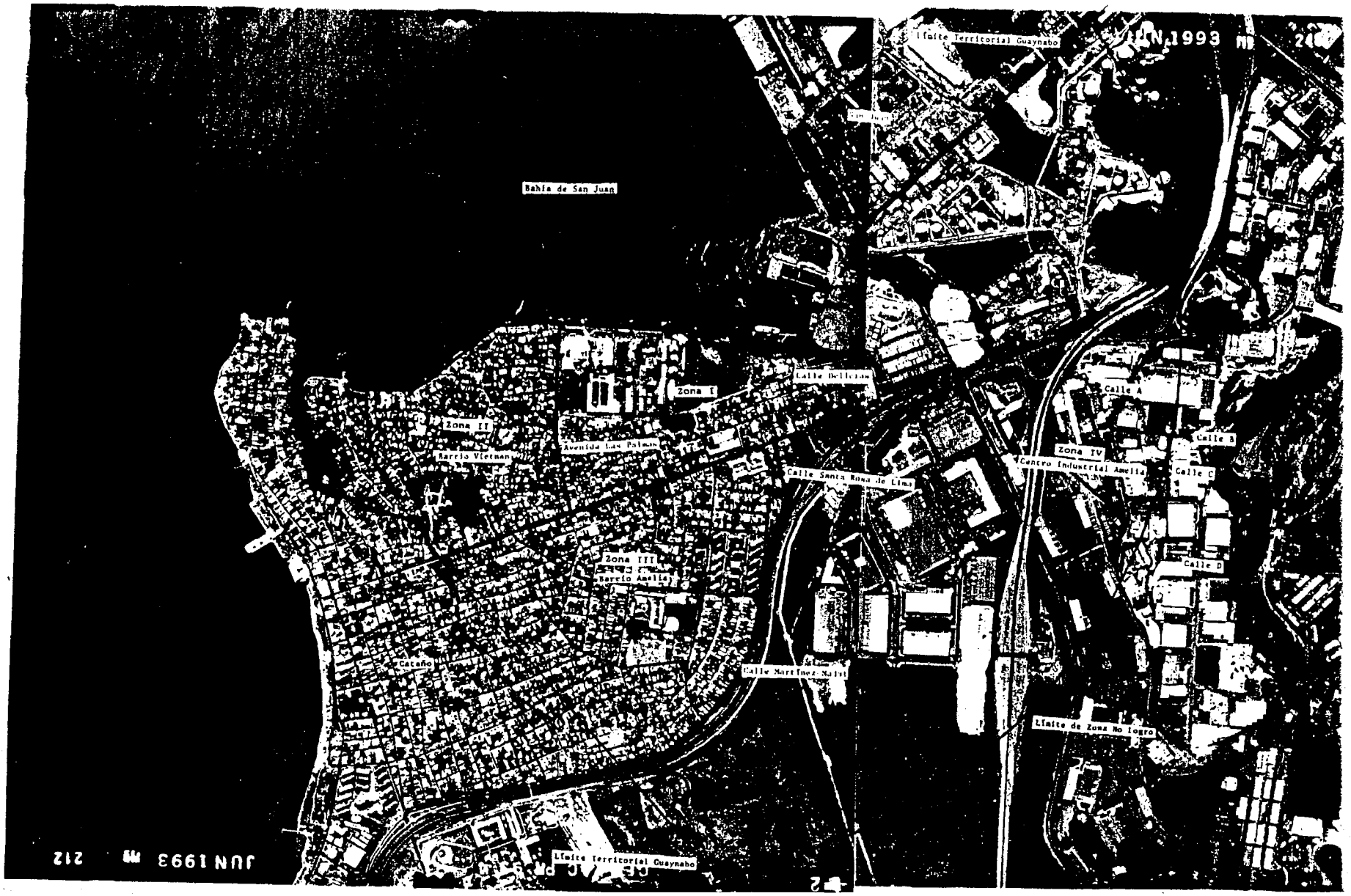
Los trabajos a realizarse en las Zonas II y III comprenden el mantenimiento de las áreas de rodaje, limpieza con barredoras y trabajos de pavimentación cuando éstos sean necesarios.

4. Zona IV

En esta zona se ubica el área Industrial de Amelia. La misma se encuentra al sur del área de no-logro. En esta zona los trabajos a realizarse serán de mantenimiento y limpieza. En esta área actualmente hay en construcción varios proyectos. La Junta de Calidad Ambiental le exigirá a los contratistas a mantener limpia el área de trabajo y los alrededores afectados, además de mantener vigente los permisos correspondientes.



CATAÑO
MUNICIPIO DE CATAÑO
MUNICIPIO DE GUAYNABO
Amelia
Sabana
Elevador
Bahia de
Puerto Nuevo
Faro
MUNICIPIO DE CATAÑO
MUNICIPIO DE GUAYNABO
PUEBLO
VIEJO
TUBERIAS
NAVAL RES
Tanque de Agua
Montes
PUEBLO VIEJO
Campo de Golf
FORT BUCHANAN
MILITARY RES
High Sch
INTERSECCION
CARRERA
Montes de
San Patricio
Quebrada Santa Catalina



Límite Territorial Guaynabo
JUN 1993
Bahía de San Juan
Calle Delicias
Zona I
Zona II
Barrio Vietnam
Avenida Las Palmas
Calle A
Calle B
Zona IV
Centro Industrial Amelia
Calle C
Calle Santa Rosa de Lima
Zona III
Barrio Amelia
Calle D
Cataño
Calle Martínez Nadal
Límite de Zona No Logro
Límite Territorial Guaynabo
JUN 1993
212

ANEJO B

INFORME TRIMESTRAL DE TAREAS REALIZADAS EN EL MUNICIPIO DE GUAYNABO DURANTE EL TRIMESTRE DE _____

FECHA	DESCRIPCION DE [1] LA TAREA	LUGAR/TRAMO	COSTO	COMENTARIOS[2]	PERSONA QUE SUPERVISO TAREA

(1) En caso de que la tarea incluya asfaltar algún tramo, especifique la cantidad de asfalto utilizado.

(2) Incluya cualquier comentario pertinente tal como inconvenientes para realizar la tarea, etc.

CERTIFICO: que el presente informe detalla las tareas realizadas en los lugares y fechas que se mencionan en el mismo.

_____

FIRMA

ANEJO C

PROPUESTA REGLA 423 - LIMITES PARA EL AREA DE NO-LOGRO DE PM_{10} DE GUAYNABO

C) Memorandos de Entendimiento Interagencial

Cualquier convenio o Memorandos de Entendimiento Interagencial logrado y firmado entre la Junta de Calidad Ambiental y cualquier otra agencia estatal, autoridad o entidad municipal que establezca las medidas o estrategias de control definidas para controlar y reducir cualquier emisión de PM_{10} y/o el precursor de PM_{10} será fiscalizable estatal y federalmente por la Junta y la APA respectivamente, se hará formar parte de este reglamento y se hará formar parte del permiso de operación de la fuente afectada.

D) Medidas de Contingencia

Las siguientes medidas de contingencia serán fiscalizadas bajo este Reglamento sino se alcanza cumplimiento con los estandares de calidad de aire de PM_{10} en el Municipio de Guaynabo para el 31 de diciembre de 1994:

1- El Departamento de Transportación recogerá datos sobre el contenido de sedimento y la cantidad de polvo en carreteras del Municipio de Guaynabo utilizando procedimientos de APA en el AP-42 (documento técnico de APA) para un mejor estimado de las emisiones de PM_{10}.

2- El Municipio de Guaynabo proveerá vegetación, estabilización química o cualquier otra disminución de terreno erosivo.

3- Toda embarcación que opere en la Bahia de San Juan, definida como las aguas navegables al sur de la línea imaginaria que conecta a Punta del Morro y la Isla de Cabras, deberá utilizar el combustible diesel con un contenido de azufre menor de 0.3% por peso.

4- No se permite la emisión visible de ninguna embarcación excepto lo que dispone la Regla 403 de este Reglamento.

5- La Autoridad de los Puertos deberá implantar un programa de limpieza de calles o cualquier otro programa que impida que el polvo sea depositado en las superficies asfaltadas bajo su jurisdicción.

6- El Municipio de San Juan deberá revisar los planes de control de incendios y mitigación de polvo en su relleno sanitario municipal de forma que se establezcan estrategias adicionales de control de contaminación.

APPENDIX C

ESTADO LIBRE ASOCIADO DE PUERTO RICO
OFICINA DEL GOBERNADOR
JUNTA DE CALIDAD AMBIENTAL

ACUERDO INTERAGENCIAL

COMPARECEN

DE LA PRIMERA PARTE: La **Autoridad de los Puertos** (en lo sucesivo denominada como **"La Autoridad"**), corporación pública del Estado Libre Asociado de Puerto Rico, representada por su Director Ejecutivo Carlos Díaz Olivo, mayor de edad, casado y vecino de San Juan, Puerto Rico.

DE LA SEGUNDA PARTE: La **Junta de Calidad Ambiental** (en lo sucesivo denominada como **"La Junta"**), agencia del Estado Libre Asociado de Puerto Rico, representada por su Presidente Héctor Russe Martínez, mayor de edad, casado y vecino de Morovis, Puerto Rico.

PRIMERO: La Agencia de Protección Ambiental Federal ha designado al municipio de Guaynabo como área que no cumple con el estándar nacional primario para el contaminante PM_{10} (material particulado inhalable cuyo tamaño no excede de 10 micrones).

SEGUNDO: Que para lograr y mantener la concentración de material particulado fino bajo el estándar anual (promedio aritmético) de la calidad de aire de 50 ug/m^3 en el área de no logro, La Junta tiene que imponer las más estrictas medidas a las actividades que tienen un efecto detrimental sobre la calidad de aire del área de no logro.

TERCERO: La excedencia en la concentración permitida de PM_{10} se debe a la deficiencia o ausencia de medidas para controlar el material particulado generado por diversas actividades, siendo una de ellas la emisión de las embarcaciones en la zona portuaria.

CUARTO: Que se ha identificado a La Autoridad como la agencia con jurisdicción específica sobre aquellas embarcaciones marítimas (lanchas) que transportan pasajeros desde Cataño, Hato Rey y a San Juan, y con jurisdicción exclusiva en lo referente a la construcción, operación y uso de puertos y mantenimiento de carreteras y calles en zonas portuarias.

QUINTO: Que La Autoridad está autorizada por la Ley Núm. 125 de 7 de mayo de 1942 según enmendada, para asumir las tareas que motivan este acuerdo interagencial.

SEXTO: Que la Autoridad reconoce que debe contribuir para que se alcance y mantenga el estándar nacional de PM_{10} en el área de no logro, y lo hará mediante la implantación de las medidas que se describen a continuación.

SEPTIMO: Que La Autoridad se compromete a asfaltar y dar mantenimiento a las carreteras, calles, áreas de estacionamiento y caminos de las zonas portuarias de Puerto Nuevo, Guaynabo y San Juan bajo su jurisdicción y que se detallan en el listado que se acompaña con este acuerdo (ver Anejo A).

OCTAVO: Que La Autoridad adquirirá o gestionará la adquisición de dos (2) máquinas barredoras (en adelante "las barredoras") que operen con agua o en su efecto contratará los servicios de una compañía privada para barrer por lo menos una (1) vez por semana las áreas mencionadas en el inciso SEPTIMO .

NOVENO: Que si en algún momento las barredoras sufren averías simultáneamente, La Autoridad realizará gestiones tendentes a repararlas para poder cumplir con su obligación. En el caso de que la Autoridad contrate los servicios de una compañía privada, esta mantendra el servicio de limpieza.

DECIMO: Que en caso de que la avería de las barredoras no pudiese corregirse con la celeridad necesaria para cumplir con la obligación descrita en el inciso NOVENO, La Autoridad enviará o gestionará el envío de brigadas que limpiarán, hasta donde sea posible, el exceso de polvo acumulado en las áreas mencionadas en el inciso SÉPTIMO.

UNDECIMO: Que en relación a las embarcaciones que utilizan con regularidad las facilidades portuarias de San Juan, La Autoridad verificará la posibilidad que se pueda utilizar combustible alterno para reducir los contaminantes atmosféricos emitidos por dichas embarcaciones. El uso alterno de combustible deberá presentar un beneficio a la calidad del aire y las emisiones producidas por dicho combustible no deberá exceder del 20% de opacidad como definido en el Reglamento para el Control de la Contaminación Atmosférica, vigente.

DECIMOSEGUNDO: Que La Autoridad enviará un informe mensual certificando que se han realizado las tareas contenidas en este acuerdo, y conteniendo la fecha, lugar, costo y breve descripción de cada tarea, cualquier inconveniente o situación fuera de control de la Autoridad que retrase el trabajo. Este informe será subscrito por el Secretario del Departamento o por un representante autorizado utilizando el formato que se acompaña con este acuerdo (ver Anejo B).

DECIMOTERCERO: Que la persona de contacto en la Autoridad para efectos del presente acuerdo es el Ing. Jorge L. Dávila y que como tal será responsable de coordinar y comunicarle al Director Ejecutivo sobre cualquier eventualidad relacionada con el presente acuerdo.

DECIMOCUARTO: Que la Autoridad se compromete mediante la implantación de mejores prácticas de ingeniería para el control de la emisión de materia particulada a la atmósfera en la construcción de proyectos futuros bajo su jurisdicción ubicadas en las Zonas Portuarias de Puerto Nuevo, Guaynabo y San Juan.

DECIMOQUINTO: Que las mejores prácticas de ingeniería para el control de la emisión de materia particulada que se menciona en el inciso Decimocuarto se refieren a lo siguiente, sin limitarse a ello: humectación continua de los terrenos expuestos a la erosión, utilización de lonas para tapar la carga de los camiones de acarreo en proyectos de construcción, utilización de lonas en estibas de agregados y pavimentación de áreas de estacionamientos y vías de acceso.

DECIMOSEXTO: Que el Departamento y la Autoridad reconocen que la Junta podrá exigirle a estos mediante enmiendas a este acuerdo, que implanten aquellas medidas de contingencia (bajo su jurisdicción) que se describen en el Plan de Implantación Estatal (SIP) y que hasn sido incorporadas a las enmiendas al Reglamento para el Control de la Contaminación Atmosférica, vigente en la Regla 423; para las actividades a realizarse en

el Area de No-Logro (Anejo C) , cuando no se obtenga la reclasificación al Area de No-Logro y sea necesario implantar medidas más restrictivas para reducir las emisiones de materia particulada fina.

DECIMOSEPTIMO: Que la fecha de efectividad del presente acuerdo lo será la fecha en que se firme el mismo y durará hasta tanto el Municipio de Guaynabo recobre la categoría de Logro bajo el Acta de Aire Limpio.

DECIMOOCTAVO: Que la implantación de las medidas discutidas en este Acuerdo deberán iniciarse el 10 de diciembre de 1993 para lograr cumplimiento en o antes del 15 de noviembre de 1994.

En San Juan, Puerto Rico hoy de de 1993

Héctor Russe Martínez
Presidente
Junta de Calidad Ambiental

Carlos Díaz Olivo
Director Ejecutivo
Autoridad de Los Puertos

ANEJO A

Identificación de Vías de Rodaje y Areas de Estacionamiento Bajo el Control de la Autoridad de Los Puertos

Vías de Rodaje o Area de Estacionamiento	Actividad a Realizarse	Comentario
Army Terminal	Asfaltar y mantenimiento	Asfaltar área de estacionamiento y vías de rodaje interno.
Ave. Mercado Central y calles laterales a esta Zona Portuaria de Puerto Nuevo	Mantenimiento y limpieza	Limpieza de calles y mantenimiento de las mismas.
Ave. Mercado Central Final - Zona Portuaria de Puerto Nuevo	Asfaltar y Mantenimiento	Terrenos baldíos, áreas deprovista de vegetación y áreas utilizadas para estacionamientos de vehículo y vagones.

ANEJO B

INFORME MENSUAL DE TAREAS REALIZADAS EN EL MUNICIPIO DE GUAYNABO DURANTE EL MES DE _____

FECHA	DESCRIPCION DE [1] LA TAREA	LUGAR/TRAMO	COSTO	COMENTARIOS[2]	PERSONA QUE SUPERVISO TAREA

(1) En caso de que la tarea incluya asfaltar algún tramo, especifique la cantidad de asfalto utilizado.

(2) Incluya cualquier comentario pertinente tal como inconvenientes para realizar la tarea, etc.

CERTIFICO: que el presente informe detalla las tareas realizadas en los lugares y fechas que se mencionan en el mismo.

_____

FIRMA

ANEJO C

PROPUESTA REGLA 423 - LIMITES PARA EL AREA DE NO-LOGRO DE PM_{10} DE GUAYNABO

C) Memorandos de Entendimiento Interagencial

Cualquier convenio o Memorandos de Entendimiento Interagencial logrado y firmado entre la Junta de Calidad Ambiental y cualquier otra agencia estatal, autoridad o entidad municipal que establezca las medidas o estrategias de control definidas para controlar y reducir cualquier emisión de PM_{10} y/o el precursor de PM_{10} será fiscalizable estatal y federalmente por la Junta y la APA respectivamente, se hará formar parte de este reglamento y se hará formar parte del permiso de operación de la fuente afectada.

D) Medidas de Contingencia

Las siguientes medidas de contingencia serán fiscalizadas bajo este Reglamento sino se alcanza cumplimiento con los estandares de calidad de aire de PM_{10} en el Municipio de Guaynabo para el 31 de diciembre de 1994:

1- El Departamento de Transportación recogerá datos sobre el contenido de sedimento y la cantidad de polvo en carreteras del Municipio de Guaynabo utilizando procedimientos de APA en el AP-42 (documento técnico de APA) para un mejor estimado de las emisiones de PM_{10}.

2- El Municipio de Guaynabo proveerá vegetación, estabilización química o cualquier otra disminución de terreno erosivo.

3- Toda embarcación que opere en la Bahia de San Juan, definida como las aguas navegables al sur de la línea imaginaria que conecta a Punta del Morro y la Isla de Cabras, deberá utilizar el combustible diesel con un contenido de azufre menor de 0.3% por peso.

4- No se permite la emisión visible de ninguna embarcación excepto lo que dispone la Regla 403 de este Reglamento.

5- La Autoridad de los Puertos deberá implantar un programa de limpieza de calles o cualquier otro programa que impida que el polvo sea depositado en las superficies asfaltadas bajo su jurisdicción.

6- El Municipio de San Juan deberá revisar los planes de control de incendios y mitigación de polvo en su relleno sanitario municipal de forma que se establescan estrategias adicionales de control de contaminación.

ANEJO A

Identificación de Vías de Rodaje y Areas de Estacionamiento Bajo el Control de la Autoridad de Los Puertos

Vías de Rodaje o Area de Estacionamiento	Actividad a Realizarse	Comentario
Army Terminal	Asfaltar y mantenimiento	Asfaltar área de estacionamiento y vías de rodaje interno.
Ave. Mercado Central y calles laterales a esta Zona Portuaria de Puerto Nuevo	Mantenimiento y limpieza	Limpieza de calles y mantenimiento de las mismas.
Ave. Mercado Central Final - Zona Portuaria de Puerto Nuevo	Asfaltar y Mantenimiento	Terrenos baldíos, áreas deprovista de vegetación y áreas utilizadas para estacionamientos de vehículo y vagones.

ESTACION DE PM10 SAN JUAN, AVE. BALDORIOTY #30 1998

DIAS	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO.	SEPT.	OCT.	NOV.	DIC	DIAS
1	30			31	41						35	51	1
2		41				37	84		40				2
3	37			42	21			58				38	3
4			36			35	61		83	59			4
5	32			18	46			86			28	33	5
6			53			48	59		25	61			6
7				44	32			50			36	51	7
8		25	29			49	48		38				8
9	35			39	32			30			44	48	9
10		45				41	44						10
11	28			21	21			115			70	55	11
12		46	39			34			79	46			12
13				44	18			115			31	40	13
14		24	21				24		70	29			14
15	36			44	46			52			33	47	15
16		28	55			43	66		89	52			16
17	27			39	36			61			65		17
18		25	52			47	25		55	31			18
19	31			22	45			49			42	54	19
20		28	30			82	39			68			20
21	32			32	82			40			36	61	21
22		40				69	64			19			22
23	58			32	31			41		39	42	75	23
24		35				37	41						24
25	35			15	36			42			51	33	25
26		50				71	76			53			26
27				34	43			62			41	31	27
28		35	24			131	33			52			28
29				39	31			50			23	40	29
30			31			173	63			29			30
31					31			67				36	31
Num. Obs mens.	11	12	10	15	16	14	14	15	8	12	14	15	Num. Obs mens.
Max. mens	58	50	55	44	82	173	84	115	89	68	70	75	Max. mens.
Min mens.	27	24	21	15	18	34	24	30	25	19	23	31	Min. mens.
Prom. mens	34.6	35.2	37.0	33.1	37.0	64.1	51.9	61.2	59.9	44.8	41.2	46.2	Prom. mens
Num. Obs. Trim			33			45			37			41	Num. Obs. Trim.
Max. trim.			37			173			115			75	Max. trim.
% De Capt. trim			0.97			0.98			0.93			0.91	% De Capt. trim.
Prom.Trim.			35.55			44.11			57.41			44.10	Prom.Trim.

No. Obs. Anual	156
Max. Anual	173
2 da Max. Anual	131
Min. Anual	15
Prom. Anual	45.29

*Norma Nacional Anual 50 µg/m3
* Norma Nacional 24 hrs 150 µg/m3

ESTACION DE PM10 USGS GUAYNABO #7 1998

DIAS	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO.	SEPT.	OCT.	NOV.	DIC.	DIAS
1		22					99				28	37	1
2	28				20				31				2
3			36					28					3
4		35				24	57				33		4
5	25			16	28				21				5
6			35					25					6
7		25				62	34				28	39	7
8	24			31	25				27				8
9			33					19					9
10		32				28	30					43	10
11	19			19	24				82				11
12			30					55					12
13		33				46	29				18	23	13
14	29			35	23				59	29			14
15			39					21					15
16		25				29					42	34	16
17	29			23	27				53				17
18			39					30					18
19		36				39	45				29	33	19
20	31			23	46								20
21			29					21					21
22		35				63	50				24	34	22
23	49			24	22								23
24			61					21					24
25		39				36	63				37	22	25
26	42			16	25					40			26
27			31					34					27
28		26				120	29					28	28
29	26			23	24					28			29
30			23					35					30
31							61					31	31
Num. Obs mens	10	10	10	9	10	9	10	10	6	3	8	10	Num. Obs mens
Max. mens.	49	39	61	35	46	120	99	55	82	40	42	43	Max mens
Min. mens.	19	22	23	16	20	24	29	19	21	28	18	22	Min mens
Prom. mens	30 2	30 8	35.6	23 3	26 4	49.7	49 7	28.9	45.5	32 3	29.9	32.4	Prom. mens
Num. Obs. Trim			30			28			26			21	Num. Obs Trim
Max. trim.			61			120			99			43	Max trim.
% De Capt. trim			1.07			0.93			0.90			0.75	% De Capt. trim
Prom.Trim.			32.20			32.89			40.73			31 43	Prom Trim.

No. Obs. Anual	105
Max. Anual	120
2 da Max. Anual	99
Min. Anual	16
Prom. Anual	34.31

* Norma Nacional Anual 50 µg/m3
* Norma Nacional 24 hrs 150 µg/m3

ESTACION DE PM10 FT. BUCHANAN #33 1998

DIAS	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO.	SEPT.	OCT.	NOV.	DIC.	DIAS
1											24	22	1
2													2
3								19					3
4		20				17	50						4
5	16			13	18								5
6			26										6
7											17	21	7
8										20			8
9								14					9
10		30				19	21						10
11	15			14	16								11
12			22										12
13											14	18	13
14									44	20			14
15								16					15
16		14				15	40						16
17	14			14	22								17
18			27										18
19											17	17	19
20										30			20
21								17					21
22		28				46	37						22
23	34			11	17								23
24			46										24
25											16	18	25
26													26
27								20					27
28		16				95	19						28
29	17			15	16								29
30			17										30
31												21	31
Num Obs. mens.	5	5	5	5	5	5	5	5	1	3	5	6	Num Obs. mens
Max mens.	34	30	46	15	22	95	50	20	44	30	24	22	Max mens
Min. mens.	14	14	17	11	16	15	19	14	44	20	14	17	Min mens
Prom. mens.	19.2	21.6	27.6	13.4	17.8	38.4	33.4	17.2	44.0	23.3	17.6	19.5	Prom. mens
Num. Obs. Trim.			15			15			11			14	Num. Obs Trim
Max. trim.			46			95			50			30	Max. trim.
% De Capt. trim.			1.00			1.00			1.00			0.93	% De Capt. trim.
Prom Trim			22.80			23.20			27.00			19.64	Prom.Trim.

No. Obs. Anual	55
Max. Anual	95
2 da Max. Anual	50
Min. Anual	11
Prom. Anual	23.16

* Norma Nacional Anual 50 µg/m3
* Norma Nacional 24 hrs 150 µg/m3

APPENDIX D

[Federal Register: May 31, 1995 (Volume 60, Number 104)]
[Rules and Regulations]
[Page 28333-28338]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:fr31my95-9]

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[Region II Docket No. 136, PR3-2-6731, FRL-5209-5]

Approval and Promulgation of PM<INF>10 Implementation Plan for the Commonwealth of Puerto Rico

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The EPA is approving the State Implementation Plan (SIP) revision submitted by the Commonwealth of Puerto Rico for the purpose of attaining the National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM<INF>10). The SIP addresses sources impacting the Municipality of Guaynabo, Puerto Rico which has been designated nonattainment.

EFFECTIVE DATE: This action will be effective June 30, 1995.

ADDRESSES: Copies of the state submittal are available at the following

addresses for inspection during normal business hours:

Environmental Protection Agency, Region II Office, Library, 290 Broadway, 16th Floor, New York, New York, 10007-1866.

Environmental Protection Agency, Region II, Caribbean Field Office, Centro Europa Building, Suite 417, 1492 Ponce De Leon Avenue, Stop 22, Santurce, Puerto Rico, 00909.

Commonwealth of Puerto Rico, Environmental Quality Board, Banco National Plaza, 8th Floor, 431 Ponce De Leon Avenue, Hato Rey, Puerto Rico, 00917.

Environmental Protection Agency, Air and Radiation Docket and Information [[Page 28334]] Center (MC 6102), 401 M. Street, S.W. Washington, D.C. 20460.

FOR FURTHER INFORMATION CONTACT:

Kirk J. Wieber, Air Programs Branch, Environmental Protection Agency, Region II Office, 290 Broadway, 20th Floor, New York, New York 10007-18666 (212) 637-4249.

or

Carl Soderberg, Director, Environmental Protection Agency, Region II, Caribbean Field Office, Centro Europa Building, Suite 417, 1492 Ponce De Leon Avenue, Stop 22, Santurce, Puerto Rico, 00909, (809) 729-6951.

SUPPLEMENTARY INFORMATION:

I. Background

The Clean Air Act, as amended in 1990 (the Act), requires all areas that have measured a violation of the NAAQS for PM<INF>10 before January 1, 1989 be designated nonattainment. On November 15, 1990 by operation of law the Municipality of Guaynabo, Puerto Rico was designated nonattainment for PM<INF>10 and classified as moderate based on violations measured in 1987 in the Municipality. [see 56 FR 11101 (March 15, 1991)]. The Act requires state or territorial governments to revise their SIP for all areas that are designated as nonattainment to ensure that the NAAQS will be attained. Under the Act, the Commonwealth of Puerto Rico is regarded as a state. The reader should refer to the

``General Preamble'' [see generally 57 FR 13498 (April 16, 1992) and 57 FR 18070 (April 28, 1992)] for a more detailed discussion of the designation of PM<INF>10 nonattainment areas.

II. Today's Action

Section 110(k) of the Act sets out provisions governing EPA's review of SIP submittals. (See 57 FR 13565-13566.) In this action, EPA is approving the Puerto Rico PM<INF>10 implementation plan revision submitted to EPA on November 14, 1993. This submittal was intended to satisfy those moderate PM<INF>10 nonattainment area SIP requirements due November 15, 1991 and the moderate PM<INF>10 nonattainment area New Source Review requirements due June 30, 1992. EPA proposed to approve the submittal on August 11, 1994, 57 FR 41265. The reader is referred to the proposal for a detailed explanation of Puerto Rico's PM<INF>10 SIP and EPA's evaluation. In response to the Federal Register notice and a Public Meeting held by EPA Region II on September 11, 1994 in the Municipality of Catano, comments were received from ten interested parties. EPA's response to these comments are discussed in IV. Public Comment.

III. Analysis of Puerto Rico's SIP Submission

A. Administrative Requirements

The Commonwealth of Puerto Rico held a public hearing on October 15, 1993 to accept public comments on the implementation plan for the Municipality of Guaynabo PM<INF>10 nonattainment area. Following the public hearing the plan was adopted by Puerto Rico and was submitted to EPA as a revision to the SIP on November 14, 1994. The submittal was supplemented with administrative documents on March 18, 1994 and March 30, 1994. The SIP submittal included revisions to the Puerto Rico Regulations for the Control of Atmospheric Pollution which include the following: Part I; Rule 102, ``Definitions,'' Part II; Rule 201, ``Location Approval,'' Rule 202, ``Air Quality Impact Analysis,'' Rule 203, ``Permit to Construct a Source,'' and Part IV; Rule 401, ``Generic Prohibitions,'' Rule 402, ``Open Burning,'' Rule 403, ``Visible

Emissions," Rule 404, ``Fugitive Dust," and Rule 423, ``Limitations for the Guaynabo PM<INF>10 Nonattainment Area," which became effective on April 2, 1994. The entire SIP revision was reviewed by EPA to determine completeness in accordance with the completeness criteria set out at 40 CFR 51, and found to be administratively complete.

B. Emissions Inventory

Puerto Rico submitted an emissions inventory for base year 1990. EPA is approving the emissions inventory because it is accurate and comprehensive, and provides a sufficient basis for determining the adequacy of the attainment demonstration for this area consistent with the requirements of sections 172(c)(3) and 110(a)(2)(K) of the Act.

C. New Source Review (NSR) PM<INF>10 Permit Program

The statutory permit requirements for moderate PM<INF>10 nonattainment areas are contained in section 173 and section 189 of the Act. For all moderate PM<INF>10 nonattainment areas, states must adopt the appropriate major source threshold, offset ratio, significance level for modifications, and provisions for PM<INF>10 precursors. Puerto Rico's PM<INF>10 implementation plan submittal addressed all NSR Act requirements, therefore, EPA is approving the PM<INF>10 NSR permit program SIP revision.

D. Reasonably Available Control Measures (RACM) including Reasonably Available Control Technology (RACT)

Moderate PM<INF>10 nonattainment areas were required to submit provisions to assure that RACM (including RACT) would have been implemented no later than December 10, 1993 or four years after designation in the case of an area classified as moderate nonattainment after November 15, 1990. [see sections 172(c)(1) and 189(a)(1)(C)]. The Municipality of Guaynabo was designated and classified as moderate nonattainment for PM<INF>10 on November 15, 1990 by operation of law, therefore, the Puerto Rico PM<INF>10 implementation plan needed to assure that RACT/RACM would have been implemented no later than

December 10, 1993. The SIP contains enforceable commitments by the Puerto Rico Environmental Quality Board (EQB) to achieve various RACM requirements through regulations as well as through Memoranda of Understanding (MOU). These were effective upon adoption. The EQB has signed MOU's with various entities which include details of how the various RACM requirements would be implemented.

EPA has reviewed Puerto Rico's SIP documentation and concluded that its choice of control measures has provided for attainment of the PM<INF>10 NAAQS by December 31, 1994. By this notice, EPA is determining that the control strategies are consistent with the RACM and RACT requirements contained in the Act.

E. Contingency Measures

As provided in section 172(c)(9) of the Act, all PM<INF>10 nonattainment area SIP's must include contingency measures (see generally 57 FR 13543-44). These measures were required to be submitted by November 15, 1993 for the moderate PM<INF>10 nonattainment areas. [see 57 FR 13543 (April 16, 1992)]. Contingency measures should consist of other available measures, not already part of the area's control strategy, that take effect without further action by the Commonwealth or EPA upon a determination by EPA that the area has failed to make Reasonable Further Progress (RFP) or attain the PM<INF>10 NAAQS by the applicable statutory deadline. The Municipality of Guaynabo PM<INF>10 nonattainment area SIP contains contingency measures which are included in Rule 423(D).

After review of the contingency measures contained in the SIP, EPA has determined they meet the requirements of the Act. [[Page 28335]]

F. Demonstration of Attainment

Moderate PM<INF>10 nonattainment areas were required to submit a demonstration (including air quality modeling) showing that the plan will provide for attainment as expeditiously as practicable but no later than December 31, 1994 [see sections 188(c)(1) and 189(a)(1)(B) of the Act).

EQB performed an attainment demonstration using the Industrial

Source Complex (ISC2) dispersion model and five years of National Weather Service meteorological data. EPA recommends that implementation plans show maintenance of the PM<INF>10 NAAQS for at least three years beyond the attainment date. Puerto Rico's demonstration, included in their PM<INF>10 implementation plan, indicates the NAAQS for PM<INF>10 were attained by December 31, 1994 in the Municipality of Guaynabo. In addition, Puerto Rico went beyond EPA's recommendation of demonstrating maintenance of the PM<INF>10 NAAQS for three years and demonstrated they would be maintained at least until 1999. EPA is approving the attainment demonstration.

G. Quantitative Milestones and RFP

The moderate PM<INF>10 nonattainment area plan revisions demonstrating attainment must contain quantitative milestones which are to be achieved every three years until the area is redesignated attainment and which demonstrate reasonable further progress (RFP) toward attainment by December 31, 1994 (see section 189(c)(1) of the Act). RFP is defined in section 171(1) as such annual incremental reductions in emissions of the relevant air pollutant as are required by Part D or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable NAAQS by the applicable date.

The assurance that milestones and RFP will be achieved is based upon the Commonwealth adopting and implementing the particular control measures contained in the PM<INF>10 SIP, RACM (including RACT).

H. Enforceability

The SIP must include enforceable emission limitations and other control measures, means or techniques necessary or appropriate to meet the requirements of the Act. [see section 110(a)(2)(A) of the Act]. Nonattainment plan provisions must also include enforceable emission limitations and other control measures, means or techniques necessary or appropriate to provide for attainment of the NAAQS by the applicable attainment date. [see section 172(b)(6)]. The SIP must also contain a program which provides for enforcement of the control measures and

other elements in the SIP and the regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that the NAAQS are achieved, including a permit program required under Part C or D of Title I of the Act. [see, section 110(a)(2)(C)]. All measures and other elements in the SIP must be enforceable by the Commonwealth and EPA [see sections 172(c)(6), 110(a)(2)(A) and 57 FR 13556]. Moderate PM<INF>10 nonattainment area plan provisions must also contain a program which provides for enforcement of the control measures and other elements in the SIP [see section 110(a)(2)(C)].

The SIP requires that all affected stationary sources must be in full compliance with the applicable RACT requirements by December 10, 1993. However, if a physical alteration of the stationary source is necessary to achieve compliance, the SIP requires that construction of the alteration must have been commenced by February 15, 1994, and must have been completed by November 30, 1994. EQB has prepared a compliance schedule for those sources that still need to make alterations. Compliance with these RACT requirements must be demonstrated using the applicable EPA Reference Test Methods. Puerto Rico has an enforcement program that will ensure that these RACT requirements are adequately enforced. There are civil penalties for noncompliance with the Regulation containing these RACT requirements.

In addition to the RACT requirements for stationary sources, the SIP contains enforceable commitments by EQB to achieve various RACM requirements. To implement these measures, EQB has signed an MOU with the Puerto Rico Department of Transportation, the Puerto Rico Electric Power Authority, the Municipality of Guaynabo, and the Port Authority that contain details on how each of these entities will meet these RACM commitments. The commitments to implement the RACM requirements are in the SIP itself, and thus are enforceable as requirements of the SIP. In addition, the MOU's, having gone through public review and comment, will be incorporated into the SIP by reference, and are effective as of the date each was signed. The attainment demonstration, which shows attainment of the PM<INF>10 NAAQS by December 31, 1994, uses emissions reductions from the identified RACM measures, and thus EPA expects them to be implemented pursuant to the MOU's. Once incorporated into the approved SIP, the requirements of the MOU may not be changed except by

a revision to the SIP that has been submitted to and approved by EPA.

Puerto Rico's revisions to the regulations include a new definition for ``PM<INF>10'' in Rule 102. Although test methods are not contained in Puerto Rico's definition of ``PM<INF>10'' as they are in 40 CFR 51.100 (qq), EPA is approving Puerto Rico's definition of ``PM<INF>10,'' since the relevant test methods are found in other provisions of the regulations.

I. PM<INF>10 Precursors

The Act states that ``control requirements applicable to major stationary sources of PM<INF>10 must also apply to major stationary sources of PM<INF>10 precursors except where the Administrator determines that such sources do not contribute significantly to PM<INF>10 levels which exceed the NAAQS in the area.'' Based on filter analyses of the Guaynabo nonattainment area, the relatively minor contribution of precursors to overall nonattainment, and the effectiveness of the Commonwealth's RACT/RACM strategies, EPA agrees with EQB's determination that no controls of PM<INF>10 precursors beyond what are already controlled in the Puerto Rico SIP are needed for attainment. Nonetheless, Puerto Rico has chosen to include within the NSR provisions a requirement for control of PM<INF>10 precursors unless EPA and EQB determine otherwise.

IV. Public Comment

EPA proposed to approve the Puerto Rico PM<INF>10 implementation plan on August 11, 1994, 57 FR 41265. Comments were received from ten interested parties. Comments were also received during the Public Meeting held by EPA Region II on September 11, 1994 in the Municipality of Catano. EPA evaluated all the comments with respect to EPA's proposed approval. Due to the large number of comments, EPA prepared a separate ``Responsiveness Document'' which summarizes each comment and includes EPA's evaluation and detailed response. This document is available from EPA upon request. In this Federal Register notice EPA has summarized major comments and responses.

The following summaries of comments and responses is divided into

several major areas; the designation of the nonattainment area, the SIP attainment demonstration, and RACT determinations. [[Page 28336]]

Designation of Nonattainment

Comment: Puerto Rico's plan is based on air quality data which is incomplete and insufficient for determining that the Municipality of Guaynabo was not in attainment of the air quality standards. Air quality now meets the NAAQS.

Response: The Commonwealth presented no information which invalidates the air quality data previously collected which indicated nonattainment. Section 107(d)(4)(B) of the Act mandated the designation of areas as nonattainment for PM<INF>10 by operation of law:

``(B) PM<INF>10 Designations.--By operation of law, * * * (ii) any area containing a site for which air quality monitoring data show a violation of the national ambient air quality standard for PM<INF>10 before January 1, 1989 (as determined under part 50, appendix K of title 40 of the Code of Federal **Regulations**) is hereby designated nonattainment for PM<INF>10;"

This section of the Act confines the EPA to review air quality data prior to January 1, 1989, not after January 1, 1989, in designating an area for PM<INF>10. The designation of the Municipality of Guaynabo as nonattainment for PM<INF>10 was based on the PM<INF>10 concentration of 285 <greek-m>g/m<SUP>3, recorded at the Electrical Substation #24 on August 1, 1987. There was no evidence presented by the Commonwealth that showed this reading to be invalid. Further, air quality data available to the Administrator indicated that there were violations of the annual standard in 1987 and 1988. EPA does not find any evidence to conclude that the nonattainment designation was made in error.

If indeed the area is attaining the PM<INF>10 NAAQS in the Municipality of Guaynabo as a result of permanent reductions in emission, the Commonwealth can request a redesignation to attainment. Section 107 (d)(3) of the Act specifies the procedures and requirements for changing an area's designation. The redesignation of an area from nonattainment to attainment is an entirely separate procedure from

today's SIP approval action. However, one requirement of a redesignation is that the Commonwealth has an approved PM<INF>10 attainment SIP. A redesignation request, which may be submitted at any time, would be processed expeditiously by EPA as a separate rulemaking.

Comment: The location of EQB's PM<INF>10 air quality monitors are not representative of the air in the remainder of the nonattainment area and in the surrounding areas of Guaynabo. Monitors should be located in the center and southern end of the Municipality of Guaynabo and in the Municipality of Catano.

Response: EPA believes the current PM<INF>10 monitoring network in Puerto Rico is representative of the highest PM<INF>10 concentrations in the entire nonattainment area. This design is consistent with the monitoring objectives and methodologies described in Part 58 of the Code of Federal Regulations, Appendix D. They are sited immediately downwind of major point and area sources in locations where a long record of total suspended particulate monitors had measured the highest levels in Puerto Rico. Thus they meet the monitor-siting objective of measuring air quality in the area where the highest concentrations of a pollutant can be expected to occur.

Locations in southern Catano and Guaynabo do not have the same potential to measure high concentrations due to the lack of major sources of particulate matter, as demonstrated by the emission inventory of the Municipality of Guaynabo. Consequently, their absence should not make the Commonwealth's plan any less approvable.

Attainment Demonstration

Comments: The dispersion model used in the attainment demonstration is not conservative. Wrong meteorological data being used. The Puerto Rico Electrical Power Authority (PREPA) Palo Seco plant should have been included in the Plan.

Response: The dispersion model is conservative because it predicts higher concentrations than observed for almost the entire set of observed data. The graph in the Commonwealth's PM<INF>10 plan comparing concentrations predicted by the model with the observed data may not demonstrate this fact because the plotted predicted concentrations lack the background contribution from outside the modeled area of

(approximately 31 ug/m<SUP>3). When the concentrations predicted by the model are correctly included, however, the predicted concentrations are higher than the observed concentrations. Thus, EPA concludes that the model generally over predicts PM<INF>10 concentrations and is conservative. This is further supported by recent air quality measurements which show annual concentrations significantly well below concentrations predicted by the model, even after control measures have been enacted.

The San Juan Airport site is representative of the industrialized area of Guaynabo since it is also located on the north coast of Puerto Rico and subject to the same land-sea effects on the wind. The terrain in the Puerto Nuevo area where the largest emitting sources are located is mainly flat like the area near the Airport. Comparison between the San Juan Airport data and data collected at a meteorological tower in the Municipality of Guaynabo confirm that they are subject to the same meteorological patterns.

In reference to the PREPA Palo Seco issue, the attainment demonstration did consider the impact of the Palo Seco Power Plant's PM<INF>10 emissions on the Catano--Guaynabo area. The atmospheric dispersion model used in the attainment demonstration showed that the greatest impact of the power plant's emissions remained over water. The plants contribution to the Guaynabo nonattainment area (only about three and one half percent of the time) is less than the deminimis impact levels contained in EPA regulations. Since the power plant is located outside of the Guaynabo nonattainment area, EPA's guidance to the states is that RACT strategies need only be applied to those sources which have a significant impact on the nonattainment area. Thus RACT at the Palo Seco Power Plant would have no real benefit to attainment of PM<INF>10 standards in the Guaynabo. However, all power plants in Puerto Rico are subject to the same 20 percent opacity limit that is required of the power plant in Puerto Nuevo.

RACT Determinations for Electrical Utilities

Comment: A mass emissions limit should be adopted by Puerto Rico. The 1.5 percent sulfur-in-fuel limit is not cost effective nor stringent enough to show attainment. EQB has no independent way of

verifying sulfur-in-fuel limits.

Response: There is no requirement that a mass emission limit be used exclusively in state clean air plans. EPA can approve a SIP revision as long as it contains emission limits which are enforceable and which provide for attainment of the standards. The Act states ``each implementation plan submitted by a State * * * shall include enforceable emission limitations and other control measures, means, or techniques * * * as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this Act, section 110(a)(2)(A)."

The Puerto Rico SIP relies on a sulfur-in-fuel limit and a 20% opacity limitation, both of which are enforceable. Further, the Agency has collected emission data from a variety of fuel oil burning power plants from which the particulates can be [[Page 28337]] calculated. These factors are contained in the Compilation of Air Pollutant Emission Factors (AP-42), Supplement F, emissions factor equation. These emissions were factored into the Puerto Rico plan and attainment with health related ambient air quality standards was demonstrated.

EQB included in their SIP submittal an Economic Feasibility Analysis of Alternative Emission Control Strategies in the Guaynabo Municipality. This document presented an analysis of the cost of reducing emissions in Guaynabo and the cost effectiveness of alternative control strategies.

EPA reviewed the document and determined the costs of low sulfur residual oil were accurate to determine the cost effectiveness of controls applicable to PREPA. The analysis showed that 1.0, 1.5, and 2.0 percent sulfur oils cost about the same for each ton of sulfur reduced, however, according to the Economic Feasibility Analysis provided with the SIP, it will cost more than $6.6 million per year to reduce the sulfur content from 1.5 to 1.0 percent at the PREPA San Juan plant.

EQB has informed EPA that it has the necessary equipment to analyze fuel samples. Compliance of the sulfur-in-fuel limit will be verified by a variety of methods. In accordance with the January 31, 1994 Memorandum Of Understanding (MOU), PREPA and its fuel supplier will send sampling data to EQB. When the fuel supplier delivers the fuel, it will send its analysis of the fuel content to EQB. EQB can compare the

supplier's analysis against reports from the facility.

In summary, the two procedures set forth in the PM<INF>10 SIP, the sulfur-in-fuel limit that correlates to a 0.08 #/MMBtu mass emission rate, and the 20% opacity restriction are easily measured, readily enforceable, and when combined with the other control measures adopted by the Commonwealth, can demonstrate attainment of the PM<INF>10 NAAQS. The Agency therefore has determined that the limits provided can and should be approved.

RACT Determinations for Grain Handling Facilities

Comment: Puerto Rico's ban on the use of clamshell unloading of ships is not supportable as RACT. The 99.9% filtration efficiency required of grain mills is not technically achievable.

Response: The General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990 defines RACT as ``the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility." Congress specified that nonattainment area plans were to ``require * * * reasonable further progress * * * including such reduction in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of RACT."

Through modeling, EQB's contractor demonstrated that emissions from the grain mills contributed in a large way to the violations of the PM<INF>10 air quality standard predicted by the model. Taking this into consideration, EQB determined that stringent RACT measures were needed at these facilities to show attainment.

EPA guidance identifies that Industrial process fugitive particulate emissions are produced during all phases of grain handling and processing including: unloading, receiving, handling, drying, cleaning, milling, and land-out. EPA's Control Techniques for Particulate Emissions from Stationary Sources recommends that for grain handling and storage ``the most common control strategy is to enclose and hood the processing equipment or area with ventilation to cyclones and filters." Thus, the emission reductions that can be obtained from this strategy depend upon both process modifications to optimize the

capture efficiency of the ventilation system and the installation of control devices.

EQB determined that for a very dusty process such as Clamshell loading and unloading, RACT for this process would be the prohibition of Clamshell loading and unloading and the utilization of telescopic loading spouts in a fully enclosed area with a ventilation system. This control strategy is considered both technologically and economically feasible. EPA has verified this in discussions with grain facilities in the United States who are currently using the telescopic loading spouts.

EPA has not been able to conclude that a ban on loading/unloading using clamshells is not an acceptable RACT determination. Telescoping loading spouts are used in the industry to load and unload grain or grain products. However, EPA would object to a RACT determination that is less stringent than could be technologically and economically justified. Should the Commonwealth decide in the future to propose an alternative to a ban on the use of clamshells, the SIP could be revised accordingly.

The SIP requires the installation of control equipment with a 99.5% efficiency. Upon review EPA has concluded that this is achievable even in warm climates. In other parts of the country, (PM<INF>10 attainment and nonattainment areas), 99.9% is routinely required. One commenter argued that conditions at grain handling facilities in Puerto Rico would prevent 99.5% efficiency from being achieved. EPA has reviewed permits issued to grain mills in warm climates and determined that the 99.5% limit proposed in the SIP is achievable on a continuous basis providing there is proper operation and maintenance of the control systems.

Environmental Justice Concerns

Comment: Several commenters raised environmental justice concerns in their comments.

Response: EPA recognizes that air pollution sources in the SIP area raise environmental justice issues, and EPA has taken steps to address these concerns in the SIP process. In particular, EPA has had meetings and contacts with affected communities and organizations, and intends

to continue these contacts as air programs are implemented and enforced. In addition, EPA and other agencies such as the Centers for Disease Control have been assessing environmental health factors in these communities. EPA will continue to review progress in implementing the SIP and other environmental programs with respect to Executive Order 12898 and the EPA Environmental Justice Strategy.

V. Summary

In this action, EPA is approving the SIP revision submitted to EPA on November 14, 1993 and supplemented on March 18, 1994 and March 30, 1994 by Puerto Rico for the Municipality of Guaynabo PM<INF>10 nonattainment area. Specifically, EPA is approving the emissions inventory, the control strategy including RACM and RACT, the demonstration that the Municipality of Guaynabo PM<INF>10 nonattainment area will attain the PM<INF>10 NAAQS by December 31, 1994 and maintain the PM<INF>10 NAAQS through 1999, the NSR permit provisions and the contingency measures. EPA determined that PM<INF>10 precursor controls are not needed for attainment. EPA is approving the revisions to the Puerto Rico Regulations for the Control of Atmospheric Pollution which include the following: Part I; Rule 102, ``Definitions,'' Part II; Rule 201, ``Location Approval,'' Rule 202, ``Air Quality Impact Analysis,'' Rule 203, ``Permit to Construct a Source,'' and Part IV; Rule 401, ``Generic Prohibitions,'' Rule 402, ``Open Burning,'' Rule 403, ``Visible Emissions,'' Rule 404, ``Fugitive Dust,'' [[Page 28338]] and Rule 423, ``Limitations for the Guaynabo PM<INF>10 Nonattainment Area.'' EPA is approving this PM<INF>10 SIP submittal in relation to its satisfying all Act requirements.

Previously, the Governor of Puerto Rico was notified on December 16, 1991 by the EPA Regional Administrator that Puerto Rico had not submitted the PM<INF>10 SIP requirements due on November 15, 1991. This action formally started both an 18-month Sanction clock and a 24-month Federal Implementation Plan (FIP) clock. In a January 15, 1993 letter, the Governor was notified that another 18-month Sanction clock and 24-month FIP clock, for the failure to submit a permit program for the NSR requirements by June 30, 1992, had begun. Since the November 14, 1993 submittal was found to be complete, the findings made on December 16,

1991 and January 15, 1993 of non-submittal have been corrected and no sanctions will be imposed. With the approval of this SIP revision, all Clean Air Act requirements have been met and it is no longer necessary for EPA to adopt a FIP to address the PM<INF>10 deficiencies.

This notice is issued as required by Section 110 of the Clean Air Act, as amended. The Administrator's decision regarding the approval of this plan revision is based on its meeting the requirements of Section 110 of the Clean Air Act, and 40 CFR Part 51.

The Agency has reviewed this request for revision of the federally-approved SIP for conformance with the provisions of the 1990 Amendments enacted on November 15, 1990. The Agency has determined that this action conforms with those requirements irrespective of the fact that the submittal preceded the date of enactment.

Nothing in this rule should be construed as permitting or allowing or establishing a precedent for any future request for revision to any SIP. Each request for revision to any SIP shall be considered separately in light of specific technical, economic, and environmental factors and in relation to relevant statutory and regulatory requirements.

Under sections 202, 203, and 205 of the Unfunded Mandates Reform Act of 1995 (``Unfunded Mandates Act''), signed into law on March 22, 1995, EPA must undertake various actions in association with proposed or final rules that include a federal mandate that may result in estimated annual costs of $100 million or more to the private sector, or to state, local, or tribal governments in the aggregate.

Through submission of this state implementation plan or plan revision, the state and any affected local or tribal governments have elected to adopt the program provided for under sections 110(a)(2), 172(c), 173 and 189(a) of the Clean Air Act. These rules may bind state, local and tribal governments to perform certain actions and also require the private sector to perform certain duties. To the extent that the rules being approved by this action would impose any mandate upon the state, local or tribal governments either as the owner or operator of a source or as a regulator, or would impose any mandate upon the private sector, EPA's action would impose no new requirements; such sources are already subject to these regulations under state law. Accordingly, no additional costs to state, local, or tribal

governments, or to the private sector, result from this action. EPA has also determined that this final action does not include a mandate that may result in estimated annual costs of $100 million or more to state, local, or tribal governments in the aggregate or to the private sector.

The Office of Management and Budget has exempted this action from review under Executive Order 12866.

Under section 307(b)(l) of the Act, petitions for judicial review of this rule must be filed in the United States Court of Appeals for the appropriate circuit within 60 days from date of publication. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed and shall not postpone the effectiveness of such rule or action. This rule may not be challenged later in proceedings to enforce its requirements. (See 307(b)(2)).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides.

Dated: May 14, 1995.

William J. Muszynski,

Acting Regional Administrator.

Part 52, chapter I, title 40 of the Code of Federal Regulations is amended as follows:

PART 52--[AMENDED]

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401-7671q.

Subpart BBB--Puerto Rico

2. Section 52.2720 is amended by adding new paragraph (c)(35) to

read as follows:

Sec. 52.2720 Identification of plan.

* * * * *

(c) * * *

(35) A revision submitted on November 14, 1993 by the Chairman of the Puerto Rico Environmental Quality Board (EQB) for the Municipality of Guaynabo. The submittal was made to satisfy those moderate PM<INF>10 nonattainment area SIP requirements due for the Municipality of Guaynabo as outlined in the Clean Air Act of 1990.

(i) Incorporation by reference:

(A) Regulations:

(1) Amendments to Part I, Rule 102, ``Definitions,'' of the Puerto Rico Regulations for the Control of Atmospheric Pollution, effective April 2, 1994.

(2) Amendments to Part II, Rule 201, ``Location Approval,'' Rule 202, ``Air Quality Impact Analysis,'' and Rule 203, ``Permit to Construct a Source,'' of the Puerto Rico Regulations for the Control of Atmospheric Pollution, effective April 2, 1994.

(3) Amendments to Part IV, Rule 401, ``Generic Prohibitions,'' Rule 402, ``Open Burning,'' Rule 403, ``Visible Emissions,'' Rule 404, ``Fugitive Dust,'' and Rule 423, ``Limitations for the Guaynabo PM<INF>10 Nonattainment Area,'' of the Puerto Rico Regulations for the Control of Atmospheric Pollution, effective April 2, 1994.

(B) Memoranda of Understanding (MOU):

(1) MOU signed by the Chairman of EQB and the Executive Director of Puerto Rico Electrical Power Authority, San Juan plant, limiting the sulfur-in-fuel level, annual operation capacity, and requiring the submittal of monthly sampling reports of its fuel's sulfur content, effective January 31, 1994.

(2) MOU signed by the Chairman of EQB and the Secretary of Puerto Rico Department of Transportation and Public Works and the Executive Director of the Highway Authority to maintain and control the reconstruction of existing roads and the construction of new roads, effective July 2, 1993.

(3) MOU signed by the Chairman of EQB and the Mayor of the Municipality of Guaynabo to pave and maintain the streets, roads and parking areas located in the Municipality of Guaynabo, effective December 13, 1993.

(4) MOU signed by the Chairman of EQB and the Executive Director of the Puerto Rico Port Authority to pave and maintain the streets, roads, and parking areas that lead into the port area in Puerto Nuevo, Guaynabo and San Juan, effective October 14, 1993.

[FR Doc. 95-13181 Filed 5-30-95; 8:45 am]
BILLING CODE 6560-50-P

APPENDIX E

24 Hour Design Value Calculation:1:1Guaynabo 2002-2006

Number of Observations Excluding exceptional events

	Station 7	Station 24
2002	111	340
2003	103	331
2004	105	333
2005	101	311
2006	102	298
Total	522	1613

Using the table 6-1 1987 PM_{10} SIP Development Guideline Document to determine which Value to Use

Table 6-1
Tabular Estimation of PM10 Design Concentrations

Number Of daily Values	Rank of Upper Bound	Rank of Lower Bound	Data Point Used for Design Concentration
<347	-	1	Highest Value
348-695	1	2	2nd Highest Value
696-1042	2	3	3rd Highest Value
1043-1390	3	4	4th Highest Value
1391-1738	4	5	5th Highest Value

Station # 7
Value 2002-2006

Obs = 522, must be 2nd Highest Value

	1st, 2nd Highest Values
2002	74,73
2003	86,71
2004	74,57
2005	74,69
2006	83,68

DV = 2ND HIGHEST VALUE = 83

DESIGN VALUE FOR GUAYNABO IS 85 UG/M3

Station #24
Value 2002-2006

Obs = 1613, must be 5th Highest Value

	1st, 2nd, 3rd Highest Valu
2002	78,74,74,73,72
2003	85,82,81,77,74
2004	96,91,78,73,72
2005	81,68,67,66,64
2006	90,89,77,76,72

DV = 5TH HIGHEST VALUE = 85

EPA-450/2-86-001

PM_{10}
SIP Development Guideline

U. S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
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6.2 Data Base Requirements

The design concentrations for attainment of the 24-hour PM_{10} NAAQS can be based on ambient measurements of PM_{10}, or model estimates of ambient concentrations at individual sites during 1 or more years of stable emissions conditions. Ideally, (1) modeling estimates using 5 years of National Weather Service meteorological data (or at least 1 year of on-site data), or (2) 3 years of representative air quality measurements should be considered in determining 24-hour design concentrations. If more years of data with relatively unchanging emissions are available, they also may be considered in calculating design concentrations. The more years of data available, the more stable the estimate of PM_{10} design concentrations.

The preferred approach for estimating a design value is through the use of an applicable dispersion model corroborated by receptor models, any available TSP data (using Appendix B), and any available PM_{10} data. If there is no applicable dispersion model and at least 1 complete year of PM_{10} data are available,* the PM_{10} data would be used to estimate the design value; if the PM_{10} data are insufficient,* the design value would be based on Appendix B of this guideline and corroborated by the available PM_{10} data.

6.3 Methodologies for Determining Design Concentrations

The annual design concentration is the expected annual arithmetic mean determined by the approach discussed in Appendix K, of Part 50. In the simplest case, the design concentration can be determined by averaging 3 years of monitored or 5 years of modeled PM_{10} concentrations.

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*These data should meet first year sampling requirements found in CFR 58.13.

There are several acceptable approaches for determining appropriate 24-hour PM_{10} design concentrations. These approaches which are described in the next sections are based on monitored or modeled PM_{10} concentrations. They include: (1) a table look-up procedure; (2) fitting a statistical distribution; (3) graphical estimation; and (4) the use of conditional probabilities. Each of these approaches and corresponding data usage requirements are presented in detail in the ozone guideline.[1] The following sections briefly summarize each of these approaches and indicate how the technique may be applied for determining PM_{10} concentrations.

6.3.1 Table look-up

The 24-hour PM_{10} design concentration is influenced primarily by the few highest measured or estimated concentrations at a site. Availability of the highest concentrations makes it possible to construct a simple table look-up procedure to determine the design concentration. All portions of the year should be adequately reflected in the measurements.

To use the tabular approach for the 24-hour PM_{10} standard, it is necessary to know the total number of 24-hour PM_{10} concentrations at the site and then select the design value from among the highest concentrations. The number of available 24-hour concentrations determines which of the highest concentrations is chosen as the design concentration. For example, if a comprehensive monitoring program provides 1,095 24-hour concentration measurements (or 3 full years of data) at a site, then the ranks of the lower and upper bounds obtained from Table 6.1 are 4 and 3 respectively. This means that an appropriate design concentration

for that site would be between the fourth-highest and third-highest concentrations. In using this table, the lower of the two concentrations should be used as the design concentration, i.e., the fourth-highest concentration. Therefore, in this example, it suffices to know only the four highest values during the time period. With multiple monitoring sites, the highest PM_{10} concentrations at each site would have to be considered and a design concentration established for each location. For example, the "controlling" design concentration for an area with seven sites, each having 1,095 values, would be the highest of the seven fourth-highest values.

For routine model applications with 5 full years of 24-hour concentration estimates, the PM_{10} design concentration of critical interest becomes the highest of sixth-highest concentrations for the entire receptor network.

The look-up procedure is basically a tabular technique for determining what point on the empirical frequency distribution corresponds to a frequency of 1/365. By construction, the table look-up procedure tends to provide a design concentration slightly lower than would be derived using a continuous curve representing a theoretical frequency distribution for PM_{10} values. For example, use of the table-derived estimate might be modified by interpolation between the

TABLE 6-1

TABULAR ESTIMATION OF PM_{10} DESIGN CONCENTRATIONS

Number of Daily Values	Rank of Upper Bound	Rank of Lower Bound	Data Point Used for Design Concentration
$\leq$ 347	-	1	Highest Value
348 - 695	1	2	Second Highest Value
696 - 1042	2	3	Third Highest Value
1043 - 1096	3	4	Fourth Highest Value

third- and fourth-highest values. However, this adds an additional element of calculation. Nevertheless, if a more precise design concentration should be desirable, the use of interpolation formulas (Section 6.3.2) or more simple graphical procedures (Section 6.3.3) may be necessary.

For the cases which are limited to less than a complete year of data, (i.e., 365 observations) the maximum concentration must generally be used as a tentative design value. In this case it should be recognized that the maximum concentration generally represents a lower-bound estimate for the true design concentration. In order to provide an alternative higher estimate for the design concentration, the extrapolated value derived from a fitted distribution (Section 6.3.2) can be used.* With sparse data sets, the tentative design concentrations defined as the maximum concentration or the extrapolated concentration are quite likely to require further revision as more data become available. In addition, the failure to adequately account for yearly variations in meteorological conditions makes any estimate based on a single year of data very tentative.

6.3.2 Fitting one statistical distribution to several years of data

With several years of fairly complete PM_{10} 24-hour air quality measurements or model estimates, a statistical distribution could be selected that "fits" the data. Information on fitting statistical distributions can be found on pages 18-20 in the ozone guideline.[1,2,3] Because we are interested in peak concentrations, emphasis would be placed on the top

*An extrapolated value must be used, however, instead of the maximum observed concentration in order to evaluate the possibility that the 24-hour standard is controlling, using procedures described in Sections 6.3.2 - 6.3.4.

APPENDIX F

Calculation of the Motor Vehicle Regional Analysis Methodology Municipality of Guaynabo

This criterion is related to mobile sources. According to the Limited Maintenance guidance the area should expect a limited growth in on-road motor vehicle PM_{10} emissions and should pass a motor regional analysis test. To determine if the emissions from on- road mobile sources could, in the next 10 years, increase concentrations in the area and threaten the assumption in the maintenance plan the following equation should be used:

$DV + (VMT_{pi} \times DV_{mv}) \leq MOS$

Where:

DV, is the area's design value based on the most recent 5 years of quality assured data in $\mu g/m^3$

VMT_{pi}, is the projected % increase in vehicle miles traveled (VMT) over the next 10 years

DV_{mv}, is the motor vehicle design value based on on-road mobile portion of the attainment year inventory in $\mu g/m^3$

MOS, is the margin of safety for the relevant PM_{10} standard for a given area· 98 $\mu g/m^3$ for the 24-hour standard

The following is the demonstration that the Municipality of Guaynabo complies with the criteria related to mobile sources:

DV:

The methodology used to determine the design value (DV) for the 24 –hour PM_{10} is the table look up procedure included in chapter 6 Development of Control Strategies of the document entitled the *PM_{10} SIP Development Guideline,* EPA-450/2-86-001, June 1987. The 24-hour PM_{10} DV for the years 2002 – 2006 is 85 $\mu g/m^3$.

VMT_{pi}:

For the calculation of the VMT_{pi} the following methods will be used:

1) an extrapolation of the most recent 10 years of Highway Performance Monitoring System (HPMS) data over the 10-year period to be addressed by the limited maintenance plan; and

2) a projection of VMT over the 10-year period that would be covered by the limited maintenance plan, using whatever method is in practice in the area (if different than #1).

The calculation of the VMT_{pi} is based on method #1. The HPMS for the Municipality of Guaynabo was provided by the Department of Transportation and Public Works (DTPW). The following table is the HPMS information for the municipality of Guaynabo:

1998	61	47	1,232,112
1999	62	41	1,200,497
2000	62	42	1,115,523
2001	61	36	1,235,002
2002	61	50	1,369,155
2003	61	61	1,553,419
2004	66	66	1,554,500
2005	66	66	1,513,110
2006	65	65	1,512,676
2007	64	63	1,442,075

For the purpose of obtaining the projected VMT for 2016 the slope was determine. Using the data included in the provided by DTPW the slope was calculated by linear regression and the result is 43670.38182.

	Slope Calculation	43670.38182
	Calculation of 2016 VMT	
		1,949,379.82

The VMT for the years 2006 and 2016 are

VMT Municipality of Guaynabo	
Years	VMT
2006	1,512,676
2016	1,949,379.82

The percent of increase in VMT during the10 year period is 28.87.

$DV_{mv,}$

The year 2006 is use as the attainment inventory year. The mobile sources emissions are represented by motor vehicle and paved roads. The emissions from these represent a 15.14 percent of the emissions for the attainment year .

Source Type	Actual Emissions (TPY)	
	2006	Percent
Point	1647	73.30
Area	10.59	0.47
Microinventory	121	5.38
Motor Vehicle	44.23	1.97
Paved Roads	294.45	13.10
Nonroad Marine Vessels	15.10	0.67
Nonroad Construction Equipment	97.37	4.33
Nonroad Lawn and Garden	9.62	0.43
Nonroad Off-Highway Small Industrial Fuel Combustion	3	0.14
Nonroad Off-Highway Small Commercial/Institutional Fuel Combustion	4.71	0.21
TOTAL	2247.07	100

Therefore the DV_{mv} = DV * percent of mobile source emission in the inventory year

Dv = 85 $\mu g/m^3$, Percent of mobile sources is 15.07.

DV_{mv}= 85*0.1507

DV_{mv}= 12.81 $\mu g/m^3$

MOS for 2006-2016

DV + (VMTpi * DVmv) $\leq$ MOS (i.e., 98$\mu g/m^3$ for 24-hour NAAQS)

85 + (0.2887*12.81) $\leq$ 98$\mu g/m^3$

88.70 $\mu g/m^3 \leq$ 98$\mu g/m^3$

Therefore, it passes the LMP VMT growth criteria.

APPENDIX G

PM-10 EMISSION INVENTORY FOR THE GUAYNABO NON-ATTAINMENT AREA

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SECTION 1.0

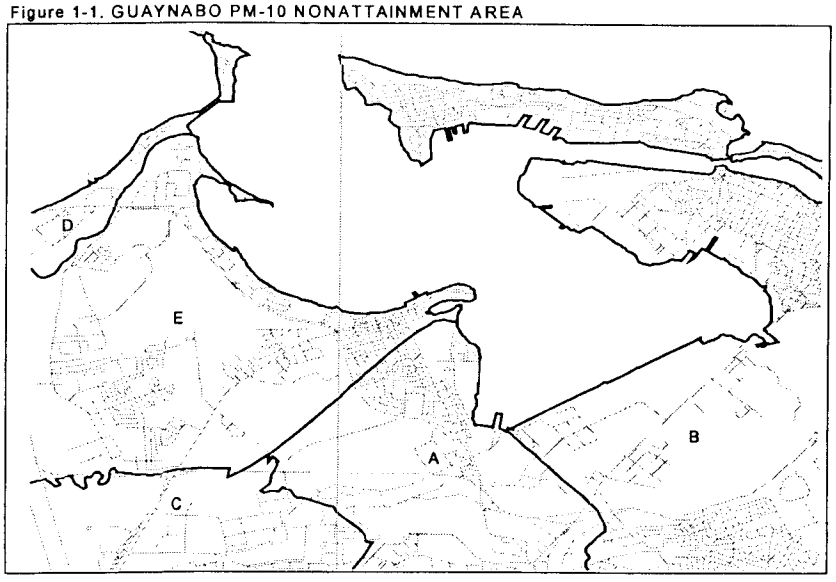
INTRODUCTION

1.1 EMISSION INVENTORY DATA

The PM-10 emission inventory from 1990 was updated. The Tables 1 and 2 presents the point emission sources that still operate in the area. For these point sources, all permits were reviewed and actual emissions were calculated for five years, 2002-2006. Rule 410 reports were used for the calculation of PM-10 emissions of the combustion sources. In the case that the Rule 410 reports were not available, the permit maximum fuel oil consumption was used to calculate the emissions. For the primary geological and grain industries, the permit maximum annual production was used to calculate the actual PM-10 emissions. The Figure 1.1 shows the municipalities that form part of the Guaynabo non-attainment area.

The area sources were also updated and Table 5.2 presents the summary of the PM-10 emissions by each category. At present, there are not new point or area sources in the Guaynabo area. The emission factors used were from AP-42, Fifth Edition, industry permits, Fire Data System and from other references. QA of the PM-10 emissions calculated electronically was conducted manually and a review of the emissions factors was performed. Copies of the QA sheets and sample calculations are in the Appendix A.

Figure 1-1. GUAYNABO PM-10 NONATTAINMENT AREA



SECTION 2.0

POINT SOURCES DATA

2.1 POINT SOURCES

All point sources inventoried in 1990 were reviewed. Some of them are not operating and others are closed. The PM-10 actual emissions were calculated for the five years of the inventory. No emissions were calculated for the industries that are closed or out of service. Copies of the emission inventory table with emission point data and the emissions calculation with all variables used, are in the Appendixes A & B.

Table 2.1 Point Source Emission Inventory

Source Category	Plant Name	Municipality	Actual Emissions TPY					
			1990	2002	2003	2004	2005	2006
Primary Geological	Betteroads Asphalt Plant 3	C	26.75	55.91	55.91	55.91	55.91	55.91
	Master Concrete (Formerly, Concreto Mixto)	B	2.52	1.13	1.13	1.13	1.13	1.13
	CEMEX Concretos, INC. (Formerly, Ready Mix)	A	2.33	1.69	1.69	1.69	1.69	1.69
	Cantera San Antonio	A	40.81	0.53	0.53	0.53	0.53	0.53
	Canteras de Puerto Rico	A	2.18	1.05	1.05	1.05	1.05	1.05
Primary Grain	Molinos de Puerto Rico (except boiler)	A	53.59	36	36	36	36	36
	Nutrimix Feed (Formerly Agro Ochoa) (except steam boiler)	A	58.25	0.08	0.08	0.08	0.08	0.08
	Pan American Grain, Amelia Plant (except boiler)	A	60.07	0.03	0.03	0.03	0.03	0.03
	Pan American Grain, Army Terminal	A	40.25	0.12	0.12	0.12	0.12	0.12
Primary Oil Combustion	Molinos de Puerto Rico Boiler	A	0.61	0.037	0.034	0.032	0.044	0.052
	Tradewind Foods, INC. (Formerly Goya de Puerto Rico)	C	0.58	2.1	2.4	2.6	2.4	2.3
	[1]Caribbean Petroleum Gulf	C	12.52	0	0	0	0	0
	[2]Easton, Inc.	A	0.01	0	0	0	0	0
	Edelcar	A	0.09	0.03	0.03	0.03	0.03	0.03
	Petroleum Emulsion (Formerly Petroleum Chemical)	C	0.03	0.04	0.04	0.04	0.04	0.04
	Smurfit Stone PR, INC. (Formerly Cartonera Nacional)	A	1.25	1.24	1.3	1.21	0.86	0.68
	Bacardí	E	26.87	15.04	11.45	11.85	7.51	6.32
	Puerto Rico Electric Power Authority, San Juan	B	927.5	917	634.21	781.54	908.95	896.27
	Nutrimix Feed Boiler (Formerly Agro Ochoa)	A	0.27	0.07	0.07	0.04	0.06	0.04
	Puerto Rico Electric Power Authority, Palo Seco	D	1269.4	1332.7	754.47	579.38	633.42	644.12
	[2]The Placco Co. of Puerto Rico	A	0.8	0	0	0	0	0
Other	[1]PRASA	B	1.25	0	0	0	0	0
Total			2527.93	2364.79	1500.54	1473.26	1649.85	1646.39

[1]This source is out of service.
[2]This source is closed.

Figure 2.1 Distribution of Point Source Emissions by Source Category

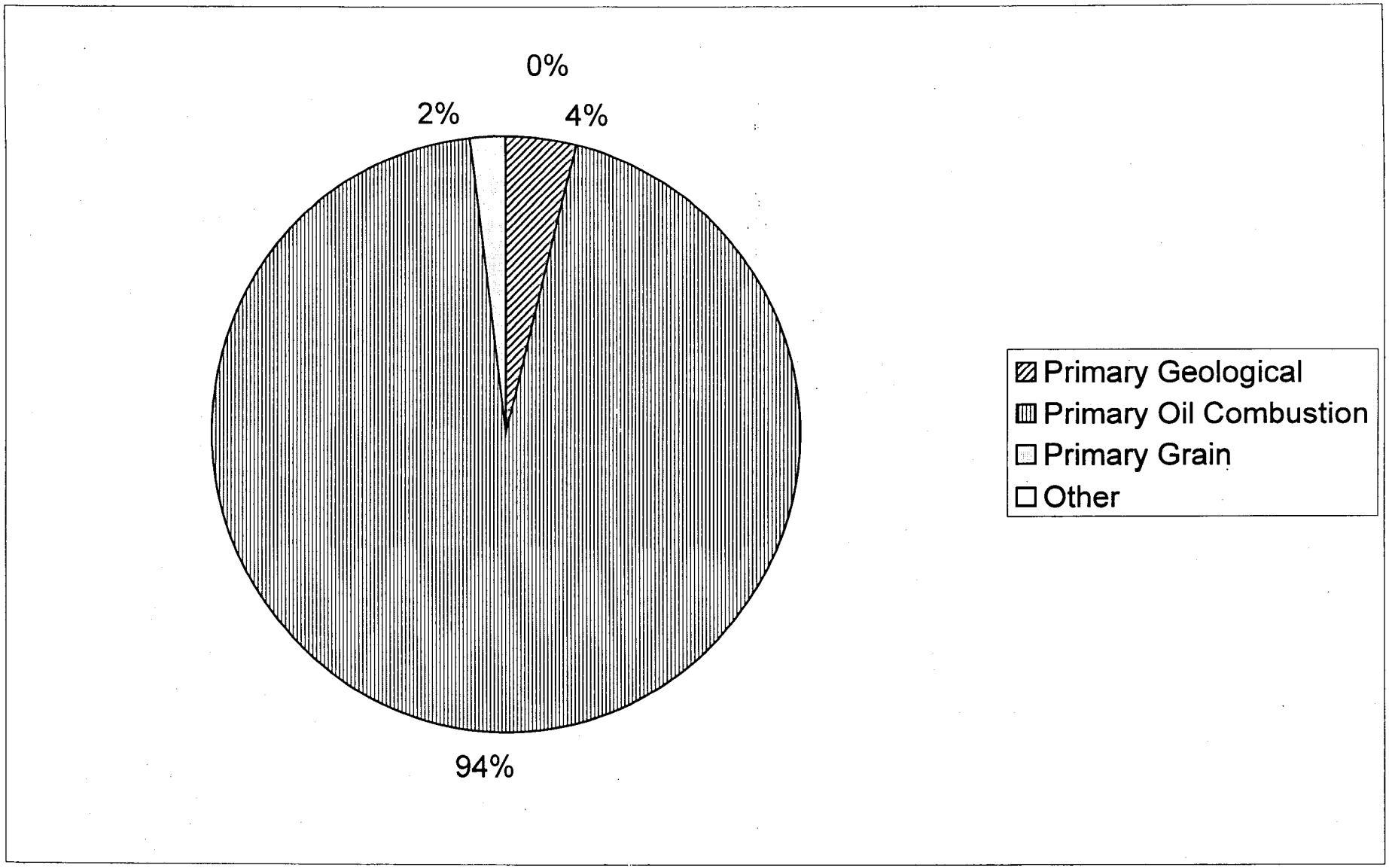


Table 2.2 Emission Point Source Data

Industry	Emission Unit	Point Id	Coordinates				Stack Height	Stack Diameter	Stack Exit Velocity	Stack Temperature
			Lambert		UTM					
			East	North	East	North	(m)	(m)	(m/s)	(K)
Puerto Rico Electric Power Authority, San Juan	Boiler 7	SJ7-1, 7-2	187230	66130	805971	2040146	53.5	1.8	28.028	408.15
	Boiler 8	SJ8-1, 8-2	187250	66140	805991	2040156	53.5	1.8	28.028	408.15
	Boiler 9	SJ9-1, 9-2	187090	66040	805832	2040053	55.2	1.8	29.46	408.15
	Boiler 10	SJ10-1, 10-2	187070	66030	805813	2040043	55.2	1.8	29.46	408.15
Puerto Rico Electric Power Authority, Palo Seco	Palo Seco 1	PS1	182450	69100	801146	2043049	53.5	2.5	27.46	430
	Palo Seco 2	PS2	182420	69100	801116	2043049	53.5	2.5	27.46	430
	Palo Seco 3	PS3-1, 3-2	182400	69100	801096	2043049	64.3	2.4	26.6	420
	Palo Seco 4	PS4-1, 4-2	182340	69100	801036	2043049	64.3	2.4	26.6	420
	Power Block 1	PSGT1-1, 1-2	182320	69010	801017	2042958	12	2.9	19.19	783
	Power Block 2	PSGT2-1, 2-2	182290	69010	800987	2042958	12	2.9	19.19	783
	Power Block 3	PSGT3-1, 3-2	182270	69010	800967	2042958	12	2.9	19.19	783
Bacardí	Boiler 1	EU 1&2	183400	69000	802098	2042963	20.422	1.2192	13.946748	574.82
	Boiler 2	EU 1&2	183400	69000	802098	2042963	20.422	1.3716	21.229281	574.82
Tradewind Foods, INC. (Formerly Goya de Puerto Rico)	Boiler (GPR-ES-01)	GPR-EP-01	182809	64532	801571	2038485	13.716	1.143	0.1432563	519.26
	Boiler (GPR-ES-02)	GPR-EP-01	182809	64532	801571	2038485	13.716	1.143	1.37E-02	519.26
	Boiler (GPR-ES-03)	GPR-EP-01	182809	64532	801571	2038485	13.716	1.143	3.35E-02	519.26
Edelcar Inc.	Eclipse Boiler		186500	66800	805231	2040806	10.668	0.3048	8.5344	452.5944
	Holman Steam Boiler		186500	66800	805231	2040806	12.192	0.508	6.096	450.9278
	Cleaver Brooks Boiler		186500	66800	805231	2040806	12.192	0.508	7.62	449.8167

Table 2.2 Emission Point Source Data (Continued)

Industry	Emission Unit	Point Id	Coordinates				Stack Height	Stack Diameter	Stack Exit Velocity	Stack Temperature
			Lambert		UTM					
			East	North	East	North	(m)	(m)	(m/s)	(K)
Smurfit Stone PR, INC. (Formerly Cartonera Nacional)	Boiler Cleaver Brooks		186450	65250	805203	2039254	44.196	0.9144	50.49	307.59
Betteroads Asphalt Plant 3	Drum Mixer AF-100		183200	65100	801953	2039058	7.01	1.0668	32.736	392.59
	Asphalt Heater		183200	65100	801953	2039058	7.01	1.0668	32.736	392.59
CEMEX Concretos, INC. (Formerly, Ready Mix, Plant 20)	Aggregate Delivery to Ground Storage									
	Sand Delivery to Ground Storage									
	Aggregate Transfer to Conveyor									
	Sand Transfer to Conveyor									
	Vehicle Traffic (paved road)									
	Wind Erosion in Aggregates Storage									
	Loading of Transit Mix Truck		186500	65800	805245	2039805	10.668	0.1	0.1000002	293
	Cement Supplement Delivered to Silo		186500	65800	805245	2039805	10.668	0.1	0.1000002	293
	Cement Delivery to Silo		186500	65800	805245	2039805	10.668	0.1	0.1000002	293
	Sand Transfer to Elevated Bins		186500	65800	805245	2039805	10.668	0.1	0.1000002	293
	Aggregate Transfer to Elevated Bins		186500	65800	805245	2039805	10.668	0.1	0.1000002	293
	Weight Hopper		186500	65800	805245	2039805	10.668	0.1	0.1000002	293
Molinos de Puerto Rico	Boiler	EP-BO	186441	66650	805174	2040655	25.6	0.4572	28.747	505.37
	Grain Receiving (Marine Tower)	EP-RE	186442	66630	805176	2040635	32.4	0.99695	8.9916	307.5944
	Pellets Cooler	EP-FC	186260	66400	804997	2040402	10.759	0.8001	8.29056	307.5944
	Wheat Cleaning	EP-WC	186442	66630	805176	2040635	32.4	0.99695	8.9916	307.5944
	Pellet Mill loading		186425	66630	805159	2040634	10.744	0.8001	8.29056	307.5944

Table 2.2 Emission Point Source Data (Continued)

Industry	Emission Unit	Point Id	Coordinates				Stack Height	Stack Diameter	Stack Exit Velocity	Stack Temperature
			Lambert		UTM					
			East	North	East	North	(m)	(m)	(m/s)	(K)
Molinos de Puerto Rico	Wheat Flour Bin	EP-WBN	186382	66600	805116	2040604	32.4	0.6985	9.6012	307.5944
	Wheat Mill Pneumatic	EP-WP	186425	66630	805159	2040634	32.4	0.99695	8.9916	307.5944
	Wheat Flour Mill	EP-PL	186425	66630	805159	2040634	32.4	0.6985	9.6012	307.5944
	Corn Cleaning	EP-CC	186425	66630	805159	2040634	10.759	0.8001	8.29056	307.5944
	Corn Mill	EP-CN	186425	66630	805159	2040634	10.759	0.8001	8.29056	307.5944
	Grain Handling		186551	66608	805285	2040614	32.4	0.99695	8.9916	300.9278
	Corn Grits Bin	EP-CG								
	Corn Meal Bin	EP-CBN	186551	66608	805285	2040614	10.759	0.8001	8.29056	307.5944
	Gluten Bin	EP-GB								
	Corn Flour Bin	EP-CF								
	Midds Bin	EP-BB								
	Bin 14	EP-B14	186551	66608	805285	2040614	10.759	0.8001	8.29056	307.5944
	Grain Shipping Truck	EP-SH	186260	66400	804997	2040402	10.759	0.8001	8.29056	307.5944
Petroleum Emulsion (Formerly Petroleum Chemical)	Afterburner		183539	64954	802295	2038917				
	Oxidator Burner		183539	64954	802295	2038917				
	Oxidator Burner		183539	64954	802295	2038917				
Nutrimix Feed (Formerly Agro Ochoa)	Steam Boiler		186494	66713	805226	2040718	10.973	0.4572	16.764	452.5944
	Marine Tower		186365	66702	805098	2040706	10.973	0.4572	14.6304	298
	Corn Cleaning									
	Corn Grinding		186482	66683	805215	2040688	10.973	0.4572	14.6304	298
	Belt Conveyor 2		186503	66693	805236	2040699	12.192	0.4572	14.6304	298

Table 2.2 Emission Point Source Data (Continued)

Industry	Emission Unit	Point Id	Coordinates				Stack Height	Stack Diameter	Stack Exit Velocity	Stack Temperature
			Lambert		UTM					
			East	North	East	North	(m)	(m)	(m/s)	(K)
Nutrimix Feed (Formerly Agro Ochoa)	Belt Conveyor 1		186503	66693	805236	2040699	12.192	0.4572	14.6304	298
	Flat Storage Warehouse						12.192	0.4572	14.6304	298
	Secondary Ingredients Unloading		186383	66686	805166	2040690	12.192	0.4572	14.6304	298
	Truck Loading Area 1		186365	66706	805097	2040710	12.192	0.4572	14.6304	298
	Pelletizing Units		186400	66700	805133	2040704	10.973	0.4572	14.6304	298
	Concrete Storage Silos		186503	66693	805236	2040699	36.576	0.4572	14.6304	298
Pan American Grain	AMELIA PLANT									
	Amelia Boiler	Boiler	186100	65100	804855	2039099	21.336	0.42672	7.769352	420
	Corn Aspirator									
	Grain Separator									
	Corn Grinding (Hammermill)									
	Pellet Granulator									
	Pellet Cooler & Separator									
	Grain Elevator Riley Mars Receiving									
	Grain Elevator Riley Mars Receiving									
	Grain Elevator Riley Mars Handling									
	Grain Elevator Riley Mars Handling									
	Grain Elevator Riley Saturn Shipping		186100	65100	804855	2039099	7.9248	1.0668	15.24	307
	ARMY TERMINAL									
	Flat Storage Rico Annex	Flat Storage	186512	66948	805241	2040954	1.8288	0.9144	10.75944	298
	Rico Rice Mill	Rice Mill	186418	66897	805148	2040901	1.8288	1.0668	12.43584	298

Table 2.2 Emission Point Source Data (Continued)

Industry	Emission Unit	Point Id	Coordinates				Stack Height	Stack Diameter	Stack Exit Velocity	Stack Temperature
			Lambert		UTM					
			East	North	East	North	(m)	(m)	(m/s)	(K)
Master Concrete (Formerly, Concreto Mixto)	Cement Delivery to Silo		189125	66538	807863	2040582				
	Weight Hopper		189125	66538	807863	2040582				
	Aggregate Delivery to Ground Storage		189125	66538	807863	2040582				
	Aggregate Transfer		189125	66538	807863	2040582				
	Central Mix Loading		189125	66538	807863	2040582				
	Aggregate Transfer to Elevated Bins		189125	66538	807863	2040582				
Cantera San Antonio	Diester Feeder		184063	55300	802957	2029265				
	Nordberg Mill HP-300		184063	55300	802957	2029265				
	Nordberg Mill HP-300		184063	55300	802957	2029265				
	Jaw Mill		184063	55300	802957	2029265				
	Symons Mill		184063	55300	802957	2029265				
	Diester Screening 1		184063	55300	802957	2029265				
	Diester Screening 3		184063	55300	802957	2029265				
	Cedarapids Screening 4		184063	55300	802957	2029265				
	Diester Screening 7		184063	55300	802957	2029265				
	Diester Screening 8 BHM-3620		184063	55300	802957	2029265				
	Diester Screening 9 BHM-3620		184063	55300	802957	2029265				
	Diester Screening Tertiary Process		184063	55300	802957	2029265				
	Belt 48"		184063	55300	802957	2029265				
	Belt 36"		184063	55300	802957	2029265				
	Belt 36"		184063	55300	802957	2029265				
	Belt 36"		184063	55300	802957	2029265				
	Belt 30"		184063	55300	802957	2029265				

Table 2.2. Emission Point Source Data (Continued)

Industry	Emission Unit	Point Id	Coordinates				Stack Height	Stack Diameter	Stack Exit Velocity	Stack Temperature
			Lambert		UTM					
			East	North	East	North	(m)	(m)	(m/s)	(K)
Cantera San Antonio	Belt 30"		184063	55300	802957	2029265				
	Belt 30"		184063	55300	802957	2029265				
	Belt 30"		184063	55300	802957	2029265				
	Belt 30"		184063	55300	802957	2029265				
	Belt 30"		184063	55300	802957	2029265				
	Belt 30"		184063	55300	802957	2029265				
	Belt 30"		184063	55300	802957	2029265				
	Belt 30"		184063	55300	802957	2029265				
	Belt 30"		184063	55300	802957	2029265				
	Belt 30"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				

Table 2.2. Emission Point Source Data (Continued)

Industry	Emission Unit	Point Id	Coordinates				Stack Height	Stack Diameter	Stack Exit Velocity	Stack Temperature
			Lambert		UTM					
			East	North	East	North	(m)	(m)	(m/s)	(K)
Cantera San Antonio	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Belt 24"		184063	55300	802957	2029265				
	Truck Loading		184063	55300	802957	2029265				
	Storage Piles		184063	55300	802957	2029265				
Canteras de Puerto Rico	PORTABLE PLANT									
	Primary Crushing		188869	53645	807789	2027676				
	Double Deck Vibrating Screen		188869	53645	807789	2027676				
	Triple Deck Vibrating Screen		188869	53645	807789	2027676				
	Eljay Cone Crusher		188869	53645	807789	2027676				
	Conveyor		188869	53645	807789	2027676				
	Portable Barmac 9000 VSI		188869	53645	807789	2027676				
	Truck Loading		188869	53645	807789	2027676				
	Truck Unloading		188869	53645	807789	2027676				
	STATIONARY PLANT									
	Primary Crushing		188869	53645	807789	2027676				
	Two Deck Vibrating Screen		188869	53645	807789	2027676				
	Rollercone Crusher Tellsmith 48" S		188869	53645	807789	2027676				
	Conveyor		188869	53645	807789	2027676				
	Truck Loading		188869	53645	807789	2027676				
	Truck Unloading		188869	53645	807789	2027676				

SECTION 3.0

MOBILE SOURCES DATA

3.1 ONROAD MOBILE SOURCES

The information used for the 2002 PM-10 motor vehicle emissions were from the EPA document entitled Documentation for the Development of Air Toxics Area Source Inventory for Puerto Rico and the U.S. Virgin Islands and Onroad Mobile Source Inventory for Puerto Rico, Final Report, March 2007. The 2002 total PM-10 motor vehicle emissions are in the Table 3.2. Table 3.3 includes the vehicle classes used in this EPA document and the PM-10 emissions for each class.

The data used to calculate the motor vehicle PM-10 emissions for 2003-2006 and the PM-10 emissions for 2002-2006 fugitive dust in paved roads due to traffic was from the document 2030 Plan of the San Juan Metropolitan Region, prepared by Department of Transportation and Public Works (DTPW). They used Mobile 6.2 to calculate the motor vehicle PM-10 emission factors. The onroad mobile sources considered in this plan were Light Duty Gasoline Vehicle, Light Duty Gasoline Truck 1, 2, 3 & 4, Heavy Duty Gasoline Vehicle, Light Duty Diesel Vehicle, Light Duty Diesel Truck, Heavy Duty Diesel Vehicle and Motorcycles. The Mobile model input and output files are in Appendix C.

The following section was subtracted from the DTPW document 2030 Plan of the San Juan Metropolitan Region. In this section is explained how DTPW calculated the emission factors.

4.3 PM_{10} Emission Factors

For this analysis, the motor vehicle PM-10 emission factors were derived from the EPA motor emissions model Mobile 6.2. Based on the transportation conformity methodology, default input parameters were used to run Mobile 6.2. The default input parameters are design to represent "national average" input data values. Local parameters such as inspection/maintenance programs, anti-tempering, sulfur fuel content, reformulated gasolines and various others can be substituted into Mobile 6.2 input files to reflect local conditions. These local parameters could be considered when Mobile 6.2 is run in the future. Using EPA-default recommended input parameters for the motor vehicle fleet mix and operating characteristics combined with local climate conditions, Mobile 6.2 provided PM-10 emission factors for the entire fleet. These factors include PM-10 from motor vehicle exhaust, tire and break wear. Separate PM-10 factors for fugitive dust from paved roadways were calculated using predictive emission factor equation located in the December 2003 edition of Chapter 13 of compilation of Air pollutant Factors, AP-42 Fifth Edition, Volume I: Stationary Point and Area Sources.

As shown in Table 8, the motor vehicle PM-10 emission factors decrease over time as newer, less polluting, cars, buses and trucks replace the older fleets of motor vehicles, which are less efficient and more polluting. Expressed as grams of PM-10 generated per vehicle mile traveled, the Mobile 6.2 emission

factors do not vary by motor vehicle speed or roadway operating condition, as do carbon monoxide emission factors. Similarly, the roadway fugitive dust PM-10 emission factors do not vary by calendar year, since roadway dust does not depend on fuel or vehicle operating characteristics, but rather on silt loading/deposition are, fleet characteristics, and roadway cleaning/precipitation frequency.

Table 8 Mobile 6.2 PM-10 Factors (g/VMT)

Year	Motor Vehicle[1]	Roadway[2]	Total
2000	0.0801	0.5333	0.6134
2005	0.0592	0.5333	0.5925
2010	0.0430	0.5333	0.5763
2020	0.0300	0.5333	0.5633
2030	0.0286	0.5333	0.5619

[1]Includes emissions from motor vehicle exhaust, brakes and tires given in grams of PM-10/VMT.
[2]Includes fugitive (re-entrained) dust from roadway. Assumes all roadways are paved.

Table 9 PM_{10} Emissions for Roadway Fugitive Dust Factor Calculation
Source: December 2003 edition of Chapter 13 of Compilation of Air Pollutant Emission Factors, AP-42 Fifth Edition, Volume I: Stationary Point and Area Source

Predictive Emission Factor Equation

$E=k(sL/2)^{0.65}x(W/3)^{1.5}-C$

where:

E= particulate emission factor (having units matching the units of k).
K= particulate size multiplier for particulate size range and units of interest (see Table 13.2-1.1)
sL= road surface silt loading (grams per square meter) g/m^2
W= average weight (tons) for the vehicles fleet exhaust, brake wear and tire use.

E= Calculated
K= 7.3 g/VMT From Table 13.2-1.1, used particle size PM_{10}
SL= 0.1 g/m^2 From Part 5 input files used in the Transportation Air Quality Conformity Analysis-March 2002
W= 2.4 tons from Part 5 output files used in the Transportation Air Quality Conformity Analysis-March 2002
C= 0.2119 g/VMT From Table 13.2.1-2, used particle size of PM_{10}

$E= 7.3(0.1/2)^{0.65}x(2.4/3)^{1.5}-0.2119$

E= 0.5333

The Table 3.1 has the information that DTPW used in the Guaynabo municipality. This table includes the roadway classification, the road sections sampled and the total DVMT in the Guaynabo municipality.

Table 3.1 Department of Transportation and Public Works Data for Guaynabo Municipality

				Roadway Classification/Sections Sampled													
				Principal Arterial		Minor Arterial		Freeway & Expressway		Interstate		Collector		Local	
				Section	DVMT	Section	DVMT	Section	DVMT	Section	DVMT	Section	DVMT	Section	DVMT
2002	61	50	1,369,155	17	441,654	19	269,914	8	296,140	3	339,299	3	22,149	-	-
2003	61	61	1,553,419	17	492,238	9	205,628	8	342,485	3	380,430	13	98,387	11	34,251
2004	66	66	1,554,500	17	511,260	23	256,938	9	340,440	3	388,761	8	33,477	6	23,623
2005	66	66	1,513,110	17	501,776	23	244,210	9	321,135	3	388,440	8	33,105	6	24,444
2006	65	65	1,512,676	17	515,903	23	244,786	8	305,367	3	386,106	8	34,666	6	25,848

The DTPW data presented above was used to calculate the motor vehicle PM-10 emissions in the Guaynabo municipality for the years 2003-2006 and the PM-10 emissions for fugitive dust in paved roads due to traffic during 2002-2006. To obtain conservative results, the 2000 motor vehicle emission factor was used to calculate the PM-10 emissions. The Table 3.2 shows the PM-10 emissions for the motor vehicles and paved roads in the area. A copy of the emissions calculation is in Appendix A.

Table 3.2 PM-10 Onroad Mobile Source Emissions in Guaynabo Municipality

Year	Total DVMT in Guaynabo Municipality[1]	Motor Vehicle Emission Factor[2]	Paved Roads Emission Factor	Onroad Mobile Source	
				Paved Roads (tons/yr)	Motor Vehicle (tons/yr)
2002	1,369,155	-	0.5333	266.51	48.89
2003	1,553,419	0.0801	0.5333	302.38	45.42
2004	1,554,500	0.0801	0.5333	302.59	45.45
2005	1,513,110	0.0801	0.5333	294.53	44.24
2006	1,512,676	0.0801	0.5333	294.45	44.23

1Table 3.1 Department of Transportation and Public Works Data for Guaynabo Municipality. These values were used to calculate the paved roads emissions and the motor vehicle emissions for the 2003-2006. Total DVMT used for 2002 motor vehicle emissions are in the document entitled Documentation for the Development of Air Toxics Area Source Inventory for Puerto Rico and the U.S. Virgin Islands and Onroad Mobile Source Inventory for Puerto Rico, Final Report, March 2007.

2Table 8 of Section 4.3 from the 2030 Plan of the San Juan Metropolitan Region. Motor vehicle emission factor used for 2002 motor vehicle emissions are in the document entitled Documentation for the Development of Air Toxics Area Source Inventory for Puerto Rico and the U.S. Virgin Islands and Onroad Mobile Source Inventory for Puerto Rico, Final Report, March 2007.

Table 3.3 PM-10 Emissions by Vehicle Class[1]

Source Category	SCC_DESC	Municipality	Emissions (TON/ YEAR)
HDDV	Mobile SourcesHighway Vehicles - DieselHeavy Duty Diesel Vehicles (HDDV) Class 2B	Guaynabo	0.09315
HDDV	Mobile SourcesHighway Vehicles - DieselHeavy Duty Diesel Vehicles (HDDV) Class 3, 4, & 5	Guaynabo	2.338
HDDV	Mobile SourcesHighway Vehicles - DieselHeavy Duty Diesel Vehicles (HDDV) Class 6 & 7	Guaynabo	7.652
HDDV	Mobile SourcesHighway Vehicles - DieselHeavy Duty Diesel Vehicles (HDDV) Class 8A & 8B	Guaynabo	7.15
HDDV	Mobile SourcesHighway Vehicles - DieselHeavy Duty Diesel Buses (School & Transit)	Guaynabo	4.374
HDGV	Mobile SourcesHighway Vehicles - GasolineHeavy Duty Gasoline Vehicles 2B thru 8B & Buses (HDGV)	Guaynabo	7.702
LDDT	Mobile SourcesHighway Vehicles - DieselLight Duty Diesel Trucks 1 thru 4 (M6) (LDDT)	Guaynabo	0.1317
LDDV	Mobile SourcesHighway Vehicles - DieselLight Duty Diesel Vehicles (LDDV)	Guaynabo	0.3808
LDGT1	Mobile SourcesHighway Vehicles - GasolineLight Duty Gasoline Trucks 1 & 2 (M6) = LDGT1 (M5)	Guaynabo	2.412
LDGT2	Mobile SourcesHighway Vehicles - GasolineLight Duty Gasoline Trucks 3 & 4 (M6) = LDGT2 (M5)	Guaynabo	0.965
LDGV	Mobile SourcesHighway Vehicles - GasolineLight Duty Gasoline Vehicles (LDGV)	Guaynabo	15.62
MC	Mobile SourcesHighway Vehicles - GasolineMotorcycles (MC)	Guaynabo	0.07103
Total			48.89

1Table from Documentation for the Development of Air Toxics Area Source Inventory for Puerto Rico and the U.S. Virgin Islands and Onroad Mobile Source Inventory for Puerto Rico, Final Report, March 2007.

3.2 NONROAD MOBILE SOURCES

The nonroad mobile source considered for the PM-10 emission inventory of 1990 was marine vessels, which is explained in the next subsection. The other categories added to the 2002-2006 PM-10 emission inventory were construction equipment, lawn and garden equipment, off-highway small industrial fuel combustion and off-highway small commercial/institutional fuel combustion.

3.2.1 Marine Vessels

For these emissions, the Port of Long Beach Air Emission Inventory-2005 (PLB05) in California was used. This report was selected because the data from San Juan port was incomplete to calculate the PM-10 emissions in the area. The information of the vessels that visit the San Juan port was from the Lloyd Report US Port of Calls by Port and Vessel Type. This report presents the number of calls and the type of each vessel that visit the San Juan port yearly. The number of calls for the cruise ships is from the Puerto Rico Ports Authority Statistics Maritime Report. The data about the description of each vessel (speed, engine, loads, etc.) was from the PLB05.

At the moment of this inventory, the data for tugs boats in the San Juan port was not available in the Puerto Rico Ports Authority reports, then emissions for this category were excluded from the inventory.

The following equations were utilized to calculate the PM-10 emissions:

E=Energy x EF
E= pollutant emissions
Energy= KW-hrs of energy demand
Energy= MCR x LF x A
MCR=maximum continuous rated engine power, KW
LF= load factor (unitless)
A= activity in hours
Activity= D/S
D= distance, nautical miles
S= ship speed, Knots
EF= emission factor

All calculations were made using the number of calls a year by type of vessel, from the Lloyd's report and the vessels default specific data

presented in the PLB05. Two types of scenarios were considered, the transit of the vessel through the San Juan Bay and the time that the vessel is in the port (hotelling at berth).

For the transit scenario the maximum continuous rated engine power was used and for the hotelling scenario the total auxiliary engine power was considered. Both values were selected from the default main and auxiliary engine data by vessel type, presented in the Tables 2.10 and 2.12 of the PLB05. The load factors used for transit and hotelling were from the Figure 2.17 and the Table 2.12 of the PLB05, respectively.

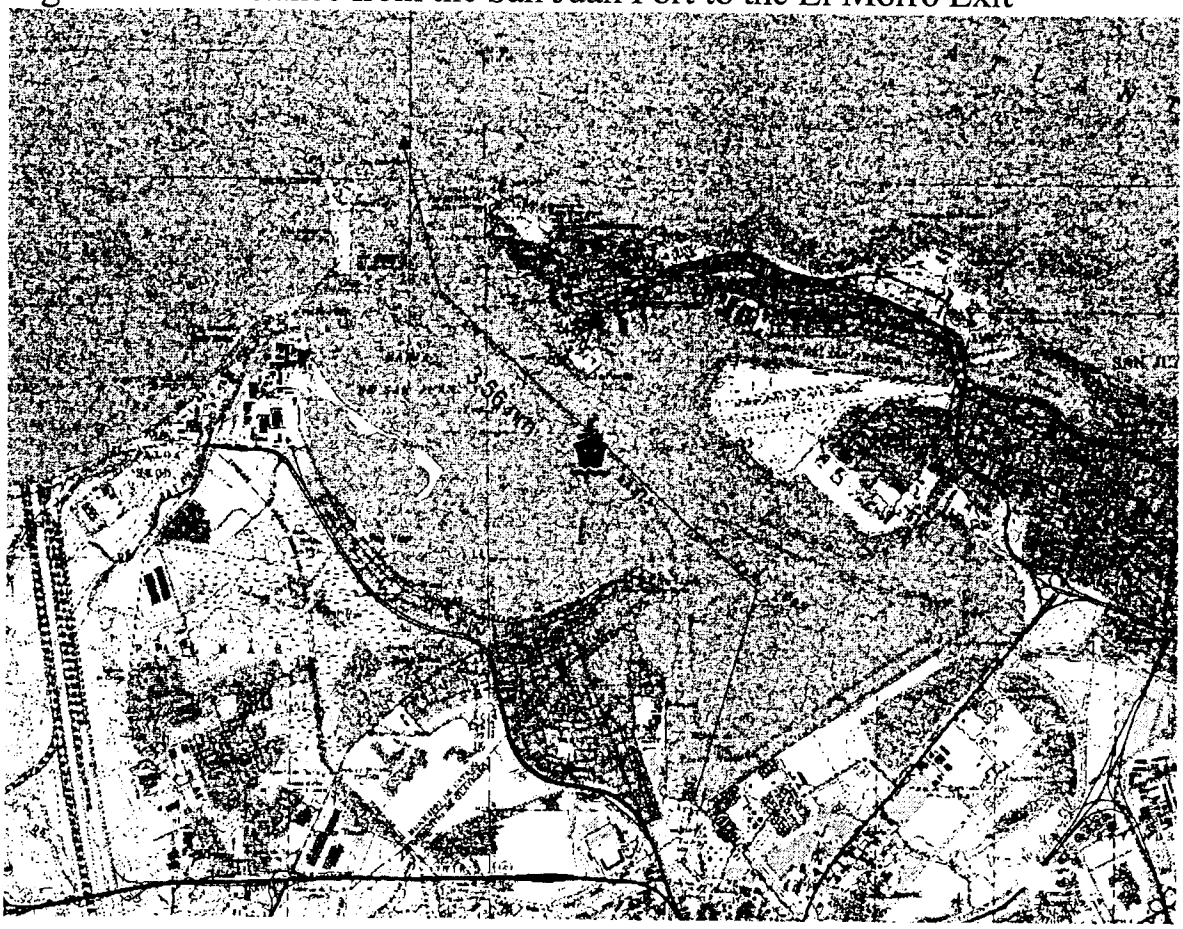
The activity hours for the transit were calculated dividing the approximate distance from the San Juan port to the exit of the El Morro Fort enter the maximum speed of the vessel. This value was multiply by the calls a year of each vessel, to obtain the total hours of transit a year. The distance was calculated using the measure tool in the program ArcView and a DRG map from San Juan area. (Figure 3.2.1) To have a more conservative result, the transit distance to the farthest berth was used. The speed used was from the data in the Table 2.9 of the PLB05. The activity hours for the hotelling scenario were from the Table 2.20 of the PLB05.

The Table 3.2.1 presents a summary of the PM-10 emissions for the marine vessels in the Guaynabo non-attainment area.

Table 3.2.1 Marine Vessels PM-10 Emission Inventory for the Guaynabo Municipality

Source Type	Emissions (TPY)				
	2002	2003	2004	2005	2006
Marine Vessels	15.75	15.46	16.51	15.88	15.10

Figure 3.2.1. Distance from the San Juan Port to the El Morro Exit



The emission factors used were for vessels using residual oil to have a more conservative result. All the calculations are in Appendix A and there is a copy of the emission inventory in Appendix B.

3.2.2 Construction Equipment

These emissions were from the 2002 EPA National Emission Inventory. The Table 3.2.2 present the PM-10 emissions for this category. The PM-10 emission values were used for 2002-2006.

Table 3.2.2 Construction Equipment PM-10 Emissions Inventory for the Guaynabo Municipality

Description	Fuel Oil	Emissions (TPY)
Off-Highway	Gasoline	2.833
Off-Highway	Diesel	94.532

3.2.3 Lawn and Garden

These emissions were from the 2002 EPA National Emission Inventory. The Table 3.2.3 present the PM-10 emissions for this category. The PM-10 emission values were used for 2002-2006.

Table 3.2.3 Lawn and Garden Equipment PM-10 Emissions Inventory for the Guaynabo Municipality

Description	Fuel Oil	Emissions (TPY)
Off-Highway	Gasoline	8.3294
Off-Highway	Diesel	1.2917

3.2.4 Off-Highway Small Industrial Fuel Combustion

These emissions were from the 2002 EPA National Emission Inventory. The Table 3.2.4 present the PM-10 emissions for this category. The PM-10 emission values were used for 2002-2006.

Table 3.2.4 PM-10 Emissions Inventory for Off-Highway Small Industrial Fuel Combustion in the Guaynabo Municipality

Description	Fuel Oil	Emissions (TPY)
Off-Highway	Gasoline	0.02856
Off-Highway	Diesel	2.9792

3.2.5 Off-Highway Small Commercial/Institutional Fuel Combustion

These emissions were from the 2002 EPA National Emission Inventory. The Table 3.2.5 present the PM-10 emissions for this category. The PM-10 emission values were used for 2002-2006.

Table 3.2.5 PM-10 Emissions Inventory for Off-Highway Small Commercial/Institutional Fuel Combustion in the Guaynabo Municipality

Description	Fuel Oil	Emissions (TPY)
Off-Highway	Gasoline	0.9986
Off-Highway	Diesel	3.7171

SECTION 4.0

AREA SOURCES DATA

4.1 AREA SOURCES

The area sources inventoried in 1990 were updated and PM-10 emissions were calculated for the five-year period. The area sources considered in the 1990 inventory were: Residential Oil Combustion, Residential On-Site Incineration (Solid Waste Burning), Structural Fires, Fugitive Dust from Unpaved Roads and Parking Lots, and Microinventory Sources. Sample calculation and the equation used in each category are in Appendix A.

Two new categories were added to the 2002-2006 Guaynabo PM-10 emission inventory, the small industrial fuel combustion and the small commercial/institutional fuel combustion.

4.1.1 Residential Oil Combustion

The activity data used to calculate these emissions was from the Documentation for the Development of Air Toxics Area Source Inventory for Puerto Rico and the U.S. Virgin Islands and Onroad Mobile Source Inventory for Puerto Rico, Final Report, March 2007.

The emission factor used was from the AP-42, 5th Edition. This calculation is in Appendix A.

4.1.2 Residential On-Site Incineration

For this category the incinerators data in the Guaynabo area were from the Inventario de Incineradores de Desperdicios Sólidos en Puerto Rico, JCA 2001. This inventory was prepared by EQB in 2001 and has the emissions of all residential incinerators in the island. The PM-10 emissions calculation for the residential incinerators in the Guaynabo area is in Appendix A.

4.1.3 Structural Fires

For this section the document Structure Fires Volume III, establish a method to calculate the particulate emissions. The amount of structural fires in the Guaynabo area was obtained from the annual fire reports of the local Fire

Department. A default value of 1.15 tons of material burned in every fire was used and an emission factor of 10.8 lb/ton, both values from the above reference. These calculations are in Appendix A.

4.1.4 Unpaved Roads and Parking Lots

These PM-10 emissions were considered as microinventory sources.

4.1.5 Microinventory Sources

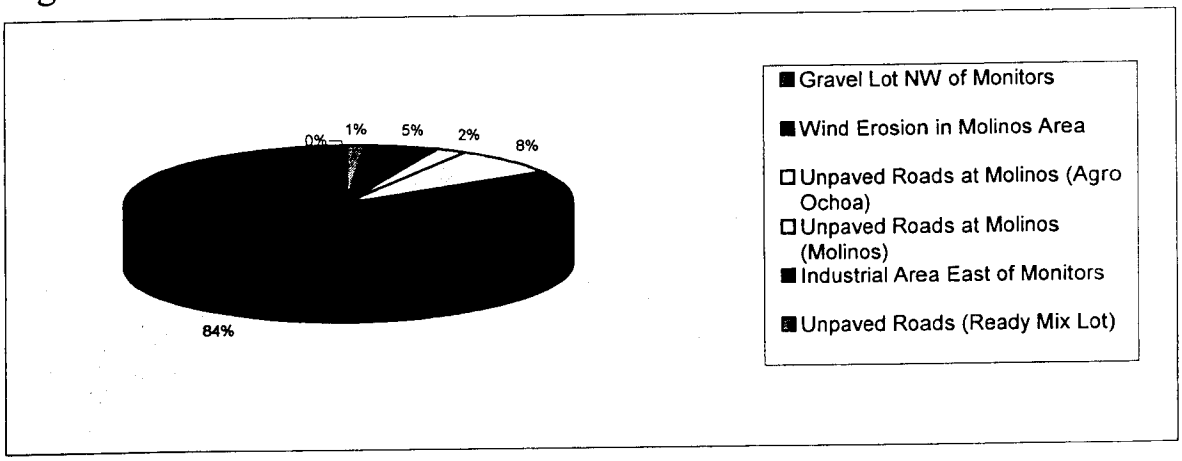
The PM-10 emissions calculated in the Puerto Rico PM10 State Implementation Plan for Guaynabo Area of 1990 were used. This data was used because in a conversation with the Department of Transportation they informed EQB that unpaved roads were not used in their inventories because in Puerto Rico all roads are considered paved. For that reason we decided to use the same emissions as the 1990 inventory to have a conservative scenario.

Table 4.1.5 Summary of Microinventory Emissions by Source Category for Guaynabo Municipality

Source Category	Emissions (TPY)
Gravel Lots NW of Monitors	1.69
Wind Erosion in Molinos Area	6.55
Unpaved Roads at Molinos (Agro Ochoa)	2.41
Unpaved Roads at Molinos (Molinos)	9.66
Industrial Area East of Molinos	100.69
Unpaved Roads (Ready Mix Lot)	0.21
Total	121

Data from Puerto Rico PM10 State Implementation Plan for Guaynabo Area.

Figure 4.1.5 Distribution of Microinventory Area Source Emissions



4.1.6 Small Industrial Fuel Combustion

The activity data for this category was from the Documentation for the Development of Air Toxics Area Source Inventory for Puerto Rico and the U.S. Virgin Islands and Onroad Mobile Source Inventory for Puerto Rico, Final Report, March 2007. The Table 4.1.6 present the PM-10 emissions in tons per year. The PM-10 emission values were used for 2002-2006. The emissions calculations are in Appendix A.

Table 4.1.6 PM-10 Emissions Inventory for Small Industrial Fuel Combustion in the Guaynabo Municipality

Description	Fuel Oil	Emissions (TPY)
Small Industrial Fuel Combustion	Fuel Oil No. 2	1.49
	Residual Oil	6.41
	Kerosene	0.70

4.1.7 Small Commercial/Institutional Combustion

The activity data for this category was from the Documentation for the Development of Air Toxics Area Source Inventory for Puerto Rico and the U.S. Virgin Islands and Onroad Mobile Source Inventory for Puer` Rico, Final Report, March 2007. The Table 4.1.7 present the PM-10 emissions in tons per year. The PM-10 emission values were used for 2002-2006. The emissions calculations are in Appendix A.

Table 4.1.7 PM-10 Emissions Inventory for Small Commercial/ Institutional Fuel Combustion in the Guaynabo Municipality

Description	Fuel Oil	Emissions (TPY)
Small Commercial/Institutional Fuel Combustion	Fuel Oil No. 2	0.21
	LPG	0.30
	Kerosene	0.79

SECTION 5.0

EMISSIONS SUMMARY

5.1 PM-10 Emissions Summary

Table 5.1 Summary of 2002-2006 PM-10 Emissions by Source Type

Source Type	Actual Emissions (TPY)				
	2002	2003	2004	2005	2006
Point	2365	1501	1474	1650	1647
Area	10.73	10.24	10.62	10.52	10.59
Microinventory	121	121	121	121	121
Motor Vehicle	48.89	45.42	45.45	44.24	44.23
Paved Roads	266.51	302.38	302.59	294.53	294.45
Nonroad Marine Vessels	15.75	15.46	16.51	15.88	15.10
Nonroad Construction Equipment	97.37	97.37	97.37	97.37	97.37
Nonroad Lawn and Garden	9.62	9.62	9.62	9.62	9.62
Nonroad Off-Highway Small Industrial Fuel Combustion	3	3	3	3	3
Nonroad Off-Highway Small Commercial/Institutional Fuel Combustion	4.71	4.71	4.71	4.71	4.71
TOTAL	2942.58	2110.2	2084.87	2250.87	2247.07

Figure 5.1 Summary of 2002-2006 PM-10 Emissions by Source Type

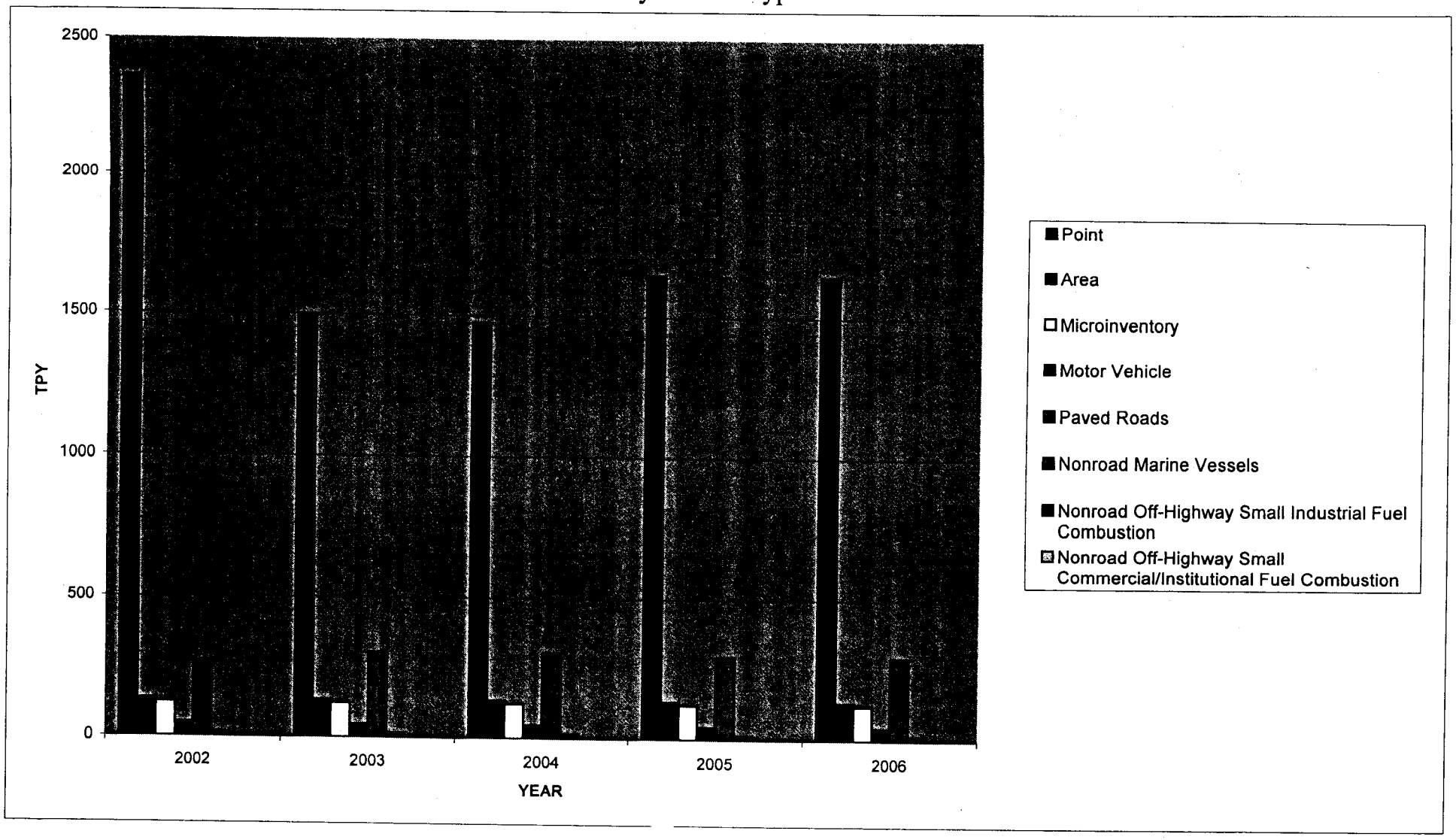


Table 5.2 Summary of Area Source Emission Inventory for Guaynabo Municipality

Source Type	Emissions (TPY)				
	2002	2003	2004	2005	2006
Residential Oil Combustion	0.269	0.269	0.269	0.269	0.269
Residential On-site Incineration	0.0676	0.0676	0.0676	0.0676	0.0676
Structural Fires	0.5	$6.21e^{-3}$	0.38	0.28	0.35
Microinventory	121	121	121	121	121
Small Industrial Fuel Combustion	8.6	8.6	8.6	8.6	8.6
Small Commercial/Institutional Fuel Combustion	1.3	1.3	1.3	1.3	1.3

SECTION 6.0

QA/QC

6.1 QUALITY ASSURANCE AND QUALITY CONTROL

The same QA/QC procedure used in the 1990 PM-10 inventory was applied in the revision. The QA/QC consist of a review of the data used to calculate the PM-10 emissions for the point and area sources. The QA includes the verification of the emission units, emission factors and the data used to calculate the PM-10 emissions. All PM-10 emission calculations were performed in excel spreadsheet. Manual verification of all the excel spreadsheet calculations was performed to verify the results correctness. Copies of the excel spreadsheets and the manual calculations sheets are included in the Appendix A.

REFERENCES

Compilation of Air Pollutants Emissions Factors (AP-42, Fifth edition). Environmental protection Agency. Research Triangle Park, North Carolina.

Cuerpo de Bomberos de Puerto Rico. Incendios por Estación. Guaynabo, PR. 2002-2006.

Current Methodologies and Best Practices in Preparing Port Emission Inventories, Final Report. Environmental Protection Agency. Office of Policy, Economics and Innovation Sector Strategies Program. January 2006.

Documentation for the Development of Air Toxics Area Source Inventory for Puerto Rico and the U.S. Virgin Islands and Onroad Mobile Inventory for Puerto Rico, Final Report. EPA, 2007

Factor Information Retrieval, Version 6.24. Environmental Protection Agency. Research Triangle Park, North Carolina.

Informe de Contenido de Azufre/Regla 410. Galonaje Anual, 2002-2006. Junta de Calidad Ambiental.

Inventario de Incineradores de Desperdicios Sólidos en Puerto Rico, JCA 2001

Lloyd's Report. U.S. Port Calls by Port and Vessel Type, 2002-2006.

National Emission Inventory. EPA, 2002.

Port of Long Beach Air Emission Inventory. Starcrest Consulting Group, LLC. Poulsbo, WA. September 2007.

Procedures for Emission Inventory Preparation (EPA-450/4-81-26c) Volume III: Area Sources, Office of Air Quality Planning and Standards, EPA. Research Triangle Park, North Carolina, September 1981.

Statistics Maritime Report, San Juan Port Facility. Puerto Rico Port Authority, San Juan.

Structure Fires Volume III: Chapter 18. Emission Inventory Improvement Program. Eastern Research Group. January 2001.

REFERENCES

Transportation Air Quality Analysis for the Year 2025 Transportation Plan of the San Juan Metropolitan Region. Puerto Rico Highway and Transportation Authority, San Juan, March 2002.

Transportation Air Quality Conformity Analysis for the 2030 Plan of the San Juan Metropolitan Region. Department of Transportation and Public Works, Puerto Rico Highway and Transportation Authority. San Juan, September 2005.

APPENDIX A
EMISSION INVENTORY CALCULATIONS

A-1
RESIDENTIAL
OIL COMBUSTION

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

Residential Fuel oil combustion

LPG usage for Comunoto - 1,348,351 gal/yr
Emission factor - 0.4 lb/1000 gal (AP-42, 5th Edition, Section 1.5)

$$1{,}348{,}351 \text{ gal/yr} \times 0.4 \text{ lb/1000 gal} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.269 \text{ ton/yr}$$

A-2
RESIDENTIAL
ON-SITE INCINERATION

INVENTARIO DE INCINERADORES DE DESPERDICIOS SOLIDOS

Condominio Altavista I-II

Dirección Postal Cond. Alta Vista I, Buzón JDD Torre 1, PR833

Guaynabo *P.R.* *00969-*

Localización Carr 833 int carr 177, Bo. Frailes, Guaynabo

Contacto *Bessie Schoder* ***Teléfono*** *(787) 720-3303*

Comentarios sobre la instalación

PFE-LC-32-0998-0977 ☐ I ☑ II ☑ III O

Comentarios sobre el permiso

ID Unidad 1

Descripción del Equipo Incinerador multicamara

Tipo de Desperdicios I - II **Razon de Oxidación** 200 lb/hr

Combustible Auxiliar Propano **Consumo Combustible Auxiliar (GPH)** 3.1

Horario de Operación ----

Equipo de Control y Punto de Emisión

Equipo Control Cámara de sedimentación húmedecida. **Eficiencia control** 99%

Altura Chim (pies)	Diámetro (pulgadas)	Temperatura Salida (°F)	Veloc (pies/seg.)
185	23.9	200	10

Comentarios de la Unidad

María Sanchez inspecciono la facilidad y encontró que las cámaras de alimentación no estaban correctamente sella

INVENTARIO DE INCINERADORES DE DESPERDICIOS SOLIDOS

Condominio Garden Hills Towers

Dirección Postal	Buzon administración		
	Guaynabo	*P.R.*	*00976-*
Localización	Calle Miramonte, Guaynabo		
Contacto	*Sra. Rosario F. Vda. De Torro*	***Teléfono***	*(787) 783-6004*

Comentarios sobre la instalación

PFE-LC-00-32-0501-1016 ☐ I ☑ II ☑ III O

Comentarios sobre el permiso

ID Unidad	1		
Descripción del Equipo	Incinerador Multicámara		
Tipo de Desperdicios	I - II	**Razón de Oxidación**	42.5 lb/hr
Combustible Auxiliar	Propano	**Consumo Combustible Auxiliar (GPH)**	3.18
Horario de Operación	8 hr/día - 7 día/semana - 12 meses/año		

Equipo de Control y Punto de Emisión

Equipo Control	Lavador de Gases	**Eficiencia control**	90%

Altura Chim (pies)	**Diámetro (pulgadas)**	**Temperatura Salida (°F)**	**Veloc (pies/seg.)**
10	30.47	120	20

Comentarios de la Unidad

INVENTARIO DE INCINERADORES DE DESPERDICIOS SOLIDOS

Condominio Ponce de León Gardens

Dirección Postal Villa Caparra, Calle 8

Guaynabo *P.R.* *00920-*

Localización

Contacto *Raúl Hernandez* ***Teléfono***

Comentarios sobre la instalación

PFE-LC-32-0894-1057 ☐ I ☑ II ☑ III O

Comentarios sobre el permiso

Nuevo Permiso PFE-LC-32-0301-0515-II-O no contiene incinerador.

ID Unidad 1

Descripción del Equipo Incinerador

Tipo de Desperdicios I - II **Razón de Oxidación** 166.6 lb/hr

Combustible Auxiliar Propano **Consumo Combustible Auxiliar (GPH)** 8.29

Horario de Operación 3 hr/día - 6 día/semana - 52 semanas/año

Equipo de Control y Punto de Emisión

Equipo Control Lavador de Gases **Eficiencia control** 85%

Altura Chim (pies)	Diámetro (pulgadas)	Temperatura Salida (°F)	Veloc (pies/seg.)
170	30.47	270	5.2

Comentarios de la Unidad

Incinerador Clausurado

INVENTARIO DE INCINERADORES DE DESPERDICIOS SOLIDOS

Condominio Villa Caparra Executive

Dirección Postal Carr. PR.#2 Km 6.1 M-229

Guaynabo *P.R.* *00966-*

Localización Carr. PR.#2 Km 6.1 M-229, Guaynabo

Contacto *Sr. Alquimides Linares* ***Teléfono*** *(787) 781-3772*

Comentarios sobre la instalación

PFE-LC-32-1096-1058 ☐ I ☐ II ☑ III O

Comentarios sobre el permiso

ID Unidad 1

Descripción del Equipo Incinerador Multicámara

Tipo de Desperdicios Doméstico **Razón de Oxidación** 400 lbs/hr

Combustible Auxiliar propano **Consumo Combustible Auxiliar (GPH)** 70

Horario de Operación 3 hr/día - 7 día/semana - 52 semanas/año

Equipo de Control y Punto de Emisión

Equipo Control Lavador de Gases **Eficiencia control** 95%

Altura Chim (pies)	Diámetro (pulgadas)	Temperatura Salida (°F)	Veloc (pies/seg.)
168	28.35	160	20

Comentarios de la Unidad

INVENTARIO DE INCINERADORES DE DESPERDICIOS SOLIDOS

San Martín Twin Towers II

Dirección Postal _____

_____

Localización Carr. 20 Km 2.6 Guaynabo

Contacto _____ ***Teléfono*** _____

Comentarios sobre la instalación

PFE-LC-32-1291-1627 ☐ I ☐ II ☑ III O

Comentarios sobre el permiso

Nuevo permiso PFE-LC-00-32-0798-0775-II-O no contiene incinerador.

ID Unidad IDS-1

Descripción del Equipo Incinerador

Tipo de Desperdicios Doméstico **Razon de Oxidación** ----

Combustible Auxiliar ---- **Consumo Combustible Auxiliar (GPH)** ----

Horario de Operación ----

Equipo de Control y Punto de Emisión

Equipo Control ---- **Eficiencia control** _____

Altura Chim (pies)	Diámetro (pulgadas)	Temperatura Salida (°F)	Veloc (pies/seg.)
_____	_____	_____	_____

Comentarios de la Unidad

INVENTARIO DE INCINERADORES DE DESPERDICIOS SOLIDOS

Santa Paula Apartments, Torre A, B y C

Dirección Postal _____

_____

Localización Ave, Regna Medina, Urb Santa Paula, Guaynabo

Contacto _____ ***Teléfono*** _____

Comentarios sobre la instalación

_____

PFE-LC-32-0993-1417 ☐ I ☑ II ☑ III O

Comentarios sobre el permiso

Nuevo permiso PFE-LC-32-0201-0276-II-O no contiene incinerador.

ID Unidad 1

Descripción del Equipo Incinerador

Tipo de Desperdicios Doméstico **Razón de Oxidación** ----

Combustible Auxiliar ---- **Consumo Combustible Auxiliar (GPH)** ----

Horario de Operación ----

Equipo de Control y Punto de Emisión

Equipo Control ---- **Eficiencia control** _____

Altura Chim (pies)	Diámetro (pulgadas)	Temperatura Salida (°F)	Veloc (pies/seg.)
_____	_____	_____	_____

Comentarios de la Unidad

_____

CALCULOS DE EMISIONES PARA INCINERADORES DE DESPERDICIOS SOLIDOS

Condominio Altavista I-II

PFE-LC-32-0998-0977

ID Unidad 1
Descripción del Equipo: Incinerador multicámara
Tipo de Desperdicio: I - II **Razón de Oxidación:** 200 lb/hr
Combustible Auxiliar propano **Consumo combustible(GPH)** N.D.
Horario de Operación: 0

Razón de consumo annual 0 Unidad/año **% Azufre** N.D.
Tipo Unidades Toneladas
SCC #: 5-02-001-01

Factor de emisión (EF) lb/units

	PM10	SOx	NOx	CO	TOC	Pb
	4.7	2.5	3	10	3	0
Eficiencia control	99.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Descripción de equipo control: Lavador de Gases

Procedencia factores emisión *Fire Information Retrieval (FIRE) Data System versión 6.23*

Emisiones Anuales

	Rate		EF		PM10 ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	4.7	x	0.0005	x	0.01	=	0

	Rate		EF		SOx ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	2.5	x	0.0005	x	1	=	0

	Rate		EF		NOx ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	3	x	0.0005	x	1	=	0

	Rate		EF		CO ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	10	x	0.0005	x	1	=	0

	Rate		EF		TOC ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	3	x	0.0005	x	1	=	0

	Rate		EF		Pb ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	0	x	0.0005	x	1	=	0

Nota: El incinerador no se esta utilizando actualmente.

CALCULOS DE EMISIONES PARA INCINERADORES DE DESPERDICIOS SOLIDOS

Condominio Garden Hills Towers

PFE-LC-00-32-0501-1016

ID Unidad	1		
Descripción del Equipo:	Incinerador Multicamara		
Tipo de Desperdicio:	I - II	**Razon de Oxidación:**	42.5 lb/hr
Combustible Auxiliar	Propano	**Consumo combustible(GPH)**	3.18
Horario de Operación:	8 hr/día - 7 día/semana - 12 meses/año		
Razón de consumo annual	61.88 Unidad/año	**% Azufre**	N.D.
Tipo Unidades	Toneiadas		
SCC #:	N.D		

Factor de emisión (EF) lb/units

	PM10	SOx	NOx	CO	TOC	Pb
	4.70E+00	2.5	3.00E+00	1.00E+01	3	0
Eficiencia control	90.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Descripción de equipo control: Lavador de Gases

Procedencia factores emisión *Fire Information Retrieval (FIRE) Data System versión 6.23*

Emisiones Anuales

					PM10				
	Rate		EF		ton/2000lbs		(1-efficiency)		Tons/yr
=	61.88	x	4.7	x	0.0005	x	0.1	=	0.014542
					SOx				
	Rate		EF		ton/2000lbs		(1-efficiency)		Tons/yr
=	61.88	x	2.5	x	0.0005	x	1	=	0.07735
					NOx				
	Rate		EF		ton/2000lbs		(1-efficiency)		Tons/yr
=	61.88	x	3	x	0.0005	x	1	=	0.09282
					CO				
	Rate		EF		ton/2000lbs		(1-efficiency)		Tons/yr
=	61.88	x	10	x	0.0005	x	1	=	0.3094
					TOC				
	Rate		EF		ton/2000lbs		(1-efficiency)		Tons/yr
=	61.88	x	3	x	0.0005	x	1	=	0.09282
					Pb				
	Rate		EF		ton/2000lbs		(1-efficiency)		Tons/yr
=	61.88	x	0	x	0.0005	x	1	=	0

Nota: Se presume que opera las 52 semanas de año.

CALCULOS DE EMISIONES PARA INCINERADORES DE DESPERDICIOS SOLIDOS

Condominio Ponce de León Gardens

PFE-LC-32-0894-1057

ID Unidad	1		
Descripción del Equipo:	Incinerador		
Tipo de Desperdicio:	I - II	**Razón de Oxidación:**	166.6 lb/hr
Combustible Auxiliar	Propano	**Consumo combustible(GPH)**	8.29
Horario de Operación:	3 hr/día - 6 día/semana - 52 semanas/año		
Razon de consumo annual	77.9688 Unidad/año	**% Azufre**	N.D.
Tipo Unidades	Toneladas		
SCC #:	5-02-001-01		

Factor de emisión (EF) lb/units

	PM10	SOx	NOx	CO	TOC	Pb
	4.70E+00	2.5	3.00E+00	1.00E+01	3.00E+00	0
Eficiencia control	85.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Descripción de equipo control: Lavador de Gases

Procedencia factores emisión *Fire Information Retrieval (FIRE) Data System versión 6.23*

Emisiones Anuales

	Rate		EF		PM10 ton/2000lbs		(1-efficiency)		Tons/yr
=	77.9688	x	4.7	x	0.0005	x	0.15	=	0.027484
	Rate		**EF**		**SOx ton/2000lbs**		**(1-efficiency)**		**Tons/yr**
=	77.9688	x	2.5	x	0.0005	x	1	=	0.097461
	Rate		**EF**		**NOx ton/2000lbs**		**(1-efficiency)**		**Tons/yr**
=	77.9688	x	3	x	0.0005	x	1	=	0.116953
	Rate		**EF**		**CO ton/2000lbs**		**(1-efficiency)**		**Tons/yr**
=	77.9688	x	10	x	0.0005	x	1	=	0.389844
	Rate		**EF**		**TOC ton/2000lbs**		**(1-efficiency)**		**Tons/yr**
=	77.9688	x	3	x	0.0005	x	1	=	0.116953
	Rate		**EF**		**Pb ton/2000lbs**		**(1-efficiency)**		**Tons/yr**
=	77.9688	x	0	x	0.0005	x	1	=	0

Nota:

CALCULOS DE EMISIONES PARA INCINERADORES DE DESPERDICIOS SOLIDOS

Condominio Villa Caparra Executive

PFE-LC-32-1096-1058

ID Unidad	i		
Descripción del Equipo:	Incinerador Multicámara		
Tipo de Desperdicio:	Doméstico	**Razón de Oxidación:**	400 lbs/hr
Combustible Auxiliar	Propano	**Consumo combustible(GPH)**	70
Horario de Operación:	3 hr/día - 7 día/semana - 52 semanas/año		
Razón de consumo annual	218.4 Unidad/año	**% Azufre**	N.D.
Tipo Unidades	Toneladas		
SCC #:	5-02-001-01		

Factor de emisión (EF) lb/units

	PM10	SOx	NOx	CO	TOC	Pb
	4.70E+00	2.5	3.00E+00	1.00E+01	3.00E+00	0
Eficiencia control	95.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Descripción de equipo control: Lavador de Gases

Procedencia factores emisión *Fire Information Retrieval (FIRE) Data System versión 6.23*

Emisiones Anuales

	Rate		EF		PM10 ton/2000lbs		(1-efficiency)		Tons/yr
=	218.4	x	4.7	x	0.0005	x	0.05	=	0.025662

	Rate		EF		SOx ton/2000lbs		(1-efficiency)		Tons/yr
=	218.4	x	2.5	x	0.0005	x	1	=	0.273

	Rate		EF		NOx ton/2000lbs		(1-efficiency)		Tons/yr
=	218.4	x	3	x	0.0005	x	1	=	0.3276

	Rate		EF		CO ton/2000lbs		(1-efficiency)		Tons/yr
=	218.4	x	10	x	0.0005	x	1	=	1.092

	Rate		EF		TOC ton/2000lbs		(1-efficiency)		Tons/yr
=	218.4	x	3	x	0.0005	x	1	=	0.3276

	Rate		EF		Pb ton/2000lbs		(1-efficiency)		Tons/yr
=	218.4	x	0	x	0.0005	x	1	=	0

Nota: Se presume que opera los 365 días del año.

CALCULOS DE EMISIONES PARA INCINERADORES DE DESPERDICIOS SOLIDOS

San Martin Twin Towers II

PFE-LC-32-1291-1627

ID Unidad	IDS-i		
Descripción del Equipo:	Incinerador		
Tipo de Desperdicio:	Doméstico	**Razón de Oxidación:**	N.D.
Combustible Auxiliar	N.D.	**Consumo combustible(GPH)**	N.D.
Horario de Operación:	N.D.		
Razón de consumo annual	0 Unidad/año	**% Azufre**	0.00%
Tipo Unidades	Toneladas		
SCC #:	N.D.		

Factor de emisión (EF) lb/units

	PM10	SOx	NOx	CO	TOC	Pb
	4.7	2.5	3	10	3	0
Eficiencia control	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Descripción de equipo control: N.D.

Procedencia factores emisión *Fire Information Retrieval (FIRE) Data System versión 6.23*

Emisiones Anuales

	Rate		EF		PM10 ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	4.7	x	0.0005	x	1	=	0

	Rate		EF		SOx ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	2.5	x	0.0005	x	1	=	0

	Rate		EF		NOx ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	3	x	0.0005	x	1	=	0

	Rate		EF		CO ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	10	x	0.0005	x	1	=	0

	Rate		EF		TOC ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	3	x	0.0005	x	1	=	0

	Rate		EF		Pb ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	0	x	0.0005	x	1	=	0

Nota:

CALCULOS DE EMISIONES PARA INCINERADORES DE DESPERDICIOS SOLIDOS

Santa Paula Apartments, Torre A, B y C

PFE-LC-32-0993-1417

ID Unidad	i				
Descripción del Equipo:	Incinerador				
Tipo de Desperdicio:	Doméstico	**Razón de Oxidación:**	N.D.		
Combustible Auxiliar	N.D.	**Consumo combustible(GPH)**	N.D.		
Horario de Operación:	N.D.				
Razón de consumo annual	0	Unidad/año	**% Azufre**	0.00%	
Tipo Unidades	Toneladas				
SCC #:	N.D.				

Factor de emisión (EF) lb/units

	PM10	SOx	NOx	CO	TOC	Pb
	4.7	2.5	3	10	3	0
Eficiencia control	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Descripción de equipo control: N.D.

Procedencia factores emisión *Fire Information Retrieval (FIRE) Data System versión 6.23*

Emisiones Anuales

	Rate		EF		PM10 ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	4.7	x	0.0005	x	1	=	0

	Rate		EF		SOx ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	2.5	x	0.0005	x	i	=	0

	Rate		EF		NOx ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	3	x	0.0005	x	i	=	0

	Rate		EF		CO ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	10	x	0.0005	x	i	=	0

	Rate		EF		TOC ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	3	x	0.0005	x	1	=	0

	Rate		EF		Pb ton/2000lbs		(1-efficiency)		Tons/yr
=	0	x	0	x	0.0005	x	i	=	0

Nota: No hay suficiente información para calcular las emisiones de esta facilidad.

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

Residential On-Site Incineration (Page 11 of 59)

① Condominio Altamesta I-II
Control equipment = Scrubber 99%
Annual refuse rate = 0 units/yr
Emission factor = 4.7 lb/units (Fire Data System)
PM-10 emissions
$0 \text{ units/yr} \times 4.7 \text{ lb/units} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times 1 - .99 = \boxed{0 \text{ tons/yr}}$

② Condominio Garden Hills Towers (Page 24 of 59)
Annual refuse rate = 61.88 units/yr
Emission factor = 4.7 lb/units (Fire Data System)
Control Equipment = Scrubber 90%
$61.88 \text{ units/yr} \times 4.7 \text{ lb/units} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times 1 - .90 = \boxed{0.0145 \text{ tons/yr}}$

③ Condominio Ponce de León Gardens (Page 29 of 59)
Annual refuse rate = 77.9688 units/yr
Emission factor = 4.7 lb/units (Fire)
Control Equipment = Scrubber 85%
$77.9688 \text{ units/yr} \times 4.7 \text{ lb/units} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times 1 - .85 = \boxed{0.027484 \text{ tons/yr}}$

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

④ Condominio Villa Capana Executive (Page 34 of 59)
Annual refuse rate = 218.4 units/yr
Emission factor = 4.7 lbs/units (fire)
Control Equipment = Scrubber 95%

$218.4 \text{ Units/yr} \times 4.7 \text{ lbs/units} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times 1 - .95 = \boxed{0.025602 \text{ ton/yr}}$

⑤ San Martin Juan Towers II (Page 50 of 59)
Annual refuse rate = 0 units/yr
Emission factor = 4.7 lbs/units (fire)
Control Equipment = none

$\frac{0 \text{ units}}{\text{yr}} \times 4.7 \text{ lbs/units} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times 1-0 = \boxed{0 \text{ tons/yr}}$

⑥ Santa Paula Apartments, Torre A, B y C (Page 51 of 59)
Annual refuse rate = 0 units/yr
Emission factor = 4.7 lbs/units (fire)
control Equipment = None

$0 \text{ units/yr} \times 4.7 \text{ lbs/units} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times 1-0 = \boxed{0 \text{ tons/yr}}$

A-3
STRUCTURAL FIRES

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

Structure fires : Guaynabo Area

2002 = 81 fires/yr
2003 = 1 fire/yr
2004 = 61 fires/yr
2005 = 45 fires/yr
2006 = 56 fires/yr

According to Structure fires Volume III : Chapter 18

PM emissions = Emission factor * Activity * fuel loading

$$= \frac{10.8 \text{ lb/ton} * 81 \text{ fires/yr} * 1.15 \text{ tons/fire}}{\frac{2000 \text{ lb}}{\text{ton}}}$$

2002 = 0.5 ton/yr
2003 = $6.21e^{-3}$ ton/yr
2004 = 0.38 ton/yr
2005 = 0.28 ton/yr
2006 = 0.35 ton/yr

Comments:
The emission factor is from the reference above.
The activity is the number of structure fires/yr. This was from the PR Fire Department data.
The fuel loading is an estimated default number of the burned material presented in above reference.

A-4
SMALL INDUSTRIAL FUEL COMBUSTION

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

Industrial Boilers

Fuel Usage:

No.2 → 2,974,518 gal/yr

Residual Oil → 3,239,176 gal/yr

Kerosene → 161,946 gal/yr

Emission factor → Ap 42, Section 1.3

%S = 0.5

No.2 ⇒ 1.00 lb/1000 gal

Residual Oil ⇒ 7.17(0.5) + 0.39 = 3.955 lb/1000 gal

Kerosene ⇒ 7.17(1.2) = 8.604 lb/1000 gal

Calculation

No. 2

$$2{,}974{,}518 \text{ gal/yr} \times \left(1 \text{ lb}/1000 \text{ gal}\right) \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 1.48 \text{ ton/yr}$$

Residual Oil

$$3{,}239{,}176 \text{ gal/yr} \times 3.955 \text{ lb}/1000 \text{ gal} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 6.40 \text{ ton/yr}$$

Kerosene

$$161{,}946 \text{ gal/yr} \times 8.604 \text{ lb}/1000 \text{ gal} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.69 \text{ ton/yr}$$

A-5
SMALL COMMERCIAL/INSTITUTIONAL FUEL COMBUSTION

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

Small Commercial/Institutional Boilers

Fuel Usage: (from Air Toxics Area Source Inventory)

No.2 → 385,565 gal/yr
LPG → 1,501,751 gal/yr
Kerosene → 256,205 gal/yr

Emission factor → AP-42 Sections 1.3 & 1.5.

No 2 → 1.08 lb/1000 gal
LPG → 0.4 lb/1000 gal
Kerosene → 5.17(1.2) = 6.204 lb/1000 gal

No 2 =

$385{,}565 \text{ gal/yr} \times 1.08 \text{ lb/1000 gal} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.208 \text{ ton/yr}$

LPG =

$1{,}501{,}751 \text{ gal/yr} \times 0.4 \text{ lb/1000 gal} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.3 \text{ ton/yr}$

Kerosene =

$256{,}205 \text{ gal/yr} \times 6.204 \text{ lb/1000 gal} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.79 \text{ ton/yr}$

A-6
POINT SOURCES

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA SAN JUAN

SCC: 1-01-004-04

Unit: Boiler 7

Model Id:

Emission Factor Reference: PSD

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	6445894.8 MMBtu/yr	X	0.07531b/MMBtu	X	1 ton/2000 lb	X	(1 − 0.0)	= 242.68 ton/yr
2003=	5030883.45 MMBtu/yr	X	0.07531b/MMBtu	X	1 ton/2000 lb	X	(1 − 0.0)	= 189.4 ton/yr
2004=	5685425.85 MMBtu/yr	X	0.07531b/MMBtu	X	1 ton/2000 lb	X	(1 − 0.0)	= 214 ton/yr
2005=	5608029.45 MMBtu/yr	X	0.07531b/MMBtu	X	1 ton/2000 lb	X	(1 − 0.0)	= 211.14 ton/yr
2006=	5625838.65 MMBtu/yr	X	0.07531b/MMBtu	X	1 ton/2000 lb	X	(1 − 0.0)	= 211.81 ton/yr

Comments: Based on annual fuel NO 6 usage for these years.

$2002 = \frac{42972632\ gal/yr \times 150{,}000\ Btu/gal}{1e6\ Btu/MMBtu} = 6445894.8\ MMBtu/yr$

$2003 = \frac{335392230\ gal/yr \times 150{,}000\ Btu/gal}{1e6} = 5030883.45\ MMBtu/yr$

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA SAN JUAN

SCC: 1-01-004-04

Unit: Boiler 7

Model Id:

Emission Factor Reference: PSD

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=		X		X		X	(1 – 0.)	=
2003=		X		X		X	(1 – 0.)	=
2004=		X		X		X	(1 – 0.)	=
2005=		X		X		X	(1 – 0.)	=
2006=		X		X		X	(1 – 0.)	=

Comments: Continued

2004 = 37902839 gal/yr X 150,000 Btu/gal / 1e6 Btu/MMBtu = 5685425.85 MMBtu/yr

2005 = 37386863 gal/yr X 150,000 Btu/gal / 1e6 Btu/MMBtu = 5608029.45 MMBtu/yr

2006 = 37505591 gal/yr X 150,000 Btu/gal / 1e6 Btu/MMBtu = 5625838.65 MMBtu/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA SAN JUAN

SCC: 1-01-004-04

Unit: Boiler 8

Model Id:

Emission Factor Reference: PSD

Pollutant: PM10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	4933230.45 MMBtu/yr	X	0.0753 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 185.74 ton/yr
2003=	6370162.65 MMBtu/yr	X	0.0753 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 239.83 ton/yr
2004=	3562292.25 MMBtu/yr	X	0.0753 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 134.1 ton/yr
2005=	6126066.45 MMBtu/yr	X	0.0753 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 230.6 ton/yr
2006=	6335818.5 MMBtu/yr	X	0.0753 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 238.54 ton/yr

Comments: Based on annual fuel oil usage for these years.
2002 ⇒ 32888203 gal/yr × 150,100 Btu/gal / 1e6 Btu/MMBtu = 4933230.45 MMBtu/yr
2003 ⇒ 42469751 gal/yr × 150,000 Btu/gal / 1e6 Btu/MMBtu = 6370162.65 MMBtu/yr
2004 ⇒ 23749615 gal/yr × 150,000 Btu/gal / 1e6 Btu/MMBtu = 3562292.25 MMBtu/yr
2005 ⇒ 40840443 gal/yr × 150,000 Btu/gal / 1e6 Btu/MMBtu = 6126066.45 MMBtu/yr
2006 ⇒ 42225790 gal/yr × 150,000 Btu/gal / 1e6 Btu/MMBtu = 6335818.5 MMBtu/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA SAN JUAN

SCC:

Unit: Boiler 9

Model Id:

Emission Factor Reference: PSD

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	6130284.45 MMBtu/gal	X	0.0753 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 23 ton/yr
2003=	22795629 MMBtu/gal	X	0.0753 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 85.8 ton/yr
2004=	55756533 MMBtu/gal	X	0.0753 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 209.9 ton/yr
2005=	64037098 MMBtu/gal	X	0.0753 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 241 ton/yr
2006=	57436349 MMBtu/gal	X	0.0753 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 216.24 ton/yr

Comments: Based on the annual fuel No 6 usage for these years

2002 ⇒ 40868563 gal/yr * 150000 Btu/gal / 1e6 Btu/MMBtu = 6130284.45 MMBtu/gal

2003 ⇒ 151970866 gal/yr * 150000 Btu/gal / 1e6 Btu/MMBtu = 22795629 MMBtu/gal

2004 ⇒ 371710226 gal/yr * 150000 Btu/gal / 1e6 Btu/MMBtu = 55756533.3 MMBtu/gal

2005 ⇒ 426913922 gal/yr * 150000 Btu/gal / 1e6 Btu/MMBtu = 64037098.8 MMBtu/gal

2006 ⇒ 382908988 gal/yr * 150000 Btu/gal / 1e6 Btu/MMBtu = 57436349.7 MMBtu/gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA SAN JUAN

SCC: 1-01-004-04

Unit: Boiler 10

Model Id:

Emission Factor Reference: PSD

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	6847297.8 MMBtu/yr	X	0.0953 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 2508 ton/yr
2003=	3164396.55 MMBtu/yr	X	0.0953 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 119.1 ton/yr
2004=	5934735.3 MMBtu/yr	X	0.0953 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 223.4 ton/yr
2005=	6004426.05 MMBtu/yr	X	0.0953 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 226 ton/yr
2006=	6100209.45 MMBtu/yr	X	0.0953 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 229.6 ton/yr

Comments: Based on annual fuel No 6 usage for these years.

2002 ⇒ 45648652 gal/yr × 150,000 Btu/gal / 1e6 Btu/MMBtu = 6847297.8 MMBtu/yr

2003 ⇒ 21093999 gal/yr × 150,000 Btu/gal / 1e6 Btu/MMBtu = 3164396.55 MMBtu/yr

2004 ⇒ 39564902 gal/yr × 150 000 Btu/gal / 1e6 Btu/MMBtu = 5934735.3 MMBtu/yr

2005 ⇒ 40029501 gal/yr × 150 000 Btu/gal / 1e6 Btu/MMBtu = 6004426.05 MMBtu/yr

2006 ⇒ 40680063 gal/yr × 150 000 Btu/gal / 1e6 Btu/MMBtu = 6100209.45 MMBtu/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA PALO SECO

SCC: 1-01-004-04

Unit: Boiler 1

Model Id:

Emission Factor Reference: Section 1.3 of ap-42, 5th Edition

Pollutant: PM10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	345991750 gal/yr	X	11.10 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= .12 ton/yr
2003=	39566542 gal/yr	X	5.7513 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 113.7 ton/yr
2004=	14188706 gal/yr	X	5.222 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 37 ton/yr
2005=	40891630 gal/yr	X	5.354 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 109.4 ton/yr
2006=	40028909 gal/yr	X	5.156 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 103.2 ton/yr

Comments: Based on annual fuel no.6 usage for these years

2002 ⇒ 345991750 gal/yr, obs = 1.33, Ef = 5.9((1.12 × 1.35) + 0.39) = 11.10 lb/1000 gal
2003 ⇒ 39566542 gal/yr, obs = 0.54, Ef = 5.9((1.12 × .54) + 0.39) = 5.7513 lb/1000 gal
2004 ⇒ 14188706 gal/yr, obs = 0.46, Ef = 5.9((1.12 × .46) + 0.39) = 5.222 lb/1000 gal
2005 ⇒ 40891630 gal/yr, obs = 0.48, Ef = 5.9((1.12 × .48) + 0.39) = 5.354 lb/1000 gal
2006 ⇒ 40028909 gal/yr, obs = 0.45, Ef = 5.9((1.12 × .45) + 0.39) = 5.156 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA PALO SECO

SCC: 1-01-004-04

Unit: Boiler 2

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	24842916 gal/yr	X	11.1038 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 130.9 ton/yr
2003=	38182835 gal/yr	X	5.7051 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 109.8 ton/yr
2004=	37871988 gal/yr	X	5.354 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 101.4 ton/yr
2005=	38195310 gal/yr	X	5.354 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 102.2 ton/yr
2006=	36980845 gal/yr	X	5.156 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 95.3 ton/yr

Comments: Based on annual fuel usage for these years

2002 ⇒ 24842916 gal/yr, %S 1.35, Ef = 5.9 ((1.12 × 1.35) + 0.37) = 11.1038 lb/1000 gal
2003 ⇒ 38182835 gal/yr, %S 0.54, Ef = 5.9 ((1.12 × .54) + 0.37) = 5.7051 lb/1000 gal
2004 ⇒ 37871988 gal/yr, %S 0.48, Ef = 5.9 ((1.12 × .48) + 0.37) = 5.354 lb/1000 gal
2005 ⇒ 38195310 gal/yr, %S 0.48, Ef = 5.9 ((1.12 × .48) + 0.37) = 5.354 lb/1000 gal
2006 ⇒ 36980845 gal/yr, %S 0.45, Ef = 5.9 ((1.12 × .45) + 0.37) = 5.156 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA PALO SECO

SCC: 1-01-004-04

Unit: Boiler 3

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	91718149 gal/yr	X	11.103 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 509.2 $\frac{ton}{yr}$
2003=	96201606 gal/yr	X	5.795 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 276.6 $\frac{ton}{yr}$
2004=	76254822 gal/yr	X	5.354 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 204.16 $\frac{ton}{yr}$
2005=	73904636 gal/yr	X	5.354 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 197.8 $\frac{ton}{yr}$
2006=	89498478 gal/yr	X	5.156 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 230.7 $\frac{ton}{yr}$

Comments: Based on annual fuel data for these years

2002 ⇒ 91718149 gal/yr, %S = 1.35, EF = 5.9((1.12×1.35)+0.31) = 11.103 lb/1000 gal
2003 ⇒ 96201606 gal/yr, %S = 0.54, Ef = 5.9((1.12×0.54)+0.31) = 5.795 lb/1000 gal
04 ⇒ 76254822 gal/yr, %S = 0.48, Ef = 5.9((1.12×.48)+0.31) = 5.354 lb/1000 gal
05 ⇒ 73904636 gal/yr, %S = 0.48, Ef = 5.9((1.12×.48)+0.31) = 5.354 lb/1000 gal
06 ⇒ 89498478 gal/yr, %S = 0.45, Ef = 5.9((1.12×.45)+0.31) = 5.156 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA PALO SECO

SCC: 1-01-004-04

Unit: Boiler 4

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	87799319 gal/yr	X	11.163 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 489.4 ton/yr
2003=	83224350 gal/yr	X	5.810 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 242 ton/yr
2004=	85501248 gal/yr	X	5.354 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 228.9 ton/yr
2005=	75751289 gal/yr	X	5.354 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 202.8 ton/yr
2006=	81173937 gal/yr	X	5.156 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 209.2 ton/yr

Comments: Based on annual fuel No 6 usage for these years

2002 ⇒ 87799319 gal/yr, %S = 1.35, EF = 5.9((1.12 × 1.35) + 0.37) = 11.163 lb/1000 gal
2003 ⇒ 83224350 gal/yr, %S = 0.55, EF = 5.9((1.12 × .55) + 0.37) = 5.810 lb/1000 gal
2004 ⇒ 85501248 gal/yr, %S = 0.48, EF = 5.9((1.12 × .48) + 0.37) = 5.354 lb/1000 gal
2005 ⇒ 75751289 gal/yr, %S = 0.48, EF = 5.9((1.12 × .48) + 0.37) = 5.354 lb/1000 gal
2006 ⇒ 81173937 gal/yr, %S = 0.45, EF = 5.9((1.12 × .45) + 0.37) = 5.156 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA PALO SECO

SCC: 2-01-001-01

Unit: Power Block 1

Model Id:

Emission Factor Reference: Section 3.1 of ap.42, 5th edition.

Pollutant: PM.10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	215174.045 MMBtu/yr	X	1.20e-2 lb/MMBtu	X	1 ton / 2000 lb	X	(1−0.0)	= 1.29 ton/yr
2003=	952945.965 MMBtu/yr	X	1.2e-2 lb/MMBtu	X	1 ton / 2000 lb	X	(1−0.0)	= 5.71 ton/yr
2004=	418016.43 MMBtu/yr	X	1.2e-2 lb/MMBtu	X	1 ton / 2000 lb	X	(1−0.0)	= 2.50 ton/yr
2005=	1349778.465 MMBtu/yr	X	1.2e-2 lb/MMBtu	X	1 ton / 2000 lb	X	(1−0.0)	= 8.09 ton/yr
2006=	304414.875 MMBtu/yr	X	1.2e-2 lb/MMBtu	X	1 ton / 2000 lb	X	(1−0.0)	= 1.82 ton/yr

Comments: Based on annual fuel No 2 usage for these years

2002 ⇒ 1593887 gal/yr x 135,000 Btu/gal / 1e6 Btu/MMBtu = 215174.045 MMBtu/yr
2003 ⇒ 7058859 gal/yr x 135,000 Btu/gal / 1e6 Btu/MMBtu = 952945.965 MMBtu/yr
2004 ⇒ 3096418 gal/yr x 135000 Btu/gal / 1e6 Btu/MMBtu = 418016.43 MMBtu/yr
2005 ⇒ 9998359 gal/yr x 135000 Btu/gal / 1e6 Btu/MMBtu = 1349778.465 MMBtu/yr
2006 ⇒ 2254925 gal/yr x 135000 Btu/gal / 1e6 Btu/MMBtu = 304414.875 MMBtu/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA PALO SECO

SCC: 2-01-001-01

Unit: Power Block 2

Model Id:

Emission Factor Reference: Section 3.1 Of AP-42 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	6512597.01 MMBtu/yr	X	1.2e-2 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 3.9 ton/yr
2003=	1044418.59 MMBtu/yr	X	1.2e-2 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 6.26 ton/yr
2004=	444294.18 MMBtu/yr	X	1.2e-2 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 2.66 ton/yr
2005=	719582.94 MMBtu/yr	X	1.2e-2 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 4.31 ton/yr
2006=	281773.62 MMBtu/yr	X	1.2e-2 lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 1.69 ton/yr

Comments: Based on annual fuel No 2 usage for these years.
2002 ⇒ 4824126 gal/yr × 135000 Btu/gal / 1e6 Btu/MMBtu = 6512597.01 MMBtu/yr
2003 ⇒ 7736434 gal/yr × 135000 Btu/gal / 1e6 Btu/MMBtu = 1044418.59 MMBtu/yr
2004 ⇒ 3291068 gal/yr × 135000 Btu/gal / 1e6 Btu/MMBtu = 444294.18 MMBtu/yr
2005 ⇒ 530244 gal/yr × 135000 Btu/gal / 1e6 Btu/MMBtu = 71958.294 MMBtu/yr
2006 ⇒ 2089212 gal/yr × 135000 Btu/gal / 1e6 Btu/MMBtu = 281773.62 MMBtu/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: PREPA PALO SECO

SCC: 2-01-001-01

Unit: Power Block 3

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	139010.31 MMBtu/yr	X	1.2×10^{-2} lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.83 ton/yr
2003=	31521.42 MMBtu/yr	X	$1.2e^{-2}$ lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.189 ton/yr
2004=	445950.9 MMBtu/yr	X	$1.2e^{-2}$ lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 2.67 ton/yr
2005=	1426666.635 MMBtu/yr	X	$1.2e^{-2}$ lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 8.55 ton/yr
2006=	333432.99 MMBtu/yr	X	$1.2e^{-2}$ lb/MMBtu	X	1 ton / 2000 lb	X	(1 − 0.0)	= 2 ton/yr

Comments: Based on annual fuel No.2 usage for these years.
2002 ⇒ 1029706 gal/yr × 135000 Btu/gal / $1e^6$ Btu/MMBtu = 139010.31 MMBtu/yr
2003 ⇒ 233492 gal/yr × 135000 Btu/gal / $1e^6$ Btu/MMBtu = 31521.42 MMBtu/yr
2004 ⇒ 3303340 gal/yr × 135000 Btu/gal / $1e^6$ Btu/MMBtu = 445950.9 MMBtu/yr
2005 ⇒ 10567901 gal/yr × 135000 Btu/gal / $1e^6$ Btu/MMBtu = 1426666.635 MMBtu/yr
2006 ⇒ 2469814 gal/yr × 135000 Btu/gal / $1e^6$ Btu/MMBtu = 333432.99 MMBtu/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Bacardi

SCC: 1-02-004-01

Unit: Boiler 1

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	1715296 gal/yr	X	8.526 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 1.31 ton/yr
2003=	164653 gal/yr	X	10.575 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 0.87 ton/yr
2004=	884818 gal/yr	X	9.319 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 4.12 ton/yr
2005=	701513 gal/yr	X	6.34 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 2.22 ton/yr
2006=	/	X	/	X	/	X	(1 − 0.)	= /

Comments: Based on annual fuel No.6 usage for these years.

2002 ⇒ 1715296 gal/yr, %S = 0.96, EF = 5.9((1.12 × 0.96) + 0.37) = 8.526 lb/1000 gal

2003 ⇒ 164653 gal/yr, %S = 1.07, EF = 5.9((1.12 × 1.07) + 0.37) = 10.575 lb/1000 gal

2004 ⇒ 884818 gal/yr, %S = 1.08, EF = 5.9((1.12 × 1.08) + 0.37) = 9.319 lb/1000 gal

2005 ⇒ 701513 gal/yr, %S = 0.63, EF = 5.9((1.12 × 0.63) + 0.37) = 6.34 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Bacardí

SCC: 1-02-004-01

Unit: Boiler 2

Model Id:

Emission Factor Reference: Section 1.3 of ap-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	2186076 gal/yr	X	7.07 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 7.73 ton/yr
2003=	2207260 gal/yr	X	9.583 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 10.57 ton/yr
2004=	1590819 gal/yr	X	9.716 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 7.72 ton/yr
2005=	1880306 gal/yr	X	5.61 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 5.28 ton/yr
2006=	2481099 gal/yr	X	5.09 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.)	= 6.31 ton/yr

Comments: Based on annual fuel oil 6 usage for these years.

2003 ⇒ 2186076 gal/yr, %S = 0.94, Ef = 5.9((1.12 x .94)+0.39) = 7.07 lb/1000 gal
2003 ⇒ 2207260 gal/yr, %S = 1.12, Ef = 5.9 ((1.12 x 1.12)+0.39) = 9.583 lb/1000 gal
2004 ⇒ 1590819 gal/yr, %S = 1.14, Ef = 5.9 ((1.12 x 1.14)+0.39) = 9.71 lb/1000 gal
2005 ⇒ 1880306 gal/yr, %S = 0.52, Ef = 5.9 ((1.12 x 0.52)+0.39) = 5.61 lb/1000 gal
2006 ⇒ 2481099 gal/yr, %S = 0.44, Ef = 5.9 ((1.12 x 0.44)+0.39) = 5.09 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Tradewind Foods, Inc (Formerly Goya de Puerto Rico)

SCC: 1-02-004-01

Unit: Boiler GPR-ES-01

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	488044 gal/yr	X	8.604 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 2.0 ton/yr
2003=	565899 gal/yr	X	8.604 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 2.43 ton/yr
2004=	597138 gal/yr	X	8.604 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 2.56 ton/yr
2005=	560913 gal/yr	X	8.604 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 2.41 ton/yr
2006=	545398 gal/yr	X	8.604 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 2.34 ton/yr

Comments: Based on annual fuel NO S used for these years

2002 ⇒ 488044 gal/yr, %S = 0.98, Ef = (7.17 × 1.2) = 8.604 lb/1000 gal
2003 ⇒ 565899 gal/yr, %S = 0.98, Ef = (7.17 × 1.2) = 8.604 lb/1000 gal
2004 ⇒ 597138 gal/yr, %S = 1.05, Ef = (7.17 × 1.2) = 8.604 lb/1000 gal
2005 ⇒ 560913 gal/yr, %S = 1.13, Ef = (7.17 × 1.2) = 8.604 lb/1000 gal
2006 ⇒ 545398 gal/yr, %S = 1.2, Ef = (7.17 × 1.2) = 8.604 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Edelcan

SCC: 1-03-004-04

Unit: Eclipse Boiler

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	9,100 gal/yr	X	1.08 lb/1000 gal	X	1 ton/2000 lb	X	(1 − 0.0)	= 4.9e-3 ton/yr
2003=	9,100 gal/yr	X		X		X	(1 − 0.0)	= 4.9e-3 ton/yr
2004=	9,100 gal/yr	X		X		X	(1 − 0.0)	= 4.9e-3 ton/yr
2005=	9,100 gal/yr	X		X		X	(1 − 0.0)	= 4.9e-3 ton/yr
2006=	9,100 gal/yr	X		X		X	(1 − 0.0)	= 4.9e-3 ton/yr

Comments: Based on permit limit for fuel no 2 for all years of the inventory

9,100 gal/yr
Ef = 1.08 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Edelca

SCC:

Unit: Holman Steam Boiler

Model Id:

Emission Factor Reference: Section 1.3 of AP 42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	25480 gal/yr	X	1.08 lb / 1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.013 ton/yr
2003=	25480 gal/yr	X		X		X	(1 − 0.0)	= 0.013 ton/yr
2004=	25480 gal/yr	X		X		X	(1 − 0.0)	= 0.013 ton/yr
2005=	25480 gal/yr	X		X		X	(1 − 0.0)	= 0.013 ton/yr
2006=	25480 gal/yr	X		X		X	(1 − 0.0)	= 0.013 ton/yr

Comments: Based on permit limit for fuel NO. 2 for all years in the inventory

EF = 1.08 lb/1000 gal
25,480 gal/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Edelcan

SCC:

Unit: Cleaver Brooks Boiler

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	25480 gal/yr	X	1.08 lb / 1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.013 ton/yr
2003=	25480 gal/yr	X		X		X	(1 − 0.0)	= 0.013 ton/yr
2004=	25480 gal/yr	X		X		X	(1 − 0.0)	= 0.013 ton/yr
2005=	25480 gal/yr	X		X		X	(1 − 0.0)	= 0.013 ton/yr
2006=	25480 gal/yr	X		X		X	(1 − 0.0)	= 0.013 ton/yr

Comments: Based on permit limit for fuel use for all years in the inventory.
Ef = 1.08 lb/1000 gal
25480 gal/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Smurfit Stone PR, Inc. (Formerly Cantonera Nacional)

SCC: 1-02-004-01

Unit: Boiler Cleaver Brooks

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	213456 gal/yr	X	11.64 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 1.24 $\frac{ton}{yr}$
2003=	204995 gal/yr	X	12.69 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 1.29 $\frac{ton}{yr}$
2004=	215342 gal/yr	X	11.32 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 1.219 $\frac{ton}{yr}$
2005=	208892 gal/yr	X	8.19 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 0.85 $\frac{ton}{yr}$
2006=	215562 gal/yr	X	6.26 lb/1000 gal	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.0)	= 0.675 $\frac{ton}{yr}$

Comments: Based on annual fuel oil usage for these years.
2002 ⇒ 213456 gal/yr, Ef ⇒ 7.17((1.12 × 1.12) + 0.39) = 11.64 lb/1000 gal, %S = 1.12
2003 ⇒ 204995 gal/yr, %S ⇒ 1.25, Ef ⇒ 7.17((1.12 × 1.25) + 0.39) = 12.69 lb/1000 gal
2004 ⇒ 215342 gal/yr, %S ⇒ 1.08, Ef ⇒ 7.17((1.12 × 1.08) + 0.39) = 11.32 lb/1000 gal
2005 ⇒ 208892 gal/yr, %S ⇒ 0.69, Ef ⇒ 7.17((1.12 × 0.69) + 0.39) = 8.19 lb/1000 gal
2006 ⇒ 215562 gal/yr, %S ⇒ 0.45, Ef ⇒ 7.17((1.12 × 0.45) + 0.39) = 6.26 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Betteroads Asphalt Plant 3

SCC: 3-05-002-07

Unit: Asphalt Heater

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	435633 gal/yr	X	1.08 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.23 ton/yr
2003=	573409 gal/yr	X	1.08 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.30 ton/yr
2004=	618169 gal/yr	X	1.08 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.33 ton/yr
2005=	563692 gal/yr	X	1.08 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.30 ton/yr
2006=	509530 gal	X	1.08 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.27 ton/yr

Comments: Based on annual fuel No. 2 for these years

2002 ⇒ 435633 gal/yr, %S = 0.22, Ef = 1.08 lb/1000 gal
003 ⇒ 573409 gal/yr, %S = 0.27, Ef = 1.08 lb/1000 gal
004 ⇒ 618169 gal/yr, %S = 0.19, Ef = 1.08 lb/1000 gal
05 ⇒ 563692 gal/yr, %S = 0.2, Ef = 1.08 lb/1000 gal
006 ⇒ 509530 gal/yr, %S = 0.2, Ef = 1.08 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Betteroads Asphalt Plant 3

SCC: 3-05-002-05

Unit: Drum Mixer AF-100

Model Id:

Emission Factor Reference: Section 11.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	350,000 ton/yr	X	6.4 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.95)	= 56 ton/yr
2003=	350,000 ton/yr	X		X		X	(1 − 0.95)	= 56 ton/yr
2004=	350,000 ton/yr	X		X		X	(1 − 0.95)	= 56 ton/yr
2005=	350,000 ton/yr	X		X		X	(1 − 0.95)	= 56 ton/yr
2006=	350,000 ton/yr	X		X		X	(1 − 0.95)	= 56 ton/yr

Comments: Based on maximum annual production of the permit 350,000 ton/yr, Ef = 6.4 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de PR

SCC: 1-02-005-02

Unit: Boiler

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	68839 gal/yr	X	1.08 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.037 ton/yr
2003=	62301 gal/yr	X	1.08 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.033 ton/yr
2004=	60071 gal/yr	X	1.08 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.032 ton/yr
2005=	80773 gal/yr	X	1.08 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.043 ton/yr
2006=		X	1.08 lb/1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.051 ton/yr

Comments: Based on annual fuel use for these years

2002 ⇒ 68839 gal/yr, %S = 0.03, Ef = 1.08 lb/1000 gal
2003 ⇒ 62301 gal/yr, %S = 0.03, Ef = 1.08 lb/1000 gal
2004 ⇒ 60071 gal/yr, %S = 0.03, Ef = 1.08 lb/1000 gal
2005 ⇒ 80773 gal/yr, %S = 0.03, Ef = 1.08 lb/1000 gal
2006 ⇒ 95543 gal/yr, %S = 0.04, Ef = 1.08 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Holsum de P.R.

SCC: 3-02-005-51

Unit: Flame Tower

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	1559669.2 ton/yr	X	0.038 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	= 0.148 ton/yr
2003=	1559669.2 ton/yr	X		X		X	(1 − 0.995)	= 0.148 ton/yr
2004=	1559669.2 ton/yr	X		X		X	(1 − 0.995)	= 0.148 ton/yr
2005=	1559669.2 ton/yr	X		X		X	(1 − 0.995)	= 0.148 ton/yr
2006=	1559669.2 ton/yr	X		X		X	(1 − 0.995)	= 0.148 ton/yr

Comments: Based on permit maximum annual production.
1559669.2 ton/yr , EF = 0.038 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC: 3-02-008-16

Unit: Pellets Cooler

Model Id:

Emission Factor Reference: Section 9 9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	43099.6 ton/yr	X	1.8e-1 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	= 0.014 ton/yr
2003=	43099.6 ton/yr	X		X		X	(1 − 0.995)	= 0.019 ton/yr
2004=	43099.6 ton/yr	X		X		X	(1 − 0.995)	= 0.019 ton/yr
2005=	43099.6 ton/yr	X		X		X	(1 − 0.995)	= 0.019 ton/yr
2006=	43099.6 ton/yr	X		X		X	(1 − 0.995)	= 0.019 ton/yr

Comments: Based on permit maximum annual production 43099.6 ton/yr, EF = 1.8e-1 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC: 3-02-007-33

Unit: Wheat Cleaning

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002= 203840 ton/yr	X	0.0006 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	$= 3.0 \times 10^{-4}$ ton/yr
2003= 203840 ton/yr	X		X		X	(1 − 0.995)	$= 3.0 \times 10^{-4}$ ton/yr
2004= 203840 ton/yr	X		X		X	(1 − 0.995)	$= 3.0 \times 10^{-4}$ ton/yr
2005= 203840 ton/yr	X		X		X	(1 − 0.995)	$= 3.0 \times 10^{-4}$ ton/yr
2006= 203840 ton/yr	X		X		X	(1 − 0.995)	$= 3.0 \times 10^{-4}$ ton/yr

Comments: Based on permit max. annual production 203840 ton/yr, Ef = 0.0006 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC:

Unit: Pellet mill loading

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002= 162489.6 ton/yr	X	0.034 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	= 0.013 ton/yr
2003= 162489.6 ton/yr	X		X		X	(1 − 0.995)	= 0.013 ton/yr
2004= 162489.6 ton/yr	X		X		X	(1 − 0.995)	= 0.013 ton/yr
2005= 162489.6 ton/yr	X		X		X	(1 − 0.995)	= 0.013 ton/yr
2006= 162489.6 ton/yr	X		X		X	(1 − 0.995)	= 0.013 ton/yr

Comments: Based on permit maximum annual production 162489.6 ton/yr, Ef = 0.034 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC: 3-02-005-40

Unit: Wheat flour Bin

Model Id:

Emission Factor Reference:

Pollutant:

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	203840 ton/yr	X	0.034 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995	= 0.010 ton/yr
2003=	203840 ton/yr	X		X		X	(1 − 0.995	= 0.010 ton/yr
2004=	203840 ton/yr	X		X		X	(1 − 0.995	= 0.010 ton/yr
2005=	203840 ton/yr	X		X		X	(1 − 0.995	= 0.010 ton/yr
2006=	203840 ton/yr	X		X		X	(1 − 0.995	= 0.010 ton/yr

Comments: Based on plant maximum annual production
203840 ton/yr, EF = 0.034 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC: 3-02-007-34

Unit: Wheat Mill Pneumatic

Model Id:

Emission Factor Reference: Section 9.9.1 of ap-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	203840 ton/yr	X	35 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	= 10.83 ton/yr
2003=	203840 ton/yr	X		X		X	(1 − 0.995)	= 10.83 ton/yr
2004=	203840 ton/yr	X		X		X	(1 − 0.995)	= 10.83 ton/yr
2005=	203840 ton/yr	X		X		X	(1 − 0.995)	= 10.83 ton/yr
2006=	203840 ton/yr	X		X		X	(1 − 0.995)	= 10.83 ton/yr

Comments: Based on permit maximum annual production.
203840 ton/yr, EF = 35 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC: 3-02-007-34

Unit: Wheat Flour Mill

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002	203840 ton/yr	X	35 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	= 19.83 ton/yr
2003	203840 ton/yr	X		X		X	(1 − 0.995)	= 19.83 ton/yr
2004	203840 ton/yr	X		X		X	(1 − 0.995)	= 19.83 ton/yr
2005	203840 ton/yr	X		X		X	(1 − 0.995)	= 19.83 ton/yr
2006	203840 ton/yr	X		X		X	(1 − 0.995)	= 19.83 ton/yr

Comments: Based on permit maximum annual production 203840 ton/yr, EF = 35 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC: 3-02-007-44

Unit: Corn Cleaning

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002	33196.8 ton/yr	X	0.019 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.915)	= 1.5e-3 ton/yr
2003	33196.8 ton/yr	X		X		X	(1 − 0.915)	= 1.5e-3 ton/yr
2004	33196.8 ton/yr	X		X		X	(1 − 0.915)	= 1.5e-3 ton/yr
2005	33196.8 ton/yr	X		X		X	(1 − 0.915)	= 1.5e-3 ton/yr
2006	33196.8 ton/yr	X		X		X	(1 − 0.915)	= 1.5e-3 ton/yr

Comments: Based on peanut maximum annual production 33196.8 ton/yr, Ef = 0.019 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC: 3-02-007-41

Unit: Corn Mill

Model Id:

Emission Factor Reference: Fire Retrieval Data System 6.25

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	33196.8 ton/yr	X	0.059 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	= 4.8e-3 ton/yr
2003=	33196.8 ton/yr	X		X		X	(1 − 0.995)	= 4.8e-3 ton/yr
2004=	33196.8 ton/yr	X		X		X	(1 − 0.995)	= 4.8e-3 ton/yr
2005=	33196.8 ton/yr	X		X		X	(1 − 0.995)	= 4.8e-3 ton/yr
2006=	33196.8 ton/yr	X		X		X	(1 − 0.995)	= 4.8e-3 ton/yr

Comments: Based on permit maximum annual production.
33196.8 ton/yr, EF = 0.059 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC:

Unit: Grain Handling

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	1259731.2 ton/yr	X	0.034 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.99)	= 0.10 ton/yr
2003=	1259731.2 ton/yr	X		X		X	(1 − 0.99)	= 0.10 ton/yr
2004=	1259731.2 ton/yr	X		X		X	(1 − 0.99)	= 0.10 ton/yr
2005=	1259731.2 ton/yr	X		X		X	(1 − 0.99)	= 0.10 ton/yr
2006=	1259731.2 ton/yr	X		X		X	(1 − 0.99)	= 0.10 ton/yr

Comments: Based on permit maximum annual production 1259731.2 ton/yr, EF = 0.034 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC: 3-02-005-40

Unit: Corn Grits Bin & Corn Meal Bin

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	192192 ton/yr	X	0.00631b/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	$= 3 \times 10^{-3}$ ton/yr
2003=	192192 ton/yr	X		X		X	(1 − 0.995)	$= 3 \times 10^{-3}$ ton/yr
2004=	192192 ton/yr	X		X		X	(1 − 0.995)	$= 3 \times 10^{-3}$ ton/yr
2005=	192192 ton/yr	X		X		X	(1 − 0.995)	$= 3 \times 10^{-3}$ ton/yr
2006=	192192 ton/yr	X		X		X	(1 − 0.995)	$= 3 \times 10^{-3}$ ton/yr

Comments: Based on permit maximum annual production 192192 ton/yr, EF = 0.00631b/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC: 3-02-005-40

Unit: Corn Cntr to Bin, Corn Meal Bin, Gluten Bin, Corn Flour Bin, Middlings Bin, Bin 14

Model Id:

Emission Factor Reference: Section 9.9.1 of AP42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	192192 ton/yr	X	0.0063 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.991)	$= 3 \times 10^{-3}$ ton/yr
2003=	192192 ton/yr	X		X		X	(1 − 0.991)	$= 3 \times 10^{-3}$ ton/yr
2004=	192192 ton/yr	X		X		X	(1 − 0.991)	$= 3 \times 10^{-3}$ ton/yr
2005=	192192 ton/yr	X		X		X	(1 − 0.991)	$= 3 \times 10^{-3}$ ton/yr
2006=	192192 ton/yr	X		X		X	(1 − 0.991)	$= 3 \times 10^{-3}$ ton/yr

Comments: Based on permit maximum annual production
192192 ton/yr, 0.0063 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Molinos de Puerto Rico

SCC: 3-02-005-60

Unit: Grain Shipping Dock

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	394867.2 ton/yr	X	0.029 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	= 0.028 ton/yr
2003=	394867.2 ton/yr	X		X		X	(1 − 0.995)	= 0.028 ton/yr
2004=	394867.2 ton/yr	X		X		X	(1 − 0.995)	= 0.028 ton/yr
2005=	394867.2 ton/yr	X		X		X	(1 − 0.995)	= 0.028 ton/yr
2006=	394867.2 ton/yr	X		X		X	(1 − 0.995)	= 0.028 ton/yr

Comments: Based on peanut maximum annual production 394867.2 ton/yr, Ef = 0.029 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Lemex Concretos Inc. (formerly, Ready Mix, Plant 20)

SCC: 3-05-011-21

Unit: Aggregate Delivery to Ground Storage

Model Id:

Emission Factor Reference: An emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	199888 yd3/yr	X	0.0031 lb/yd3	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.30 ton/yr
2003=	199888 yd3/yr	X		X		X	(1 − 0.)	= 0.30 ton/yr
2004=	199888 yd3/yr	X		X		X	(1 − 0.)	= 0.30 ton/yr
2005=	199 888 yd3/yr	X		X		X	(1 − 0.)	= 0.30 ton/yr
2006=	199888 yd3/yr	X		X		X	(1 − 0.)	= 0.30 ton/yr

Comments: Based on permit maximum annual production 199 888 yd3/yr., Ef = 0.0031 lb/yd3

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cemex Concrete, Inc. (Formerly, Ready Mix Plant 20)

SCC: 3-05-011-22

Unit: Sand Delivery to Ground Storage

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	199888 yd³/yr	X	0.0007 lb/yd³	X	1 ton / 2000 lb	X	(1 − 0.)	= 0.069 ton/yr
2003=	199888 yd³/yr	X		X		X	(1 − 0.)	= 0.069 ton/yr
2004=	199888 yd³/yr	X		X		X	(1 − 0.)	= 0.069 ton/yr
2005=	199888 yd³/yr	X		X		X	(1 − 0.)	= 0.069 ton/yr
2006=	199888 yd³/yr	X		X		X	(1 − 0.)	= 0.069 ton/yr

Comments: Based on permit maximum annual production 199888 yd³/yr, Ef = 0.0007 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cemex Concretos, Inc (formerly, Ready Mix Plant 20)

SCC: 3-05-011-23

Unit: Aggregate transfer to Conveyor

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	199888 yd^3/yr	X	0.0031 lb/yd^3	X	1 Ton / 2000 lb	X	(1 − 0.0)	= 0.30 ton/yr
2003=	199888 yd^3/yr	X		X		X	(1 − 0.0)	= 0.30 ton/yr
2004=	199888 yd^3/yr	X		X		X	(1 − 0.0)	= 0.30 ton/yr
2005=	199888 yd^3/yr	X		X		X	(1 − 0.0)	= 0.30 ton/yr
2006=	199888 yd^3/yr	X		X		X	(1 − 0.0)	= 0.30 ton/yr

Comments: Based on permit maximum annual production.
199 888 yd^3/yr, Ef = 0.0031 lb/yd^3

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cemex Concretos Inc, (Formerly, Ready Mix Plant 20)

SCC: 3-05-011-24

Unit: Sand Transfer to conveyor

Model Id:

Emission Factor Reference: Air emission permit.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	199888 yd³/yr	X	0.0009 lb/yd³	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.089 ton/yr
2003=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.089 ton/yr
2004=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.089 ton/yr
2005=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.089 ton/yr
2006=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.089 ton/yr

Comments: Based on permit maximum annual production 199 888 yd³/yr, Ef = 0.0009 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cemex Concretes, Inc. (formerly, Ready Mix Plant 20)

SCC:

Unit: Vehicle traffic (paved road)

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	440.4 VHT/hr	X	1.785 lb/VHT	X	1 ton / 2000 lb	X	(1 − 0.70)	= 0.10 ton/yr
2003=	440.4 VHT/hr	X		X		X	(1 − 0.70)	= 0.10 ton/yr
2004=	440.4 VHT/hr	X		X		X	(1 − 0.70)	= 0.10 ton/yr
2005=	440.4 VHT/hr	X		X		X	(1 − 0.70)	= 0.10 ton/yr
2006=	440.4 VHT/hr	X		X		X	(1 − 0.70)	= 0.10 ton/yr

Comments: Based on permit emissions calculation
= 400.4 VHT/yr, 1.785 lb/VHT

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cemex Concrete, Inc. (Formerly, Ready Mix Plant 20)

SCC:

Unit: Wind erosion in aggregates storage

Model Id:

Emission Factor Reference: An emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	0.08 acre	X	1277.328 lb/acre/yr	X	1 ton/2000 lb	X	(1 − 0.0)	= 0.05 ton/yr
2003=	0.08 acre	X		X		X	(1 − 0.0)	= 0.05 ton/yr
2004=	0.08 acre	X		X		X	(1 − 0.0)	= 0.05 ton/yr
2005=	0.08 acre	X		X		X	(1 − 0.0)	= 0.05 ton/yr
2006=	0.08 acre	X		X		X	(1 − 0.0)	= 0.05 ton/yr

Comments: Based on permit emission calculation
0.08 acre, EF = 1277.328 lb/acre/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cemex Concrete, Inc (formerly, Ready Mix Plant 20)

SCC: 3-05-011-10

Unit: Loading of hazit mix truck

Model Id:

Emission Factor Reference: An emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	199888 yd^3/yr	X	0.014 lb/yd^3	X	1 ton / 2000 lb	X	(1 − 0.99)	= 0.013 ton/yr
2003=	199888 yd^3/yr	X		X		X	(1 − 0.99)	= 0.013 ton/yr
2004=	199888 yd^3/yr	X		X		X	(1 − 0.99)	= 0.013 ton/yr
2005=	199888 yd^3/yr	X		X		X	(1 − 0.99)	= 0.013 ton/yr
2006=	199888 yd^3/yr	X		X		X	(1 − 0.99)	= 0.013 ton/yr

Comments: Based on permit maximum annual production 199888 yd^3/yr, Ef = 0.014 lb/yd^3

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Lenex Concrete Inc. (formerly, Ready Mix Plant 20)

SCC: 3-05-011-17

Unit: Cement Supplement Delivered to Silo (Flash-Ash Silo)

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	199888 yd³/yr	X	0.0002 lb/yd³	X	1 ton / 2000 lb	X	(1 − 0.99)	= 1.9e-4 ton/yr
2003=	199888 yd³/yr	X		X		X	(1 − 0.99)	= 1.9e-4 ton/yr
2004=	199888 yd³/yr	X		X		X	(1 − 0.99)	= 1.9e-4 ton/yr
2005=	199888 yd³/yr	X		X		X	(1 − 0.99)	= 1.9e-4 ton/yr
2006=	199888 yd³/yr	X		X		X	(1 − 0.99)	= 1.9e-4 ton/yr

Comments: Based on permit maximum annual production.
199888 yd³/yr , Ef = 0.0002 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cemex Concretos Inc (Formerly Ready Mix, Plant 20)

SCC: 3-05-011-07

Unit: Cement Delivery to Silo

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	199888 yd³/yr	X	0.0001 lb/yd³	X	1 ton / 2000 lb	X	(1 − 0.99)	= 0.0001 ton/yr
2003=	199888 yd³/yr	X		X		X	(1 − 0.99)	= 0.0001 ton/yr
2004=	199888 yd³/yr	X		X		X	(1 − 0.99)	= 0.0001 ton/yr
2005=	199888 yd³/yr	X		X		X	(1 − 0.99)	= 0.0001 ton/yr
2006=	199888 yd³/yr	X		X		X	(1 − 0.99)	= 0.0001 ton/yr

Comments: Based on permit maximum annual production.
199888 yd³/yr, EF = 0.0001 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cemex Concrete Inc (formerly Ready Mix Plant 20)

SCC: 3-05-011-05

Unit: Sand Transfer to Elevated Bins

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	199 888 yd³/yr	X	0.0007 lb/yd³	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.069 ton/yr
2003=	199 888 yd³/yr	X		X		X	(1 − 0.0)	= 0.069 ton/yr
2004=	199 888 yd³/yr	X		X		X	(1 − 0.0)	= 0.069 ton/yr
2005=	199 888 yd³/yr	X		X		X	(1 − 0.0)	= 0.069 ton/yr
2006=	199 888 yd³/yr	X		X		X	(1 − 0.0)	= 0.069 ton/yr

Comments: Based on permit maximum annual production
199 888 yd³/yr | EF = 0.0007 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cemex Concretos Inc (Formerly Ready Mix, Plant 20)

SCC: 3-05-011-04

Unit: Aggregate Transfer to Elevated Bins

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	199888 yd³/yr	X	0.0031 lb/yd³	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.30 ton/yr
2003=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.30 ton/yr
2004=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.30 ton/yr
2005=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.30 ton/yr
2006=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.30 ton/yr

Comments: Based on permit maximum annual production 199888 yd³/yr, Ef = 0.0031 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cemex Concrete Inc. (Formely Ready Mix Plant 20)

SCC: 3-05-011-08

Unit: Weight Hopper

Model Id:

Emission Factor Reference: Our emission permit.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	199888 yd³/yr	X	0.00038 lb/yd³	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.37 ton/yr
2003=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.37 ton/yr
2004=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.37 ton/yr
2005=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.37 ton/yr
2006=	199888 yd³/yr	X		X		X	(1 − 0.0)	= 0.37 ton/yr

Comments: based on permit maximum annual production 199888 yd³/yr, EF = 0.00038 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Petroleum Emulsion (formerly Petroleum Chemical)

SCC:

Unit: Afterburner

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002	84,643 gal/yr	X	1.08 lb/1000gal	X	1 ton/2000 lb	X	(1 − 0.0)	= 0.045 ton/yr
2003	84,643 gal/yr	X		X		X	(1 − 0.0)	= 0.45 ton/yr
2004	84,643 gal/yr	X		X		X	(1 − 0.0)	= 0.45 ton/yr
2005	84,643 gal/yr	X		X		X	(1 − 0.0)	= 0.45 ton/yr
2006	84,643 gal/yr	X		X		X	(1 − 0.0)	= 0.45 ton/yr

Comments: Based on permit maximum fuel usage for these years
84,643 gal/yr, EF = 1.08 lb/1000gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Petroleum Emulsion (formerly Petroleum Chemical)

SCC:

Unit: Oxidator Burner

Model Id:

Emission Factor Reference: Section 1.3 of AP42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	28,392 gal/yr	X	1.08 lb / 1000 gal	X	1 ton / 2000 lb	X	(1 − 0.90)	$= 1.53e^{-3}$ ton/yr
2003=	28,392 gal/yr	X		X		X	(1 − 0.90)	$= 1.53e^{-3}$ ton/yr
2004=	28,392 gal/yr	X		X		X	(1 − 0.90)	$= 1.53e^{-3}$ ton/yr
2005=	28,392 gal/yr	X		X		X	(1 − 0.90)	$= 1.53e^{-3}$ ton/yr
2006=	28,392 gal/yr	X		X		X	(1 − 0.90)	$= 1.53e^{-3}$ ton/yr

Comments: Based on permit maximum fuel usage for these years.
28,392 gal/yr, Ef = 1.08 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Petroleum Emulsion (formerly Petroleum Chemical)

SCC:

Unit: Oxidator Burner

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	13,520 gal/yr	X		X		X	(1 − 0.90)	$= 7.3e^{-4}$ ton/yr
2003=	13,520 gal/yr	X		X		X	(1 − 0.90)	$= 7.3e^{-4}$ ton/yr
2004=	13,520 gal/yr	X	1.08 lb / 1000 gal	X	1 ton / 2000 lb	X	(1 − 0.90)	$= 7.3e^{-4}$ ton/yr
2005=	13,520 gal/yr	X		X		X	(1 − 0.90)	$= 7.3e^{-4}$ ton/yr
2006=	13,520 gal/yr	X		X		X	(1 − 0.90)	$= 7.3e^{-4}$ ton/yr

Comments: Based on permit maximum fuel usage for these years.
13,520 gal/yr , Ef = 1.08 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Nutrimix feed (formerly Agro Ochua)

SCC:

Unit: Steam Boiler

Model Id:

Emission Factor Reference: Section 1.3 of ap-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	128001 gal/yr	X	1.08 lb/1000 gal	X	$\frac{1 \text{ ton}}{2000 \text{ lb}}$	X	(1 − 0.0)	= 0.069 ton/yr
2003=	126928 gal/yr	X	1.08 lb/1000 gal	X	$\frac{1 \text{ ton}}{2000 \text{ lb}}$	X	(1 − 0.0)	= 0.068 ton/yr
2004=	82438 gal/yr	X	1.08 lb/1000 gal	X	$\frac{1 \text{ ton}}{2000 \text{ lb}}$	X	(1 − 0.0)	= 0.044 ton/yr
2005=	111913 gal/yr	X	1.08 lb/1000 gal	X	$\frac{1 \text{ ton}}{2000 \text{ lb}}$	X	(1 − 0.0)	= 0.060 ton/yr
2006=	81974 gal/yr	X	1.08 lb/1000 gal	X	$\frac{1 \text{ ton}}{2000 \text{ lb}}$	X	(1 − 0.0)	= 0.044 ton/yr

Comments: Based on annual fuel oil usage for these years.
2002 = 128001 gal/yr, Ef = 1.08 lb/1000 gal
2003 = 126,928 gal/yr, Ef = 1.08 lb/1000 gal
2004 = 82438 gal/yr, Ef = 1.08 lb/1000 gal
2005 = 111913 gal/yr, Ef = 1.08 lb/1000 gal
2006 = 81974 gal/yr, Ef = 1.08 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Nutrimix feed (formerly Agro Ochoa)

SCC:

Unit: Maine Tower

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	155750.4 ton/yr	X	0.038 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	= 0.014 ton/yr
2003=	155750.4 ton/yr	X		X		X	(1 − 0.995)	= 0.014 ton/yr
2004=	155750.4 ton/yr	X		X		X	(1 − 0.995)	= 0.014 ton/yr
2005=	155750.4 ton/yr	X		X		X	(1 − 0.995)	= 0.014 ton/yr
2006=	155750.4 ton/yr	X		X		X	(1 − 0.995)	= 0.014 ton/yr

Comments: Based on permit maximum annual production.
155750.4 ton/yr, EF = 0.038 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Nutrimix Feed (formerly Cayo Ochoa)

SCC: 3-02-009-44

Unit: Corn cleaning

Model Id:

Emission Factor Reference: Section 9.9.1 of AP42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	40959.36 ton/yr	X	0.0191 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.991)	$= 1.9e^{-3}$ ton/yr
2003=	40959.36 ton/yr	X		X		X	(1 − 0.991)	$= 1.9e^{-3}$ ton/yr
2004=	40959.36 ton/yr	X		X		X	(1 − 0.991)	$= 1.9e^{-3}$ ton/yr
2005=	40959.36 ton/yr	X		X		X	(1 − 0.991)	$= 1.9e^{-3}$ ton/yr
2006=	40959.36 ton/yr	X		X		X	(1 − 0.991)	$= 1.9e^{-3}$ ton/yr

Comments: Based on permit maximum annual production 40959.36 ton/yr, EF = 0.0191 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Nutrimix Feed (formerly Agro Ochoa)

SCC:

Unit: Corn Grinding

Model Id:

Emission Factor Reference: Fire emission factor

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	64995.84 ton/yr	X	$6e^{-2}$ lb/ton	X	1 ton / 2000 lb	X	$(1-0.99) =$	$9.7e^{-3}$ ton/yr
2003=	64995.84 ton/yr	X		X		X	$(1-0.99) =$	$9.7e^{-3}$ ton/yr
2004=	64995.84 ton/yr	X		X		X	$(1-0.99) =$	$9.7e^{-3}$ ton/yr
2005=	64995.84 ton/yr	X		X		X	$(1-0.99) =$	$9.7e^{-3}$ ton/yr
2006=	64995.84 ton/yr	X		X		X	$(1-0.99) =$	$9.7e^{-3}$ ton/yr

Comments: Based on permit maximum annual production
64995.84 ton/yr, Ef = $6e^{-2}$ lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Nuhimix feed (Formerly Agro Ochoa)

SCC:

Unit: Belt Conveyor 2

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	86860.8 ton/yr	X	0.034 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	= 7.3e-3 ton/yr
2003=	86860.8 ton/yr	X		X		X	(1 − 0.99)	= 7.3e-3 ton/yr
2004=	86860.8 ton/yr	X		X		X	(1 − 0.99)	= 7.3e-3 ton/yr
2005=	86860.8 ton/yr	X		X		X	(1 − 0.99)	= 7.3e-3 ton/yr
2006=	86860.8 ton/yr	X		X		X	(1 − 0.99)	= 7.3e-3 ton/yr

Comments: Based on permit maximum annual production
86860.8 ton/yr | Ef = 0.034 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Wuhinny Feed (formerly Cerro Ochoa)

SCC:

Unit: Belt Conveyor 1

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	155750.4 ton/yr	X	0.034 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.99)	=0.0013 ton/yr
2003=	155750.4 ton/yr	X		X		X	(1 − 0.99)	= 0.013 ton/yr
2004=	155750.4 ton/yr	X		X		X	(1 − 0.99)	=0.013 ton/yr
2005=	155750.4 ton/yr	X		X		X	(1 − 0.99)	=0.013 ton/yr
2006=	155750.4 ton/yr	X		X		X	(1 − 0.99)	=0.013 ton/yr

Comments: Based on permit maximum annual production 155750.4 ton/yr, EF = 0.034 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Nutrimix Feed (Formerly Agro Ochua)

SCC:

Unit: Secondary Ingredients Unloading

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	14976 ton/yr	X	0.059 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.995)	= 2.2e-3 ton/yr
2003=	14976 ton/yr	X		X		X	(1 − 0.995)	= 2.2e-3 ton/yr
2004=	14976 ton/yr	X		X		X	(1 − 0.995)	= 2.2e-3 ton/yr
2005=	14976 ton/yr	X		X		X	(1 − 0.995)	= 2.2e-3 ton/yr
2006=	14976 ton/yr	X		X		X	(1 − 0.995)	= 2.2e-3 ton/yr

Comments: Based on permit maximum annual production 14976 ton/yr, Ef = 0.059 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Nutrimix feed (formerly Agro Ochoa)

SCC:

Unit: Truck loading Area 1

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002	116064 ton/yr	X	0.0291 lb/ton	X	1 ton/2000 lb	X	(1 − 0.99)	= 8.4e-3 ton/yr
2003	116064 ton/yr	X		X		X	(1 − 0.99)	= 8.4e-3 ton/yr
2004	116064 ton/yr	X		X		X	(1 − 0.99)	= 8.4e-3 ton/yr
2005	116064 ton/yr	X		X		X	(1 − 0.99)	= 8.4e-3 ton/yr
2006	116064 ton/yr	X		X		X	(1 − 0.99)	= 8.4e-3 ton/yr

Comments: Based on permit maximum annual production
116064 ton/yr, Ef = 0.0291 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Unimix Feed (formaly Agro Ochoa)

SCC:

Unit: Pelletizing Units

Model Id:

Emission Factor Reference: Fire Emission factor

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002	$95099.6 \frac{ton}{yr}$	X	$1e^{-1} \frac{lb}{ton}$	X	$\frac{1 ton}{2000 lb}$	X	$(1 - 0.99)$	$= 0.023 \frac{ton}{yr}$
2003	$95099.6 \frac{ton}{yr}$	X		X		X	$(1 - 0.99)$	$= 0.023 \frac{ton}{yr}$
2004	$95099.6 \frac{ton}{yr}$	X		X		X	$(1 - 0.99)$	$= 0.023 \frac{ton}{yr}$
2005	$95099.6 \frac{ton}{yr}$	X		X		X	$(1 - 0.99)$	$= 0.023 \frac{ton}{yr}$
2006	$95099.6 \frac{ton}{yr}$	X		X		X	$(1 - 0.99)$	$= 0.023 \frac{ton}{yr}$

Comments: Based on permit maximum annual production.
95099.6 ton/yr, Ef = $100 e^{-1}$ lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Uhimix Feed (formerly Agro Ochua)

SCC:

Unit: Concrete storage silos

Model Id:

Emission Factor Reference: Section 9.9.1 of AP42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	98841.6 ton/yr	X	0.0003 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.99)	$= 1.5e^{-3}$ ton/yr
2003=	98841.6 ton/yr	X		X		X	(1 − 0.99)	$= 1.5e^{-3}$ ton/yr
2004=	98841.6 ton/yr	X		X		X	(1 − 0.99)	$= 1.5e^{-3}$ ton/yr
2005=	98841.6 ton/yr	X		X		X	(1 − 0.99)	$= 1.5e^{-3}$ ton/yr
2006=	98841.6 ton/yr	X		X		X	(1 − 0.99)	$= 1.5e^{-3}$ ton/yr

Comments: Based on permit maximum annual production.
98841.6 ton/yr, Ef = 0.0003 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Amelie Plant

SCC:

Unit: Boiler

Model Id:

Emission Factor Reference: Section 1.3 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	272,688 gal/yr	X	1.08 lb / 1000 gal	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.14 ton/yr
2003=	272,688 gal/yr	X		X		X	(1 − 0.0)	= 0.14 ton/yr
2004=	272,688 gal/yr	X		X		X	(1 − 0.0)	= 0.14 ton/yr
2005=	272,688 gal/yr	X		X		X	(1 − 0.0)	= 0.14 ton/yr
2006=	272,688 gal/yr	X		X		X	(1 − 0.0)	= 0.14 ton/yr

Comments: Based on permit maximum fuel No. 2 usage for this unit 272,688 gal/yr, EF = 1.08 lb/1000 gal

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Arecibo Plant

SCC:

Unit: Corn Aspirator

Model Id:

Emission Factor Reference: Section 9.9.1 of AP42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	21600 ton/yr	X	0.038 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.997)	= 1.2e-3 ton/hr
2003=	21600 ton/yr	X		X		X	(1 − 0.997)	= 1.2e-3 ton/yr
2004=	21600 ton/yr	X		X		X	(1 − 0.997)	= 1.2e-3 ton/yr
2005=	21600 ton/yr	X		X		X	(1 − 0.997)	= 1.2e-3 ton/yr
2006=	21600 ton/yr	X		X		X	(1 − 0.997)	= 1.2e-3 ton/yr

Comments: Based on permit maximum annual production 21600 ton/yr, EF = 3.80 x 10-2 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Arecibo Plant

SCC:

Unit: Grain Separator

Model Id:

Emission Factor Reference: Section 9.9 1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	21600 ton/yr	X	0.0119 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.997)	$= 6.1e^{-4}$ lb/ton
2003=	21600 ton/yr	X		X		X	(1 − 0.997)	$= 6.1e^{-4}$ lb/ton
2004=	21600 ton/yr	X		X		X	(1 − 0.997)	$= 6.1e^{-4}$ lb/ton
2005=	21600 ton/yr	X		X		X	(1 − 0.997)	$= 6.1e^{-4}$ lb/ton
2006=	21600 ton/yr	X		X		X	(1 − 0.997)	$= 6.1e^{-4}$ lb/ton

Comments: Based on permit maximum annual production 21600 ton/yr, Ef = 0.0119 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Amelia Plant

SCC:

Unit: Corn Grinding (Hammermill)

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	43200 ton/yr	X	0.012 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.99)	= 7.7e-4 lb/ton
2003=	43200 ton/yr	X		X		X	(1 − 0.93)	= 7.7e-4 lb/ton
2004=	43200 ton/yr	X		X		X	(1 − 0.93)	= 7.7e-4 lb/ton
2005=	43200 ton/yr	X		X		X	(1 − 0.93)	= 7.7e-4 lb/ton
2006=	43200 ton/yr	X		X		X	(1 − 0.93)	= 7.7e-4 lb/ton

Comments: Based on permit maximum annual production 43200 ton/yr, EF = 0.012 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Amelia Plant

SCC:

Unit: Pellet Cooler & Separator

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002 =	43200 ton/yr	X	0.18 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.99)	= 0.011 ton/yr
2003 =	43200 ton/yr	X		X		X	(1 − 0.99)	= 0.011 ton/yr
2004 =	43200 ton/yr	X		X		X	(1 − 0.99)	= 0.011 ton/yr
2005 =	43200 ton/yr	X		X		X	(1 − 0.99)	= 0.011 ton/yr
2006 =	43200 ton/yr	X		X		X	(1 − 0.99)	= 0.011 ton/yr

Comments: Based on permit maximum annual production 43200 ton/yr, EF = 0.18 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Arecibo Plant

SCC: 3-02-005-30

Unit: Grain Elevator Ruby Horse Receiving

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	43200 ton/yr	X	0.059 lb/ton	X	1 ton/2000 lb	X	(1 − 0.99)	= 3.8e-3 ton/yr
2003=	43200 ton/yr	X		X		X	(1 − 0.99)	= 3.8e-3 ton/yr
2004=	43200 ton/yr	X		X		X	(1 − 0.99)	= 3.8e-3 ton/yr
2005=	43200 ton/yr	X		X		X	(1 − 0.99)	= 3.8e-3 ton/yr
2006=	43200 ton/yr	X		X		X	(1 − 0.)	= 3.8e-3 ton/yr

Comments: Based on permit maximum annual production 43200 ton/yr, EF = 0.059 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Ban American Grain, Arnelee Plant

SCC: 3-02-005-30

Unit: Grain Elevator Riley Hans Receiving

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002	= 43200 ton/yr	X	0.059 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.997)	= 3.8e-3 ton/yr
2003	= 43200 ton/yr	X		X		X	(1 − 0.997)	= 3.8e-3 ton/yr
2004	= 43200 ton/yr	X		X		X	(1 − 0.997)	= 3.8e-3 ton/yr
2005	= 43200 ton/yr	X		X		X	(1 − 0.997)	= 3.8e-3 ton/yr
2006	= 43200 ton/yr	X		X		X	(1 − 0.997)	= 3.8e-3 ton/yr

Comments: Based on permit maximum annual production 43,200 ton/yr, EF = 0.059 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Amelia Plant

SCC: 3-02-005-30

Unit: Grain Elevator Rotary Man Handling

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	50400 ton/yr	X	0.034 lb/ton	X	1 ton/2000 lb	X	(1 − 0.997)	$= 2.5e^{-3}$ ton/yr
2003=	50400 ton/yr	X		X		X	(1 − 0.997)	$= 2.5e^{-3}$ ton/yr
2004=	50400 ton/yr	X		X		X	(1 − 0.997)	$= 2.5e^{-3}$ ton/yr
2005=	50400 ton/yr	X		X		X	(1 − 0.997)	$= 2.5e^{-3}$ ton/yr
2006=	50400 ton/yr	X		X		X	(1 − 0.997)	$= 2.5e^{-3}$ ton/yr

Comments: Based on permit maximum annual production 50400 ton/yr, EF = 0.034 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Amelia Plant

SCC: 3-02-005-30

Unit: Grain Elevator Belt Mass Handling

Model Id:

Emission Factor Reference: Section 9.9.1 of ap-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	21600 ton/yr	X	0.034 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.997)	$= 1.1e^{-3}$ ton/yr
2003=	21600 ton/yr	X		X		X	(1 − 0.997)	$= 1.1e^{-3}$ ton/yr
2004=	21600 ton/yr	X		X		X	(1 − 0.997)	$= 1.1e^{-3}$ ton/yr
2005=	21600 ton/yr	X		X		X	(1 − 0.997)	$= 1.1e^{-3}$ ton/yr
2006=	21600 ton/yr	X		X		X	(1 − 0.997)	$= 1.1e^{-3}$ ton/yr

Comments: Based on permit maximum annual production.
21600 ton/yr, Ef = 0.034 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Amelia Plant

SCC: 3-02-005-30

Unit: Grain Elevator Riley Saturn Shipping

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	172800 ton/yr	X	0.029 lb/ton	X	1 ton/2000 lb	X	(1 − 0.991)	$=7.5e^{-3}$ ton/yr
2003=	172800 ton/yr	X		X		X	(1 − 0.991)	$=7.5e^{-3}$ ton/yr
2004=	172800 ton/yr	X		X		X	(1 − 0.991)	$=7.5e^{-3}$ ton/yr
2005=	172800 ton/yr	X		X		X	(1 − 0.991)	$=7.5e^{-3}$ ton/yr
2006=	172800 ton/yr	X		X		X	(1 − 0.991)	$=7.5^{E-3}$ ton/yr

Comments: Based on permit maximum annual production 172 800 ton/yr, Ef = 0.029 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Army Terminal

SCC:

Unit: Flat Storage Reco Annex

Model Id:

Emission Factor Reference: Section 9.9.1 of A-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	144,000 ton/yr	X	0.025 lb / ton	X	1 ton / 2000 lb	X	(1 − 0.995)	$= 9e^{-3}$ ton/yr
2003=	144,000 ton/yr	X		X		X	(1 − 0.995)	$= 9e^{-3}$ ton/yr
2004=	144,000 ton/yr	X		X		X	(1 − 0.995)	$= 9e^{-3}$ ton/yr
2005=	144,000 ton/yr	X		X		X	(1 − 0.995)	$= 9e^{-3}$ ton/yr
2006=	144,000 ton/yr	X		X		X	(1 − 0.995)	$= 9e^{-3}$ ton/yr

Comments: Based on permit maximum annual production. 144,000 ton/yr, EF = 0.025 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Pan American Grain, Cuny Terminal

SCC:

Unit: Reco Rice Hull

Model Id:

Emission Factor Reference: Section 9.9.1 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	164736 $\frac{ton}{yr}$	X	0.27 $\frac{lb}{ton}$	X	$\frac{1\ ton}{2000\ lb}$	X	$(1-0.99)$	$= 0.11\ \frac{ton}{yr}$
2003=	164736 $\frac{ton}{yr}$	X		X		X	$(1-0.99)$	$= 0.11\ \frac{ton}{yr}$
2004=	164736 $\frac{ton}{yr}$	X		X		X	$(1-0.99)$	$= 0.11\ \frac{ton}{yr}$
2005=	164736 $\frac{ton}{yr}$	X		X		X	$(1-0.99)$	$= 0.11\ \frac{ton}{yr}$
2006=	164736 $\frac{ton}{yr}$	X		X		X	$(1-0.99)$	$= 0.11\ \frac{ton}{yr}$

Comments: Based on permit maximum annual production 164736 ton/yr. Ef = 0.27 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Master Concrete (formerly Concreto Rugo)

SCC: 3-05-011-07

Unit: Cement Delivery to Silo

Model Id:

Emission Factor Reference: Air dispersion permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	239928 yd³/yr	X		X		X	(1 − 0.98)	= 2.4e-4 ton/yr
2003=	239928 yd³/yr	X		X		X	(1 − 0.98)	= 2.4e-4 ton/yr
2004=	239928 yd³/yr	X	0.0001 lb/yd³	X	1 ton / 2000 lb	X	(1 − 0.98)	= 2.4e-4 ton/yr
2005=	239928 yd³/yr	X		X		X	(1 − 0.98)	= 2.4e-4 ton/yr
2006=	239928 yd³/yr	X		X		X	(1 − 0.98)	= 2.4e-4 ton/yr

Comments: Based on permit maximum annual production.
239928 yd³/yr, Ef = 0.0001 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Master Concrete (formerly Concreto Rugby)

SCC: 3-05-011-08

Unit: Weight Hopper

Model Id:

Emission Factor Reference: Cey emission point

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	239928 yd^3/yr	X	0.00038 $\frac{lb}{yd^3}$	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.98)	$= 9.1e^{-2}$ $\frac{ton}{yr}$
2003=	239928 yd^3/yr	X		X		X	(1 − 0.98)	$= 9.1e^{-2}$ $\frac{ton}{yr}$
2004=	239928 yd^3/yr	X		X		X	(1 − 0.98)	$= 9.1e^{-2}$ $\frac{ton}{yr}$
2005=	239928 yd^3/yr	X		X		X	(1 − 0.98)	$= 9.1e^{-2}$ $\frac{ton}{yr}$
2006=	239928 yd^3/yr	X		X		X	(1 − 0.98)	$= 9.1e^{-2}$ $\frac{ton}{yr}$

Comments: Based on peanut maximum annual production.
239928 yd^3/yr, Ef = 0.00038 lb/yd^3

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Master Concrete (Formerly Concreto Mix #6)

SCC: 3-05-011-21

Unit: Aggregate Delivery to Ground Storage

Model Id:

Emission Factor Reference: Our emission permit.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	239928 yd³/yr	X	0.0031 lb/yd³	X	1 ton/2000 lb	X	(1 - 0.0)	= 0.37 ton/yr
2003=	239928 yd³/yr	X		X		X	(1 - 0.0)	= 0.37 ton/yr
2004=	239928 yd³/yr	X		X		X	(1 - 0.0)	= 0.37 ton/yr
2005=	239928 yd³/yr	X		X		X	(1 - 0.0)	= 0.37 ton/yr
2006=	239928 yd³/yr	X		X		X	(1 - 0.0)	= 0.37 ton/yr

Comments: Based on permit maximum annual production 239928 yd³/yr, Ef = 0.0031 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Master Concrete (formerly Concreto Metro)

SCC: 3-05-011-23

Unit: Aggregate handler

Model Id:

Emission Factor Reference: Our emission permit.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	239928 yd^3/yr	X	0.0031 lb/yd^3	X	1 ton / 2000 lb	X	(1 − 0.)	= 0.37 ton/yr
2003=	239928 yd^3/yr	X		X		X	(1 − 0.)	= 0.37 ton/yr
2004=	239928 yd^3/yr	X		X		X	(1 − 0.)	= 0.37 ton/yr
2005=	239928 yd^3/yr	X		X		X	(1 − 0.)	= 0.37 ton/yr
2006=	239928 yd^3/yr	X		X		X	(1 − 0.)	= 0.37 ton/yr

Comments: Based on permit maximum annual production.
239928 yd^3/yr, Ef = 0.0031 lb/yd^3

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Master Concrete (formerly Concrete Mix Inc)

SCC: 3-05-011-09

Unit: Central mix loading

Model Id:

Emission Factor Reference: Air Emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	239928 yd³/yr	X	0.00111 lb/yd³	X	1 ton / 2000 lb	X	(1 − 0.98)	= 26e⁻³ ton/yr
2003=	239928 yd³/yr	X		X		X	(1 − 0.98)	= 2.6e⁻³ ton/yr
2004=	239928 yd³/yr	X		X		X	(1 − 0.98)	= 26e⁻³ ton/yr
2005=	239928 yd³/yr	X		X		X	(1 − 0.98)	= 26e⁻³ ton/yr
2006=	239928 yd³/yr	X		X		X	(1 − 0.98)	= 2.6e⁻³ ton/yr

Comments: Based on permit maximum annual production
239928 yd³/yr, EF = 0.0011 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Master Concrete (Formerly Concrete Mix to)

SCC: 3-05-011-04

Unit: Aggregate Transfer to Elevated Bins

Model Id:

Emission Factor Reference: Air Emission Permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	239928 yd³/yr	X		X		X	(1 – 0.0)	= 0.37 ton/yr
2003=	239928 yd³/yr	X		X		X	(1 – 0.0)	= 0.37 ton/yr
2004=	239928 yd³/yr	X	0.0031 lb/yd³	X	1 ton / 2000 lb	X	(1 – 0.0)	= 0.37 ton/yr
2005=	239928 yd³/yr	X		X		X	(1 – 0.0)	= 0.37 ton/yr
2006=	239928 yd³/yr	X		X		X	(1 – 0.0)	= 0.37 ton/yr

Comments: Based on permit maximum annual production.
239928 yd³/yr , Ef = 0.0031 lb/yd³

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Canteras San Antonio

SCC:

Unit: Dexter feeder

Model Id:

Emission Factor Reference: Our emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	624000 ton/yr	X	0.0022 lb/ton	X	1 ton/2000 lb	X	(1 − 0.90)	= 0.068 ton/yr
2003=	624000 ton/yr	X		X		X	(1 − 0.90)	= 0.068 ton/yr
2004=	624000 ton/yr	X		X		X	(1 − 0.90)	= 0.068 ton/yr
2005=	624000 ton/yr	X		X		X	(1 − 0.90)	= 0.068 ton/yr
2006=	624000 ton/yr	X		X		X	(1 − 0.90)	= 0.068 ton/yr

Comments: Based on peanut maximum annual production 624000 ton/yr, Ef = 0.0022 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Nordberg Null HP-300

Model Id:

Emission Factor Reference: Our Emission Point

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	499208 ton/yr	X	0.0024 lb/ton	X	1 ton/2000 lb	X	(1 − 0.90)	= 0.059 ton/yr
2003=	499208 ton/yr	X		X		X	(1 − 0.90)	= 0.059 ton/yr
2004=	499208 ton/yr	X		X		X	(1 − 0.90)	= 0.059 ton/yr
2005=	499208 ton/yr	X		X		X	(1 − 0.90)	= 0.059 ton/yr
2006=	499208 ton/yr	X		X		X	(1 − 0.90)	= 0.059 ton/yr

Comments: Based on permit maximum annual production 499208 ton/yr, EF = 0.0024 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Nordberg Rock HP-300

Model Id:

Emission Factor Reference: Air Emission Permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	572000 ton/yr	X	0.0024 lb/ton	X	1 ton/2000 lb	X	(1 − 0.90)	= 0.068 ton/yr
2003=	572000 ton/yr	X		X		X	(1 − 0.90)	= 0.068 ton/yr
2004=	572000 ton/yr	X		X		X	(1 − 0.90)	= 0.068 ton/yr
2005=	572000 ton/yr	X		X		X	(1 − 0.90)	= 0.068 ton/yr
2006=	572000 ton/yr	X		X		X	(1 − 0.90)	= 0.068 ton/yr

Comments: Based on permit maximum annual production 572000 ton/yr, EF = 0.0024 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Jaw Mill

Model Id:

Emission Factor Reference: Air Emission permit.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	364000 ton/yr	X	0.0024 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.90)	= 0.043 ton/yr
2003=	364000 ton/yr	X		X		X	(1 − 0.90)	= 0.043 ton/yr
2004=	364000 ton/yr	X		X		X	(1 − 0.90)	= 0.043 ton/yr
2005=	364000 ton/yr	X		X		X	(1 − 0.90)	= 0.043 ton/yr
2006=	364000 ton/yr	X		X		X	(1 − 0.90)	= 0.043 ton/yr

Comments: Based on permit maximum annual production 364000 ton/yr, EF = 0.0024 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Symons Mill

Model Id:

Emission Factor Reference: Air Emission Permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	520,000 ton/yr	X	0.0024 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.90)	= 0.06 ton/yr
2003=	520,000 ton/yr	X		X		X	(1 − 0.90)	= 0.06 ton/yr
2004=	520,000 ton/yr	X		X		X	(1 − 0.90)	= 0.06 ton/yr
2005=	520,000 ton/yr	X		X		X	(1 − 0.90)	= 0.06 ton/yr
2006=	520,000 ton/yr	X		X		X	(1 − 0.90)	= 0.06 ton/yr

Comments: Based on permit maximum annual production.
520000 ton/yr, EF = 0.0024 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Dester Screening 1

Model Id:

Emission Factor Reference: Air Emission Permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	624,000 ton/yr	X		X		X	(1 − 0.90)	= 0.023 ton/yr
2003=	624,000 ton/yr	X		X	1 ton / 2000 lb	X	(1 − 0.90)	= 0.023 ton/yr
2004=	624,000 ton/yr	X	0.00074 lb/ton	X		X	(1 − 0.90)	= 0.023 ton/yr
2005=	624,000 ton/yr	X		X		X	(1 − 0.90)	= 0.023 ton/yr
2006=	624,000 ton/yr	X		X		X	(1 − 0.90)	= 0.023 ton/yr

Comments: Based on permit maximum annual production 624,000 ton/yr, EF = 0.00074 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Dexter Screening 3

Model Id:

Emission Factor Reference: Air Emission Permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	416,000 ton/yr	X	0.00074 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.90)	= 0.015 ton/yr
2003=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr
2004=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr
2005=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr
2006=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr

Comments: Based on peanut maximum annual production 416,000 ton/yr, EF = 0.00074 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Cedarapids Screening 4

Model Id:

Emission Factor Reference: Air Emission Permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	416,000 ton/yr	X	0.00074 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.90)	= 0.015 ton/yr
2003=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr
2004=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr
2005=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr
2006=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr

Comments: Based on permit maximum annual production. 416,000 ton/yr ; Ef = 0.00074 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Dieter Screening 7

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	416,000 ton/yr	X	0.00074 lb/ton	X	1 ton/2000 lb	X	(1 − 0.90)	= 0.015 ton/yr
2003=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr
2004=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr
2005=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr
2006=	416,000 ton/yr	X		X		X	(1 − 0.90)	= 0.015 ton/yr

Comments: Based on permit maximum annual production 416,000 ton/yr, EF = 0.00074 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Master Screening 8 BHM - 3620

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	728,000 ton/yr	X		X		X	(1 – 0.90)	= 0.026 ton/yr
2003=	728,000 ton/yr	X		X		X	(1 – 0.90)	= 0.026 ton/yr
2004=	728,000 ton/yr	X	0.00074 lb/ton	X	1 ton / 2000 lb	X	(1 – 0.90)	= 0.026 ton/yr
2005=	728,000 ton/yr	X		X		X	(1 – 0.90)	= 0.026 ton/yr
2006=	728,000 ton/yr	X		X		X	(1 – 0.90)	= 0.026 ton/yr

Comments: Based on permit maximum annual production.
728,000 ton/yr, Ef = 0.00074 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Centeu San Antonio

SCC:

Unit: Dester Screening 9 BHM-3620

Model Id:

Emission Factor Reference: Our emission permit.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	728,000 ton/yr	X	0.00074 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.90)	=0.026 ton/yr
2003=	728,000 ton/yr	X		X		X	(1 − 0.90)	=0.026 ton/yr
2004=	728,000 ton/yr	X		X		X	(1 − 0.90)	=0.026 ton/yr
2005=	728,000 ton/yr	X		X		X	(1 − 0.90)	=0.026 ton/yr
2006=	728,000 ton/yr	X		X		X	(1 − 0.90)	=0.026 ton/yr

Comments: Based on permit maximum annual production 728,000 ton/yr, Ef = 0.00074 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Aster Screening Tertiary Proces

Model Id:

Emission Factor Reference: Su emision permit.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	572,000 ton/yr	X		X		X	(1 − 0.90)	= 0.021 ton/yr
2003=	572,000 ton/yr	X		X		X	(1 − 0.90)	= 0.021 ton/yr
2004=	572,000 ton/yr	X	0.00074 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.90)	= 0.021 ton/yr
2005=	572,000 ton/yr	X		X		X	(1 − 0.90)	= 0.021 ton/yr
2006=	572,000 ton/yr	X		X		X	(1 − 0.90)	= 0.021 ton/yr

Comments: Based on permit maximum annual production.
572,000 ton/yr, Ef = 0.00074 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Belt 48"

Model Id:

Emission Factor Reference: AP emission parcel

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	832,000 ton/yr	X	0.000046 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 2.8e-3 ton/yr
2003=	832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.8e-3 ton/yr
2004=	832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.8e-3 ton/yr
2005=	832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.8e-3 ton/yr
2006=	832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.8e-3 ton/yr

Comments: Based on plant maximum annual production.
832,000 ton/yr, Ef = 0.000046 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Belt 36"

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	728,000 ton/yr	X	0.000046 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 25e-3 ton/yr
2003=	728000 ton/yr	X		X		X	(1 − 0.85)	= 2.5e-3 ton/yr
2004=	728,000 ton/yr	X		X		X	(1 − 0.85)	= 2.5e-3 ton/yr
2005=	728,000 ton/yr	X		X		X	(1 − 0.85)	= 25e-3 ton/yr
2006=	728,000 ton/yr	X		X		X	(1 − 0.85)	= 25e-3 ton/yr

Comments: Based on permit maximum annual production.
728,000 ton/yr ; EF = 0.000046 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Belt 36"

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	728,000 ton/yr	X	0.000046 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	$= 2.5e^{-3}$ ton/yr
2003=	728,000 ton/yr	X		X		X	(1 − 0.85)	$= 2.5e^{-3}$ ton/yr
2004=	728,000 ton/yr	X		X		X	(1 − 0.85)	$= 2.5e^{-3}$ ton/yr
2005=	728,000 ton/yr	X		X		X	(1 − 0.85)	$= 2.5e^{-3}$ ton/yr
2006=	728,000 ton/yr	X		X		X	(1 − 0.85)	$= 2.5e^{-3}$ ton/yr

Comments: Based on permit maximum annual production 728,000 ton/yr, EF = 0.000046 lb/ton.

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Belt 36"

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	832,000 ton/yr	X	0.000046 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 2.8e-3 ton/yr
2003=	832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.8e-3 ton/yr
2004=	832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.8e-3 ton/yr
2005=	832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.8e-3 ton/yr
2006=	832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.8e-3 ton/yr

Comments: Based on permit maximum annual production.
832,000 ton/yr, EF=0.000046 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Belt 30" (Six)

Model Id:

Emission Factor Reference: Our emission permit.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	each belt
2002	= 832,000 ton/yr	X	0.000046 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 2.1e-3 ton/yr
2003	= 832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.1e-3 ton/yr
2004	= 832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.1e-3 ton/yr
2005	= 832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.1e-3 ton/yr
2006	= 832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.1e-3 ton/yr

Comments: Based on permit maximum annual production. 832,000 ton/yr (each), Ef = 0.000046 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Belt 30" (Five)

Model Id:

Emission Factor Reference: Our emission point

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	each Belt
2002=	499,200 ton/yr	X	0.000046 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 1.7e-3 ton/yr
2003=	499,200 ton/yr	X		X		X	(1 − 0.85)	= 1.7e-3 ton/yr
2004=	499,200 ton/yr	X		X		X	(1 − 0.85)	= 1.7e-3 ton/yr
2005=	499,200 ton/yr	X		X		X	(1 − 0.85)	= 1.7e-3 ton/yr
2006=	499,200 ton/yr	X		X		X	(1 − 0.85)	= 1.7e-3 ton/yr

Comments: Based on peanut maximum annual production 499,200 ton/yr (each Belt), Ef = 0.000046 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Belt 24" (ten)

Model Id:

Emission Factor Reference: Our emission permit.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency (each belt)	
2002	= 832,000 ton/yr	X	0.000046 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 2.87e-3 ton/yr
2003	= 832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.87e-3 ton/yr
2004	= 832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.87e-3 ton/yr
2005	= 832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.87e-3 ton/yr
2006	= 832,000 ton/yr	X		X		X	(1 − 0.85)	= 2.87e-3 ton/yr

Comments: Based on permit maximum annual production.
832,000 ton/yr (each Belt), Ef = 0.000046 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Belt 24" (nine)

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	each belt
2002=	364,000 ton/yr	X	0.000046 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 1.2e-3 ton/yr
2003=	364,000 ton/yr	X		X		X	(1 − 0.85)	= 1.2e-3 ton/yr
2004=	364,000 ton/yr	X		X		X	(1 − 0.85)	= 1.2e-3 ton/yr
2005=	364,000 ton/yr	X		X		X	(1 − 0.85)	= 1.2e-3 ton/yr
2006=	364,000 ton/yr	X		X		X	(1 − 0.85)	= 1.2e-3 ton/yr

Comments: Based on permit maximum annual production. 364,000 ton/yr (each belt), EF = 0.000046 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Truck Loading

Model Id:

Emission Factor Reference: Air Emission Permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002	= 624,000 ton/yr	X	0.0001 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.99)	= 3.12e⁻³ ton/yr
2003	= 624,000 ton/yr	X		X		X	(1 − 0.90)	= 3.12e⁻³ ton/yr
2004	= 624,000 ton/yr	X		X		X	(1 − 0.90)	= 3.12e⁻³ ton/yr
2005	= 624,000 ton/yr	X		X		X	(1 − 0.90)	= 3.12e⁻³ ton/yr
2006	= 624,000 ton/yr	X		X		X	(1 − 0.90)	= 3.12e⁻³ ton/yr

Comments: Based on permit maximum annual production 624,000 ton/yr, EF = 0.0001 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera San Antonio

SCC:

Unit: Storage Piles

Model Id:

Emission Factor Reference: Air emission permit

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	624,000 ton/yr	X	0.0001 lb/ton	X	1 ton/2000 lb	X	(1 − 0.)	= 5.3e-3 ton/yr
2003=	624,000 ton/yr	X		X		X	(1 − 0.)	= 5.3e-3 ton/yr
2004=	624,000 ton/yr	X		X		X	(1 − 0.)	= 5.3e-3 ton/yr
2005=	624,000 ton/yr	X		X		X	(1 − 0.)	= 5.3e-3 ton/yr
2006=	624,000 ton/yr	X		X		X	(1 − 0.)	= 5.3e-3 ton/yr

Comments: Based on plant maximum annual production. 624,000 ton/yr, Ef = 0.0001 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera de Puerto Rico (Portable Plant)

SCC:

Unit: Primary Crushing

Model Id:

Emission Factor Reference: Section 11.19.2 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	499998.72 ton/yr	X	0.00241 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 0.089 ton/yr
2003=	499998.72 ton/yr	X		X		X	(1 − 0.87)	= 0.089 ton/yr
2004=	499998.72 ton/yr	X		X		X	(1 − 0.85)	= 0.089 ton/yr
2005=	499998.72 ton/yr	X		X		X	(1 − 0.85)	= 0.089 ton/yr
2006=	499998.72 ton/yr	X		X		X	(1 − 0.85)	= 0.089 ton/yr

Comments: Based on permit maximum annual production 499998.72 ton/yr, Ef = 0.00241b/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera de Puerto Rico (Portable Plant)

SCC:

Unit: Double Deck Vibrating Screen

Model Id:

Emission Factor Reference: Section 11 19.2 of ap-42, 5th edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	299994.24 ton/yr	X	0.015 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 0.34 ton/yr
2003=	299994.24 ton/yr	X		X		X	(1 − 0.85)	= 0.34 ton/yr
2004=	299994.24 ton/yr	X		X		X	(1 − 0.85)	= 0.34 ton/yr
2005=	299994.24 ton/yr	X		X		X	(1 − 0.85)	= 0.34 ton/yr
2006=	299994.24 ton/yr	X		X		X	(1 − 0.85)	= 0.34 ton/yr

Comments: Based on permit maximum annual production 299994.24 ton/yr, Ef = 0.015 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera de Puerto Rico (Portable Plant)

SCC:

Unit: Triple Deck Vibrating Screening

Model Id:

Emission Factor Reference: Section 11.19.2 of AP-42, 5th edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	200004.48 ton/yr	X	0.015 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 0.22 ton/yr
2003=	200004.48 ton/yr	X		X		X	(1 − 0.85)	= 0.22 ton/yr
2004=	200004.48 ton/yr	X		X		X	(1 − 0.85)	= 0.22 ton/yr
2005=	200004.48 ton/yr	X		X		X	(1 − 0.85)	= 0.22 ton/yr
2006=	200004.48 ton/yr	X		X		X	(1 − 0.85)	= 0.22 ton/yr

Comments: Based on permit maximum annual production 200004.48 ton/yr, EF = 0.015 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera de Puerto Rico (Portable Plant)

SCC:

Unit: Gyary Cone Crusher

Model Id:

Emission Factor Reference: Section 11 19.2 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	400008.96 ton/yr	X	0.0024 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 0.072 ton/yr
2003=	400008.96 ton/yr	X		X		X	(1 − 0.85)	= 0.072 ton/yr
2004=	400008.96 ton/yr	X		X		X	(1 − 0.85)	= 0.072 ton/yr
2005=	400008.96 ton/yr	X		X		X	(1 − 0.85)	= 0.072 ton/yr
2006=	400008.96 ton/yr	X		X		X	(1 − 0.85)	= 0.072 ton/yr

Comments: Based on permit maximum annual production 400008.96 ton/yr, EF = 0.0024 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera de Puerto Rico (Portable Plant)

SCC:

Unit: Conveyor

Model Id:

Emission Factor Reference: Section 11.19.2 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	499948.8 ton/yr	X	0.0014 lb/ton	X	1 ton/2000 lb	X	(1 − 0.85)	= 0.052 ton/yr
2003=	499948.8 ton/yr	X		X		X	(1 − 0.85)	= 0.052 ton/yr
2004=	499948.8 ton/yr	X		X		X	(1 − 0.85)	= 0.052 ton/yr
2005=	499948.8 ton/yr	X		X		X	(1 − 0.85)	= 0.052 ton/yr
2006=	499948.8 ton/yr	X		X		X	(1 − 0.85)	= 0.052 ton/yr

Comments: Based on permit maximum annual production 499948.8 ton/yr, Ef = 0.0014 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera de Puerto Rico (Portable Plant)

SCC:

Unit: Portable Barmac 9000 VSI

Model Id:

Emission Factor Reference: Section 11.19.2 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	229.88 ton/yr	X	0.0024 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 4.13e-5 ton/yr
2003=	229.88 ton/yr	X		X		X	(1 − 0.85)	= 4.13e-5 ton/yr
2004=	229.88 ton/yr	X		X		X	(1 − 0.85)	= 4.13e-5 ton/yr
2005=	229.88 ton/yr	X		X		X	(1 − 0.85)	= 4.13e-5 ton/yr
2006=	229.88 ton/yr	X		X		X	(1 − 0.85)	= 4.13e-5 ton/yr

Comments: Based on permit maximum annual production.
229.88 ton/yr, Ef = 0.0024 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera de Puerto Rico (Portable Plant)

SCC:

Unit: Truck loading

Model Id:

Emission Factor Reference: Section 11.19.2 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	499998.72 ton/yr	X	0.0001 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.024 ton/yr
2003=	499998.72 ton/yr	X		X		X	(1 − 0.0)	= 0.024 ton/yr
2004=	499998.72 ton/yr	X		X		X	(1 − 0.0)	= 0.024 ton/yr
2005=	499998.72 ton/yr	X		X		X	(1 − 0.0)	= 0.024 ton/yr
2006=	499998.72 ton/yr	X		X		X	(1 − 0.0)	= 0.024 ton/yr

Comments: Based on permit maximum annual production 499998.72 ton/yr, EF = 0.0001 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Canteras de Puerto Rico (Portable Plant)

SCC:

Unit: Truck Unloading

Model Id:

Emission Factor Reference: Section 11 19.2 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	499998.92 ton/yr	X	1.60 e-5 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.004 ton/yr
2003=	499998.92 ton/yr	X		X		X	(1 − 0.0)	= 0.004 ton/yr
2004=	499998.92 ton/yr	X		X		X	(1 − 0.0)	= 0.004 ton/yr
2005=	499998.92 ton/yr	X		X		X	(1 − 0.0)	= 0.004 ton/yr
2006=	499998.92 ton/yr	X		X		X	(1 − 0.0)	= 0.004 ton/yr

Comments: Based on permit maximum annual production.
499998.92 ton/yr, Ef = 1.60 e-5 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera de Puerto Rico (Stationary Plant)

SCC:

Unit: Primary Crushing

Model Id:

Emission Factor Reference: Section 11.19.2 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	150009.6 $\frac{ton}{yr}$	X	0.0024 $\frac{lb}{ton}$	X	$\frac{1\ ton}{2000\ lb}$	X	(1 − 0.85)	= 0.027 $\frac{ton}{yr}$
2003=	150009.6 $\frac{ton}{yr}$	X		X		X	(1 − 0.85)	= 0.027 $\frac{ton}{yr}$
2004=	150009.6 $\frac{ton}{yr}$	X		X		X	(1 − 0.85)	= 0.027 $\frac{ton}{yr}$
2005=	150009.6 $\frac{ton}{yr}$	X		X		X	(1 − 0.85)	= 0.027 $\frac{ton}{yr}$
2006=	150009.6 $\frac{ton}{yr}$	X		X		X	(1 − 0.85)	= 0.027 $\frac{ton}{yr}$

Comments: Based on permit maximum annual production 150009.6 ton/yr, EF = 0.0024 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera de Puerto Rico (Stationary Plant)

SCC:

Unit: Two Deck Vibrating Screen

Model Id:

Emission Factor Reference: Section 11.19.2 of AP-42, 5th Edition.

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	150009.6 ton/yr	X	0.015 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	= 0.16 ton/yr
2003=	150009.6 ton/yr	X		X		X	(1 − 0.85)	= 0.16 ton/yr
2004=	150009.6 ton/yr	X		X		X	(1 − 0.85)	= 0.16 ton/yr
2005=	150009.6 ton/yr	X		X		X	(1 − 0.85)	= 0.16 ton/yr
2006=	150009.6 ton/yr	X		X		X	(1 − 0.85)	= 0.16 ton/yr

Comments: Based on plant maximum annual production.
150009.6 ton/yr, EF = 0.015 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cementos de Puerto Rico (Stationary Plant)

SCC:

Unit: Rollercone Crusher Kellsmith 48" S

Model Id:

Emission Factor Reference: Section 11.19.2 of AP-42, 5th edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	150009.6 ton/yr	X	0.0024 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.95)	= 0.029 ton/yr
2003=	150009.6 ton/yr	X		X		X	(1 − 0.89)	= 0.029 ton/yr
2004=	150009.6 ton/yr	X		X		X	(1 − 0.85)	= 0.029 ton/yr
2005=	150009.6 ton/yr	X		X		X	(1 − 0.85)	= 0.029 ton/yr
2006=	150009.6 ton/yr	X		X		X	(1 − 0.89)	= 0.029 ton/yr

Comments: Based on permit maximum annual production 150009.6 ton/yr, EF = 0.0024 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Canteras de Puerto Rico (Stationary Plant)

SCC:

Unit: Conveyor

Model Id:

Emission Factor Reference: Section 11.19.2 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	150009.6 ton/yr	X	0.00014 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.85)	=0.015 ton/yr
2003=	150009.6 ton/yr	X		X		X	(1 − 0.85)	=0.015 ton/yr
2004=	150009.6 ton/yr	X		X		X	(1 − 0.85)	=0.015 ton/yr
2005=	150009.6 ton/yr	X		X		X	(1 − 0.85)	=0.015 ton/yr
2006=	150009.6 ton/yr	X		X		X	(1 − 0.85)	=0.015 ton/yr

Comments: Based on permit maximum annual production 150009.6 ton/yr, Ef = 0.00014 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Cantera de Puerto Rico (Stationary Plant)

SCC:

Unit: Truck loading

Model Id:

Emission Factor Reference: Section 11 19.2 of ap-42, 5th edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	150009.6 ton/yr	X	0.0001 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.007 ton/yr
2003=	150009.6 ton/yr	X		X		X	(1 − 0.0)	= 0.007 ton/yr
2004=	150009.6 ton/yr	X		X		X	(1 − 0.0)	= 0.007 ton/yr
2005=	150009.6 ton/yr	X		X		X	(1 − 0.0)	= 0.007 ton/yr
2006=	150009.6 ton/yr	X		X		X	(1 − 0.0)	= 0.007 ton/yr

Comments: Based on permit maximum annual production 150009.6 ton/yr, Ef = 0.0001 lb/ton

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Actual Emissions Calculations

Industry: Canteras de Quebrada (Stationary Plant)

SCC:

Unit: Truck Unloading

Model Id:

Emission Factor Reference: Section 11.2 of AP-42, 5th Edition

Pollutant: PM-10

Calculations:

	Operating Rate		Emission Factor		Conversion Factor		Control Efficiency	
2002=	150009.6 ton/yr	X	1.6 e-5 lb/ton	X	1 ton / 2000 lb	X	(1 − 0.0)	= 0.001 ton/yr
2003=	150009.6 ton/yr	X		X		X	(1 − 0.0)	= 0.001 ton/yr
2004=	150009.6 ton/yr	X		X		X	(1 − 0.0)	= 0.001 ton/yr
2005=	150009.6 ton/yr	X		X		X	(1 − 0.6)	= 0.001 ton/yr
2006=	150009.6 ton/yr	X		X		X	(1 − 0.0)	= 0.001 ton/yr

Comments: Based on permit maximum annual production 150009.6 ton/yr, Ef = 1.60 e-5 lb/ton

A-7
ONROAD
MOBILE SOURCES

PM-10 GUAYNABO NON-ATTAINMENT AREA

Emission Inventory: Area Sources

ONROAD Mobile Sources

Year	DVHT Total Guaynabo Municipality	Motor Vehicle Emission Factor g/VHT	Roadway Emission Factor g/VMT
2002	1,369,155	0.0801	0.5333
2002	1,553,419	0.0801	0.5333
2004	1,554,500	0.0801	0.5333
2005	1,513,110	0.0801	0.5333
2006	1,512,676	0.0801	0.5333

1,000 value used

365 days, 1×10^{-6} (conversion factor from g to tons)

Roadway

2002 = 1,369,155 VMT/day × 0.5333 g/VMT × 365 days/yr × 1×10^{-6} = 266.51 tons/yr

2003 = 1,553,419 × 0.5333 × 365 × 1×10^{-6} = 302.38 tons/yr

2004 = 1,554,500 × 0.5333 × 365 × 1×10^{-6} = 302.59 tons/yr

2005 = 1,513,110 × 0.5333 × 365 × 1×10^{-6} = 294.53 tons/yr

2006 = 1,512,676 × 0.5333 × 365 × 1×10^{-6} = 294.45 tons/yr

Motor Vehicle

2002 = 1,369,155 × 0.0801 × 365 × 1×10^{-6} = 40.03 tons/yr

2003 = 1,553,419 × 0.0801 × 365 × 1×10^{-6} = 45.42 tons/yr

2004 = 1,554,500 × 0.0801 × 365 × 1×10^{-6} = 45.45 tons/yr

2005 = 1,513,110 × 0.0801 × 365 × 1×10^{-6} = 44.24 tons/yr

2006 = 1,512,676 × 0.0801 × 365 × 1×10^{-6} = 44.23 tons/yr

A-8
NONROAD
MARINE VESSELS

PM-10 GUAYNABO NON-ATTAINMENT AREA

Emission Inventory: Area Sources

Marine vessels : Transit & Hotelling

Vessel Type	calls/yr 2002	2003	2004	2005	2006	Engine KW Main	Auxiliary	Max Speed knots	Hotelling hrs/yr	Load Factor Hotelling	Transit
Tanker	83	123	95	109	86	6242	1911	15	25.9	0.26	0.33
Product Tanker	83	120	92	100	77	6242	1911	15	25.9	0.26	0.33
Crude Tanker	0	3	3	9	9	24967	3667	15	24 5	0.26	0.33
Containr	482	477	498	485	453	63898	13501	25	100.9	0.15	1
Dry Bulks	66	97	51	55	69	9028	2850	14	247.4	0.1	0.3
RO-RO	165	242	203	214	253	19856	2850	21	72.3	0.26	0 96
Gas Carrier	9	10	17	6	9	10019	1996	16	279.7	0 22	0.4
Combination	5	4	0	0	0	6242	1911	15	38.6	0.26	0.33
General Cargo	260	299	216	219	218	1996	1995	16	31.5	0.22	0 4
Vehicle	99	127	103	109	125	11502	2850	19	16.3	0.26	0.66
Cruise	625	537	661	606	550	35682	8921	22	11.2	na	1

Ef = 1.5 g/kW-hr $E = MCR \times LF \times A \times Ef$ Activity = D/S

Transit distance = 3.56 nm 1 ton = 2000 lb

1 gram = $2.204\ e^{-3}$ lb

Emissions

① Tanker — TRANSIT

2002

Activity = $\frac{3.56\ nm/calls}{15\ Knots} \times 83\ calls/yr = 19.69\ hrs/yr$

$E = \frac{(6242 \times 0.33 \times 19.69 \times 1.5) \times 2.204\ e^{-3}\ lb/g}{2000\ lb/1\ ton} = 0.069\ tons/yr$

2003

$A = \frac{3.56}{15} \times 123 = 29.192\ hrs/yr$

$E = \frac{(6242 \times 0.33 \times 29.192 \times 1.5) \times 2.204\ e^{-3}}{2000} = 0.099\ tons/yr$

2004

$A = \frac{3.56}{15} \times 95 = 22.5$

$E = \frac{(6242 \times 0.33 \times 22.5 \times 1.5) \times 2.204 e^{-3}}{2000} = 0.076\ tons/yr$

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

TANKER TRANSIT

2005

$A = \frac{3.56}{15} \times 109 = 25.86$ $\quad E = \frac{(6242 \times 0.33 \times 25.86 \times 1.5) \times 2.204e^{-3}}{2000}$

$= 0.088$ tons/yr

2006

$A = \frac{3.56}{15} \times 86 = 20.41$ $\quad E = \frac{(6242 \times 0.33 \times 20.41 \times 1.5) \times 2.204e^{-3}}{2000}$

$= 0.069$ tons/yr

TANKER Hotelling

A = 25.9 hrs/yr → the same activity for 2002 - 2006

$E = \frac{(1911 \times 0.26 \times 25.9 \times 1.5) \times 2.204e^{-3}}{2000} = 0.021$ tons/yr

PRODUCT TANKER TRANSIT

2002

$A = \frac{3.56 \text{ nm/call}}{15 \text{ knots}} \times 83 \text{ calls/yr} = 19.69 \text{ hrs/yr}$

$E = \frac{(6242 \text{ kW} \times 0.33 \times 19.69 \text{ hrs/yr} \times 1.5) \times 2.204e^{-3} \text{ lb/g}}{2000 \text{ lb/ton}} = 0.067$ tons/yr

2003

$A = \frac{3.56}{15} \times 120 = 28.48$

$E = \frac{(6242 \times 0.33 \times 28.48 \times 1.5) \times 2.204e^{-3}}{2000} = 0.097$ tons/yr

2004

$A = \frac{3.56}{15} \times 92 = 21.83$

$E = \frac{(6242 \times 0.33 \times 21.83 \times 1.5) 2.204e^{-3}}{2000} = 0.074$ tons/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

PRODUCT TANKER TRANSIT

2005

$A = \frac{3.56}{15} \times 100 = 23.73$ $\quad E = \frac{(6242 \times 0.33 \times 23.73 \times 1.5) \times 2.204e^{-3}}{2000} = 0.08$ tons/yr

2006

$A = \frac{3.56}{15} \times 77 = 18.27$ $\quad E = \frac{(6242 \times 0.33 \times 18.27 \times 1.5) \times 2.204e^{-3}}{2000} = 0.062$ tons/yr

Hokellings (The same emission for 2002 - 2006)

$A = 25.9$

$E = \frac{(19.11 \times 0.26 \times 25.9 \times 1.5) \times 2.204e^{-3}}{2000} = 0.021$ tons/yr

CRUDE TANKER TRANSIT

2002

$A = \frac{3.56}{15} \times 0 \doteq 0$

$E = 0$

2003

$A = \frac{3.56}{15} \times 3 = 0.712$

$E = \frac{(24967 \times 0.33 \times 0.712 \times 1.5) \times 2.204e^{-3}}{2000} = 0.097$ ~~tons~~/yr

2004

$A = \frac{3.56}{15} \times 3 = 0.712$ $\quad E = \frac{(24967 \times 0.33 \times 0.712 \times 1.5) 2.204e^{-3}}{2000} = 0.097$ tons/yr

2005

$A = \frac{3.56}{15} \times 9 = 2.136$ $\quad E = \frac{(24967 \times 0.33 \times 2.136 \times 1.5) \times 2.204e^{-3}}{2000} = 0.029$ tons/yr

2006

$A = \frac{3.56}{15} \times 9 = 2.136$ $\quad E = \frac{(24967 \times 0.33 \times 2.136 \times 1.5) \times 2.204e^{-3}}{2000} = 0.029$ tons/yr

Hotelling (The same emission for 2002 - 2006)

$A = 24.5$ $\quad E = \frac{(3667 \times 0.26 \times 24.5 \times 1.5) 2.204e^{-3}}{2000} = 0.038$ tons/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

Container Transit

2002

$A = \frac{3.56}{25} \times 482 = 68.63$

$E = \frac{(63898 \times 1 \times 68.63 \times 1.5) \times 2.204e^{-3}}{2000} = 7.24$ tons/yr

2003

$A = \frac{3.56}{25} \times 477 = 67.92$

$E = \frac{(63898 \times 1 \times 67.92 \times 1.5) \times 2.204e^{-3}}{2000} = 7.17$ tons/yr

2004

$A = \frac{3.56}{25} \times 498 = 70.91$

$E = \frac{(63898 \times 1 \times 70.91 \times 1.5) \times 2.204e^{-3}}{2000} = 7.49$ tons/yr

2005

$A = \frac{3.56}{25} \times 485 = 69.06$

$E = \frac{(63898 \times 1 \times 69.06 \times 1.5) \times 2.204e^{-3}}{2000} = 7.29$ tons/yr

2006

$A = \frac{3.56}{25} \times 453 = 64.50$

$E = \frac{(63898 \times 1 \times 6450 \times 1.5) 2.204e^{-3}}{2000} = 6.81$ tons/yr

Hotelling (The same emission for 2002-2006)

$A = 100.9$

$E = \frac{(13501 \times 100.9 \times 0.15 \times 1.5) \times 2.204e^{-3}}{2000} = 0.337$ tons/yr

Dry Bulk Transit

2002

$A = \frac{3.56}{14} \times 66 = 16.98$

$E = \frac{(9028 \times 16.98 \times 0.3 \times 1.5) \times 2.204e^{-3}}{2000} = 0.095$ tons/yr

2003

$A = \frac{3.56}{14} \times 97 = 24.66$

$E = \frac{(9028 \times 24.66 \times 0.3 \times 1.5) \times 2.204e^{-3}}{2000} = 0.11$ tons/yr

2004

$A = \frac{3.56}{14} \times 51 = 12.97$

$E = \frac{(9028 \times 12.97 \times 0.3 \times 1.5) 2.204e^{-3}}{2000} = 0.058$ tons/yr

2005

$A = \frac{3.56}{14} \times 55 = 13.98$

$E = \frac{(9028 \times 13.98 \times 0.3 \times 1.5) 2.204e^{-3}}{2000} = 0.062$ tons/yr

2006

$A = \frac{3.56}{14} \times 69 = 17.54$

$E = \frac{(9028 \times 17.54 \times 0.3 \times 1.5) \times 2.204e^{-3}}{2000} = 0.078$ tons/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

Dry Bulks Hotelling (The same emission for 2002 - 2006)

$A = 247.4 \quad E = \frac{(2850 \times 247.4 \times 0.1 \times 1.5) \times 2.204e-3}{2000} = 0.116$ tons/yr

Ro-Ro Transit

2002
$A = \frac{3.56}{21} \times 165 = 27.97 \quad E = \frac{(19856 \times 27.97 \times 0.96 \times 1.5) \times 2.204e-3}{2000} = 0.85$ tons/yr

2003
$A = \frac{3.56}{21} \times 242 = 41.02 \quad E = \frac{(19856 \times 41.02 \times 0.96 \times 1.5) \times 2.204e-3}{2000} = 1.29$ tons/yr

2004
$A = \frac{3.56}{21} \times 203 = 34.41 \quad E = \frac{(19856 \times 34.41 \times 0.96 \times 1.5) \times 2.204e-3}{2000} = 1.08$ tons/yr

2005
$A = \frac{3.56}{21} \times 214 = 36.27 \quad E = \frac{(19856 \times 36.27 \times 0.96 \times 1.5) \times 2.204e-3}{2000} = 1.14$ tons/yr

2006
$A = \frac{3.56}{21} \times 253 = 42.88 \quad E = \frac{(19856 \times 42.88 \times 0.96 \times 1.5) \times 2.204e-3}{2000} = 1.35$ tons/yr

Hotelling (The same emission for 2002 - 2006)

$A = 72.3 \quad E = \frac{(2850 \times 72.3 \times 0.26 \times 1.5) \times 2.204e-3}{2000} = 0.088$ tons/yr

Gas Carrier Transit

2002
$A = \frac{3.56}{16} \times 9 = 2 \quad E = \frac{(10019 \times 2 \times 0.40 \times 1.5) \times 2.204e-3}{2000} = 0.03$ tons/yr

2003
$A = \frac{3.56}{16} \times 10 = 2.22 \quad E = \frac{(10019 \times 2.22 \times 0.4 \times 1.5) \times 2.204e-3}{2000} = 0.0147$ tons/yr

2004
$A = \frac{3.56}{16} \times 17 = 3.78 \quad E = \frac{(10019 \times 3.78 \times 0.4 \times 1.5) \times 2.204e-3}{2000} = 0.025$ tons/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

Gas Carrier Transit

2005

$A = \frac{3.56}{16} \times 6 = 1.335$ $E = \frac{(10019 \times 1.335 \times 0.4 \times 1.5) \times 2.204e^{-3}}{2000} = 0.0088$ tons/yr

2006

$A = \frac{3.56}{16} \times 9 = 2$ $E = \frac{(10019 \times 2 \times 0.4 \times 1.5) \times 2.204e^{-3}}{2000} = 0.013$ tons/yr

Hotelling (The same emission for 2002-2006)

$A = 279.7$ $E = \frac{(1776 \times 279.7 \times 0.22 \times 1.5) \times 2.204e^{-3}}{2000} = 0.18$ tons/yr

Combination Trans

2002

$A = \frac{3.56}{15} \times 5 = 1186$ $E = \frac{(6242 \times 1.186 \times 0.33 \times 1.5) \times 2.204e^{-3}}{2000} = 0.004$ tons/yr

2003

$A = \frac{3.56}{15} \times 4 = 0.94$ $E = \frac{(6242 \times 0.94 \times 0.33 \times 1.5) \times 2.204e^{-3}}{2000} = 0.003$ tons/yr

2004, 2005, 2006

$A = \frac{3.56}{15} \times 0 = 0$ $E = 0$

Hotelling (The same emission for 2002-2006)

$A = 38.6$ $E = \frac{(1911 \times 38.6 \times 0.26 \times 1.5) \times 2.204e^{-3}}{2000} = 0.031$ tons/yr

General Cargo Transit

2002

$A = \frac{3.56}{16} \times 260 = 57.85$ $E = \frac{(8201 \times 57.85 \times 0.4 \times 1.5) \times 2.204e^{-3}}{2000} = 0.313$ tons/yr

2003

$A = \frac{3.56}{16} \times 299 = 66.53$ $E = \frac{(8201 \times 66.53 \times 0.4 \times 1.5) \times 2.204e^{-3}}{2000} = 0.360$ tons/yr

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

General Conso Transit

2004

$A = \frac{3.56}{16} \times 216 = 48.06$

$E = \frac{(8201 \times 48.06 \times 0.4 \times 1.5) \times 2.204e^{-3}}{2000} = 0.26 \frac{\text{tons}}{\text{yr}}$

2005

$A = \frac{3.56}{16} \times 217 = 48.28$

$E = \frac{(8201 \times 48.28 \times 0.4 \times 1.5) \times 2.204e^{-3}}{2000} = 0.26 \text{ tons/yr}$

2006

$A = \frac{3.56}{16} \times 218 = 48.50$

$E = \frac{(8201 \times 48.5 \times 0.4 \times 1.5) \times 2.204e^{-3}}{2000} = 0.26 \text{ tons/yr}$

Hotelling (The same emissions for 2002-2006)

$A = 31.5$

$E = \frac{(1776 \times 31.5 \times 0.122 \times 1.5) \times 2.204e^{-3}}{200} = 0.02 \text{ tons/yr}$

Vehicle Transit

2002

$A = \frac{3.56}{19} \times 99 = 18.55$

$E = \frac{(11502 \times 18.55 \times 0.166 \times 1.5) \times 2.204e^{-3}}{2000} = 0.123 \text{ tons/yr}$

2003

$A = \frac{3.56}{19} \times 127 = 23.79$

$E = \frac{(11502 \times 23.79 \times 0.166 \times 1.5) \times 2.204e^{-3}}{2000} = 0.159 \text{ tons/yr}$

2004

$A = \frac{3.56}{19} \times 103 = 19.29$

$E = \frac{(11502 \times 19.29 \times 0.166 \times 1.5) \times 2.204e^{-3}}{2000} = 0.24 \text{ tons/yr}$

2005

$A = \frac{3.56}{19} \times 107 = 20.04$

$E = \frac{(11502 \times 20.04 \times 0.166 \times 1.5) \times 2.204e^{-3}}{2000} = 0.25 \text{ tons/yr}$

2006

$A = \frac{3.56}{19} \times 125 = 23.42$

$E = \frac{(11502 \times 23.42 \times 0.166 \times 1.5) \times 2.204e^{-3}}{2000} = 0.293 \text{ tons/yr}$

Vehicle Hotelling (The same emission for 2002-2006)

$A = 16.3$

$E = \frac{(2850 \times 16.3 \times 0.126 \times 1.5) \times 2.204e^{-3}}{2000} = 0.019 \text{ tons/yr}$

PM-10 GUAYNABO NON-ATTAINMENT AREA
Emission Inventory: Area Sources

Cruise Transit

2002

$A = \frac{3.56}{22} \times 625 = 101.1$ $E = \frac{(35682 \times 101.1 \times 1 \times 1.5) \times 2.204e^{-3}}{2000} = 5.9$ tons/yr

2003

$A = \frac{3.56}{22} \times 537 = 86.89$ $E = \frac{(35682 \times 86.89 \times 1 \times 1.5) \times 2.204e^{-3}}{2000} = 5.12$ tons/yr

2004

$A = \frac{3.56}{22} \times 661 = 106.96$ $E = \frac{(35682 \times 106.96 \times 1 \times 1.5) \times 2.204e^{-3}}{2000} = 6.3$ tons/yr

2005

$A = \frac{3.56}{22} \times 606 = 98.06$ $E = \frac{(35682 \times 98.06 \times 1 \times 1.5) \times 2.204e^{-3}}{2000} = 5.78$ tons/yr

2006

$A = \frac{3.56}{22} \times 550 = 89$ $E = \frac{(35682 \times 89 \times 1 \times 1.5) \times 2.204e^{-3}}{2000} = 5.24$ tons/yr

Hotelling

No emissions for cruise ship hotelling because there is not a default load factor for cruises. Each cruise is different and specific calculations should be done for each vessel.

APPENDIX B
POINT SOURCE AND NONROAD MARINE VESSELS EMISSION INVENTORY

APPENDIX C
MOBILE 6.2 MODEL INPUTS AND ANALYSIS RESULTS

APPENDIX D: MOBILE 6.2 Model Inputs and Analysis Results

```
**********************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                         *
* Input file: SANJUAN.IN (file 1, run 10).                           *
**********************************************************************

* # # # # # # # # # # # # # # # # # # # # #
* San Juan - 2030 Plan (20 mph)
* File 1, Run 10, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # #

                    Calendar Year:  2030
                            Month:  Jan.
          Gasoline Fuel Sulfur Content:  30. ppm
            Diesel Fuel Sulfur Content:  15. ppm
                 Particle Size Cutoff: 10.00 Microns
                   Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.2790	0.4400	0.1500		0.0363	0.0003	0.0022	0.0872	0.0050	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000					
GASPM:	0.0037	0.0036	0.0036	0.0036	0.0095				0.0000	0.0000
ECARBON:									0.0205	0.0036
OCARBON:						0.0071	0.0037	0.0168		0.0015
SO4:	0.0005	0.0006	0.0006	0.0006	0.0014	0.0020	0.0053	0.0085		0.0007
Total Exhaust PM:	0.0042	0.0042	0.0042	0.0042	0.0109	0.0002	0.0003	0.0009	0.0002	0.0006
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0093	0.0093	0.0262	0.0206	0.0065
Tire:	0.0080	0.0080	0.0080	0.0080	0.0086	0.0125	0.0125	0.0125	0.0125	0.0125
Total PM:	0.0247	0.0247	0.0247	0.0247	0.0321	0.0080	0.0080	0.0259	0.0040	0.0096
SO2:	0.0067	0.0088	0.0115	0.0095	0.0165	0.0298	0.0299	0.0646	0.0372	0.0286
NH3:	0.1017	0.1017	0.1017	0.1017	0.0451	0.0029	0.0056	0.0131	0.0033	0.0093
						0.0068	0.0068	0.0270	0.0113	0.0925

```
**********************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                         *
* Input file: SANJUAN.IN (file 1, run 9).                            *
**********************************************************************

* # # # # # # # # # # # # # # # # # # # # # # # #
* San Juan - 2030 Plan (2.5 mph)
* File 1, Run 9, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # #

                          Calendar Year:  2030
                                 Month:  Jan.
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                       Particle Size Cutoff: 10.00 Microns
                          Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.2790	0.4400	0.1500		0.0363	0.0003	0.0022	0.0872	0.0050	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0039	0.0039	0.0039	0.0039	0.0102	------	------	------	0.0205	0.0039
ECARBON:	------	------	------	------	------	0.0071	0.0037	0.0168	------	0.0015
OCARBON:	------	------	------	------	------	0.0020	0.0053	0.0085	------	0.0007
SO4:	0.0002	0.0003	0.0003	0.0003	0.0007	0.0002	0.0003	0.0009	0.0001	0.0003
Total Exhaust PM:	0.0042	0.0042	0.0042	0.0042	0.0109	0.0093	0.0093	0.0262	0.0206	0.0064
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0080	0.0080	0.0080	0.0086	0.0080	0.0080	0.0259	0.0040	0.0096
Total PM:	0.0247	0.0247	0.0247	0.0247	0.0321	0.0298	0.0299	0.0646	0.0371	0.0285
SO2:	0.0034	0.0044	0.0058	0.0048	0.0083	0.0029	0.0056	0.0131	0.0016	0.0052
NH3:	0.1017	0.1017	0.1017	0.1017	0.0451	0.0068	0.0068	0.0270	0.0113	0.0925

```
*****************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                *
* Input file: SANJUAN.IN (file 1, run 8).                                   *
*****************************************************************************

* # # # # # # # # # # # # # # # # # # # # # # # # #
* San Juan - Year 2020 (20 mph)
* File 1, Run 8, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #

                         Calendar Year:  2020
                                 Month:  Jan.
            Gasoline Fuel Sulfur Content:   30. ppm
              Diesel Fuel Sulfur Content:   15. ppm
                   Particle Size Cutoff: 10.00 Microns
                      Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.2790	0.4400	0.1500		0.0363	0.0003	0.0022	0.0872	0.0050	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0037	0.0036	0.0037	0.0036	0.0140	------	------	------	0.0205	0.0036
ECARBON:	------	------	------	------	------	0.0099	0.0070	0.0264	------	0.0023
OCARBON:	------	------	------	------	------	0.0028	0.0100	0.0134	------	0.0012
SO4:	0.0005	0.0006	0.0006	0.0006	0.0014	0.0002	0.0003	0.0009	0.0002	0.0006
Total Exhaust PM:	0.0042	0.0042	0.0042	0.0042	0.0155	0.0129	0.0173	0.0406	0.0206	0.0079
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0080	0.0080	0.0080	0.0086	0.0080	0.0080	0.0259	0.0040	0.0096
Total PM:	0.0248	0.0248	0.0248	0.0248	0.0366	0.0334	0.0379	0.0790	0.0372	0.0300
SO2:	0.0067	0.0088	0.0115	0.0095	0.0165	0.0029	0.0056	0.0131	0.0033	0.0093
NH3:	0.1017	0.1017	0.1017	0.1017	0.0451	0.0068	0.0068	0.0270	0.0113	0.0925

```
*****************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                *
* Input file: SANJUAN.IN (file 1, run 7).                                   *
*****************************************************************************

* # # # # # # # # # # # # # # # # # # # # # # # # # #
* San Juan - Year 2020 (2.5 mph)
* File 1, Run 7, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # #

                         Calendar Year:  2020
                                 Month:  Jan.
          Gasoline Fuel Sulfur Content:   30. ppm
            Diesel Fuel Sulfur Content:   15. ppm
                 Particle Size Cutoff: 10.00 Microns
                     Reformulated Gas:  No
```

Vehicle Type: GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.2790	0.4400	0.1500		0.0363	0.0003	0.0022	0.0872	0.0050	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0039	0.0039	0.0039	0.0039	0.0147	------	------	------	0.0205	0.0040
ECARBON:	------	------	------	------	------	0.0099	0.0070	0.0264	------	0.0023
OCARBON:	------	------	------	------	------	0.0028	0.0100	0.0134	------	0.0012
SO4:	0.0002	0.0003	0.0003	0.0003	0.0007	0.0002	0.0003	0.0009	0.0001	0.0003
Total Exhaust PM:	0.0042	0.0042	0.0042	0.0042	0.0154	0.0129	0.0173	0.0406	0.0206	0.0079
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0080	0.0080	0.0080	0.0086	0.0080	0.0080	0.0259	0.0040	0.0096
Total PM:	0.0247	0.0247	0.0248	0.0247	0.0365	0.0334	0.0379	0.0790	0.0371	0.0300
SO2:	0.0034	0.0044	0.0058	0.0048	0.0083	0.0029	0.0056	0.0131	0.0016	0.0052
NH3:	0.1017	0.1017	0.1017	0.1017	0.0451	0.0068	0.0068	0.0270	0.0113	0.0925

```
*****************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                *
* Input file: SANJUAN.IN (file 1, run 6).                                   *
*****************************************************************************

* # # # # # # # # # # # # # # # # # # # # # # # #
* San Juan - Year 2010 (20 mph)
* File 1, Run 6, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # #

                        Calendar Year:  2010
                                Month:  Jan.
              Gasoline Fuel Sulfur Content:   30. ppm
                Diesel Fuel Sulfur Content:   15. ppm
                     Particle Size Cutoff: 10.00 Microns
                          Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.3540	0.3855	0.1315		0.0357	0.0003	0.0019	0.0856	0.0054	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0039	0.0040	0.0044	0.0041	0.0402	------	------	------	0.0205	0.0051
ECARBON:	------	------	------	------	------	0.0416	0.0256	0.1171	------	0.0101
OCARBON:	------	------	------	------	------	0.0117	0.0368	0.0594	------	0.0052
SO4:	0.0005	0.0006	0.0006	0.0006	0.0012	0.0002	0.0003	0.0009	0.0002	0.0006
Total Exhaust PM:	0.0044	0.0046	0.0050	0.0047	0.0414	0.0535	0.0627	0.1774	0.0206	0.0209
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0080	0.0080	0.0080	0.0087	0.0080	0.0080	0.0259	0.0040	0.0095
Total PM:	0.0250	0.0251	0.0255	0.0252	0.0626	0.0740	0.0832	0.2158	0.0372	0.0430
SO2:	0.0067	0.0088	0.0114	0.0094	0.0167	0.0029	0.0056	0.0132	0.0033	0.0090
NH3:	0.1017	0.1013	0.1005	0.1011	0.0451	0.0068	0.0068	0.0270	0.0113	0.0923

```
*****************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                *
* Input file: SANJUAN.IN (file 1, run 5).                                   *
*****************************************************************************

* # # # # # # # # # # # # # # # # # # # #
* San Juan - Year 2010 (2.5 mph)
* File 1, Run 5, Scenario 1.
* # # # # # # # # # # # # # # # # # # # #

                        Calendar Year:  2010
                                Month:  Jan.
          Gasoline Fuel Sulfur Content:   30. ppm
            Diesel Fuel Sulfur Content:   15. ppm
                 Particle Size Cutoff: 10.00 Microns
                   Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.3540	0.3855	0.1315		0.0357	0.0003	0.0019	0.0856	0.0054	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0041	0.0041	0.0045	0.0042	0.0404	------	------	------	0.0205	0.0052
ECARBON:	------	------	------	------	------	0.0416	0.0256	0.1171	------	0.0101
OCARBON:	------	------	------	------	------	0.0117	0.0368	0.0594	------	0.0052
SO4:	0.0002	0.0003	0.0003	0.0003	0.0006	0.0002	0.0003	0.0009	0.0001	0.0003
Total Exhaust PM:	0.0043	0.0045	0.0049	0.0046	0.0411	0.0535	0.0627	0.1774	0.0206	0.0208
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0080	0.0080	0.0080	0.0087	0.0080	0.0080	0.0259	0.0040	0.0095
Total PM:	0.0249	0.0250	0.0254	0.0251	0.0623	0.0740	0.0832	0.2158	0.0371	0.0429
SO2:	0.0034	0.0044	0.0057	0.0047	0.0084	0.0029	0.0056	0.0132	0.0016	0.0051
NOX:	0.1017	0.1013	0.1005	0.1011	0.0451	0.0068	0.0068	0.0270	0.0113	0.0923

```
*****************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                *
* Input file: SANJUAN.IN (file 1, run 4).                                   *
*****************************************************************************

* # # # # # # # # # # # # # # # # # # # # # # # # # #
* San Juan - Year 2005 (20 mph)
* File 1, Run 4, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # #

                          Calendar Year:  2005
                                  Month:  Jan.
              Gasoline Fuel Sulfur Content:   92. ppm
                Diesel Fuel Sulfur Content:  300. ppm
                     Particle Size Cutoff: 10.00 Microns
                        Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.4225	0.3349	0.1143		0.0358	0.0006	0.0018	0.0844	0.0057	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0042	0.0046	0.0057	0.0049	0.0657	------	------	------	0.0205	0.0064
ECARBON:	------	------	------	------	------	0.1227	0.0588	0.2142	------	0.0183
OCARBON:	------	------	------	------	------	0.0346	0.0846	0.1075	------	0.0093
SO4:	0.0015	0.0018	0.0020	0.0019	0.0028	0.0034	0.0056	0.0187	0.0005	0.0032
Total Exhaust PM:	0.0057	0.0065	0.0077	0.0068	0.0685	0.1607	0.1491	0.3404	0.0210	0.0371
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0080	0.0080	0.0080	0.0087	0.0080	0.0080	0.0260	0.0040	0.0095
Total PM:	0.0262	0.0270	0.0283	0.0273	0.0898	0.1813	0.1696	0.3789	0.0375	0.0592
SO2:	0.0207	0.0267	0.0348	0.0287	0.0524	0.0645	0.1069	0.2666	0.0100	0.0463
NH3:	0.1016	0.1003	0.0971	0.0995	0.0451	0.0068	0.0068	0.0270	0.0113	0.0916

```
*************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                            *
* Input file: SANJUAN.IN (file 1, run 3).                               *
*************************************************************************

* # # # # # # # # # # # # # # # # # # # # # # # # #
* San Juan - Year 2005 (2.5 mph)
* File 1, Run 3, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #

                          Calendar Year:  2005
                                  Month:  Jan.
          Gasoline Fuel Sulfur Content:   92. ppm
            Diesel Fuel Sulfur Content:  300. ppm
                 Particle Size Cutoff: 10.00 Microns
                      Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.4225	0.3349	0.1143		0.0358	0.0006	0.0018	0.0844	0.0057	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0042	0.0047	0.0058	0.0050	0.0657	------	------	------	0.0205	0.0065
ECARBON:	------	------	------	------	------	0.1227	0.0588	0.2142	------	0.0183
OCARBON:	------	------	------	------	------	0.0346	0.0846	0.1075	------	0.0093
SO4:	0.0008	0.0009	0.0010	0.0010	0.0014	0.0034	0.0056	0.0187	0.0003	0.0024
Total Exhaust PM:	0.0050	0.0056	0.0068	0.0059	0.0671	0.1607	0.1491	0.3404	0.0207	0.0364
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0080	0.0080	0.0080	0.0087	0.0080	0.0080	0.0260	0.0040	0.0095
Total PM:	0.0256	0.0262	0.0273	0.0265	0.0883	0.1813	0.1696	0.3789	0.0373	0.0585
SO2:	0.0104	0.0134	0.0175	0.0144	0.0263	0.0645	0.1069	0.2666	0.0050	0.0346
NH3:	0.1016	0.1003	0.0971	0.0995	0.0451	0.0068	0.0068	0.0270	0.0113	0.0916

```
**********************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                         *
* Input file: SANJUAN.IN (file 1, run 2).                            *
**********************************************************************

* # # # # # # # # # # # # # # # # # # # # #
* San Juan - Year 2000 (20 mph)
* File 1, Run 2, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # #

                        Calendar Year:  2000
                                Month:  Jan.
          Gasoline Fuel Sulfur Content:  300. ppm
            Diesel Fuel Sulfur Content:  300. ppm
                 Particle Size Cutoff: 10.00 Microns
                    Reformulated Gas:  No
```

Vehicle Type: GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4941	0.2831	0.0967		0.0357	0.0012	0.0016	0.0814	0.0062	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0045	0.0056	0.0151	0.0081	0.0848	------	------	------	0.0205	0.0084
ECARBON:	------	------	------	------	------	0.2132	0.0924	0.3445	------	0.0284
OCARBON:	------	------	------	------	------	0.0601	0.1330	0.1700	------	0.0141
SO4:	0.0055	0.0065	0.0067	0.0065	0.0072	0.0036	0.0055	0.0190	0.0016	0.0071
Total Exhaust PM:	0.0100	0.0122	0.0218	0.0146	0.0919	0.2769	0.2309	0.5335	0.0221	0.0581
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0080	0.0080	0.0080	0.0088	0.0080	0.0080	0.0261	0.0040	0.0095
Total PM:	0.0306	0.0327	0.0423	0.0352	0.1133	0.2975	0.2514	0.5722	0.0387	0.0801
SO2:	0.0682	0.0861	0.1142	0.0933	0.1770	0.0685	0.1060	0.2717	0.0327	0.0980
NH3:	0.1002	0.0972	0.0910	0.0956	0.0451	0.0068	0.0068	0.0270	0.0113	0.0897

```
MOBILE6 INPUT FILE :
DATABASE OUTPUT
AGGREGATED OUTPUT
WITH FIELDNAMES
PARTICULATES

RUN DATA

SCENARIO REC      : San Juan - Year 2000 (2.5 mph)
CALENDAR YEAR     : 2000
AVERAGE SPEED     : 2.5 AREAWIDE
MIN/MAX TEMP      : 71. 88.
FUEL RVP          : 9.0
PARTICLE SIZE     : 10.0
PARTICULATE EF    : PMGZML.CSV  PMGDR1.CSV  PMGDR2.CSV  PMDZML.CSV  PMDDR1.CSV  PMDDR2.CSV
DIESEL SULFUR     : 300.0

END OF RUN

SCENARIO REC      : San Juan - Year 2000 (20 mph)
CALENDAR YEAR     : 2000
AVERAGE SPEED     : 20 AREAWIDE
MIN/MAX TEMP      : 71. 88.
FUEL RVP          : 9.0
PARTICLE SIZE     : 10.0
PARTICULATE EF    : PMGZML.CSV  PMGDR1.CSV  PMGDR2.CSV  PMDZML.CSV  PMDDR1.CSV  PMDDR2.CSV
DIESEL SULFUR     : 300.0

END OF RUN

SCENARIO REC      : San Juan - Year 2005 (2.5 mph)
CALENDAR YEAR     : 2005
AVERAGE SPEED     : 2.5 AREAWIDE
MIN/MAX TEMP      : 71. 88.
FUEL RVP          : 9.0
PARTICLE SIZE     : 10.0
PARTICULATE EF    : PMGZML.CSV  PMGDR1.CSV  PMGDR2.CSV  PMDZML.CSV  PMDDR1.CSV  PMDDR2.CSV
DIESEL SULFUR     : 300.0

END OF RUN

SCENARIO REC      : San Juan - Year 2005 (20 mph)
CALENDAR YEAR     : 2005
AVERAGE SPEED     : 20 AREAWIDE
MIN/MAX TEMP      : 71. 88.
FUEL RVP          : 9.0
PARTICLE SIZE     : 10.0
PARTICULATE EF    : PMGZML.CSV  PMGDR1.CSV  PMGDR2.CSV  PMDZML.CSV  PMDDR1.CSV  PMDDR2.CSV
DIESEL SULFUR     : 300.0

END OF RUN

SCENARIO REC      : San Juan - Year 2010 (2.5 mph)
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 2.5 AREAWIDE
MIN/MAX TEMP      : 71. 88.
FUEL RVP          : 9.0
PARTICLE SIZE     : 10.0
PARTICULATE EF    : PMGZML.CSV  PMGDR1.CSV  PMGDR2.CSV  PMDZML.CSV  PMDDR1.CSV  PMDDR2.CSV
DIESEL SULFUR     : 15.0

END OF RUN

SCENARIO REC      : San Juan - Year 2010 (20 mph)
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 20 AREAWIDE
MIN/MAX TEMP      : 71. 88.
FUEL RVP          : 9.0
PARTICLE SIZE     : 10.0
PARTICULATE EF    : PMGZML.CSV  PMGDR1.CSV  PMGDR2.CSV  PMDZML.CSV  PMDDR1.CSV  PMDDR2.CSV
DIESEL SULFUR     : 15.0

END OF RUN

SCENARIO REC      : San Juan - Year 2020 (2.5 mph)
CALENDAR YEAR     : 2020
AVERAGE SPEED     : 2.5 AREAWIDE
MIN/MAX TEMP      : 71. 88.
FUEL RVP          : 9.0
PARTICLE SIZE     : 10.0
PARTICULATE EF    : PMGZML.CSV  PMGDR1.CSV  PMGDR2.CSV  PMDZML.CSV  PMDDR1.CSV  PMDDR2.CSV
DIESEL SULFUR     : 15.0

END OF RUN

SCENARIO REC      : San Juan - Year 2020 (20 mph)
CALENDAR YEAR     : 2020
AVERAGE SPEED     : 20 AREAWIDE
MIN/MAX TEMP      : 71. 88.
FUEL RVP          : 9.0
PARTICLE SIZE     : 10.0
PARTICULATE EF    : PMGZML.CSV  PMGDR1.CSV  PMGDR2.CSV  PMDZML.CSV  PMDDR1.CSV  PMDDR2.CSV
DIESEL SULFUR     : 15.0

END OF RUN

SCENARIO REC      : San Juan - 2030 Plan (2.5 mph)
CALENDAR YEAR     : 2030
AVERAGE SPEED     : 2.5 AREAWIDE
MIN/MAX TEMP      : 71. 88.
FUEL RVP          : 9.0
PARTICLE SIZE     : 10.0
PARTICULATE EF    : PMGZML.CSV  PMGDR1.CSV  PMGDR2.CSV  PMDZML.CSV  PMDDR1.CSV  PMDDR2.CSV
DIESEL SULFUR     : 15.0

END OF RUN
```

Attachment B

Public Notices

12 • SATURDAY, DECEMBER 20, 2008

Puerto Rico Daily Sun

YEAR 1 NUMBER 60

SATURDAY, DECEMBER 20, 2008

COMMONWEALTH OF PUERTO RICO
Office of the Governor
Enviromental Quality Board

PUBLIC NOTICE

The Environmental Quality Board had developed a Draft of the Limited Maintenance Plan for the 24 hour Particulate Matter (PM10) National Ambient Air Quality Standards (NAAQS) for the Guaynabo municipality classified as a moderate nonattainment area. The purpose of this plan is to petition the Environmental Protection Agency (EPA) the redesignation of the municipality of Guaynabo as an attainment area for the 24 hour PM10 NAAQS.

The maintenance plan was prepared according to the requirements established in the memorandum entitled Limited Maintenance Plan for Moderate PM10 Nonattainment Areas published by EPA on August 9, 2001. This policy is a streamlined process that establishes the criteria and steps that are necessary to petition the redesignation for moderate PM10 nonattainment areas such as the Guaynabo municipality under §107 of the Clean Air Act (CAA).

The information included in the maintenance plan is base on air quality data obtained for the 24 hour PM10 NAAQS in the Guaynabo municipality in which there is no violation of the standard since the approval in 1995 of the State Implementation Plan for the 24 hour PM10 standard.

The purpose of this notice is to notify the general public that the Draft of the Limited Maintenance Plan for the 24 hour Particulate Matter (PM10) National Ambient Air Quality Standards is available for public review. The draft plan is available in the Environmental Quality Board web site www.ica.gobierno.pr and from Monday through Friday from 8:00 am - 12:00 p.m. and 1:00 p.m. - 4:00 p.m. at the:

Environmental Quality Board Library
Fourth floor of the Environmental Building
Ponce de Leon Avenue
State Highway 8863 6.3 Km Sector El Cinco
Rio Piedras, Puerto Rico

In compliance with the requirements of the CAA a public meeting will be held on:

DATE: JANUARY 23, 2009
TIME: 9:30 am
PLACE: Environmental Quality Board Public Room
Fourth Floor Environmental Agencies Building
1308 Ponce de Leon Avenue
State Road 8838 Km. 6.3
Rio Piedras, P.R.

After the public meeting the Environmental Quality Board will evaluate the comments and will incorporate the changes and will submit to EPA the maintenance plan for revision and approval.

If you have any questions regarding the Draft Limited Maintenance Plan Particulate Matter (PM10) National Ambient Air Quality Standards and Redesignation Request for the Municipality of Guaynabo you can contact Ms. Evelyn Rodriguez, Manager of the Air Quality Area at (787)767-8181.

Javier Rua, Esq.
Executive Director

EL VOCERO
DE PUERTO RICO
SABADO 20 DE DICIEMBRE DE 2008 AÑO XXXIV NUM. 10719 SAN JUAN, P.R.

ESTADO LIBRE ASOCIADO DE PUERTO RICO
OFICINA DEL GOBERNADOR
JUNTA DE CALIDAD AMBIENTAL, SAN JUAN, P.R.

La Junta de Calidad Ambiental ha recibido el Borrador del Plan para el Mantenimiento de la Norma Nacional Ambiental de Calidad de Aire (NAAQS, por sus siglas en inglés) de Materia Particulada (PM10) de 24 horas para el Municipio de Guaynabo Área Moderada de No Cumplimiento. Este plan es requerido por la Agencia de Protección Ambiental Federal (EPA, en inglés) [illegible] redesignación del Municipio de Guaynabo como área de [illegible] para la NAAQS de PM10 de 24 horas.

El plan de mantenimiento establece medidas para continuar cumpliendo con la NAAQS de PM10 de 24 horas durante el periodo de mantenimiento. Este plan fue preparado conforme a lo establecido en el memorando titulado *Limited Maintenance Plan Option for Moderate PM2.5 Nonattainment Area SIP Revisions* publicado por la EPA el 4 de agosto de 2006. Este plan establece un mecanismo simplificado para demostrar el mantenimiento de la norma de PM10 de 24 horas. Además, establece un procedimiento para la designación de nuevas fuentes de PM10 en el área de mantenimiento. El plan también establece un compromiso para la recopilación de datos de calidad de aire en el Municipio de Guaynabo hasta la fecha en que [illegible] el término de [illegible] años.

El propósito principal de este plan de mantenimiento es demostrar que el área de Guaynabo continuará cumpliendo con la NAAQS de PM10 de 24 horas durante el periodo de mantenimiento. Este plan también establece un mecanismo para la recopilación de datos de calidad de aire en el Municipio de Guaynabo hasta la fecha en que [illegible] el término de [illegible] años

Attachment C

Resolution R-09-5-5 Public Hearing Limited Maintenance Plan 24 Hour Particulate Matter (PM_{10}) National Ambient Air Quality Standards and Redesignation Request for the Municipality of Guaynabo

ESTADO LIBRE ASOCIADO DE PUERTO RICO
OFICINA DEL GOBERNADOR
JUNTA DE CALIDAD AMBIENTAL

RECIBIDO
AREA CALIDAD DE AIRE
12/mar/09

IN RE: **REGLAMENTO PARA EL CONTROL DE LA CONTAMINACIÓN ATMOSFÉRICA**	**R-09-5-5** **SOBRE: VISTA PÚBLICA PLAN LIMITADO DE MANTENIMIENTO DE LA NORMA NACIONAL AMBIENTAL DE CALIDAD DE AIRE DE MATERIA PARTICULADA (PM_{10}) DE 24 HORAS PARA EL MUNICIPIO DE GUAYNABO**

RESOLUCIÓN Y NOTIFICACIÓN

En reunión celebrada el 5 de marzo de 2009, se sometió ante la consideración de la Junta de Gobierno de la Junta de Calidad Ambiental (JCA) el Informe del Panel Examinador, compuesto por el Ing. Ángel O. Berríos Silvestre y la Sra. Lucía Fernández Fontán sobre el caso de autos. En este caso, la JCA solicita la designación del Municipio Autónomo de Guaynabo como Área de Logro para la Norma Nacional de Calidad de Aire Ambiental (NNCAA) de 24 horas para materia particulada con un diámetro menor de 10 micrones (PM_{10}). Además, la JCA propone enmendar las Reglas 102 (Definiciones) y 423 (Limitaciones para el Área de No-Logro de PM_{10} de Guaynabo) del Reglamento para el Control de la Reglamentación Atmosférica (RCRA).

I. RESOLUCIÓN

Luego de discutidos todos los méritos de este caso y al amparo de los poderes y facultades que le confiere a esta Junta de Calidad Ambiental la Ley Número 416 del 22 de septiembre de 2004, según enmendada, mejor conocida como Ley Sobre Política Pública Ambiental, y los reglamentos promulgados a su amparo, por la presente esta Junta **RESUELVE**:

- Se acepta el Informe del Panel Examinador, copia del cual se hace formar parte de la presente Resolución.
- Se aprueba el Plan Limitado de Mantenimiento de la Norma Nacional Ambiental de Calidad de Aire de Materia Particulada (PM_{10}) de 24 horas para el Municipio Autónomo de Guaynabo y las enmiendas a la Reglas

102 y 423 del RCCA, siempre y cuando se modifique el documento final para incluir los cambios recomendados por la División de Validación de Datos y Modelaje Matemático de la Junta de Calidad Ambiental.

- Se ordena enviar la petición formal a la EPA solicitando que se reclasifique el Municipio Autónomo de Guaynabo como área de logro de NAAQS para PM_{10} de 24 horas y las enmiendas de las Reglas 102 y 423 del RCCA.
- Se ordena enviar las enmiendas de las Reglas 102 y 423 del RCCA al Departamento de Estado de Puerto Rico.

II. APERCIBIMIENTO

La parte adversamente afectada por una resolución u orden final o parcial podrá dentro del término de veinte (20) días desde la fecha de archivo en autos de la notificación de la resolución u orden, presentar Moción de Reconsideración de la Resolución u Orden. La agencia dentro de los quince (15) días de haberse presentado dicha moción deberá considerarla. Si la rechazare de plano o no actuare dentro de los quince (15) días, el término para solicitar revisión comenzará a correr nuevamente desde que se notifique dicha denegatoria o desde que expiren esos quince (15) días, según sea el caso. Si se tomare alguna determinación en su consideración, el término para solicitar revisión empezará a contar desde la fecha en que se archive en autos una copia de la notificación de la resolución de la agencia resolviendo definitivamente la moción de reconsideración. Tal resolución deberá ser emitida y archivada en autos dentro de los noventa (90) días siguientes a la radicación de la moción de reconsideración. Si la agencia acoge la moción de reconsideración pero deja de tomar alguna acción con relación a la moción dentro de los noventa (90) días de ésta haber sido radicada, perderá jurisdicción sobre la misma y el término para solicitar revisión judicial empezará a contarse a partir de la expiración de dicho término de noventa (90) días, salvo que la agencia, por justa causa y dentro de esos noventa (90) días, prorrogue el término para resolver por un periodo que no excederá de treinta (30) días adicionales.

III. NOTIFICACIÓN

Se notifica por correo certificado con acuse de recibo al **Honorable Héctor O'Neill García, Alcalde, Municipio Autónomo de Guaynabo, P.O. Box 7885, Guaynabo, PR, 00970; Sr. George Pavlou, Administrador, U.S. EPA-Region 2, 290 Broadway, New York, New York 10007-1866**; y personalmente a los siguientes funcionarios de la Junta de Calidad Ambiental: **ING. ÁNGEL O. BERRIOS**, Miembro Asociado; **ING. WANDA GARCÍA**, Directora Área de Calidad de Agua; **LCDA. JOHANNA RIVERA**, Directora de la Oficina de Asuntos Legales; **ING. LEIMARYS DELGADO,** Directora del Área de Calidad de Aire.

DADA en San Juan, Puerto Rico, a 5 de marzo de 2009.

PEDRO J. NIEVES MIRANDA
PRESIDENTE

CERTIFICO: Que he notificado, por correo certificado con acuse de recibo, copia fiel y exacta de la Resolución R-09-5-5 a las personas a sus direcciones indicadas en el Notifíquese; y a la mano a los funcionarios de la Junta de Calidad Ambiental, habiendo archivado el original en autos.

En San Juan, Puerto Rico, a 12 de marzo de 2009.

EDWIN A. IRIZARRY LUGO
SECRETARIO

ESTADO LIBRE ASOCIADO DE PUERTO RICO
OFICINA DEL GOBERNADOR
JUNTA DE CALIDAD AMBIENTAL

2009 FEB 25 AM 10:32
JCA
JUNTA DE GOBIERNO

IN RE:	**SOBRE:**
REGLAMENTO PARA EL CONTROL DE LA CONTAMINACIÓN ATMOSFÉRICA	**VISTA PÚBLICA PLAN LIMITADO DE MANTENIMIENTO DE LA NORMA NACIONAL AMBIENTAL DE CALIDAD DE AIRE DE MATERIA PARTICULADA (PM_{10}) DE 24 HORAS PARA EL MUNICIPIO DE GUAYNABO**

INFORME OFICIAL EXAMINADOR

Comparece el panel examinador compuesto por el ingeniero Ángel O. Berríos Silvestre, Miembro Asociado, y Lucía Fernández Fontán, Jefa de la División de Validación de Datos y Modelaje Matemático, en el caso de epígrafe y respetuosamente somete ante la consideración de la Junta de Gobierno el siguiente **INFORME**:

I. INTRODUCCIÓN

El 20 de diciembre de 2008, la Junta de Calidad Ambiental en cumplimiento con lo requerido en la Ley Federal de Aire Limpio Enmendada (CAAA, en inglés), el Reglamento para el Control de la Contaminación Atmosférica (RCCA) y la Ley Número 170 de 12 de agosto de 1988, según enmendada, conocida como la Ley de Procedimiento Administrativo Uniforme del Estado Libre Asociado de Puerto Rico; la Junta de Calidad Ambiental publicó un aviso ambiental en los periódicos de circulación general *El Vocero y Puerto Rico Daily Sun*. Dicho aviso ambiental expresaba que la Junta de Calidad Ambiental tiene el propósito de solicitar la designación del Municipio de Guaynabo[1] como Área de Logro para la Norma Nacional de Calidad de Aire Ambiental (NNCAA) de 24 horas para materia particulada con un diámetro menor de 10 micrones (PM_{10}). Además, este aviso ambiental informaba al público en general sobre la disponibilidad de los documentos relacionados a la solicitud de redesignación del Municipio de Guaynabo y las enmiendas a las Reglas 102 y 423 del RCCA. El aviso ambiental fijaba la fecha y la hora para la celebración de la vista pública para que la ciudadanía, las partes interesadas o afectadas participaran en la misma.

---

[1] El municipio de Guaynabo es un área clasificada como área de no logro moderada para la Norma Nacional de Calidad de Aire Ambiental (NAAQS, en inglés) de 24 horas para materia particulada con un diámetro menor de 10 micrones (PM_{10}). El 31 de octubre de 1995, la Agencia de Protección Ambiental de Estados Unidos de América (EPA, en inglés) aprobó el Plan de Implementación Estatal (SIP, en inglés) que incluyó las estrategias de control en la que se demuestra que el municipio de Guaynabo cumplió con el NAAQS de PM_{10} para la fecha de cumplimiento requerido del 31 de diciembre de 1994.

Las enmiendas consisten en lo siguiente:

1. Se enmienda y se sustituye la definición de Área de No-Logro de PM_{10} de Guaynabo de la Regla 102 Definiciones del Reglamento para el Control de la Contaminación Atmosférica para que lea como sigue:

Regla 102 Definiciones

Área de Mantenimiento de PM_{10} de Guaynabo

Todo el Municipio de Guaynabo según lo establece el Plan de Implantación Estatal para PM_{10} de Puerto Rico y la Ley 81 del 30 de agosto de 1991, según enmendada, conocida como: Ley de Municipios Autónomos.

2. Se enmienda y se sustituye la Regla 423 Limitaciones para el Área de No Logro de PM_{10} de Guaynabo del Reglamento para el Control de la Contaminación Atmosférica para reflejar la redesignación del área a un área de mantenimiento y lea como sigue:

REGLA 423 LIMITACIONES PARA EL ÁREA DE MANTENIMIENTO DE PM_{10} DE GUAYNABO

A) Cualquier instalación dentro de los límites de cualquier Área de Mantenimiento de PM_{10} o que tenga un impacto significativo sobre la calidad del aire un Área de Mantenimiento de PM_{10} deberá, además de cumplir con todas las prohibiciones establecidas en las Reglas 401 hasta la 422, cumplir con los límites impuestos por la Tecnología de Control Razonablemente Disponible (TCRD) especificados en esta sub-sección.

(1) Para cualquier instalación para el manejo o el procesamiento de granos, ninguna persona causará o permitirá que cualesquiera materiales se reciban, manejen, transporten, procesen, muelan o almacenen sin antes tomar las siguientes precauciones para impedir que materia particulada se vaya al aire:

(a) emplear procedimientos adecuados de limpieza a través de toda la instalación, incluyendo, aunque sin limitarse a, la pronta remoción de polvo de molienda acumulado mediante una técnica que evite que este material se escape a la atmósfera;

(b) cubrir todos los camiones en todo momento en que están en movimiento;

(c) mantener todos los sistemas de ventilación y aparatos de recolección de polvo;

(d) pavimentar todas las áreas sobre las cuales viajarán vehículos y mantener dichas áreas de acuerdo con un programa de limpieza aprobado por la Junta;

(e) prohibir la carga y descarga de barcos o barcazas mediante brazo mecánico de quijada (*clam*, en inglés);

(f) Cargar o descargar barcos o barcazas mediante conductos telescópicos neumáticos o mecánicos dentro de un área completamente encerrada salvo por el espacio necesario para introducir el conducto o al ventilar el aire desplazado con un sistema de ventilación que exhale hacia un aparato de recolección con filtro de tela, con una eficiencia mínima de filtración de 99.5%.

(g) cargar o descargar camiones en cobertizos o edificios completamente encerrados con un sistema de ventilación que exhale hacia un aparato de recolección con filtro de tela, con una eficiencia mínima de filtración de 99.5%.

(h) limpiar, separar, manejar, transportar, transferir y moler el grano en cobertizos o edificios completamente encerrados que cumplan con los requisitos del Método de Referencia APA 30 (Propuesto) para enclaustramiento total y ventilar el lugar encerrado hacia un aparato de recolección con filtro de tela, con una eficiencia mínima de filtración de 99.5%.

(i) Se deben poner a prueba todos los aparatos de recolección con filtro de tela mediante:

(1) *EPA Reference Method 5 - Determination of Particulate Emissions from Stationary Sources* (40 CFR Parte 60) o;

(2) *EPA Reference Method 17 - Determination of Particulate Emissions from Stationary Sources (In-Stack Filtration Method)* (40 CFR Parte 40) o;

(3) *EPA Reference Method 201- Determination of PM10 Emissions* (40 CFR Parte 51) o;

(4) *EPA Reference Method 201A - Determination of PM 10 Emissions (Constant Sampling Rate Procedure)* (40 CFR Parte 51) o;

(5) *EPA Reference Method 202- Determination of Condensable Particulate Emissions from Stationary Sources* (40 CFR Parte 51).

(j) Se determinará la opacidad de las chimeneas mediante:

(1) *EPA Reference Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources.*

(k) Se determinará la opacidad de las emisiones fugitivas mediante:

(1) *EPA Reference Method 22 - Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares* (40 CFR Parte 60).

(l) Cada zona del aparato de recolección con filtro de tela debe estar equipada con un monitor continuo que mida la caída de presión a través de la zona. Durante la prueba de funcionamiento, las lecturas de caída de presión deberán medirse. El permiso de operación deberá especificar un régimen de

operación para la caída de presión para asegurar la operación óptima de la unidad.

(m) Si la caída de presión a través de cualquier zona se desvía del régimen de caída de presión permitido, la fuente deberá notificar estas desviaciones a la Junta de Calidad Ambiental. La fuente someterá informes trimestrales en que identifique todos los períodos de desviación durante el trimestre y una explicación de las medidas correctivas tomadas. Los informes deberán entregarse 30 días naturales después del final de cada trimestre.

(n) Se mantendrán expedientes tanto para los parámetros operacionales como para los planes de mantenimiento (por ejemplo, la lectura de la caída de presión se anotará una vez por cada turno o con más frecuencia de ser necesario). Una vez al día, se realizará una inspección ocular alrededor de cada aparato de recolección para determinar sus condiciones actuales. Se mantendrá una bitácora de todos los hallazgos y con respecto a las acciones tomadas para resolver los problemas. Las fuentes deben mantener inventarios adecuados de piezas de reemplazo. Los expedientes deben mantenerse en el lugar por al menos cinco años y estarán disponibles tanto para los inspectores de la APA como para los de la JCA.

(2) Para cada instalación de cantera, ninguna persona causará o permitirá que los materiales se manejen, transporten, trituren, puedan cernir o almacenen sin antes tomar las siguientes precauciones para impedir que materia particulada se vaya al aire. Estas precauciones incluirán, aunque no se limitarán a:

(a) el uso, donde sea posible, de agua o químicos apropiados para controlar el polvo durante las operaciones de cantera;

(b) la aplicación, donde sea posible, de agua o químicos adecuados sobre carreteras sin pavimentar, materiales, montones y otras superficies que pueden provocar que el polvo se vaya al aire.

(c) El cumplimiento con las restricciones de opacidad debe determinarse mediante el EPA *Reference Method* 9 ó 22.

(d) La fuente debe mantener bitácoras que muestren qué reparaciones se le hicieron al sistema de supresión de polvo. La fuente también deberá mantener un inventario adecuado de piezas de reemplazo.

(3) Para cualquier planta de energía eléctrica con una capacidad mayor de 25 megavatios localizada dentro de los límites del o que tenga un impacto significativo en los niveles ambientales del Área de Mantenimiento de PM_{10} de Guaynabo, ninguna persona causará o permitirá la quema de aceite combustible residual con un contenido de azufre en exceso de 1.5% por peso como un precursor de PM_{10}. Sin embargo, la Junta podrá requerir un contenido menor de azufre en el combustible si se demuestra una excedencia a cualquier disposición aplicable de este reglamento que afecte el logro del Estándar Nacional de Calidad de Aire (*NAAQS*, por sus siglas en inglés) para PM_{10} en el área clasificada como de mantenimiento. Este límite de emisión reemplaza el límite dispuesto en la Regla 406 de este Reglamento.

(4) Para cualquier refinería de petróleo localizada dentro de los límites del o que tenga un impacto significativo en los niveles ambientales del Área de Mantenimiento de PM_{10} de Guaynabo, ninguna persona causará o permitirá la quema de aceite combustible residual con un contenido de azufre en exceso de 1.0% por peso como un precursor de PM_{10}. Sin embargo, la Junta podrá requerir un contenido menor de azufre en el combustible si se demuestra una excedencia a cualquier disposición aplicable de este reglamento que afecte el logro del Estándar Nacional de Calidad de Aire (*NAAQS*, por sus siglas en inglés) para PM_{10} en el área clasificada como de mantenimiento. Este límite de emisión reemplaza el límite dispuesto en la Regla 406 de este Reglamento.

(5) Para cualquier instalación que utilice un procedimiento de sòplado de asfalto localizada dentro de los límites del o que tenga un impacto significativo en los niveles ambientales del Área de Mantenimiento de PM_{10} de Guaynabo, ninguna persona causará o permitirá la emisión de materia particulada a menos que dichas emisiones sean capturadas y controladas mediante un equipo de control que logre un 90% de eficiencia de remoción.

(i) El cumplimiento con la eficiencia de remoción quedará demostrado mediante los Métodos 5, 17, 201, 201A o 202 (40 CFR Partes 51 y 60) en la entrada y la salida del equipo de control. El cumplimiento con las normas de opacidad se determinará mediante el EPA *Reference Method* 9 (40 CFR Parte 60).

(ii) Si se instala un post-quemador, la temperatura en la zona de combustión se deberá supervisar continuamente y registrarse. El equipo de monitoria deberá tener una exactitud de ± 10° C a través de su régimen. Si se instala un limpiador de gases, la caída en presión a través del limpiador de gases se supervisará continuamente y se registrará. Se establecerá el régimen óptimo de presión durante la prueba de funcionamiento y se incorporará al permiso de operación.

(B) El dueño u operador de cualquier fuente sujeta a las limitaciones del párrafo A deberá:

(1) Someter, en la fecha en que lo requiera la JCA, y obtener aprobación inmediata del plan de cumplimiento en el que el dueño u operador de tal fuente demuestre que ha cumplido con todos los límites aplicables incluidos en el Plan de Implantación Estatal y provee para la implantación de los requisitos del TCRD. El plan de cumplimiento debe estar por escrito e incluir:

(a) el nombre del individuo responsable de las actividades de demostración de cumplimiento en la fuente;

(b) una descripción del sistema de control de contaminación atmosférica, el equipo de control específico, las chimeneas, respiraderos, materia prima, combustibles y demás renglones o parámetros que vayan a ponerse a prueba, supervisarse, muestrearse, analizarse o medirse para determinar que la fuente está cumpliendo continuamente;

(c) una descripción de los métodos de prueba específicos, las técnicas de supervisión, los métodos de muestreo y análisis, y las medidas que se utilizarán para demostrar cumplimiento continuo;

(d) una descripción de otros expedientes pertinentes o informes razonablemente necesarios para demostrar el cumplimiento continuo;

(e) la frecuencia de las pruebas, la supervisión, el muestreo, el análisis y las medidas necesarias para demostrar el cumplimiento continuo.

(2) La Junta podrá revisar y aprobar el plan dentro de un período de revisión de 30 días, o enmendar el plan si fuese necesario para asegurar que el cumplimiento ha sido demostrado adecuadamente.

(3) Cuando sea necesario alterar físicamente la fuente para lograr el cumplimiento, la construcción debe comenzar treinta días calendario luego de entrar en vigencia este Reglamento y completarse en un periodo no mayor de doce meses. El plan de cumplimiento debe incluir este itinerario así como una explicación detallada de la alteración física.

(4) Implantar el plan de cumplimiento y demostrar que se ha logrado el cumplimiento final con los límites aplicables del Plan de Implantación Estatal. Un funcionario responsable certificará dicho cumplimiento e indicará, a base de información y creencia formada luego de una investigación razonable, que la información certificada es verdadera y exacta.

(C) Memorandos de Entendimiento Interagencial

Cualquier convenio o Memorandos de Entendimiento Interagencial logrado y firmado entre la Junta de Calidad Ambiental y cualquier otra agencia estatal, autoridad o entidad municipal que establezca las medidas o estrategias de control definidas para controlar y reducir cualquier emisión de PM_{10} y/o el precursor de PM_{10} será fiscalizable estatal y federalmente por la Junta y la APA respectivamente, se hará formar parte de este reglamento y se hará formar parte del permiso de operación de la fuente afectada.

(D) Medidas de Contingencia

Las siguientes medidas de contingencia serán fiscalizadas bajo este Reglamento sino se alcanza cumplimiento con los estándares de calidad de aire de PM_{10} en el Municipio de Guaynabo para el 31 de diciembre de 1994:

(1) El Departamento de Transportación recogerá datos sobre el contenido de sedimento y la cantidad de polvo en carreteras del Municipio de Guaynabo utilizando procedimientos de APA en el AP-42 (documento técnico de APA) para un mejor estimado de las emisiones de PM_{10}.

(2) El Municipio de Guaynabo proveerá vegetación, estabilización química o cualquier otra disminución de terreno erosivo.

(3) Toda embarcación que opere en la Bahía de San Juan, definida como las aguas navegables al sur de la línea imaginaria que conecta a Punta del Morro y la Isla de Cabras, deberá utilizar el combustible diesel con un contenido de azufre menor de 0.05% por peso.

(4) No se permite la emisión visible de ninguna embarcación excepto lo que dispone la Regla 403 de este Reglamento.

(5) La Autoridad de los Puertos deberá implantar un programa de limpieza de calles o cualquier otro programa que impida que el polvo sea depositado en las superficies asfaltadas bajo su jurisdicción.

(6) El Municipio de San Juan deberá revisar los planes de control de incendios y mitigación de polvo en su relleno sanitario municipal de forma que se establezcan estrategias adicionales de control de contaminación.

La vista pública se celebró el 23 de enero de 2009, en el Salón Vistas Públicas de la Junta de Calidad Ambiental Cuarto Piso Edificio de Agencias Ambientales, Río Piedras, Puerto Rico a partir de las 9:30 de la mañana según lo disponía el aviso público. La vista pública estuvo presidida por los suscribientes.

Luego de considerar, evaluar y estudiar los documentos relacionados con el Plan de Mantenimiento para el Municipio de Guaynabo, las enmiendas a las Reglas 102 y 423 del RCCA y la totalidad del expediente del caso exponemos lo siguiente:

II. DESCRIPCIÓN DE LA ACCIÓN PROPUESTA

El Municipio de Guaynabo es un área clasificada como Área de No Logro moderada para la NNCAA de 24 horas para PM_{10}. El 31 de octubre de 1995, la Agencia de Protección Ambiental de Estados Unidos de América (EPA, en inglés) aprobó el Plan de Implementación Estatal (PIE) que incluyó las estrategias de control en la que se demuestra que el Municipio de Guaynabo cumplió con el NNCAA de PM_{10} para la fecha de cumplimiento requerido del 31 de diciembre de 1994.

Basado en los datos obtenidos de calidad de aire del Municipio de Guaynabo no se ha registrado ninguna violación del periodo de 24 horas para el NNCAA de PM_{10}, luego de la aprobación del PIE. Por lo tanto, el Estado Libre Asociado de Puerto Rico preparó un plan limitado de mantenimiento para la redesignación del municipio de Guaynabo como Área de Logro de NNCAA de 24 horas para PM_{10}. El plan es una petición formal a la EPA para la redesignación del Municipio de Guaynabo de un Área de No Logro moderada a un Área de Logro para NNCAA de 24 horas para PM_{10}.

La petición se basa en los requisitos establecidos en el memorando titulado *Limited Maintenance Plan for Moderate PM_{10} Nonattainment Areas* (LMP, en

inglés) publicado por la EPA el 9 de agosto de 2001. Esta política es un proceso simple que establece los criterios y pasos necesarios para la petición de redesignación y plan de mantenimiento para áreas moderadas de no logro de PM_{10} como el Municipio de Guaynabo, bajo la sección 107 del CAAA.

La información que se incluye en este plan demuestra que el Municipio de Guaynabo cualifica y cumple con los requisitos establecidos en el LMP. Como parte de esta demostración de logro, este plan de mantenimiento asegura el cumplimiento con el NNCAA de 24 horas para PM_{10} del Municipio de Guaynabo por los próximos diez años luego de la redesignación.

Con esta demostración de cumplimiento con el NNCAA de 24 horas para PM_{10} se incluyen las enmiendas a las Reglas 102 y 423 del RCCA para establecer el Plan de Mantenimiento para el Municipio de Guaynabo. Las Reglas 102 y 423 del RCCA se sustituirán por lo siguiente:

Regla 102 Definiciones

Área de Mantenimiento de PM_{10} de Guaynabo

Todo el Municipio de Guaynabo según lo establece el Plan de Implantación Estatal para PM_{10} de Puerto Rico y la Ley 81 del 30 de agosto de 1991, según enmendada, conocida como: Ley de Municipios Autónomos.

REGLA 423 LIMITACIONES PARA EL ÁREA DE MANTENIMIENTO DE PM_{10} DE GUAYNABO

A) Cualquier instalación dentro de los límites de cualquier Área de Mantenimiento de PM_{10} o que tenga un impacto significativo sobre la calidad del aire un Área de Mantenimiento de PM10 deberá, además de cumplir con todas las prohibiciones establecidas en las Reglas 401 hasta la 422, cumplir con los límites impuestos por la Tecnología de Control Razonablemente Disponible (TCRD) especificados en esta sub-sección.

(1) Para cualquier instalación para el manejo o el procesamiento de granos, ninguna persona causará o permitirá que cualesquiera materiales se reciban, manejen, transporten, procesen, muelan o almacenen sin antes tomar las siguientes precauciones para impedir que materia particulada se vaya al aire:

(a) emplear procedimientos adecuados de limpieza a través de toda la instalación, incluyendo, aunque sin limitarse a, la pronta remoción de polvo de molienda acumulado mediante una técnica que evite que este material se escape a la atmósfera;

(b) cubrir todos los camiones en todo momento en que están en movimiento;

(c) mantener todos los sistemas de ventilación y aparatos de recolección de polvo;

(d) pavimentar todas las áreas sobre las cuales viajarán vehículos y mantener dichas áreas de acuerdo con un programa de limpieza aprobado por la Junta;

(e) prohibir la carga y descarga de barcos o barcazas mediante brazo mecánico de quijada (*clam*, en inglés);

(f) Cargar o descargar barcos o barcazas mediante conductos telescópicos neumáticos o mecánicos dentro de un área completamente encerrada salvo por el espacio necesario para introducir el conducto o al ventilar el aire desplazado con un sistema de ventilación que exhale hacia un aparato de recolección con filtro de tela, con una eficiencia mínima de filtración de 99.5%.

(g) cargar o descargar camiones en cobertizos o edificios completamente encerrados con un sistema de ventilación que exhale hacia un aparato de recolección con filtro de tela, con una eficiencia mínima de filtración de 99.5%.

(h) limpiar, separar, manejar, transportar, transferir y moler el grano en cobertizos o edificios completamente encerrados que cumplan con los requisitos del Método de Referencia APA 30 (Propuesto) para enclaustramiento total y ventilar el lugar encerrado hacia un aparato de recolección con filtro de tela, con una eficiencia mínima de filtración de 99.5%.

(i) Se deben poner a prueba todos los aparatos de recolección con filtro de tela mediante:

(1) *EPA Reference Method 5 - Determination of Particulate Emissions from Stationary Sources* (40 CFR Parte 60) o;

(2) *EPA Reference Method 17 - Determination of Particulate Emissions from Stationary Sources (In-Stack Filtration Method)* (40 CFR Parte 40) o;

(3) *EPA Reference Method 201- Determination of PM10 Emissions* (40 CFR Parte 51) o;

(4) *EPA Reference Method 201A - Determination of PM 10 Emissions (Constant Sampling Rate Procedure)* (40 CFR Parte 51) o;

(5) *EPA Reference Method 202- Determination of Condensable Particulate Emissions from Stationary Sources* (40 CFR Parte 51).

(j) Se determinará la opacidad de las chimeneas mediante:

(1) *EPA Reference Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources.*

(k) Se determinará la opacidad de las emisiones fugitivas mediante:

(1) *EPA Reference Method 22 - Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares* (40 CFR Parte 60).

(l) Cada zona del aparato de recolección con filtro de tela debe estar equipada con un monitor continuo que mida la caída de presión a través de la zona. Durante la prueba de funcionamiento, las lecturas de caída de presión deberán medirse. El permiso de operación deberá especificar un régimen de operación para la caída de presión para asegurar la operación óptima de la unidad.

(m) Si la caída de presión a través de cualquier zona se desvía del régimen de caída de presión permitido, la fuente deberá notificar estas desviaciones a la Junta de Calidad Ambiental. La fuente someterá informes trimestrales en que identifique todos los períodos de desviación durante el trimestre y una explicación de las medidas correctivas tomadas. Los informes deberán entregarse 30 días naturales después del final de cada trimestre.

(n) Se mantendrán expedientes tanto para los parámetros operacionales como para los planes de mantenimiento (por ejemplo, la lectura de la caída de presión se anotará una vez por cada turno o con más frecuencia de ser necesario). Una vez al día, se realizará una inspección ocular alrededor de cada aparato de recolección para determinar sus condiciones actuales. Se mantendrá una bitácora de todos los hallazgos y con respecto a las acciones tomadas para resolver los problemas. Las fuentes deben mantener inventarios adecuados de piezas de reemplazo. Los expedientes deben mantenerse en el lugar por al menos cinco años y estarán disponibles tanto para los inspectores de la APA como para los de la JCA.

(2) Para cada instalación de cantera, ninguna persona causará o permitirá que los materiales se manejen, transporten, trituren, puedan cernir o almacenen sin antes tomar las siguientes precauciones para impedir que materia particulada se vaya al aire. Estas precauciones incluirán, aunque no se limitarán a:

(a) el uso, donde sea posible, de agua o químicos apropiados para controlar el polvo durante las operaciones de cantera;

(b) la aplicación, donde sea posible, de agua o químicos adecuados sobre carreteras sin pavimentar, materiales, montones y otras superficies que pueden provocar que el polvo se vaya al aire.

(c) El cumplimiento con las restricciones de opacidad debe determinarse mediante el EPA *Reference Method* 9 ó 22.

(d) La fuente debe mantener bitácoras que muestren qué reparaciones se le hicieron al sistema de supresión de polvo. La fuente también deberá mantener un inventario adecuado de piezas de reemplazo.

(3) Para cualquier planta de energía eléctrica con una capacidad mayor de 25 megavatios localizada dentro de los límites del o que tenga un impacto significativo en los niveles ambientales del Área de Mantenimiento de PM_{10} de Guaynabo, ninguna persona causará o

permitirá la quema de aceite combustible residual con un contenido de azufre en exceso de 1.5% por peso como un precursor de PM_{10}. Sin embargo, la Junta podrá requerir un contenido menor de azufre en el combustible si se demuestra una excedencia a cualquier disposición aplicable de este reglamento que afecte el logro del Estándar Nacional de Calidad de Aire (*NAAQS*, por sus siglas en inglés) para PM_{10} en el área clasificada como de mantenimiento. Este límite de emisión reemplaza el límite dispuesto en la Regla 406 de este Reglamento.

(4) Para cualquier refinería de petróleo localizada dentro de los límites del o que tenga un impacto significativo en los niveles ambientales del Área de Mantenimiento de PM_{10} de Guaynabo, ninguna persona causará o permitirá la quema de aceite combustible residual con un contenido de azufre en exceso de 1.0% por peso como un precursor de PM_{10}. Sin embargo, la Junta podrá requerir un contenido menor de azufre en el combustible si se demuestra una excedencia a cualquier disposición aplicable de este reglamento que afecte el logro del Estándar Nacional de Calidad de Aire (*NAAQS*, por sus siglas en inglés) para PM_{10} en el área clasificada como de mantenimiento. Este límite de emisión reemplaza el límite dispuesto en la Regla 406 de este Reglamento.

(5) Para cualquier instalación que utilice un procedimiento de soplado de asfalto localizada dentro de los límites del o que tenga un impacto significativo en los niveles ambientales del Área de Mantenimiento de PM_{10} de Guaynabo, ninguna persona causará o permitirá la emisión de materia particulada a menos que dichas emisiones sean capturadas y controladas mediante un equipo de control que logre un 90% de eficiencia de remoción.

(i) El cumplimiento con la eficiencia de remoción quedará demostrado mediante los Métodos 5, 17, 201, 201A o 202 (40 CFR Partes 51 y 60) en la entrada y la salida del equipo de control. El cumplimiento con las normas de opacidad se determinará mediante el EPA *Reference Method* 9 (40 CFR Parte 60).

(ii) Si se instala un post-quemador, la temperatura en la zona de combustión se deberá supervisar continuamente y registrarse. El equipo de monitoria deberá tener una exactitud de ± 10° C a través de su régimen. Si se instala un limpiador de gases, la caída en presión a través del limpiador de gases se supervisará continuamente y se registrará. Se establecerá el régimen óptimo de presión durante la prueba de funcionamiento y se incorporará al permiso de operación.

(B) El dueño u operador de cualquier fuente sujeta a las limitaciones del párrafo A deberá:

(1) Someter, en la fecha en que lo requiera la JCA, y obtener aprobación inmediata del plan de cumplimiento en el que el dueño u operador de tal fuente demuestre que ha cumplido con todos los límites aplicables incluidos en el Plan de Implantación Estatal y provee para la implantación de los requisitos del TCRD. El plan de cumplimiento debe estar por escrito e incluir:

(a) el nombre del individuo responsable de las actividades de demostración de cumplimiento en la fuente;

(b) una descripción del sistema de control de contaminación atmosférica, el equipo de control específico, las chimeneas, respiraderos, materia prima, combustibles y demás renglones o parámetros que vayan a ponerse a prueba, supervisarse, muestrearse, analizarse o medirse para determinar que la fuente está cumpliendo continuamente;

(c) una descripción de los métodos de prueba específicos, las técnicas de supervisión, los métodos de muestreo y análisis, y las medidas que se utilizarán para demostrar cumplimiento continuo;
(d) una descripción de otros expedientes pertinentes o informes razonablemente necesarios para demostrar el cumplimiento continuo;

(e) la frecuencia de las pruebas, la supervisión, el muestreo, el análisis y las medidas necesarias para demostrar el cumplimiento continuo.

(2) La Junta podrá revisar y aprobar el plan dentro de un período de revisión de 30 días, o enmendar el plan si fuese necesario para asegurar que el cumplimiento ha sido demostrado adecuadamente.

(3) Cuando sea necesario alterar físicamente la fuente para lograr el cumplimiento, la construcción debe comenzar treinta días calendario luego de entrar en vigencia este Reglamento y completarse en un periodo no mayor de doce meses. El plan de cumplimiento debe incluir este itinerario así como una explicación detallada de la alteración física.

(4) Implantar el plan de cumplimiento y demostrar que se ha logrado el cumplimiento final con los límites aplicables del Plan de Implantación Estatal. Un funcionario responsable certificará dicho cumplimiento e indicará, a base de información y creencia formada luego de una investigación razonable, que la información certificada es verdadera y exacta.

(C) Memorandos de Entendimiento Interagencial

Cualquier convenio o Memorandos de Entendimiento Interagencial logrado y firmado entre la Junta de Calidad Ambiental y cualquier otra agencia estatal, autoridad o entidad municipal que establezca las medidas o estrategias de control definidas para controlar y reducir cualquier emisión de PM_{10} y/o el precursor de PM_{10} será fiscalizable estatal y federalmente por la Junta y la APA respectivamente, se hará formar parte de este reglamento y se hará formar parte del permiso de operación de la fuente afectada.

(D) Medidas de Contingencia

Las siguientes medidas de contingencia serán fiscalizadas bajo este Reglamento sino se alcanza cumplimiento con los estándares de calidad de aire de PM_{10} en el Municipio de Guaynabo para el 31 de diciembre de 1994:

(1) El Departamento de Transportación recogerá datos sobre el contenido de sedimento y la cantidad de polvo en carreteras del Municipio de Guaynabo utilizando procedimientos de APA en el AP-42 (documento técnico de APA) para un mejor estimado de las emisiones de PM_{10}.

(3) Toda embarcación que opere en la Bahía de San Juan, definida como las aguas navegables al sur de la línea imaginaria que conecta a Punta del Morro y la Isla de Cabras, deberá utilizar el combustible diesel con un contenido de azufre menor de 0.05% por peso.

(4) No se permite la emisión visible de ninguna embarcación excepto lo que dispone la Regla 403 de este Reglamento.

(5) La Autoridad de los Puertos deberá implantar un programa de limpieza de calles o cualquier otro programa que impida que el polvo sea depositado en las superficies asfaltadas bajo su jurisdicción.

(6) El Municipio de San Juan deberá revisar los planes de control de incendios y mitigación de polvo en su relleno sanitario municipal de forma que se establezcan estrategias adicionales de control de contaminación.

III. TESTIMONIOS VERTIDOS EN LAS VISTAS PÚBLICAS

Durante las vistas públicas participó el Sr. Faustino Válcalcer Mulero, representante del Municipio de Guaynabo. El Sr. Válcalcer, indicó que estaría revisando los documentos que estuvieron disponibles durante la vista pública y que al momento no tenía ningún comentario. El Sr. Válcalcer no solicitó tiempo adicional para someter comentarios. No hubo más comentarios por parte del público.

IV. ESCRITOS PRESENTADOS

El Área de Calidad de Aire recibió una carta de la EPA con fecha del 20 de enero de 2009 en la que se incluyen comentarios a los documentos que estuvieron disponibles durante el proceso de vista pública. Este escrito se incluye como Anejo I.

V. ANÁLISIS DEL ESCRITO PRESENTADO POR LA EPA

La División de Validación de Datos y Modelaje Matemático de la Junta de Calidad Ambiental presentó las contestaciones a los comentarios presentados por la EPA y se incluyen como Anejo II.

VI. RECOMENDACIÓN

Luego de evaluar el expediente administrativo recomendamos lo siguiente:

- Se apruebe el Plan Limitado de Mantenimiento de la Norma Nacional Ambiental de Calidad de Aire de Materia Particulada (PM_{10}) de 24 horas

para el municipio de Guaynabo y las enmiendas a la Reglas 102 y 423 del RCCA, siempre y cuando se modifique el documento final para incluir los cambios recomendados por la División de Validación de Datos y Modelaje Matemático de la Junta de Calidad Ambiental.

- Se envíe la petición formal a la EPA solicitando que se reclasifique el municipio de Guaynabo como área de logro de NAAQS para PM_{10} de 24 horas y las enmiendas a las enmiendas de las Reglas 102 y 423 del RCCA.
- Se envíen las enmiendas de las Reglas 102 y 423 del RCCA al Departamento de Estado de Puerto Rico.

DADA en San Juan, Puerto Rico, a de 25 de febrero de 2009.

ING. ANGEL O. BERRÍOS SILVESTRE
MIEMBRO ASOCIADO

LUCIA FERNÁNDEZ FONTÁN
JEFA DE LA DIVISIÓN DE VALIDACIÓN
DE DATOS Y MODELAJE MATEMÁTICO

EXHIBIT E

GOBIERNO DE PUERTO RICO

Oficina Estatal de Conservación Histórica

Friday, December 11, 2020

Lauren B. Poche, M.A.
Architectural Historian, Historic Preservation Manager
Horne
10000 Perkins Rowe Suite 610 Bldg. G
Baton Rouge, LA 70810

SHPO: 12-17-19-01 NORDENBLICK LLC, CONDOMINIO VISTA AL NORTE, CAMINO PIEDRAS BLANCAS, SECTOR PIEDRAS BLANCAS, GUAYNABO, 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.

Our records support your finding of **no historic properties affected** within the project's area of potential effects.

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/MDT/MC

SHPO OECH
OFICINA ESTATAL DE CONSERVACIÓN HISTÓRICA
OFICINA DEL GOBERNADOR
STATE HISTORIC PRESERVATION OFFICE
OFFICE OF THE GOVERNOR

GOBIERNO DE PUERTO RICO
Oficina Estatal de Conservación Histórica
State Historic Preservation Office

Friday, January 17, 2020

Segundo Cardona, FAIA
SCF Arquitectos
13 Calle 2 Suite 301
Metro Office Park
Guaynabo, Puerto Rico 00968-1730

SHPO: 12-17-19-01 PROYECTO VISTA AL NORTE, CAMINO PIEDRAS BLANCAS, BO. PUEBLO, GUAYNABO, PUERTO RICO / CDBG-DR

Dear architect Cardona,

As part of our responsibilities under the National Historic Preservation Act (NHPA), the Puerto Rico State Historic Preservation Office (SHPO) advises and assists, as appropriate, Federal and State agencies and municipalities in carrying out their historic preservation responsibilities under section 106 of the NHPA and its implementing regulation 36 CFR Part 800: *Protection of Historic Properties*. Section 106 of the NHPA requires Federal agencies and other responsible entities to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The SHPO participates in a four step section 106 review process, consisting of: 1) Initiating the process; 2) Identifying historic properties; 3) Assessing adverse effects; and 4) Resolving adverse effects.

We have examined the documentation provided regarding the above referenced project. The following additional information is necessary to initiate the review:

1. A letter from the Federal agency directed to the SHPO authorizing the applicant and/or its consultant(s), to initiate consultation with our Office in accordance with 36 CFR Part 800.2(c)(4). Only those non-federal entities authorized by federal law to assume the responsibilities of Section 106 are relieved of this requirement.

2. Determine and document the proposed boundaries of the project's Area of Potential Effect (APE) - geographic area where the project could have a direct or indirect effect, on historic properties.

Please include the SHPO project number in any future correspondence. If the requested documentation is not available, the agency official must explain why

Cuartel de Ballajá (Tercer Piso),
Calle Norzagaray, Esquina Beneficencia, Viejo San Juan, P.R. 00901

PO Box 9023935, San Juan, P.R. 00902-3935
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www.oech.pr.gov

SHPO
OECH
OFICINA ESTATAL DE CONSERVACIÓN HISTÓRICA
OFICINA DEL GOBERNADOR
STATE HISTORIC PRESERVATION OFFICE
OFFICE OF THE GOVERNOR

SHPO: 12-17-19-01 PROYECTO VISTA AL NORTE, CAMINO PIEDRAS BLANCAS, BO. PUEBLO, GUAYNABO, PUERTO RICO / CDBG-DR

it has not been submitted and when it can reasonably be expected to be provided to the SHPO.

The SHPO will have 30 days to respond after receiving an adequately documented finding or determination made by the agency official as per 36 CFR, Parts 800.3(c)(4), 800.4(d)(1), 800.5(c) and 800.11. However, additional information may be required after initiating the section 106 process.

If you have any questions, please contact our Office at (787) 721-3737.

Sincerely,

Carlos A. Rubio-Cancela
State Historic Preservation Officer

CARC/GMO/MC

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GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
Case ID: TC20-030	**Project Location** (Street Address)**:** Camino Piedras Blancas, Sector Piedras Blancas
City: Guaynabo	**Project Coordinates:** 18.35129616, -66.10916943

Applicant Name: Nordenblick, LLC.	
TPID (Número de Catástro)**:** 114-063-033-10 + 114-063-033-11	
Type of Undertaking: ☒ New Construction ☐ Substantial Repair	
Vacant Lot: YES	**Construction Date** (if applicable)**:**
Property Size (acres)**:** 1.6	**FEMA / Local Funded Demolition Removal**: NO

SOI Qualified-Archaeologist: Aida Belén Rivera-Ruiz
Date Reviewed: 13 October 2020

SCOPE OF WORK

The applicant 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. It is a Section 106 undertaking due to the use of federal dollars. Activities related to this project will be done in a manner that does not meet Stipulations II.A.1 and/or II.B.9 of the Addendum to the Programmatic Agreement.

DEFINE THE AREA OF POTENTIAL EFFECTS *(Describe the location and extent [size and depth] of all potential ground disturbing activities)***:**

The proposed activity is the construction of a residential building, with an adjacent parking area. Work will be carried out in compliance with Section 106 NHPA Effect Determination. The proposed project area is located at Sector Piedras Blancas, Piedras Blancas St., a municipal road in the Southernmost end of Barrio Pueblo, Municipality of Guaynabo.

The proposed project is a thirteen-story building, with 102 apartments (52 one-bedroom and 50 two-bedroom units), a meeting room, gym, administrative office, reception area, three elevators, electrical and mechanical rooms, trash rooms for every floor, two stairs and 174 parking spaces (including 13 handicapped and visitor spaces).

The APE includes a full 1.15-acre parcel (114-063-033-10) and a 0.46-acre portion of adjacent parcel (114-063-033-11), that is to be segregated as part of the undertaking, for a total 1.6-acre site. The APE is constrained to the North and East by the composite parcel margins, and to the South and West by the access road, Camino Piedras Blancas, also known as Calle Padre Damián.

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
Case ID: TC20-030	**Project Location** (Street Address): Camino Piedras Blancas, Sector Piedras Blancas
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Presence of Known Archaeological Concerns:	YES	NO
Known Archeological Resources Located within one-mile radius of the proposed project area.	☒	☐
Proposed project area is located within an NRHP-Listed or Eligible Historic District.	☐	☒
Proposed project area is located within an NRHP-Listed or Eligible Archaeology District.	☐	☒
Proposed project area is located within a Traditional Urban Center.	☐	☒
District OR Traditional Urban Center Name (if applicable):		
Archaeological Site Potential Factors:	YES	NO
Activities Substantially Conform to the Original Footprint of the Building or Structure.	☐	☒
Proposed project area is located on Significantly Disturbed Soils **(Describe nature and extent of disturbance below.)**	☐	☒
Proposed project area is located on Well-draining Soil Series	☒	☐
Slope within the proposed project area is in excess of 30 degrees (57.7%)	☐	☒
Description of Soil Disturbance *(if applicable)*:		

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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NATURAL SETTING *(Discuss the natural setting of the proposed project including location, landform, slope, distance to water, soils, and vegetation.)*:

The proposed project area is in the Municipality of Guaynabo, on the northern coast of the island. The diverse territory is split between the coastal plain, southern hills and the karst region.

The hydrographic system includes the Bayamón and Guaynabo rivers and several brooks and creeks. The APE is 0.29 miles East of Río Guaynabo.

The APE sits on urban soil classified in the 1978 Soil Survey of San Juan as Río Piedras clay (RpE2). It is a steep, well-drained soil that has lost most of its original surface layer to erosion. Twenty to forty percent irregular slopes include both shallow and deep gullies. This is evident on the proposed project location. Urban use has been limited on account of the steep terrain and common landslides. Natural fertility is low, and erosion control a major concern.

Large trees, bamboo and brush completely cover the land.

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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CULTURAL SETTING AND PREVIOUS INVESTIGATIONS *(Discuss the cultural setting for the proposed project including previously identified archaeological sites, NRHP listed/eligible historic properties, and cultural resource studies conducted within one mile of the project area.)***:**

Home of the first Spanish settlement in Puerto Rico, this is a land previously occupied by indigenous populations. Ponce de Leon's Caparra was established in 1509, only to be dismantled as the settlement was transferred to the San Juan Islet in 1519-1521. It took until 1769 for the founding of Guaynabo. By the mid nineteenth century, there were twelve distinct *barrios*. But the municipality was economically unsuccessful, thus dissolved in 1870 and split between Río Piedras (now a part of San Juan) and Bayamón. Prosperous industrial and commercial activities, including dairy, grains, manufacture, construction and service industries, allowed Guaynabo to reclaim its status as a separate municipality in 1912.

The APE is located within the boundaries of Barrio Pueblo, the administrative center of the Municipality. Dating back to the mid eighteen-hundreds, Pueblo is located South of the original sixteenth century settlement, near the center of the Municipality. Sector Piedras Blancas, however, remained rural and underdeveloped until the late twentieth century.

Four historic properties are located within a one-mile distance from the proposed project location:

1. Iglesia Parroquial San Pedro Mártir (GU0200001), 0.49mi NW – the NRHP listed eighteenth century church,
2. Oficina de telégrafo y teléfono (GU0200002), 0.51mi NNW – a NRHP listed 1948 art deco Autoridad de Comunicaciones facility,
3. Puente Río Guaynabo (GU0100010), 0.63mi NW – remnants of a previous concrete bridge,
4. Chalets del Parque (GU0100011), 0.79mi NW – a pre-Hispanic archaeological deposit, with pottery dated circa 1200-1500.

Eighteen archaeological surveys have been conducted within the study area. Only two had positive results, both quite distant from the proposed project area (0.63 and 0.79 miles away), resulting in sites GU0100010 and GU0100011, referenced above:

Daubón Vidal, Antonio

1. 2006 Fases IA-IB, Estudio recursos culturales, Proyecto Riverwood, carretera estatal PR-199 km 0.70, calle Alpierre, Urb. Berdecía, Bo. Camarones, Guaynabo, Puerto Rico
   Phase IA-IB
   ICP/CAT-GB-06-16-03 y SHPO #05-17-06-04

Negative

2. 2001 Fase IA, Estudio recursos culturales, Proyecto Urb. Balcones de San Pedro, calles José de Diego Esq. Cecilio Urbina, Bo. Pueblo, Guaynabo, Puerto Rico
   Phase IA
   ICP/CAT-GB-01-10-03 y SHPO #06-27-01-11
   Negative

EVR

3. 2004 Grand Vista, Bo. Camarones, Guaynabo, Puerto Rico
   Phase IA
   ICP/CAT-GB-04-13-03
   Negative

Font Negrón, Aramis

4. 2006 Condominio Stone Park, Bo. Frailes, Guaynabo, Puerto Rico
   Phase IA
   ICP/CAT-GB-06-17-02
   Negative
5. 2003 Determinación de recursos culturales Fases IA-IB, Proyecto Infraestructura extramuros Hacienda Elena, Bo. Santa Rosa, Guaynabo, Puerto Rico
   Phase IA-IB
   SHPO #08-12-02-07
   Negative
6. 2003 Determinación de recursos culturales Fases IA-IB, Proyecto Portal de Guaynabo, Bo. Pueblo, Guaynabo, Puerto Rico
   Phase IA-IB
   ICP/CAT-GB-03-12-03 y SHPO #03-14-03-01
   Negative
7. 1998 Colegio Da Vinci, Bo. Camarones, Guaynabo, Puerto Rico
   Phase IA-IB
   ICP/CAT-GB-98-08-06
   Negative

Martí Carvajal, Armando J.

8. 1989 Cond. Regency Park, Bo. Camarones, Guaynabo, Puerto Rico
   Phase IA
   ICP/CAT-GB-89-01-07
   Negative

Martínez Garayalde, Marisol

9. 2010 Iglesia Cristiana Discípulos de Cristo, carretera estatal PR-836, camino municipal Piedras Blancas, Bo. Pueblo, Guaynabo, Puerto Rico
   Phase IA
   ICP/CAT-GB-10-19-01
   Negative

Maurás Casillas, Adalberto

10. 1998 Evaluación arqueológica Fases IA/IB, Proyecto Monte de los Frailes Development, Bo. Frailes, Guaynabo, Puerto Rico
    Phase IA-IB
    ICP/CAT-GB-98-08-03
    Negative

Méndez Bonilla, Iván F.

11. 1992 Tramo de 3 kilómetros PR-20, Ave. Martínez Nadal, Periferal a la Muda, Bo. Camarones, Guaynabo, Puerto Rico
    Phase IA-IB
    ICP/CAT-GB-92-03-06
    Negative

Ortiz Montañez, Hernán

12. 1994 Escuela Vocacional Guaynabo, Carr. PR-20 km 6.2, Bo. Pueblo, Guaynabo, Puerto Rico
    Phase IB
    ICP/CAT-GB-94-04-09
    Negative

Rodríguez, Miguel y Jaime Pagán

13. 1998 Estudio arqueológico Fases IA-IB, Proyecto Plaza de peaje PR-20, Bo. Pueblo, Guaynabo, Puerto Rico
    Phase IA-IB
    ICP/CAT-GB-98-08-09 y SHPO #12-16-98-02
    Negative

Rodríguez Miranda, Marisol

14. 1997 Sears Central Services, Bo. Camarones, Guaynabo, Puerto Rico
    Phase IA-IB
    ICP/CAT-GB-97-07-07
    Negative

Vélez Vélez, Jaime G.

15. 2008 Residencial Peñasco, Bo. Camarones, Guaynabo, Puerto Rico
    Phase IA
    ICP/CAT-GB-08-18-04
    Negative
16. 2002 Unión Plaza, Bo. Frailes, Guaynabo, Puerto Rico
    Phase IA
    ICP/CAT-GB-02-12-05
    Negative
17. 1994 Puente sobre Río Guaynabo, Fase I, Carretera Estatal PR-893 km 0.3, Ciudad de Guaynabo, Municipio de Guaynabo, PR
    Phase IA-IB
    SHPO #05-02-94-01

Positive

18. 1992 Estudio arqueológico Fases IA-IB, Proyecto Chalets del Parque, Zona Urbana, Ciudad de Guaynabo, Municipio de Guaynabo. PR
    Phase IA-IB
    ICP/CAT-GB-92-03-04
    Positive

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
Case ID: TC20-030	**Project Location** (Street Address)**:** Camino Piedras Blancas, Sector Piedras Blancas
City: Guaynabo	**Project Coordinates:** 18.35129616, -66.10916943

DETERMINATION OF POTENTIAL EFFECTS

Discuss the archaeological potential for the proposed project location:

The potential for the presence of any significant archaeological resource is minimal.

A significant number of archaeological surveys, including one on the parcel just North of the proposed project location had negative results. Out of a total eighteen, the only two surveys with showing positive results are not eligible to the National Register of Historic Places. The two discovered sites only include: (1) the remnants of a previous concrete bridge, and (2) a 16M x 18M concentration of indigenous materials, part of a destroyed archaeological site. The only two actual historic properties are the NRHP-listed San Pedro Mártir Church and old Telegraph and Telephone Building.

The proposed project location is in a sector of Barrio Pueblo that has only been developed since the second half of the twentieth century. A relatively recent development implies compliance with both state and federal laws and regulations regarding the identification and protection of historic properties. The lack of significant finds supports our determination that no historic properties will be affected by the construction of Condominio Vista al Norte.

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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RECOMMENDATION: 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
☐ Adverse Effect

(**No Adverse Effect Conditions or Proposed Adverse Effect Resolution here, if needed**)

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:

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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Project (Parcel) Location – Aguas Buenas (2018) USGS Topographic Map



GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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Project (Pacel) Location - Aerial Map



GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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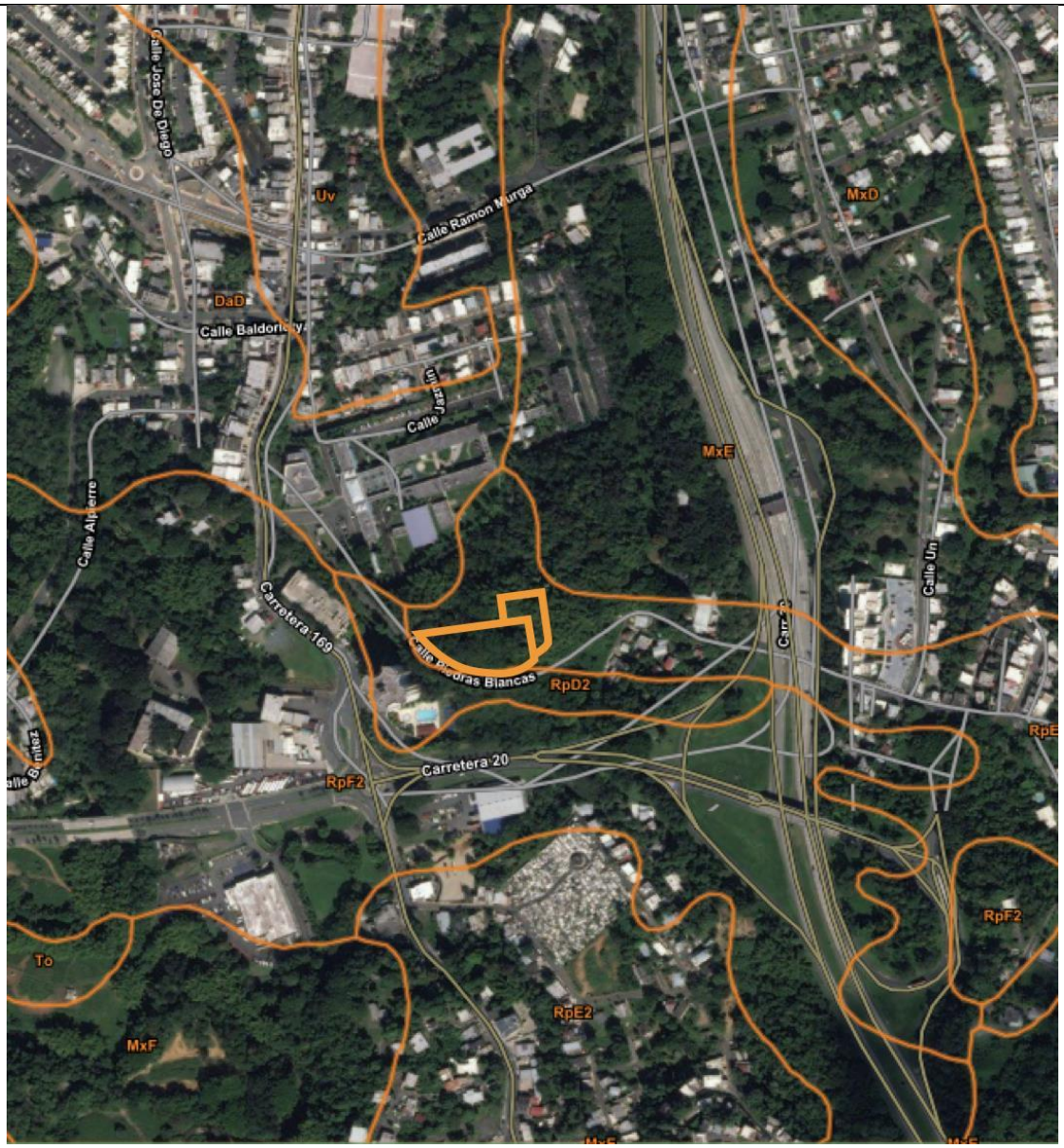
City: Guaynabo	**Project Coordinates:** 18.35129616, -66.10916943

Soils Map



RpE2 - Río Piedras clay, 20-40% slopes

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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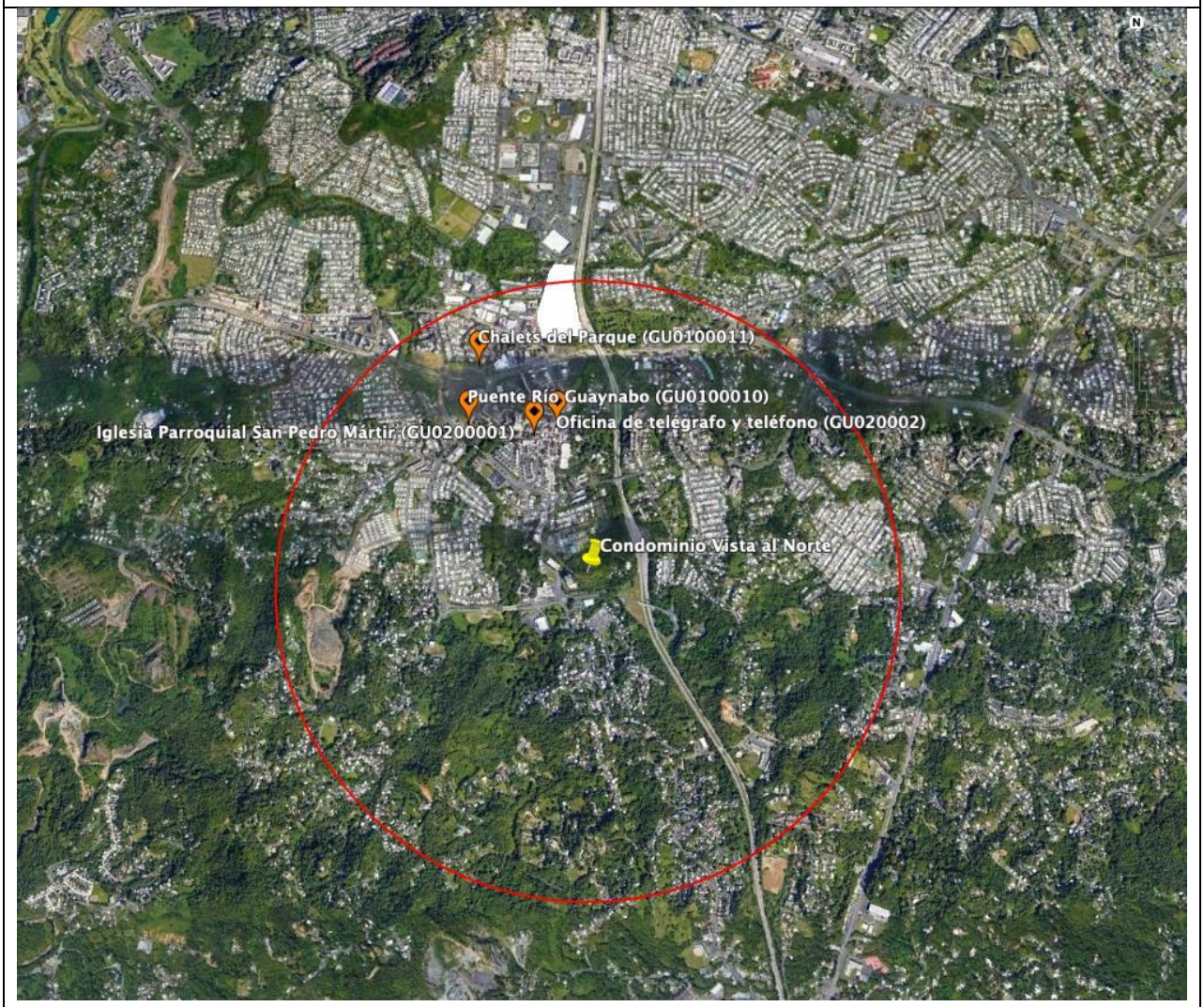
City: Guaynabo	**Project Coordinates:** 18.35129616, -66.10916943

Project (Parcel) Location with Previously Recorded Cultural Resources - Aerial Map



Iglesia San Pedro Mártir (GU0200001)

Oficina de telégrafo y teléfono (GU0200002)

Puente Río Guaynabo (GU0100010)

Chalets del Parque (GU0100011)

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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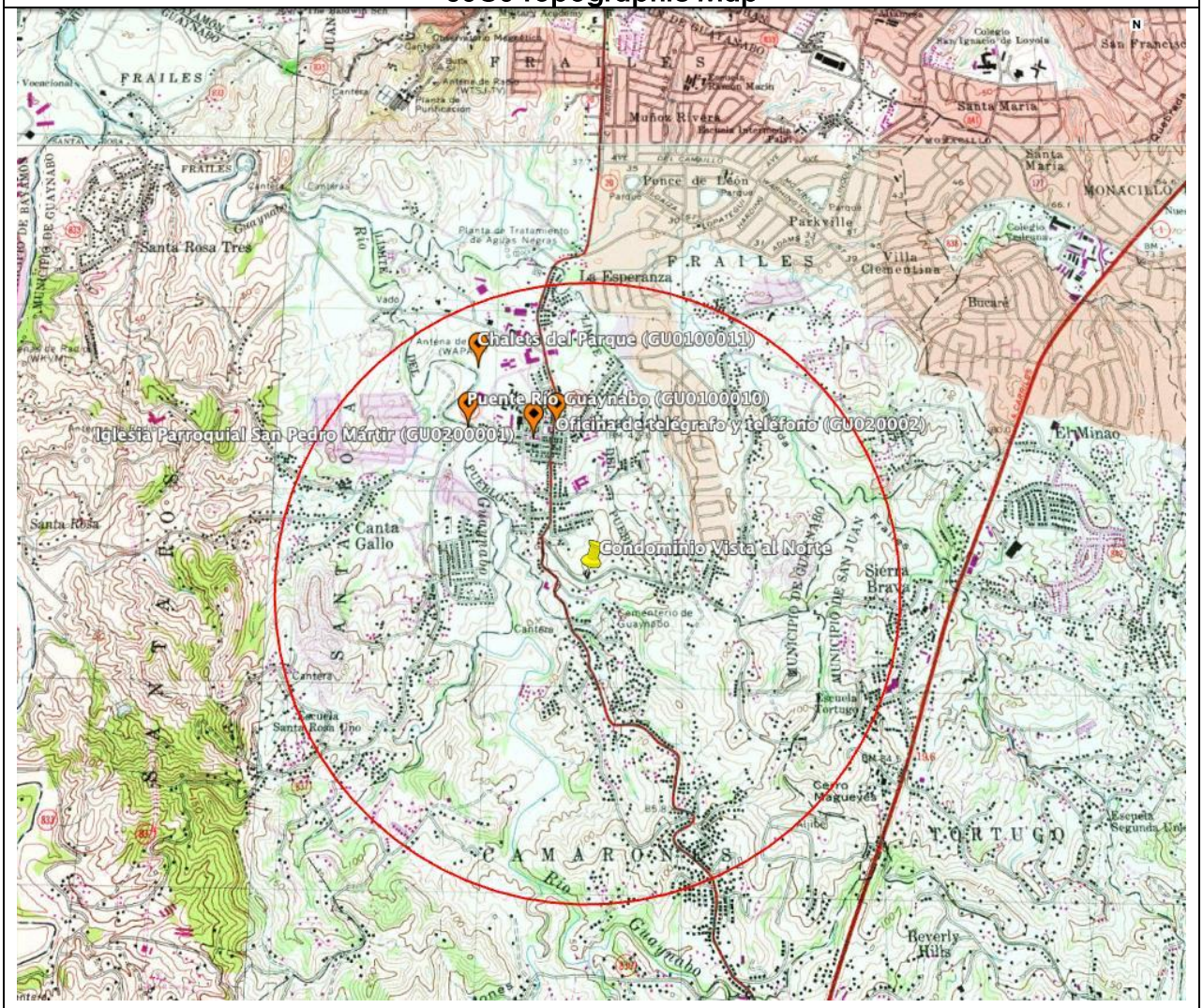
City: Guaynabo	**Project Coordinates:** 18.35129616, -66.10916943

Project (Parcel) Location with Previously Recorded Cultural Resources
USGS Topographic Map



Iglesia San Pedro Mártir (GU0200001)

Oficina de telégrafo y teléfono (GU0200002)

Puente Río Guaynabo (GU0100010)

Chalets del Parque (GU0100011)

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
Case ID: TC20-030	**Project Location** (Street Address)**:** Camino Piedras Blancas, Sector Piedras Blancas
City: Guaynabo	**Project Coordinates:** 18.35129616, -66.10916943



Photo #: 1 **Date:** April 16, 2019	**Description (include direction):** Aerial view of the proposed project site. The municipal road that constrains the APE to the South and West is visible. Direction: North.

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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City: Guaynabo	**Project Coordinates:** 18.35129616, -66.10916943



Photo #: 2 **Date:** 30 September 2020	**Description (include direction):** Entrance to the parcels. Direction: North

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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City: Guaynabo	**Project Coordinates:** 18.35129616, -66.10916943



Photo #: 3 **Date:** 30 September 2020	**Description (include direction):** Outside view of the parcel. Direction: Northeast.

GOVERNMENT OF PUERTO RICO Department of Housing	**PUERTO RICO DISASTER RECOVERY, CDBG-DR PROGRAM:** **CDBG-DR GAP TO LOW INCOME HOUSING TAX CREDITS (LIHTC) PROGRAM** **Section 106 NHPA Effect Determination, Archaeology**
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Photo #: 4 **Date:** 30 September 2020	**Description (include direction):** Aerial view of the proposed project location, showing the gullies and the dense vegetation. Direction: Bird's eye view.

EXHIBIT F

GOBIERNO DE PUERTO RICO
Instituto de Cultura Puertorriqueña

22 de octubre de 2020

ACTUALIZACIÓN AUTORIZACIÓN

Sistema Integrado de Permisos
Director Ejecutivo Interino
Oficina de Gerencia de Permisos
PO Box 41118
San Juan, Puerto Rico 00940

PROYECTO: CONDOMINIO VISTA AL NORTE
DIRECCIÓN: CALLE PIEDRAS BLANCA, GUAYNABO
CASO OGPE #: 2020-312957-SRA-037535
2019-263819-REA-003392
2019-263819-SRA-028335
ICP #: GB-19-402
CATASTRO #: 114-063-033-10

Estimado licenciado Rodríguez:

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.

Nuestros registros evidencian que, con fecha del **29 de octubre de 2019,** el Programa de Arqueología y Etnohistoria emitió una autorización al mismo. La evaluación realizada sugiere que, basado en los datos existentes al presente, las probabilidades de impactar un recurso arqueológico, según definido por la Ley 112 del 20 de julio de 1988, según enmendada, son mínimas. Por lo antes expuesto, **actualizamos nuestra autorización**.

Le notificamos que esta autorización es de tipo parcial y que el proponente queda sujeto a las responsabilidades y obligaciones que impone la Ley 112 del 20 de julio de 1988, según enmendada. Esta establece que, se deberá paralizar todo tipo de actividad de excavación, movimiento y remoción de la corteza terrestre, y notificar en un plazo de veinticuatro (24) horas al Consejo, en caso de que, durante el desarrollo del proyecto, se descubra o impacte algún depósito, elemento, estructura o vestigio de naturaleza arqueológica.

Se le apercibe que el incumplimiento de estos requerimientos podrá ser objeto de sanciones administrativas según lo establecido en la citada ley.

Esta autorización tiene una **vigencia de un (1) año**.

Cordialmente,

Lcd. Héctor A. Dávila Gómez
Director Interino
Programa de Arqueología y Etnohistoria

HADG/GOE/rmc

GOBIERNO DE PUERTO RICO
Instituto de Cultura Puertorriqueña

6 DE OCTUBRE DE 2020

ING. GABRIEL HERNÁNDEZ RODRÍGUEZ
Secretario Auxiliar
Oficina de Gerencia de Permisos
PO Box 41179
San Juan, Puerto Rico 00940-1179

NO OBJECIÓN

CASO OGPE: 2020-312957-SRA-037535
CONDOMINIO VISTA AL NORTE
MUNICIPIO: GUAYNABO
UBICACIÓN: BARRIO CAMARONES, SECTOR PIEDRAS BLANCAS
CATASTRO: 114-063-033-10
CALIFICACIÓN:RPE5
PROPONENTE: VISTA AL NORTE SE
PROPIETARIO: VISTA AL NORTE SE

Estimados señores:

El Instituto de Cultura Puertorriqueña (**ICP**), por medio de su Programa de Patrimonio Histórico Edificado (**ICP-PHE**), ha examinado el proyecto de referencia para determinar si afecta Propiedades de Valor Histórico y Arquitectónico que estén protegidas, o sean elegibles a serlo, bajo las leyes y reglamentos que nuestra agencia tiene responsabilidad de administrar, como agencia primaria, endosante o recomendante. Estas leyes y reglamentos incluyen, entre otros:

1. La ley 89 del 21 de junio de 1955 S.E., Ley Orgánica del Instituto de Cultura Puertorriqueña, en especial el inciso 4(a)(7), "Determinar que edificios o estructuras son de valor histórico o artístico en Puerto Rico. (…)" y el inciso 4(a)(8), "Asesorar a la Junta de Planificación en la reglamentación de construcción en aquellas zonas que determine como zonas de valor histórico. (…)".
2. La ley 89 del 21 de junio de 1955 S.E., Ley Orgánica del Instituto de Cultura Puertorriqueña, en su inciso 4(b)(3) según enmendado por la ley 119 del 26 de septiembre de 2005, que permite "adoptar, enmendar o derogar, por conducto de su Junta de Directores, las reglas que gobiernen [el] funcionamiento y el descargo de los poderes" concedidos e impuestos al **ICP** por ley, y la *imposición de multas administrativas y/u otras sanciones por su incumplimiento o violación.*
3. El **Reglamento Conjunto para la Evaluación y Expedición de Permisos Relacionados al Desarrollo, Uso de Terrenos y Operación de Negocios**, Reglamento 38 de la Junta de Planificación ("Reglamento Conjunto") con vigencia del 7 de junio de 2019, en todos los incisos aplicables a zonas y sitios históricos, en especial el Tomo X (10), "Conservación de Recursos Históricos" – incluyendo, en las zonas históricas, edificios elegibles, no elegibles, solares vacíos y espacios públicos.
4. Las zonificaciones S-H, antes CR-H o SH, cubiertas por el Tomo VI, Capítulo 6.1 "Áreas Calificadas", Regla 6.1.21 del Reglamento Conjunto.
5. Las disposiciones del Tomo X, Capítulo 10.2 "Conservación de Sitios y Zonas Históricas", Sección 10.2.5.4 y Reglas 10.2.7 y 10.2.8 del Reglamento Conjunto, las que establecen, para los Centros Fundacionales de los Pueblos, así como para las Plazas, Plazuelas y Plazas de Recreo, las reglas de protección del Patrimonio Histórico.
6. La disposición del Tomo X, Capítulo 10.2 "Conservación de Sitios y Zonas Históricas", Sección 10.2.2.4, "Obras Exentas de Permisos", del Reglamento Conjunto la que establece el requerimiento de la Recomendación del ICP en las reparaciones y construcciones misceláneas de carácter menor, incluyendo aplicación de pintura y la limpieza rutinaria o de mantenimiento de la edificación que no conlleve el uso de

maquinaría, químicos o abrasivos y no afecte la integridad de la misma, en los centros fundacionales, sitios y zonas Históricas de Puerto Rico.

7. La Resolución JPE-25 Primera Extensión de 10 de febrero de 2000, la cual requiere evaluación del **ICP** para consultas y usos a darse a edificios públicos construidos anteriores a 1960.
8. La exigencia de endoso o comentario del **ICP** aplicable a propiedades designadas de valor histórico y arquitectónico por otros medios, tales como:

    a. Resolución de la Asamblea Legislativa.
    b. Monumentos Históricos designados por la Junta de Directores del **ICP.**
    c. Propiedades designadas por un plan de ordenamiento territorial de un Municipio Autónomo y que esté en vigor, o por el Plan de Uso de Terrenos de Puerto Rico.
    d. Ser declaradas históricas en un plan especial de zonificación.
    e. Otras propiedades referidas por cualquier componente del Sistema Unificado de Información/Single Business Portal (**SUI/SBP**), la Oficina de Permisos de un Municipio Autónomo con poder de otorgar permisos, la Junta de Planificación, el Programa de Arqueología y Etnohistoria del **ICP**, u otra agencia o entidad de gobierno con poder reglamentario.

9. Petición a solicitud voluntaria de un propietario o derechohabiente de una propiedad.

De acuerdo a nuestros expedientes y la información provista:

1. La propiedad es una no elegible en el Sector Piedras Blancas de Guaynabo.
2. Se propone la construcción de un complejo de apartamentos con 12 niveles.
3. El Proyecto no implica impacto adverso a recursos culturales pertenecientes al patrimonio histórico construido.

Por lo tanto, se emite una determinación de **NO OBJECIÓN AL PROYECTO PROPUESTO.**

Esta evaluación no incluye los elementos a evaluarse conforme a la Ley 112 del 12 de agosto de 1988, Ley de Patrimonio Arqueológico Terrestre, lo cual debe hacerse mediante solicitud separada al Programa de Arqueología y Etnohistoria del **ICP**. Las evaluaciones de ambos programas son necesarias para concluir el proceso con esta agencia.

Este documento tiene vigencia de un año a partir de su emisión.

Sin otro particular, quedo.

Mildred González Valentín, M.Arch.
Subdirectora
Patrimonio Histórico Edificado

MGV/ejc

Cc: Expediente caso PPHE, ICP
Pablo Ojeda O'Neill, Director ICP-PPHE
Elliott J. Cruz, Conservacionista IV, Evaluador caso, ICP-PPHE

27 de agosto de 2019

NOTIFICACIÓN DE AUTORIZACIÓN

Sistema Integrado de Permisos
PO Box 41118
San Juan, PR 00940

CONDOMINIO VISTA AL NORTE
CALLE PIEDRAS BLANCAS
BO. CAMARONES, GUAYNABO
CASO OGPE #2019-263819-REA-003392

Estimados señores:

El **Programa de Arqueología y Etnohistoria** del Instituto de Cultura Puertorriqueña evaluó los documentos relacionados al proyecto de referencia, recibidos a través de la División de Arqueología y Conservación Histórica de la Oficina de Gerencia de Permisos (OGPe).

La evaluación realizada sugiere que, basado en los datos existentes al presente, las probabilidades de impactar un recurso arqueológico, según definido por la Ley 112 del 20 de julio de 1988, según enmendada, son mínimas.

Por lo tanto, en lo concerniente a recursos culturales de naturaleza arqueológica, **no tenemos objeción** al proyecto según fue radicado y evaluado.

Le notificamos que esta autorización es parcial y el proponente queda sujeto a las responsabilidades y obligaciones que impone la Ley 112 del 20 de julio de 1988, según enmendada. Esta establece que, **se deberá paralizar todo tipo de actividad de excavación, movimiento y remoción de la corteza terrestre, y notificar en un plazo de veinticuatro (24) horas al Programa de Arqueología y Etnohistoria, en caso de que, durante el desarrollo del proyecto, se descubra o impacte algún depósito, elemento, estructura o vestigio de naturaleza arqueológica.**

Se le apercibe que el incumplimiento de estos requerimientos será objeto de sanciones administrativas según lo establecido en las citadas leyes.

Esta autorización tiene **vigencia de (1) año.**

Cordialmente,

Dr. Carlos Pérez Merced
Director Interino
Programa de Arqueología y Etnohistoria

CPM/GOE/mgb

GOBIERNO DE PUERTO RICO
Instituto de Cultura Puertorriqueña

27 DE AGOSTO DE 2019

Sra. Irma Rodríguez Reyes
Secretaria Auxiliar
DEPARTAMENTO DE DESARROLLO ECONÓMICO Y COMERCIO
Oficina de Gerencia de Permisos
PO Box 41179
San Juan, Puerto Rico 00940-1179

NO OBJECIÓN

CASO OGPE:	**2019-263819-REA-003392**
DESCRIPCIÓN:	CONDOMINIO VISTA AL NORTE
MUNICIPIO:	GUAYNABO
UBICACIÓN:	CAMINO PIEDRAS BLANCAS, SECTOR PIEDRAS BLANCAS
CATASTRO:	037-006-319-02
PROPIETARIO:	CONDOMINIO VISTA AL NORTE SE
PROPONENTE:	CONDOMINIO VISTA AL NORTE SE

Estimados señores:

El Instituto de Cultura Puertorriqueña (**ICP**), por medio de su Programa de Patrimonio Histórico Edificado (**ICP-PHE**), ha examinado el proyecto de referencia para determinar si afecta Propiedades de Valor Histórico y Arquitectónico que estén protegidas, o sean elegibles a serlo, bajo las leyes y reglamentos que nuestra agencia tiene responsabilidad de administrar, como agencia primaria, endosante o recomendante. Estas leyes y reglamentos incluyen, entre otros:

1. La ley 89 del 21 de junio de 1955 S.E., Ley Orgánica del Instituto de Cultura Puertorriqueña, en especial el inciso 4(a)(7), "Determinar que edificios o estructuras son de valor histórico o artístico en Puerto Rico. (...)" y el inciso 4(a)(8), "Asesorar a la Junta de Planificación en la reglamentación de construcción en aquellas zonas que determine como zonas de valor histórico. (...)".
2. La ley 89 del 21 de junio de 1955 S.E., Ley Orgánica del Instituto de Cultura Puertorriqueña, en su inciso 4(b)(3) según enmendado por la ley 119 del 26 de septiembre de 2005, que permite "adoptar, enmendar o derogar, por conducto de su Junta de Directores, las reglas que gobiernen [el] funcionamiento y el descargo de los poderes" concedidos e impuestos al **ICP** por ley, y la *imposición de multas administrativas y/u otras sanciones por su incumplimiento o violación.*
3. El **Reglamento Conjunto para la Evaluación y Expedición de Permisos Relacionados al Desarrollo, Uso de Terrenos y Operación de Negocios**, Reglamento 38 de la Junta de Planificación ("Reglamento Conjunto") con vigencia del 7 de junio de 2019, en todos los incisos aplicables a zonas y sitios históricos, en especial el Tomo X (10), "Conservación de Recursos Históricos" – incluyendo, en las zonas históricas, edificios elegibles, no elegibles, solares vacíos y espacios públicos.
4. Las zonificaciones S-H, antes CR-H o SH, cubiertas por el Tomo VI, Capítulo 6.1 "Áreas Calificadas", Regla 6.1.21 del Reglamento Conjunto.
5. Las disposiciones del Tomo X, Capítulo 10.2 "Conservación de Sitios y Zonas Históricas", Sección 10.2.5.4 y Reglas 10.2.7 y 10.2.8 del Reglamento Conjunto, las que establecen, para los Centros

Fundacionales de los Pueblos, así como para las Plazas, Plazuelas y Plazas de Recreo, las reglas de protección del Patrimonio Histórico.

6. La disposición del Tomo X, Capítulo 10.2 "Conservación de Sitios y Zonas Históricas", Sección 10.2.2.4, "Obras Exentas de Permisos", del Reglamento Conjunto la que establece el requerimiento de la Recomendación del ICP en las reparaciones y construcciones misceláneas de carácter menor, incluyendo aplicación de pintura y la limpieza rutinaria o de mantenimiento de la edificación que no conlleve el uso de maquinaría, químicos o abrasivos y no afecte la integridad de la misma, en los centros fundacionales, sitios y zonas Históricas de Puerto Rico.
7. La Resolución JPE-047 de 1994, la cual requiere evaluación del **ICP** para consultas y usos a darse a edificios públicos construidos anteriores a 1960.
8. La exigencia de endoso o comentario del **ICP** aplicable a propiedades designadas de valor histórico y arquitectónico por otros medios, tales como:

    a. Resolución de la Asamblea Legislativa.
    b. Monumentos Históricos designados por la Junta de Directores del **ICP.**
    c. Propiedades designadas por un plan de ordenamiento territorial de un Municipio Autónomo y que esté en vigor, o por el Plan de Uso de Terrenos de Puerto Rico.
    d. Ser declaradas históricas en un plan especial de zonificación.
    e. Otras propiedades referidas por cualquier componente del Sistema Unificado de Información/Single Business Portal (**SUI/SBP**), la Oficina de Permisos de un Municipio Autónomo con poder de otorgar permisos, la Junta de Planificación, el Programa de Arqueología y Etnohistoria del **ICP**, u otra agencia o entidad de gobierno con poder reglamentario.

9. Petición a solicitud voluntaria de un propietario o derechohabiente de una propiedad.

De acuerdo a nuestros expedientes y la información provista:

1. La propiedad es una no elegible en Guaynabo.
2. Se propone la construcción de un condominio de trece niveles y estacionamiento.
3. El proyecto propuesto no implica impacto adverso a recursos culturales pertenecientes al patrimonio histórico construido.

Por lo tanto, se emite una determinación de **NO OBJECIÓN AL PROYECTO PROPUESTO.**

Esta evaluación no incluye los elementos a evaluarse conforme a la Ley 112 del 12 de agosto de 1988, Ley de Patrimonio Arqueológico Terrestre, lo cual debe hacerse mediante solicitud separada al Programa de Arqueología y Etnohistoria del **ICP**. Las evaluaciones de ambos programas son necesarias para concluir el proceso con esta agencia.

Este documento tiene vigencia de un año a partir de su emisión.

Sin otro particular, quedo.

Arq. Pablo Ojeda O'Neill
Director
Programa Patrimonio Histórico Edificado

POO/ejc
Cc: Expediente caso PPHE, ICP

ESTADO LIBRE ASOCIADO DE PUERTO RICO
INSTITUTO DE CULTURA PUERTORRIQUEÑA

PO BOX 9024184
SAN JUAN DE PUERTO RICO 00902-4184

RECIBIDO
NOV 10 2008
SCF ARQUITECTOS

6 de noviembre de 2008

AUTORIZACION

Arq. Segundo Cardona Colom
Metro Office Park
13 Calle 2
Guaynabo, Puerto Rico 00968-1712

COND. VISTAS AL NORTE, PR-836, BO. CAMARONES, GUAYNABO

Estimado arquitecto Cardona:

El Programa de Arqueología y Etnohistoria del Instituto de Cultura Puertorriqueña ha revisado y evaluado los documentos relacionados al proyecto de referencia.

Nuestros registros evidencian que con fecha del **21 de diciembre de 2004,** el Programa de Arqueología y Etnohistoria emitió una autorización al mismo, copia del cual remitimos adjunto.

La evaluación realizada sugiere que, basado en los datos existentes al presente, las probabilidades de impactar un recurso arqueológico, según definido por la Ley 112 del 20 de julio de 1988, según enmendada, son mínimas.

Esta autorización corresponde exclusivamente a asuntos relacionados con la Ley 112 de Arqueología Terrestre, y no constituye un endoso del Programa de Patrimonio Histórico Edificado del I.C.P.

Le notificamos que esta autorización es de tipo parcial y que el proponente queda sujeto a las responsabilidades y obligaciones que impone la Ley 112 del 20 de julio de 1988, según enmendada. Esta establece que, se deberá paralizar todo tipo de actividad de excavación, movimiento y remoción de la corteza terrestre, y notificar en un plazo de veinticuatro (24) horas al Consejo, en caso de que, durante el desarrollo del proyecto, se descubra o impacte algún depósito, elemento, estructura o vestigio de naturaleza arqueológica.

003-03

Esta autorización debe estar disponible en las áreas en que se realizan los proyectos para revisión de los oficiales que así lo requieran. De no estar disponible la autorización, se procederá a emitir una Orden de Paralización hasta tanto se pueda corroborar la existencia de ésta. La autorización debe estar acompañada de copia del plano presentado con la Consulta de Ubicación a la Junta de Planificación. La autorización del Consejo relacionada con un permiso o autorización de la Junta de Planificación, la Administración de Reglamentos y Permisos o el Departamento de Recursos Naturales y Ambientales deberá estar acompañada de tales permisos o autorizaciones, incluyendo sus planos aprobados en un lugar accesible del proyecto.

Se le apercibe que de no cumplir con las disposiciones antes indicadas, podría incurrir en una violación a la Sección 13 de la citada ley que establece la imposición de multas administrativas.

Esta autorización tiene una **vigencia de un (1) año**.

Cordialmente,

Arqla. Laura Del Olmo Frese
Directora
Programa de Arqueología y Etnohistoria

HTC/rmd

Anejo

ESTADO LIBRE ASOCIADO DE PUERTO RICO
INSTITUTO DE CULTURA PUERTORRIQUEÑA

PO BOX 9024184
SAN JUAN DE PUERTO RICO 00902-4184

21 de diciembre de 2004

AUTORIZACION

Arq. Segundo Cardona Colón
SIERRA CARDONA FERRER
13 Calle 2 Metro Office Park
Guaynabo, Puerto Rico, 00968-1712

Estimado arquitecto Cardona:

CONDOMINIO VISTAS DEL NORTE
BO. CAMARONES, GUAYNABO, PR
CONS.JP #2004-16-0641

El Programa de Arqueología y Etnohistoria del Instituto de Cultura Puertorriqueña ha revisado y evaluado los documentos relacionados al asunto de referencia.

Como resultado de esta evaluación se ha concluido que las probabilidades de impactar un recurso arqueológico según definido en el *Reglamento para la Radicación y Evaluación Arqueológica de Proyectos de Construcción y Desarrollo (4643),* son mínimas.

Por lo tanto, y en virtud de la delegación para la evaluación de Fases I y II del Consejo para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico, se autoriza se proceda con el proyecto de construcción de

Sin embargo, le notificamos que esta autorización es una de tipo parcial y que el proponente queda sujeto a las responsabilidades y obligaciones que impone la Ley 112 del 20 de julio de 1988, según enmendada, que establece que deberá paralizar todo tipo de actividad de excavación, movimiento y remoción de la corteza terrestre, y notificar en un plazo de veinticuatro (24) horas al Consejo, en caso de que, durante el desarrollo del proyecto, se descubra o impacte algún depósito, elemento, estructura o vestigio de naturaleza arqueológica.

Se le apercibe que de no cumplir con las disposiciones antes indicadas, podría incurrir en una violación a la Sección 13 de la citada ley y al *Reglamento de Multas Administrativas del Consejo (6454),* que establece la imposición de multas administrativas.

Esta autorización tiene una vigencia de un (1) año.

Esta autorización debe estar disponible en las áreas en que se realizan los proyectos para revisión de los oficiales que así lo requieran. De no estar disponible la autorización, se procederá a emitir una Orden de Paralización hasta tanto se pueda corroborar la existencia de esta. La autorización debe estar acompañada de copia del plano presentado con la Consulta de Ubicación a la Junta de Planificación. La autorización del Consejo relacionada con un permiso o autorización de la Junta de Planificación, la Administración de Reglamentos y Permisos o el Departamento de Recursos Naturales y Ambientales deberá estar acompañada de tales permisos o autorizaciones, incluyendo sus planos aprobados en un lugar accesible del proyecto.

Esto no constituye un endoso global del I.C.P. y sólo aplica a la autorización de arqueología. En caso de ser necesario el endoso del Programa de Zonas y Monumentos del I.C.P., el proponente será responsable de tramitar éste a la referida oficina.

Cordialmente,

Marisol Rodríguez Miranda
Directora Interina
Programa de Arqueología y Etnohistoria

MRM/HCS/vop

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Juan Area, Puerto Rico

Vista al Norte



November 17, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:933 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Juan Area, Puerto Rico
Survey Area Data: Version 16, Sep 12, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 23, 2022—Mar 1, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MxE	Mucara clay, 20 to 40 percent slopes	0.1	2.5%
RpD2	Rio Piedras clay, 12 to 20 percent slopes, eroded	0.0	1.0%
RpE2	Rio Piedras clay, 20 to 40 percent slopes, eroded	2.4	96.5%
Totals for Area of Interest		**2.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Juan Area, Puerto Rico

MxE—Mucara clay, 20 to 40 percent slopes

Map Unit Setting

National map unit symbol: 2thqv
Elevation: 160 to 2,000 feet
Mean annual precipitation: 49 to 95 inches
Mean annual air temperature: 71 to 77 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Mucara and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mucara

Setting

Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, head slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Parent material: Residuum weathered from volcanic rock

Typical profile

Ap - 0 to 6 inches: clay
Bw - 6 to 13 inches: clay loam
BC - 13 to 19 inches: clay loam
C - 19 to 27 inches: clay loam
Cr - 27 to 80 inches: bedrock

Properties and qualities

Slope: 20 to 40 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Humatas

Percent of map unit: 5 percent

Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, head slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Caguabo

Percent of map unit: 5 percent
Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, head slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Morado

Percent of map unit: 5 percent
Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, head slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Naranjito

Percent of map unit: 5 percent
Landform: Mountain slopes, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

RpD2—Rio Piedras clay, 12 to 20 percent slopes, eroded

Map Unit Setting

National map unit symbol: byyx
Elevation: 600 to 1,000 feet
Mean annual precipitation: 70 to 80 inches
Mean annual air temperature: 75 to 79 degrees F
Frost-free period: 365 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Rio piedras and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rio Piedras

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Residuum

Typical profile

H1 - 0 to 8 inches: clay
H2 - 8 to 28 inches: clay
H3 - 28 to 48 inches: clay
H4 - 48 to 52 inches: unweathered bedrock

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

RpE2—Rio Piedras clay, 20 to 40 percent slopes, eroded

Map Unit Setting

National map unit symbol: byyy
Elevation: 600 to 1,000 feet
Mean annual precipitation: 70 to 80 inches
Mean annual air temperature: 75 to 79 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Rio piedras and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rio Piedras

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Head slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Residuum

Typical profile

H1 - 0 to 8 inches: clay
H2 - 8 to 28 inches: clay
H3 - 28 to 48 inches: clay
H4 - 48 to 52 inches: unweathered bedrock

Properties and qualities

Slope: 20 to 40 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Prime and other Important Farmlands

This table lists the map units in the survey area that are considered important farmlands. Important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For some of the soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Report—Prime and other Important Farmlands

Prime and other Important Farmlands–San Juan Area, Puerto Rico		
Map Symbol	**Map Unit Name**	**Farmland Classification**
MxE	Mucara clay, 20 to 40 percent slopes	Not prime farmland
RpD2	Rio Piedras clay, 12 to 20 percent slopes, eroded	Farmland of statewide importance
RpE2	Rio Piedras clay, 20 to 40 percent slopes, eroded	Not prime farmland

Data Source Information

Soil Survey Area: San Juan Area, Puerto Rico
Survey Area Data: Version 16, Sep 12, 2022

EXHIBIT H

GOBIERNO DE PUERTO RICO

Departamento de Agricultura

23 de diciembre de 2019

Ing. Irma Rodríguez Reyes
Secretaria Auxiliar Interina
Oficina de Gerencia de Permisos
PO Box 41179
San Juan, Puerto Rico 00940-1179

Consulta: 2019-263819-SRU-030354
Dueño: Vista Al Norte S.E.
Proponente: SCF Arquitectos

Propuesta: Construcción de condominio en predio de 0.92 cuerda, de finca de 1.67 cuerda

Ubicación: PR 169, interior, camino Piedras Blancas, sector Piedras Blancas, Bo. Pueblo, Guaynabo

Uso propuesto: Residencial

Descripción general de los terrenos y el área aledaña: La finca evaluada posee pequeña cabida, topografía inclinada y vegetación tanto arbórea, como herbácea. La misma ubica al margen de un camino municipal y en un sector de amplio desarrollo urbano. De hecho, la finca está rodeada de desarrollos residenciales, comerciales e institucionales. Por consiguiente, la propuesta es cónsona (armoniza) con los patrones de comportamiento de la zona en general. Considerando todo lo antes descrito, este Departamento no se opone a la misma.

Recomendación del Departamento de Agricultura sobre la consulta:

No Objetada __X__ **Objetada** ____

Agro. Nancy I. Sánchez Villanueva, MBA
Directora
Oficina de Iniciativas para la
Preservación de Terrenos
DVC

Ave. Fernández Juncos, Edifico 1309, Pda. 19 ½ Santurce.
Apartado 10163, San Juan, PR 00908-1163
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GOBIERNO DE PUERTO RICO

Autoridad de Acueductos y Alcantarillados

13 de abril de 2021

Ing. Gabriel Hernández Rodríguez
Secretario Auxiliar
Oficina de Gerencia de Permisos (OGPe)
PO BOX 41179
San Juan, Puerto Rico 00940-1179

Ingeniero Hernández Rodríguez:

AAA-RM-19-32-0033; GUAYNABO – CONDOMINIO VISTA AL NORTE
PROPIEDAD DE VISTA AL NORTE SE
(107 UNIDADES EQUIVALENTES)
CALLE PIEDRAS BLANCAS, BO. PUEBLO
OGPe: 2019-263819-SRI-038525; 2019-263819-SRI-038525; 2019-263819-SRI-028339
APROBACIÓN DE PLANOS

El proyecto de epígrafe ha presentado a la consideración de esta Autoridad los planos para la construcción de los sistemas de servicio de acueducto y de alcantarillado sanitario. El mismo contempla la construcción de un condominio de 13 niveles para ubicar 102 apartamentos. El proyecto, también contará con áreas comunes, administrativas y área de estacionamiento. Se estima a escala 1,950 pies cuadrados de área de oficina administrador, gimnasio y salón de reuniones por lo que se añaden 2 unidades equivalentes por área. Se estiman 2 unidades equivalentes por el servicio del Laundromat. El total de unidades para proyecto son 107 unidades equivalentes.

Le informamos que los planos para los sistemas de agua y alcantarillado sanitario del proyecto presentados por el Ingeniero Antonio J. Dajer Guerra, licencia profesional 11,530, han sido aprobados por esta Autoridad, sujeto a las siguientes condiciones:

Condiciones específicas

1. La boca de incendio en la acera frente al proyecto es privada pues está conectada al contador de agua combatir incendios. Será pintada de color rojo y rotulada privada. El mantenimiento y conservación serán responsabilidad del dueño del proyecto.
2. El dueño del proyecto será responsable de la operación y conservación de la instalación de la acometida sanitaria incluyendo, la estación de bombas privada, y la tubería de fuerza de descarga.
3. La franja de terreno donde se ubicarán las cajas de contador maestro y de combatir incendios debe ser transferida a uso público del Municipio Guaynabo y proveer evidencia. De lo contrario se revisará el plano para incluir una servidumbre a favor de la AAA y se dejará libre acceso a las cajas de contador.
4. La tubería de agua potable a ceder a la AAA se instalará en la calle pública o servidumbre de esta no se instalará en terreno privado.
5. El detalle de la cinta detectable muestra una incongruencia en el mensaje escrito. En inglés indica que la tubería es de agua y en español que es sanitaria. Para tubería de agua potable a ser cedida a la AAA se utilizará una cinta con un color azul, con las letras AAA o PRASA. El mensaje en español e inglés indicará que es de agua. El contratista debe radicar la literatura de

la cinta a utilizar para aprobación de la AAA.

6. Se modificará la media caña del manhole donde se haga la conexión. La abertura en la pared será sellada con mortero (hydraulic cement). La media caña se construirá en forma de U hasta la corona del tubo como indica el artículo 4.15.03 del capítulo 4 de las Normas de Diseño de AAA. Se aplicará pintura epoxi en la superficie de concreto y del mortero en el interior del manhole para protegerlo.
7. El ángulo entre la tubería que se conectará al manhole existente y la tubería de salida existente no será menor de 90 grados.

Sistema de distribución de agua

8. La interconexión de servicio será de 4" de diámetro con su válvula de control y se localizará, según se indica en los planos aprobados. El punto de conexión será a la línea de 8" de diámetro que discurre por la calle PR-169.
9. La interconexión para el servicio de agua mencionada en la condición número 8 suplirá a una acometida de 4" de diámetro, la cual se subdividirá en una conexión para una válvula automática sostenedora/reductora de presión de 4" diámetro que suplirá a su vez un contador de 2" de diámetro para la cisterna de agua para usos domésticos y otra conexión para suplir un contador de 4" de diámetro para la cisterna e hidrantes de combatir incendios.
10. El cargo por unidad equivalente por conectarse al sistema de acueductos de esta Autoridad será de $500 por unidad o lo estipulado en la tarifa vigente al momento de la inspección y conexión al sistema de acueductos del proyecto.
11. El cargo por incorporación del proyecto al sistema de acueductos de esta Autoridad será de $5,914.20, o el costo vigente al momento de la inspección e incorporación del proyecto.
12. El dueño del proyecto se acogerá a la Alternativa Tres de las normas para la "*Medición y Facturación de Servicio de Acueducto o Alcantarillado Sanitario o Ambos a Condominios o Complejos Multiunidades*" y regirán las condiciones según se establece a continuación:

    Alternativa 3:

    a. El consumo será medido por un contador maestro y subcontadores para las unidades correspondientes. La Autoridad facturará el consumo del servicio de acueducto o alcantarillado sanitario o ambos medidos por el contador maestro después de restar el consumo registrado por los subcontadores. El consumo de cada subcontador se facturará de forma individual.

    b. El dueño, su representante autorizado o usuario de la propiedad instalará, de acuerdo con las normas y especificaciones de la Autoridad, los contadores, cajas y demás aditamentos que sean necesarios para medir el consumo individual de cada unidad y los usos comunes del edificio. La localización de los subcontadores tendrá que ser accesible y será coordinada con la Autoridad. No se permitirán instalaciones de contadores o subcontadores en sótanos, ni en el interior de las unidades.

    c. En proyectos nuevos o remodelaciones mayores de condominios o complejos multi-unidades, luego de la vigencia de este Reglamento, el dueño, su representante autorizado o usuario de la propiedad instalará un sistema de lectura automática de contadores (AMR), de acuerdo con las especificaciones de la Autoridad para facilitar la lectura de los subcontadores y del contador maestro. Este equipo, al igual que los contadores, pasarán a ser propiedad de la Autoridad para el manejo y mantenimiento.

d. En edificios tipo condominios, los subcontadores y sus componentes de lectura serán instalados en cuartos cerrados con acceso exclusivo del dueño, su representante autorizado o usuario, y de la Autoridad.

e. Se requiere que se instalen llaves de globo posterior a los subcontadores, para el manejo de la administración, de acuerdo con las disposiciones de la Ley de Condominios.

f. La Autoridad será responsable exclusivamente de la conservación desde la línea hasta la acometida donde ubica el contador maestro. El dueño del edificio o su representante autorizado será responsable de la operación y conservación de las instalaciones entre el contador maestro y los subcontadores, así como de toda la instalación más allá de los subcontadores.

g. En condominios o complejos multi-unidades existentes, en donde no se hayan instalado llaves de globo, el dueño o su representante autorizado es responsable de la instalación o reparación de las llaves de paso de los subcontadores. El mantenimiento de los subcontadores es responsabilidad de la Autoridad.

h. En caso de que los subcontadores se instalen dentro de los límites de propiedad del edificio, la Autoridad será relevada de toda responsabilidad por cualquier daño o perjuicio que sufra el edificio o personas, como resultado de la operación y mantenimiento de estos.

i. El dueño, su representante autorizado o usuario es responsable de dar libre acceso a los funcionarios o representantes de la Autoridad al área donde están ubicados los contadores y subcontadores en todo momento.

j. De igual manera, lo anterior sería aplicable, para redes de contador maestro, subcontador maestro y subcontadores.

13. El dueño del proyecto suplirá e instalará los contadores de 2" y 4" de diámetro, la válvula sostenedora de presión de 4" de diámetro y los accesorios requeridos para la instalación de los contadores. El dueño o constructor del proyecto suplirá e instalará la(s) caja(s) de *hormigón armado* con marco y tapa de hierro fundido del tamaño estándar para la protección de cada contador. Estas cajas y demás accesorios de dichas instalaciones pasarán a la propiedad de esta Autoridad.

14. El dueño del proyecto suplirá e instalará los sub contadores de ½", 5/8" de diámetro y los accesorios requeridos para la instalación de los contadores en los cuartos de contadores.

15. Los contadores a instalarse deberán ser preferiblemente del tipo electrónico, electromagnético o ultrasónico. Este tipo de contador provee para lectura y medición remota. Deberán incluir las opciones necesarias para el sistema de lectura remota automática o AMR. Los contadores deben ser compatibles con el sistema de comunicación a utilizar. Se deberá tomar en cuenta las recomendaciones del fabricante del equipo para la transmisión de la comunicación remota.

16. Las piezas de conexión a utilizarse para la instalación de acometidas serán de tipo "Flare" o rosca en caso de ser de cobre flexible tipo "K" o rosca en caso de construirse en bronce, no se permitirán conexiones realizadas con piezas soldadas.

17. Las piezas de conexión a utilizarse para la instalación de acometidas 4" de diámetro o más serán con camisilla de junta mecánica y "flange" para instalación de válvula "tapping".

18. Debemos resaltar que, la llave de paso será localizada en el predio a una distancia de 0.30 metros, medida desde el límite de propiedad. Esta llave de paso deberá ser protegida con una base en hormigón con dimensiones 8" x 8" x 4".

19. Las piezas de conexión expuestas dentro de la caja contador de 2" y 4" de diámetro a instalarse serán pintadas con pintura anticorrosiva.
20. El contador debe instalarse con estabilizador de flujo mecánico o niple de 10 veces el largo de diámetro nominal hasta 4".
21. Se requiere la instalación de un niple de diámetro nominal de 12" después del metro hasta 6" de diámetro, contador de 8" de diámetro requiere niple de 16".
22. Se utilizarán "Couplings dieléctricos" cuando se utilicen materiales disimilares.
23. Se requiere la instalación de un cedazo antes del estabilizador de flujo o niple según aplique.
24. Se instalará un check valve después del niple de que se instale después del contador.
25. La válvula de control antes del cedazo debe tener operador.
26. Se debe instalar el contador de manera que se pueda leer el contador con facilidad al levantar las tapas. Las tapas de la caja del contador serán del tipo "light duty" provistas de bisagras independientes.
27. El dueño del proyecto someterá a nuestra consideración la literatura técnica de los contadores de 4", 2" y 5/8" de diámetro y de la válvula sostenedora de 4" diámetro a ser instalados. Serán evaluados y aprobado conforme a los estándares de la Agencia.
28. El metro destinado para el sistema contra incendios requiere la instalación del cedazo tipo "fire rated".
29. Resaltamos el hecho de que las válvulas a instalarse en la caja del contador de 4" de diámetro para el sistema de combatir incendios serán del tipo vástago ascendente OS & Y ("rising stem outside screw").
30. La caja para el metro de 2" de diámetro tendrá dimensiones de 2.44 metros (2.13 metros interno) de largo, 0.91 metros (0.787 metros interno) de ancho y 0.91 metros de profundidad.
31. La caja para el metro de 4" de diámetro tendrá dimensiones de 3.04 metros (2.74 metros interno) de largo, 1.21 metros (0.91 metros interno) de ancho y 1.06 metros de profundidad.
32. El dueño del proyecto deberá pagar a la Autoridad el costo vigente al momento de inspección, para la esterilización de la infraestructura de servicio a ser instaladas en el proyecto.
33. Las nuevas instalaciones no podrán ser conectadas hasta tanto se realice la desinfección y se emitan los resultados de esta.
34. Una vez sufragado el costo de incorporación y con el resultado de desinfección (negativo), la Oficina de Proyectos Públicos y Privados emitirá orden de conexión a la Oficina Operacional en San Juan.
35. La distancia entre la acometida de alcantarillado sanitario y la acometida de servicio de agua será mayor o igual a 5 pies, no se permitirá la instalación de ambas acometidas en la misma excavación.
36. Será necesario realizar una excavación exploratoria, según lo solicite el inspector de A.A.A. para poder verificar profundidad y materiales de tubería. Deberá solicitarse la inspección correspondiente, antes de pavimentar las calles.
37. Instalarán ventosas de aire en todos los puntos altos de la tubería, según sea necesario la instalación de estas, se determinará en el terreno.

38. Para aceptar finalmente el proyecto, el mismo deberá estar pavimentado cuando se realice la validación final.
39. El contratista o urbanizador suministrará evidencia del pago de conexión al sistema, previo al endoso final del proyecto.
40. Todas las piezas de conexión como "TEE", válvulas, tapón, etc. serán de hierro fundido.
41. El proponente o dueño deberá notificar, por escrito, a esta oficina cuando comience la construcción de las obras hidráulicas.
42. Los trabajos de instalación serán realizados por un maestro plomero o bajo la supervisión de este. Se resalta el hecho de que la interconexión del proyecto a los sistemas de servicio solo podrá ser realizado por personal de la Autoridad de Acueductos y Alcantarillados.
43. Todas las acometidas de 2", 1" y de ¾" se instalarán con abrazadera y llave de incorporación.
44. Debemos resaltar que las llaves de pasos, válvulas tirafondos, válvulas auxiliares, hidrantes serán provistos de sus respectivas protecciones de hormigón.
45. Se deberá instalar una cinta detectable sobre la tubería de agua, igual o similar a la manufacturada por la compañía "REEF INDUSTRIES INC.". Dicha cinta deberá estar localizada sobre y paralela a la tubería a una profundidad de 0.30 mts. (12") bajo la superficie del terreno.
46. Deberá proveerse un acodalamiento adecuado ("THRUST BLOCKS") en hormigón cuando ocurra un cambio de dirección en las tuberías.
47. La nueva caja de metro para el sistema contra incendios será construida a una distancia razonable y segura de equipo eléctrico (5') (postes de alumbrado, transformadores, varillas de tierra ("Ground") etc.). Cualquier situación que no permitiese el cumplimiento de esta distancia, deberá ser consultada con esta Oficina para aprobar alternativas que garanticen la seguridad de nuestros empleados.
48. Se resalta el hecho que el plano es la descripción grafica de las instalaciones a ser realizadas. Toda información presentada en los planos deberá ser corroborada en el campo con personal técnico de AAA.
49. Las bocas de incendio serán de tipo "Boca de Incendio de Puerto Rico" adoptado por la Autoridad de Acueductos y Alcantarillados y se ajustarán a los planos y especificaciones preparados al efecto. Su tamaño será de 6" cuando la tubería matriz sea de 6" o mayor diámetro y de 4" cuando la tubería matriz sea de 4". Tendrán dos boquereles de 2 ½" y uno de 4 ½" de diámetro, con roscas que se ajusten a las normas de la National Standard. Se instalarán según los planos aprobados por el servicio de Bomberos de Puerto Rico y el plano de detalles adoptado por la Autoridad de Acueductos y Alcantarillado.
50. Las bocas de incendio se instalarán a un metro del centro del frente de los solares, de tal forma que las mismas no interfieran con las entradas en las marquesinas de las residencias a construirse.
51. Todas las bocas de incendio del proyecto públicas a ser cedidas a la AAA se les proveerá un sistema antihurto para evitar el uso clandestino de las mismas. Las bocas de incendio deberán ser protegidas contra accidentes o impactos mediante la instalación mínima de tubos de hierro dúctil de 4" de diámetro rellenos de cemento.
52. Las bocas de incendio de sistemas privados serán pintadas color rojo.
53. Se dejará un espacio de al menos 3" entre la loza de protección de hormigón y la tornillería de la base del hidrante.

Cuartos de contadores

54. Será responsabilidad del diseñador asegurar que las dimensiones del cuarto de contadores sean las adecuadas para ubicar los contadores en cumplimiento con las Normas de Diseño de esta Autoridad y demás requisitos.
55. Los contadores deberán estar instalados a una distancia entre sí mayor o igual a cinco (5) pulgadas horizontales o verticales (dependiendo si los contadores fueron instalados de manera vertical u horizontal respectivamente), medidas desde las caras externas de los cuerpos de los contadores. Si al momento de construir, se encuentra que esta distancia ha sido violentada, deberá ser corregida.
56. Cada contador se identificará con una placa metálica del tamaño adecuado para su identificación con el número del local al que servirá, cuarto y/o piso. La identificación deberá ser mediante estampado indentado en la chapa. No se permitirá que la numeración sea escrita en tinta. Las placas metálicas se instalarán de manera que sean legibles para personal de esta autoridad.
57. Prueba de correlación entre los contadores y los locales será realizada por personal de esta Oficina.
58. Se utilizarán "couplings" dieléctricos cuando se utilicen materiales disimilares.
59. El contador superior del arreglo no debe ser instalado a una altura mayor de 5 pies, medidos desde piso.
60. Las acometidas que atraviesen el piso del cuarto deben ser provistas de una protección en cemento de un alto no menor a 1 pie.
61. Antes y después de cada metro, el arreglo debe tener instalado unas válvulas de oreja en bronce.
62. La flauta o "manifold" y cada acometida debe ser instalada toda en los materiales, cobre tipo K o bronce de igual cumplimiento. Luego de la válvula de oreja, después de cada contador (hacia los apartamentos), podrá ser instalado otro material. Esto puesto que la operación y mantenimiento después de los contadores será privada.
63. No se permitirán piezas soldadas o pegadas en dicho arreglo.
64. Cada cuarto de contadores debe tener como mínimo, un desagüe de 3" de diámetro.
65. Los tubos que alimentan las cajas de contador deberán instalarse perpendiculares a la flauta ("manifold"). Se construirá con los diámetros de la tubería de mayor a menor diámetro.
66. Se requiere la instalación de una llave de globo posterior a cada uno de los subcontadores, para el manejo de la Administración, de acuerdo con las disposiciones de la Ley de Condominios. Se instalará una válvula de oreja (lock wing valve) en bronce ante del contador para el manejo de esta Autoridad.
67. Cuando los sub contadores se instalen en cuartos de contadores, se deberá proveer buena iluminación, drenaje de piso, identificar a que unidad sirve y se instalará de dos a cinco pies sobre el nivel del piso de acuerdo con las especificaciones del fabricante, a fin de que facilite su lectura.

Sistema de alcantarillado sanitario

68. El punto de conexión sanitaria del proyecto será a la línea de alcantarillado de 8" de diámetro que discurre por la carretera PR-169 y se localizará, según se indica en los planos aprobados. Esta interconexión será realizada mediante conexión a registro (manhole) existente de la AAA.

69. La acometida será privada, la Autoridad no será responsable de la conservación de la acometida sanitaria hasta el punto de conexión. El dueño será responsable de la operación y mantenimiento de las líneas más allá del punto indicado en el inciso 68. Además, el dueño del proyecto será responsable de cualquier penalidad y/o multa que pudiesen imponer las agencias federales y estatales correspondientes, en la eventualidad de que se causen daños por desbordes, como consecuencia de la operación y mantenimiento del mencionado sistema sanitario privado que servirá al proyecto.

70. El cargo por unidad equivalente por conectarse al sistema de acueductos de esta Autoridad será de $500 por unidad o lo estipulado en la tarifa vigente al momento de la inspección y conexión al sistema de alcantarillado sanitario del proyecto.

71. Las acometidas sanitarias (arrastre sanitario) propuestos serán de 8" de diámetro en PVC SDR-35. Resaltamos el hecho de que el arrastre sanitario deberá tener una pendiente mínima de 0.3%.

72. Los interceptores de grasa deberán contar con un registro de inspección en su salida de 4" de diámetro.

73. La distancia entre la acometida de alcantarillados sanitario y la acometida de servicio de agua será mayor o igual a 5 pies, no se permitirá la instalación de ambas acometidas en la misma excavación.

74. La distancia entre las instalaciones de servicio de alcantarillados sanitario y las instalaciones eléctricas será mayor o igual a 5 pies. Cualquier situación que no permitiese el cumplimiento de esta distancia, deberá ser consultada con esta Oficina para aprobar alternativas que garanticen la seguridad de nuestros empleados.

75. Los registros de limpieza deberán estar localizados fuera de áreas de rodaje, rampas y estacionamiento. En el caso de que los mismos no puedan instalarse según indicado anteriormente, estos serán del tipo "heavy traffic".

76. Todas las uniones de la tubería para el alcantarillado sanitario, incluyendo las acometidas para servicio, serán con junta de goma con el fin de reducir a un mínimo la cantidad de infiltraciones de agua en las cañerías.

77. Todas las distancias están expresadas en metros, a menos que se especifique otra unidad.

78. Las instalaciones sanitarias por construirse deberán ser validadas mediante pruebas de infiltración, continuidad (luz) y niveles. Los registros de limpieza serán validados mediante prueba de pase de cinta. Resaltamos el hecho de que la Autoridad podría requerir la evaluación de la nueva instalación mediante el uso de cámara de circuito cerrado (CCTV).

79. El dueño o contratista deberá estar preparado con personal y equipo adecuado para realizar las pruebas de nivelación al sistema sanitario propuesto. La misma deberá cumplir en terreno con las pendientes profundidades de los registros adecuadas según Capítulo IV incisos 4.06 y 4.15.01 estipulado en el Manual de Normas de Diseño de esta autoridad.

80. La infiltración y ex filtración de agua en las tuberías no podrá ser mayor de 50 galones por pulgada de diámetro por milla de longitud de tubería por 24 horas. El Urbanizador proveerá los medios necesarios, según lo requiera el ingeniero de esta Agencia, para llevar a cabo las pruebas para determinar la infiltración y ex filtración de agua en las secciones de cloaca que indique dicho ingeniero.

81. Toda tubería que no llene los requisitos de las pruebas será reparada por el contratista y sometida a prueba hasta que sea aprobada definitivamente por el inspector de la Oficina de Proyectos Públicos y Privados.

82. Todas las cloacas se construirán con tuberías y piezas especiales de conexión polivynil (PVC) y deberán satisfacer los requisitos estipulados en las especificaciones de la Autoridad de Acueductos y Alcantarillados de Puerto Rico, para la clase de obra y materiales. Las juntas de las tuberías deberán ser del tipo de campana y espiga El Urbanizador proveerá los certificados correspondientes acreditados que la tubería a usarse en el de polivinilo (PVC) cumplen con los requisitos de las especificaciones normales de la American Society Testing Materials (ASTM-D-3034) actualmente en vigor aplicables para tubería de esa clase.

83. El relleno para la nivelación adecuada del terreno donde se construyan estructuras y registros de inspección deberá hacerse en capas con material apropiado y de acuerdo con los requisitos establecidos por la Junta de Planificación, o sea, que se obtenga una densidad no menor de 95% de la densidad máxima determinada, según el método "standard" de prueba de la AASHO para la relación de humedad-densidad de suelos. Dicho relleno deberá hacerse totalmente hasta la elevación requerida indicada en los planos aprobados, de manera que luego se abra la zanja o excavación necesaria para la instalación de cloacas, así como para la construcción de registros de inspección u otras estructuras.

Condiciones Generales

84. El urbanizador tiene que notificar a la Oficina Regional Metro de Proyectos Públicos y Privados de esta Autoridad tan pronto se comiencen las obras de acueductos y/o alcantarillado sanitario en el referido proyecto.

85. Al informar el Inicio de Construcción se deberá incluir copia del Permiso de Construcción (PCO) o Permiso de Urbanización (PCU) emitido por la Oficina de Gerencia de Permisos (OGPE) o la Oficina de Permisos del Municipio Autónomo (Jerarquía I a V), según aplique.

86. Antes de proceder al traspaso de los sistemas de distribución de agua y/o alcantarillado sanitario a esta Agencia, el urbanizador tiene que suministrar un inventario completo de dichos sistemas, así como un plano de inscripción final del proyecto y también tiene que legalizar la cesión de servidumbre de paso y terrenos adquiridos, si las hubiese.

87. La A.A.A. se reserva el derecho de requerir cualquier cambio pertinente u obra de mejora que por omisión involuntaria no se haya incluido en el proyecto y a su juicio, sea necesario para el buen funcionamiento del (de los) sistema(s) de agua potable y alcantarillado sanitario. Esto incluye obras construidas que no estén en acuerdo con las Normas de la Autoridad y que su efecto sea en detrimento de los sistemas a ser instalados.

88. Si existiera una cañería de la Autoridad de Acueductos y Alcantarillados en uso, a la cual por su situación lógicamente debería conectarse el sistema de distribución de agua y alcantarillado sanitario, según fuera el caso del referido proyecto y dicha cañería fuera inadecuada a los fines de proveer medios eficientes de servicio, o si la misma no existiera, la Autoridad no vendrá obligada en forma alguna a facilitar libre de costo el debido funcionamiento de dichos sistemas.

89. Las instalaciones para los servicios de agua y/o alcantarillado sanitario no podrán ponerse en uso hasta tanto sean terminadas y aprobadas por esta Autoridad.

90. Se resalta el hecho que el plano es la descripción gráfica de las instalaciones a ser realizadas. Toda información presentada en los planos deberá ser corroborada en el campo.

91. El contratista o urbanizador suministrará evidencia del pago de conexión al sistema, previo al endoso final del proyecto.

92. Para la aceptación final del proyecto el mismo deberá estar pavimentado cuando se realice la validación final.

93. Cualquier sistema de recolección de aguas de lluvia propuesto, deberá ser presentado para evaluación de esta Autoridad. Con relación a estos sistemas resaltamos que:

    a. Dichas aguas no podrán ser mezcladas con las aguas del sistema de agua potable, servida por la AAA.

    b. Se deberá proveer un mecanismo para que esta Autoridad pueda facturar por la porción de esta agua, que, por su naturaleza, se proponga disponer al sistema de alcantarillado sanitario de la AAA.

94. Los pagos de los cargos por conexión y cargos especiales por agua de construcción se harán en las Oficinas Comerciales correspondientes. La oficina de Proyectos Públicos y Privados determinará la cantidad de dinero a pagar mediante una notificación a la Agencia Comercial con copia para el desarrollador. Los pagos se harán con cheques certificados o giros a favor de la AAA. La Agencia Comercial será responsable de recibir el pago efectuado por el desarrollador, expedir un recibo al contratista según la "*Notificación de Cobro a la Agencia Comercial*". El desarrollador deberá presentar la evidencia de pago y entregar este formulario firmado por el Oficial Receptor en original junto con dos copias del cheque certificado o giro. La Agencia Comercial adjuntará el recibo del cajero electrónico.

Vigencia & Disposiciones Generales

95. Esta aprobación del referido proyecto será efectiva por un término de dos (2) años a partir de la fecha de esta comunicación: al cabo del cual, de no haberse comenzado la construcción de las obras de acueductos y/o alcantarillado sanitario, el proponente tiene que someter nuevamente el proyecto a la consideración de esta Autoridad, tan pronto esté en condiciones de ejecutar dichas obras, de todo lo cual queda apercibido del interesado.

96. Una vez se inactive este proyecto por más de dos años, la aprobación del mismo quedará sin efecto. La inactividad del proyecto se refiere a que no se reflejen acciones en el expediente de trabajo de la AAA.

97. El dueño del proyecto, el ingeniero que certificó los planos para la instalación de los sistemas de acueducto y alcantarillado sanitario, el inspector designado por el dueño y el contratista deberán cumplir con el "*Reglamento de Certificación y Planos de Construcción*", adoptado por esta Autoridad de acuerdo con la Ley número 7 del 19 de julio de 1985. Este sistema de certificación de planos ha de descansar en la responsabilidad profesional que se le ha conferido al ingeniero o arquitecto colegiado al otorgársele una licencia profesional para garantizar la buena calidad de sus diseños al cumplir con los reglamentos, normas y patrones que rigen en la AAA, la Junta de Planificación y la Oficina de Gerencia de Permisos (OGPe). A esos efectos, el diseñador de las instalaciones a ser aprobadas en esta carta será responsable de corregir cualquier situación que a juicio de la Autoridad represente un detrimento a los sistemas de servicio.

98. La Autoridad emite esta aprobación basada en que el diseñador ha cumplido con los parámetros mínimos establecidos en nuestras Normas de Diseño. No obstante, resaltamos el hecho que la lógica de servicio hidráulico ha sido certificada por el diseñador.

99. La aprobación de este plano por la Autoridad de Acueductos y Alcantarillados, en ninguna manera releva de responsabilidad al diseñador de este, conforme a la Ley 7 del 19 de julio de 1985.

100. La aprobación de este plano se realiza de acuerdo con el Reglamento para la Certificación de Planos de Construcción de la AAA y está sujeto a los procedimientos fiscalizadores establecidos en la Sección 10 del mismo.

101. Las cartas de recomendaciones vigentes y las condiciones indicadas en las mismas serán parte de la aprobación de este proyecto. Los dueños del proyecto serán responsables de cumplir con estas condiciones y cualquier omisión nuestra, en esta aprobación, no los releva de realizarlas. Para todos los efectos, se considerarán como incluidas en esta aprobación.

102. De surgir alguna diferencia entre lo indicado en el plano y este documento prevalecerá lo que indique este documento y/o lo que determine esta Oficina.

Servicios temporeros durante la construcción

103. El método de provisión de agua de construcción deberá ser propuesto por el desarrollador y aprobado por la Oficina de Proyectos Públicos y Privados antes de iniciar la construcción del proyecto. Para la provisión de estos servicios, siempre prevalecerá el método de lectura sobre cualquier método donde el consumo tenga que ser estimado. Resaltamos que cualquier persona que hiciera uso del servicio de agua o alcantarillado sin que medie un servicio registrado con la Autoridad, será responsable del pago de los servicios utilizados, del cumplimiento con las normas o reglamentos aplicables y las disposiciones del *Código sobre Tomas o Descargas Clandestinas, Hurto de Agua, Manipulación de Contadores u otros Accesorios Propiedad de la Autoridad de Acueductos y Alcantarillados*.

104. Las acometidas temporeras para agua durante el proceso de construcción deberán ser solicitadas formalmente a la Oficina de Proyectos Públicos y Privados (PPP) antes de iniciar las obras de construcción del proyecto. La Oficina de PPP emitirá la factura relacionada al trabajo de conexión de dicha acometida, así como la autorización de conexión, y la autorización para registrar temporeramente el servicio solicitado.

105. Deberá solicitar un servicio aparte para las oficinas temporeras del proyecto.

106. Proyectos que, por su configuración, no puedan suministrar el agua de construcción con un método de lectura, estarán sujetos al pago por unidad establecido para dichos fines al momento de que se emita el endoso final para permiso de uso. Destacamos que el método de provisión de agua de construcción deberá ser propuesto por el desarrollador y aprobado por la Oficina de Proyectos Públicos y Privados antes de iniciar la construcción del proyecto.

Inspección de Obras

107. Deberá presentar a las Oficinas de Proyectos Públicos y Privados dos (2) copias del "set" de planos aprobados (sello de la AAA incluido) en tamaño 24" x 36", antes del inicio de construcción del proyecto.

108. Deberá solicitar una reunión pre-construcción antes de solicitar la primera inspección del proyecto. A la misma debe asistir el inspector designado por el dueño, y el representante del dueño.

109. El inspector designado en la forma de AAA-881 será responsable de cumplir con las disposiciones de la sección 4.0 del Reglamento para permisos de planos de la AAA.

110. El inspector designado, según indicado en la AAA-881, será responsable de someter ante esta Oficina reportes rutinarios de las obras realizadas y fotos de las tuberías instaladas. Estos reportes deberán ser sellados y firmados por el inspector.

111. Las solicitudes para inspección deberán realizarse por escrito a nuestras Oficinas y deberán ser precedidas por el informe del inspector designado por el dueño. Los informes de inspección deben detallar los elementos o pruebas realizadas, así como el resultado de las mismas. En el caso de pruebas se debe describir el método utilizado para realizar la misma. Asimismo, se deben

incluir fotografías de los elementos inspeccionados.

112. El inspector designado deberá someter copia de los informes de inspección del proyecto que correspondan a la instalación de las líneas del sistema de distribución de agua o alcantarillado sanitario del proyecto, cuando se vaya a solicitar el endoso de las unidades individuales. Este informe debe tener el sello y la firma del inspector designado en original.

113. Deberá proveerse una excavación en todas las acometidas para verificar la profundidad de las tuberías y tipo de material antes de pavimentar la calle de acceso y del proyecto.

114. Se debe coordinar las excavaciones en todo el proyecto de construcción con la oficina de Coordinación de Excavaciones, teléfono 764-4900, adscrita a la Comisión de Servicio Público.

115. El inspector designado deberá estar presente en las inspecciones.

Cambios al Plano Aprobado

116. Se deberá presentar un plano revisado donde se indique cualquier cambio del sistema de agua y sanitario. Estos cambios al plano inicialmente aprobado deberán ser aprobados antes de proceder con los mismos. Toda solicitud para enmienda de un plano aprobado deberá incluir: un memorial explicativo discutiendo los cambios, los formularios AAA-1294 (Certificación del Diseñador) y AAA-972 (Solicitud de aprobación de planos de construcción).

117. Cualquier cambio/enmienda al plano originalmente aprobado deberá ser presentado a través de una petición de servicio para tales fines a través de la Oficina de Gerencia de Permisos (OGPe). Esta Oficina no validará obras que no cumplan con las Normas de esta Autoridad y/o cuenten previamente con nuestra aprobación.

118. De surgir alguna diferencia entre lo indicado en el plano y este documento prevalecerá lo que indique este documento y/o lo que determine esta Oficina.

Otros

119. El diseñador deberá presentar una copia del plano digital en formado ArcView (.shp), Microstation (.dng) o Autocad (.dwg). Además, deberá incluir las coordenadas State Plane NAD83.

120. Como parte del proceso de endoso y aceptación final del proyecto deberán ser remitidos a nuestra Oficina los siguientes formularios: Formulario AAA-177 (Informe de Terminación de Obra), Formulario AAA-1268 (Documento de Cesión y Traspaso), Formulario AAA-1351 (Declaración y Certificación), Formulario AAA-1294-A (Certificación del Contratista) y la Certificación Final del Inspector Designado.

121. El trámite para constituir las servidumbres de paso que sean necesarias deberá haber sido finalizado antes de solicitar el/los endoso(s) final(es) para permiso de uso relacionados al proyecto.

122. El desarrollador deberá entregar un desglose de los largos de tubería instalados en el proyecto para los sistemas de agua y/o alcantarillados. En adición proveerá un listado de todas las bocas de incendio dentro del proyecto con su localización exacta y un estimado de las obras hidráulicas. Esto será un requisito para poder emitir la carta de Aceptación Final.

123. El dueño del proyecto tendrá que obtener de la oficina de Proyectos Públicos y Privados, la carta de Aceptación Final una vez sea inspeccionado y completado el proyecto en su totalidad para poder obtener el servicio.

124. El desarrollador, urbanizador o dueño del proyecto será responsable de toda obra de infraestructura de acueductos y alcantarillado hasta tanto, no haya obtenido una aceptación final de parte de la AAA. Toda deficiencia encontrada en los sistemas de distribución de agua y alcantarillado sanitario será de entera responsabilidad de los mismos y deberá ser corregida.

Cordialmente,



Ing. Gina M. Carrillo García, PE
Gerente Técnico Proyecto Públicos y Privados

GCG/arv

c expediente, Archivo de Lectura

EXHIBIT J

AEE 15.2-793
Rev. 9/09

ESTADO LIBRE ASOCIADO DE PUERTO RICO
AUTORIDAD DE ENERGÍA ELÉCTRICA DE PUERTO RICO

NÚM. CERTIFICACIÓN: 05-8-218-C

CERTIFICACIÓN DE PLANOS DE CONSTRUCCIÓN ELÉCTRICA

En armonía con las disposiciones de la Ley Núm. 7 del 19 de julio de 1985 y de la Ley Núm. 173 del 12 de agosto de 1988, según enmendadas, yo, Leonardo J. Vidal (Nombre y Apellidos) certifico que:

Soy mayor de edad, casado (Estado civil), vecino de San Juan (Municipio), Puerto Rico; que soy Ingeniero (Ingeniero o Arquitecto) autorizado a ejercer la profesión en Puerto Rico con licencia número 6092 y soy miembro activo del colegio de mi profesión.

En el ejercicio de la profesión diseñé la fase eléctrica del proyecto de construcción descrita como :

Nombre Proyecto	Condominio Vista al Norte	
Núm. AEE: 05-8-218		Carga (kVA): 750
Dirección Física	Calle Piedras Blancas, Bo. Piedras Blancas	
	Guaynabo, P.R.	

Estoy autorizado por el dueño del proyecto a radicar esta certificación ante la AEE.

Dueño Proyecto	SCF Architects
Dirección Postal	13 2nd Street, Metro Office Park
	Guaynabo, PR 00968-1712

Radico esta certificación ante la AEE para:

✔	Endoso de los planos de diseño eléctrico que tienen evaluación vigente desde el 12/nov/2019.
	Revisión número ____ de los planos de diseño eléctrico previamente endosados por la AEE. Se incluye memorial explicativo.

La fase eléctrica del proyecto preparada o diseñada por mí, según se incluye en los planos, documentos y especificaciones que acompañan esta certificación, está conforme con los reglamentos, códigos, normas, patrones y comunicados técnicos vigentes aplicables promulgados, aprobados o adoptados por la AEE, la Junta de Planificación y la Administración de Reglamentos y Permisos, así como con las políticas públicas y leyes aplicables.

Acepto que el endoso de estos planos, documentos y especificaciones por parte de la AEE no constituye un relevo de la responsabilidad profesional que conlleva esta certificación.

Sustitución del Diseñador: Este proyecto fue endosado anteriormente a _____ (Ingeniero o Arquitecto), por lo que se incluye el relevo de responsabilidad expedido por éste.

Firma:
Fecha:
Dirección:



ENDOSO DE LA AEE

Firma:
Nombre:
Fecha:

Digitally signed by Rafael L. Arrillaga, PE
Reason: Endoso AEE
Date: 2020.01.22 08:54:23 -04'00'

LUIS O. GARCIA & ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Partners
Luis Oscar García, MSCE, CE
Carlos García Echevarría, MSCE

Associate
Alejandro E. Soto, MS, PG

REPORT ON
GEOTECHNICAL INVESTIGATION
FOR THE PROPOSED
CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO

December 10, 2019

Geo Cim Inc. Project No. 5258

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APPENDIX A – BORING LOGS

APPENDIX B – FIELD AND LABORATORY TESTING PROCEDURES

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1.0 INTRODUCTION

This report presents the results of a geotechnical investigation performed at the site of the proposed Condominio Vista al Norte located in Camarones Ward of the Municipality of Guaynabo (Figure 1a and Figure 1b). The project consists of the design and construction of a 14-story condominium with the supporting infrastructure and parking areas. The objective of the investigation was to explore and analyze the subsoil conditions at the site and provide geotechnical recommendations for the design of the project. The investigation was performed as requested by Architect Segundo Cardona, project Architect and Developer. This study and report are an updated study of a preliminary study conducted in 2007 for this project for which a preliminary geotechnical report had been issued dated July 23, 2007. The proposed building now has undergone some variations from the originally contemplated building in size, number of stories and grading elevations.

2.0 PROJECT DESCRIPTION AND SETTING

The site is an irregular-shaped parcel of 4678.4 sm located on the north side of Camino Piedras Blancas. Figure 2 presents a Site plan of the proposed project overlain on the Topographic Plan of the site prepared by Surveyor Pedro J Dávila Colón. The property occupies the upslope portion of a small, north-northwest draining valley that has a peak elevation of 68

meters near the southeast portion of the property. The lot is bounded on the north by a wooded slope that is identified in the Topographic Plan as belonging to Iglesia Cristiana Discipulos de Cristo. This slope is inclined downward at angles varying from 14.8° to 16.48° from the horizontal plane. Further north is located the Escuela Nueva Urbana. Across Camino Piedras Blancas on the southwest end of the project site is located the multistory condominium Regency Park.

The project consists of the construction of three rectangular-shaped, towers aligned so as to form a gentle arc on 3 level pads to be excavated into the hillside at Final Grade Elevations of 58.6 m , 58.6 m and 60 m, for the 3 modules, from west to east, respectively, and with parking areas and supporting infrastructure to be sited on slightly higher ground to the south and east. The buildings will bear on reinforced concrete large footings to be cast at elevations below the final grade elevations into the weathered rock found at the site. The west and central modules will be 14 stories high and the eastern module 13 stories high. Figure 3 shows the proposed grading plan.

2.1 Geologic Setting

Figure 4 shows the portion of the Geologic Map of the Aguas Buenas Quadrangle[1] published by the USGS wherein the property is located, and in which the different geologic units are identified by different colors and letter symbols. Three different rock units of early Tertiary to Cretaceous age (over 50 million years old) appear within the general site area. Most of the property lies within the outcrop of a roughly 120-meter wide, northwest-trending band of rock identified as the Guaracanal Andesite (purple-colored unit labeled *Tg*), described as a sequence of volcanic and volcaniclastic rocks occurring in predominantly thick to massive beds that are shown to be dipping to the northeast at angles of 15° to 40°. The other 2 map units occur along the eastern portion of the property (note that they are also present along the west margin of the Guaracanal Andesite outcrop, well beyond the property boundaries). These are a thin belt of limestone (orange-colored unit labeled *Tgl*) and predominantly volcaniclastic layers of the Guaynabo Formation (gray color with bluish circle pattern and labeled *Kg*) that extends well

beyond the property to the east and north. Both of these units are shown to be in sedimentary contact with the Guaracanal Andesite, so that the inclination of the corresponding strata at the site are assumed to be similar to those of the Guaracanal Andesite.

As noted above, the contacts between the geologic units are indicated to be depositional. The USGS did not identify any geologic faults within the property, but the map shows several northwest-trending faults north and south of the site, and northeast-trending faults to the east and west. The faults are represented by thick black lines which are dashed, indicating they lack surface expression, so their locations are approximate. All of the faults are old geologic features that are presently considered to be inactive.

3.0 SCOPE OF WORK

The scope of work for this project included drilling 8 exploratory boreholes that penetrated to depths of 10 to 20 feet for a total drilling footage of 70 linear feet; the boring locations are shown on Figure 5. Of these, the last 2 borings were made at the top of the rock outcrop in the south east end of the lot where the parking turns from a west-east direction towards the south-north direction. The objective of these two borings was to obtain information as to the hardness of the rock to estimate the excavation methods to use, whether using rippers or use of a hydraulic impact breaker. The boreholes were drilled with a CME-45 drill rig using the "Hollow Stem Auger-Dry Sample" method of drilling. Soil samples were collected at 2.5-foot depth intervals beginning at the ground surface to a depth of 10 feet, and at 5-foot depth intervals thereafter to the bottom of the borings. The samples were collected with a standard 1.5-foot long split-spoon sampler driven into the ground during the performance of the Standard Penetration Test (SPT; ASTM D-1586). The number of blows required to drive the split-spoon sampler into the soil was recorded in the field[2].

The collected samples were placed in tightly closed plastic bottles and transported to the Geo Cim Geotechnical Testing Laboratory in Guaynabo for unconfined compression testing (in cohesive samples using a spring tester and/or pocket penetrometer), natural moisture content

[1] Pease, Jr., Maurice H., "Geologic Map of the Aguas Buenas Quadrangle, Puerto Rico", Miscellaneous Geologic Investigations, Map I-479, USGS, 1968.

determinations, and visual/manual soil descriptions following standard laboratory procedures. The results of the field operations, laboratory testing, and detailed descriptions of the soils encountered are documented in the boring log included in Appendix A. We also include the 4 exploratory borings drilled at the site for the 2007 study. Appendix B contains a description of the Geo Cim, Inc. drilling, sampling, and testing procedures. Geo Cim, Inc., our affiliate geotechnical testing services firm, performed the field and laboratory work.

Our evaluation also included a visual reconnaissance of the site and a review of available information about the site and the general site area. This included the geologic quadrangle map prepared by the USGS, aerial photographs of the general site area available in the Geo Cim air photo collection (1:15,000 or 1:20,000 scale photographs taken in 1951, 1962, 1983 and 1988), and Google Earth imagery spanning the period 1994 to the present. We also reviewed a July 2007 geotechnical report for the site by Luis O. García and Associates that included four 49-foot deep exploratory borings drilled using both hollow stem augers as well as rock coring using a NW-size double tube core barrel (1-7/8"ϕ core recovery) to sample the less weathered bedrock present at depths below those penetrated by the borings for the present evaluation. The location of the 2007 borings is also indicated on Figure 5, and copies of the corresponding boring logs are included in Appendix A of this report. These are also identified as B-1, B-2, B-3, and B-4 but with a different symbol in the drawing.

4.0 SUBSURFACE CONDITIONS

The observed subsurface conditions are in general agreement with the USGS geologic map in that the exploratory borings encountered mostly thick-bedded to massive volcaniclastic rock and one limestone stratum. At five of the six borings, the bedrock is mantled by up to about 4.5 feet of man-made fill that was described as medium stiff to stiff clay with trace gravel-sized rock fragments. Although some of the fill may be related to recent site grading activities (including the creation of access paths for our drilling equipment), the bulk of the fill probably reflects previous site usage: the 1962, 1983, and 1988 aerial photographs and the 1994 Google Earth image show a concrete structure with a roughly 900 sm footprint within the property near

[2] The number of blows required to drive the last 12 inches of the sampler, termed the N-value, is an empirical

the Camino Piedras Blancas; the structure was demolished sometime between 1994 and 2003 and is not present in Google Earth images from the latter and subsequent dates.

Weathered volcaniclastic rocks or residual soils derived from them outcrop outside the fill areas and in road cuts along the Camino Piedras Blancas access road. The residual soils are sandy with varying proportions of silt and clay that typically occur as secondary constituents but may locally dominate the soil mass. They grade down into the weathered rock, usually with no clear boundary between them. The current and 2007 exploratory borings describe weathered rock beginning at depths of 0 (ground surface) to 4.5 feet.

The physical character of the volcaniclastic rocks depends on the degree of weathering they have experienced and the presence and condition of rock joints, fractures, faults, or other features that disrupt the continuity of the rock mass (and are referred to as rock discontinuities); the terminology used to describe the physical properties of the rock is explained in Table 1. With the exception of Boring B-05, where the bedrock encountered consists of faintly weathered, strong to very strong limestone[3], the current borings and all four 2007 borings encountered thoroughly to highly weathered, friable to weak volcaniclastic rock beginning at depths of 0.5 to 4.5 feet. This rock exhibits N-values greater than 20 blows per foot (bpf) of sampler penetration with the majority exceeding 100 bpf, and it was typically sampled as gravelly sand and silt. Moderately weathered rock that is moderately strong to strong was found below depths of 7 to 10 feet, with moderately to slightly weathered, strong to very strong rock dominating the 2007 borings below depths of 15 to 20 feet (N-values recorded in these materials, which were typically sampled as gravel-sized, angular rock fragments, regularly exceeded 100 bpf).

As noted above, the 2007 study sampled the less weathered rock by core drilling. Core recovery[4] ranged between 65% and 100% with most values exceeding 80% indicating the rock is of relatively good quality; RQD values[5], a measure of the degree to which the rock is broken by joints or other discontinuities ranged from zero to 100%. The cored rock was generally described

measure of soil density and consistency.

[3] We observed several small limestone boulders at the site that are compositionally similar to the limestone encountered in the boring, but it is not clear where they came from as no limestone outcrop was observed.

[4] Percent recovery is the length of core recovered divided by the length of the core run.

[5] Rock Quality Designation (RQD) is the percentage of the total length of core pieces that are 4 inches long or longer to the length of the core run.

as intensely to moderately fractured (see Table 1 and Appendix A); low RQD values reflect the presence of open, and/or well oxidized, and/or clay-filled discontinuities, whereas high RQD values indicate discontinuity free-rock or one in which the discontinuities are tight or healed by secondary precipitates such as quartz or calcite.

There is no information about groundwater in the general site area and groundwater was not observed in the boreholes during drilling or shortly thereafter.

5.0 CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

Based on the information summarized above we conclude that subsurface conditions at the site are adequate for the proposed Condominio Vista al Norte development. The property is underlain by weathered bedrock occurring at depths of less than 5 feet at all the soil boring sites (including the 2007 borings) that will provide adequate bearing support for the proposed structures. The rock consists of thick-bedded to massive volcanic sandstone and conglomerate strata with a single limestone layer encountered in Boring B-05. We did not see any stratification at the site or its vicinity but the geologic quadrangle map indicates the strata dip to the northeast at angles of 15° to 40°. Most of the slopes at the site face north to northwest such that bedding-controlled slope instability is unlikely; in this regard, the aerial photographs and Google Earth images show no indication of previous slope instability within or near the property, nor did we see any during our site reconnaissance.

As noted above groundwater was not encountered in the boreholes at the site. The local groundwater levels probably occur at depths in excess of 20 or 30 feet so that we anticipate that groundwater will not impact the proposed project. Water trapped within bedding planes or other rock discontinuities could be found during site grading and/or foundation excavations and will have to be controlled and disposed of in such a way that it does not adversely affect the project.

As per the site plan, the building modules will be located on the slope on the south side of the path that was cut from west to east (where the 4 borings were located), such that they will be mostly cut into the slope; at the outer (north) edge of the building, the final grade elevation will be close to the existing levels along the path. The proposed Final Grade levels are 58.65 m in the west module, 58.0 min the central module, and 60 m in the eastern module, and they will require

cutting into the slope as shown in the cross sections prepared by the office of SCF, presented as Figure 6. The building foundations will be enlarged spread footing foundations of thickness as necessary to embed the bottom of the foundation in the weathered rock that is found at or about 3 to 5 ft below the ground surface. Thus, the final depth of foundations will be determined upon close geotechnical inspection of the ground to confirm that the adequate bearing weathered rock is present at the footing/mat foundations. The footings properly will be cast monolithically with the slab on grade of 8 inch thickness, for which a thicker section of the footing of a minimum thickness of 24 inches will be built. This will be further discussed in a subsequent section of this report.

The following section provides geotechnical recommendations for the earthworks to be carried out at the site to meet the grading design.

5.1 Earthwork

5.1.1 Prior to commencing construction, the site shall be cleared and grubbed of any vegetation cover and topsoil; any construction debris or trash at the surface must be excavated and removed from the site. Topsoil may be stockpiled for later use during site landscaping.

5.1.2 The parking areas in the south side of the building will be built at an elevation varying from around 61 meters at the entry point to the lot, up to around 65 meters; this will require excavating into the in-situ weathered rock formation to lower the ground levels around 3 meters to attain the proposed final grade elevations in the parking area.

5.1.3 The foundations and modules excavations will produce temporary cut slopes on the south side towards the parking areas of about 5 to 6 meters depth. The toe of the excavation should be placed a minimum of 1 meter from the outer edge of the modules ground floor slab to allow space for the placement and compaction of backfill. The inclination at which the slope shall be cut is a matter of design of the temporary cut excavation. As a preliminary recommendation, the inclination of the slope should not exceed an angle of about 63.5˚, which is 1H:2V. It is

possible that the excavation will expose strata that dip out of the slope. Should this condition arise, it should be evaluated immediately by the project Geotechnical Engineer who will determine what, if any, measures are necessary to prevent slippage of the strata into the excavation. The final design of the excavation slopes is not part of the scope of work of this study. We recommend that the contractor examine the various alternatives for this excavation and have the final slope determined by a geotechnical engineer. Any measures that are needed for retention of the temporary cut slope must be designed by a geotechnical engineer. One alternative that can be considered for the excavation is to excavate the rock vertically as a soil nail wall, in which the rock is reinforced with grouted steel anchors (nails) as it is excavated and the rock face is lined with shotcrete. This wall facing can be used as a permanent wall if necessary, and eliminates the need to place additional backfill. However, soil nail walls are normally quite expensive. They are well justified if the excavation needs to be supported temporarily as it is being lowered. In this project, however, it is likely that the open, steep cut slope can be excavated temporarily, then a conventional retaining wall is built, and the backfill is placed after casting the retaining walls. Other alternatives for temporary support can be further discussed with the project's architects for a final determination of how to proceed with the excavation.

5.1.4 The large spread footings excavation must extend through the surface residual soil into thoroughly to highly weathered rock and in places, into moderately weathered rock. We anticipate that the bulk of the excavation can be accomplished with conventional excavation equipment, including using large bulldozers with rippers. It is possible that boulders of relatively unweathered, very strong rock may be encountered in the excavation; these may require the localized use of heavy-duty impact breakers to remove. The two exploratory boreholes drilled at the rock outcrop labeled as B-6a and B-6b had the intention of evaluating the quality of the rock. Boring 6b was drilled to about 12 ft depth,

partly into rock with core drilling methods. We concluded that the rock may be excavated mostly with rippers and the use of a hydraulic impact breaker will be most likely not needed of if needed, only for small volumes of rock. This excavated material will generally be suitable for use as compacted fill but should be evaluated and approved by the project Geotechnical Engineer who will perform the necessary tests to establish the compaction requirements for the material. The maximum size of rock fragments that can be used in 10-inch thick fill layers is 8 inches.

5.1.5 The ground surface at the level of the foundations is anticipated to be highly to moderately weathered rock. The bottom of spread footing level shall be cleaned and leveled as much as possible in preparation for casting the footings. If necessary, a lean concrete mat may be poured to level the bottom surface if there are jagged edges due to the exposed rock outcrops.

5.1.6 If any material is needed to backfill foundation areas above or below the foundations or backfill behind the retaining walls, the material to be used shall consist of non-expansive A-2-4 soil or better in accordance with the AASHTO Soil Classification System. The weathered rock to be excavated from the parking area will produce this select fill material. The fill shall be constructed as an engineered compacted fill placed in 10 to 12-inch thick layers with each layer compacted to a minimum of 95% of the Maximum Dry Density as obtained in the Modified Proctor Test (ASTM D 1557).

5.1.7 Backfill material within 5 feet of the cut face shall be placed in 4- to 6-inch thick layers to be compacted with light, hand-operated compaction equipment to 90% of the maximum dry density as obtained in the Modified Proctor test (ASTM D 1557).

5.1.8 Any springs encountered during the excavation or other construction activities shall be provided with adequate drainage outlets (French drains or other appropriate measures) to prevent the buildup of excess pore pressures in the soil. Under no circumstance should a spring area be covered with soil or paved over

without previously having constructed a drainage outlet. The project should be provided with adequate surface drainage measures to collect and conduct runoff to the project storm water system and prevent the accumulation of water anywhere within the project.

5.1.9 All clearing, excavating, and fill placement and compaction shall be performed under the full-time supervision of a qualified soil technician working under the direct supervision of the project Geotechnical Engineer to verify that the work is performed as described above.

5.1.10 The down slope extending north beyond the building construction area shall be leveled smooth in the areas affected by construction, and shall be lined with an erosion control blanket to prevent erosion until natural vegetation grows on the slope surface. A permanent erosion blanket such as ECP-2 (by East Coast Erosion) or equivalent is recommended.

5.2 Building Spread Footings Foundation

5.2.1 The project's Site Classification (Intl Building Code 2018, and ASCE 7-16) is considered to fall into Site Class C corresponding to very dense sand and soft rock. This soil category will be used by the structural engineer in his analysis of the structure.

5.2.2 The foundation for the condominium building will be cast at three different levels, as described earlier in this report. The three final grade (FG) levels are 58.65 meters on the west third, 58 meters on the center third, and 61.50 m in the eastern third. The cistern will go in the west module. The mat must be cast on weathered rock. The bearing capacity of this rock is high, however, to make precise estimates of the capacity would be complicated since it depends on several factors, such as the rock quality, joints, bedding, thickness of layers and several others. Presumptive values of allowable bearing capacity are available in the technical literature for the various types of rock and degree of weathering. Based on our review of the literature, and evaluation of rock quality as determined

mostly by the amount of recovery and Rock Quality Designation (RQD) we recommend using an Allowable Soil Bearing Pressure (q_{all}) of q_{all} = 6 kips per square foot (ksf). This may also be increased by 30% for short duration and transient loading such as wind and earthquake loads. The structural engineer has designed the foundations for an allowable bearing pressure of Qall = 5 ksf, which is safe.

5.2.3 The elastic settlement that is anticipated to occur due to the applied loading on the mat foundation is estimated to be negligible, based on the high Elastic Modulus that would correspond to the rock formation. Preliminarily we have used a value of Es = 52,400 ksf, based on similar values estimated for other projects. For preliminary purposes, we have estimated the elastic settlement to be less than 0.125 inches (that is, less than about 1/8th inch). The actual applied bearing pressure that the structural engineer estimates must be provided to us to make a better estimate of elastic settlement and of a subgrade modulus to use for the design of the mat foundation. For preliminary purposes, we have estimated a Modulus of Subgrade Reaction (K_s) based on an applied bearing pressure of 5 ksf and an elastic settlement of 0.125 inches, which results in a K_s of 5/(0.125in/12in/ft) = 480 kips per cubic foot (kcf).

5.3 Parking Deck Foundation

5.3.1 The parking deck foundation will consist of independent footings bearing on the in-situ weathered rock at a minimum depth of 2 feet below the lower level of the foundation excavation in the slope. The footings can be proportioned using an allowable soil bearing pressure Q_{all} = 5 kips per square foot (ksf). These allowable bearing pressures may be increased by 30 percent for short duration and transient loading such as wind and earthquake loads.

5.3.2 Prior to concrete placement, the foundation bearing surfaces shall be cleaned and any soil disturbed during the foundation excavation operations (or anytime thereafter) shall be removed to provide an undisturbed bearing surface. Likewise, if water from rain accumulates within the footing area, it must be pumped and the

bottom of the foundation-bearing surface must be dry and well compacted with tampers. If necessary, a 1-inch down crushed stone working mat of a minimum thickness of 4 inches may be placed at the bottom of the footings before casting the footing or mat to prevent disturbance after the excavation has been made. We further recommend scheduling the casting of the footing or mat shortly after their excavation. This will minimize disturbance of the foundation bearing soil due to construction operations and/or weather conditions.

5.3.3 As the project advances to final design, additional geotechnical recommendations may be required. We request to be consulted for these, to provide the necessary additional recommendations that will be needed.

6.0 CLOSURE

The above stated conclusions and recommendations are based on geologic and engineering analysis and evaluation of a limited number of soil samples obtained from widely-spaced subsurface exploration sites and observations of existing surface conditions at the site. Although the evaluation approach used in this study is consistent with those used in ordinary geotechnical engineering and engineering geologic studies, variations in subsoil conditions or other unexpected conditions may be encountered during construction. The nature and extent of variations between the explored locations may not become evident until construction is underway or completed. Subsurface conditions different from those anticipated based on our investigation may necessitate re-evaluation of these recommendations and adjustments in project design. It is advised that Geo Cim, Inc. be retained to observe geologic/geotechnical conditions during site earth work operations in order to help confirm that our assumptions and recommendations are valid, to verify general compliance with design concepts and recommendations, and to assist in the development of design changes should subsurface conditions differ from those anticipated prior to the start of construction.

This Report has been prepared for Architect Segundo Cardona for use in the design of the Condominio Vista al Norte project. In the event of any change in the nature of the proposed

project, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed, and the conclusions of this report are modified in writing by Geo Cim. Geo Cim will not be responsible for any claims or liability associated with interpretation of subsurface data or reuse of the subsurface data or engineering analysis contained herein without the express written authorization of Geo Cim, Inc.

We request to be kept informed on the progress of the design of this project and to be consulted if there are any questions as to the intent and general purpose of our recommendations. Likewise, we request to be informed of any changes in the scope of this project that may require a revision of these recommendations or necessitate additional recommendations.

Respectfully Submitted,

GEO CIM, INC. (PSC) – LUIS O. GARCIA & ASSOCIATES



Luis O. García, PE
Principal

https://d.docs.live.net/3734b9e3a49994be/Documents/GEO CIM PROJECTS/5258-Cond. Vista al Norte-Guaynabo/5258-19-07-08R-Cond.Vista al Norte-Guaynabo-ArchSegundoCardona.doc

Table 1: Descriptive Terminology Used to Characterize the Physical Properties of Rock for Engineering Purposes

WEATHERING CLASSIFICATION

Fresh	No visible sign of weathering
Faintly Weathered	Weathering limited to surface of major discontinuities
Slightly Weathered	Penetrative weathering developed on open discontinuity surfaces, but only slight
Moderately	Weathering extends through the rock mass, but rock is not friable
Highly Weathered	Weathering extends through the rock mass and rock is partly friable
Thoroughly	Rock is wholly decomposed and friable, retains rock structure and texture
Saprolite	Soil that retains the original rock texture and structure
Residual Soil	Soil with the original rock texture, structure and composition completely destroyed

FRACTURE SPACING

Fracturing	Size Range of Rock Fragments
Crushed	Less than 1.5 cm
Intensely fractured	1.5 - 3.0 cm
Closely fractured	3.0 – 15 cm
Moderately fractured	15 – 30 cm
Little fractured	30 cm – 1 m
Massive	Greater than 1 m

HARDNESS

Soft	Plastic material
Friable	Easily crumbled or powdered by fingers
Low hardness	Can be gouged deeply or carved with a knife
Moderately hard	Can be readily scratched by a knife blade; scratch leave heavy trace of dust
Hard	Can be scratched with difficulty; scratch produces little powder and is faintly visible
Very hard	Cannot be scratched with a knife blade

STRENGTH

Plastic	Easily deformable with finger pressure
Friable	Crumbles by rubbing with fingers
Weak	Unfractured outcrop crumbles under light hammer blows
Moderately strong	Outcrop withstands a few strong blows before breaking
Strong	Outcrop would withstand a few heavy ringing hammer blows, but will yield large fragments
Very strong	Outcrop would resist heavy ringing hammer blows and yield dust and small fragments with difficulty



Figure 1a – Project Site in Google Earth Image dated 8/2019

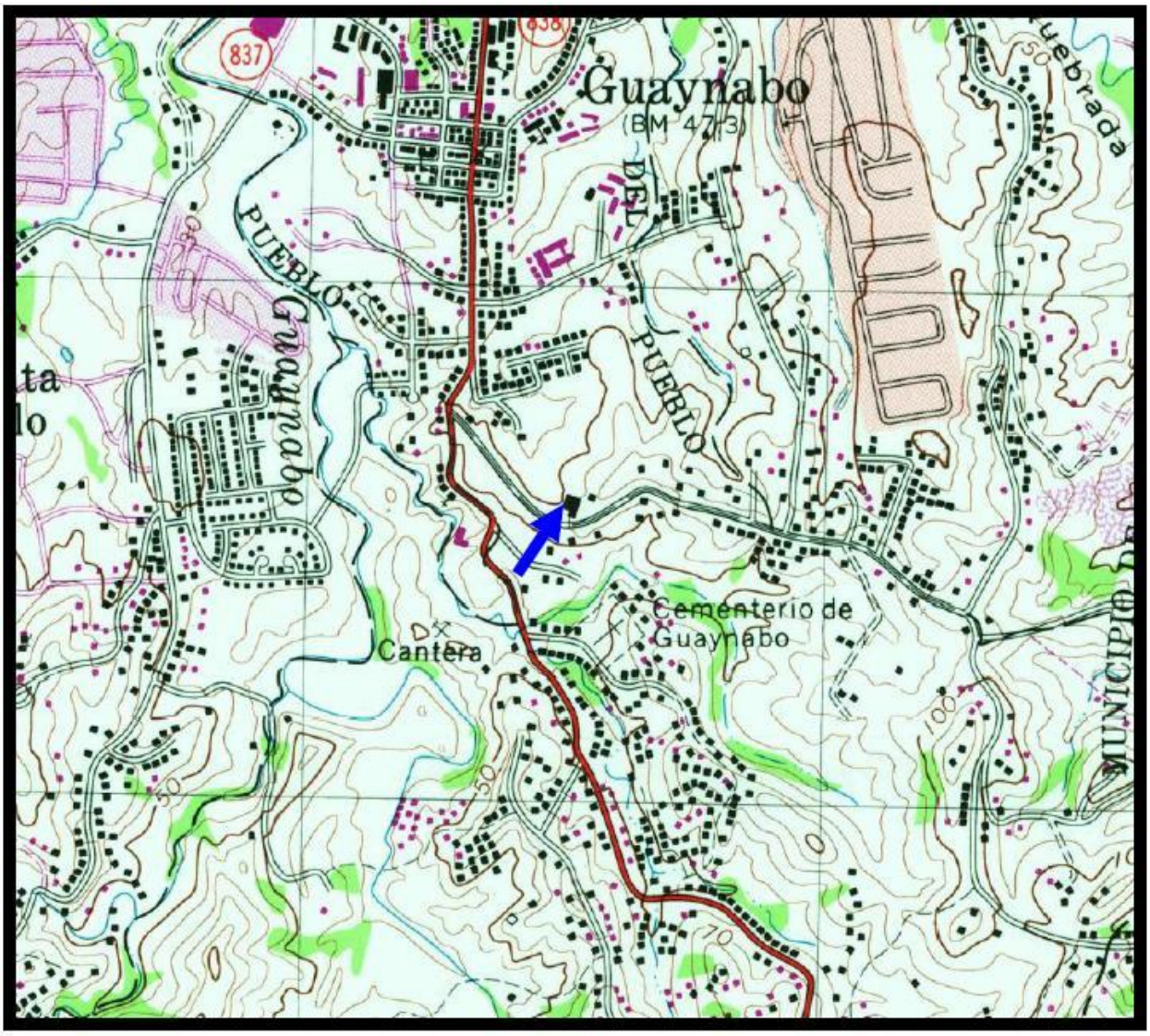

Figure 1b: Portion of the 1982 edition of the Aguas Buenas topographic quadrangle map that shows the general topography of the Condominio Vista al Norte site (arrow) area. The area shown is roughly 2000 meters wide and the map contour interval is 10 meters; north is up.

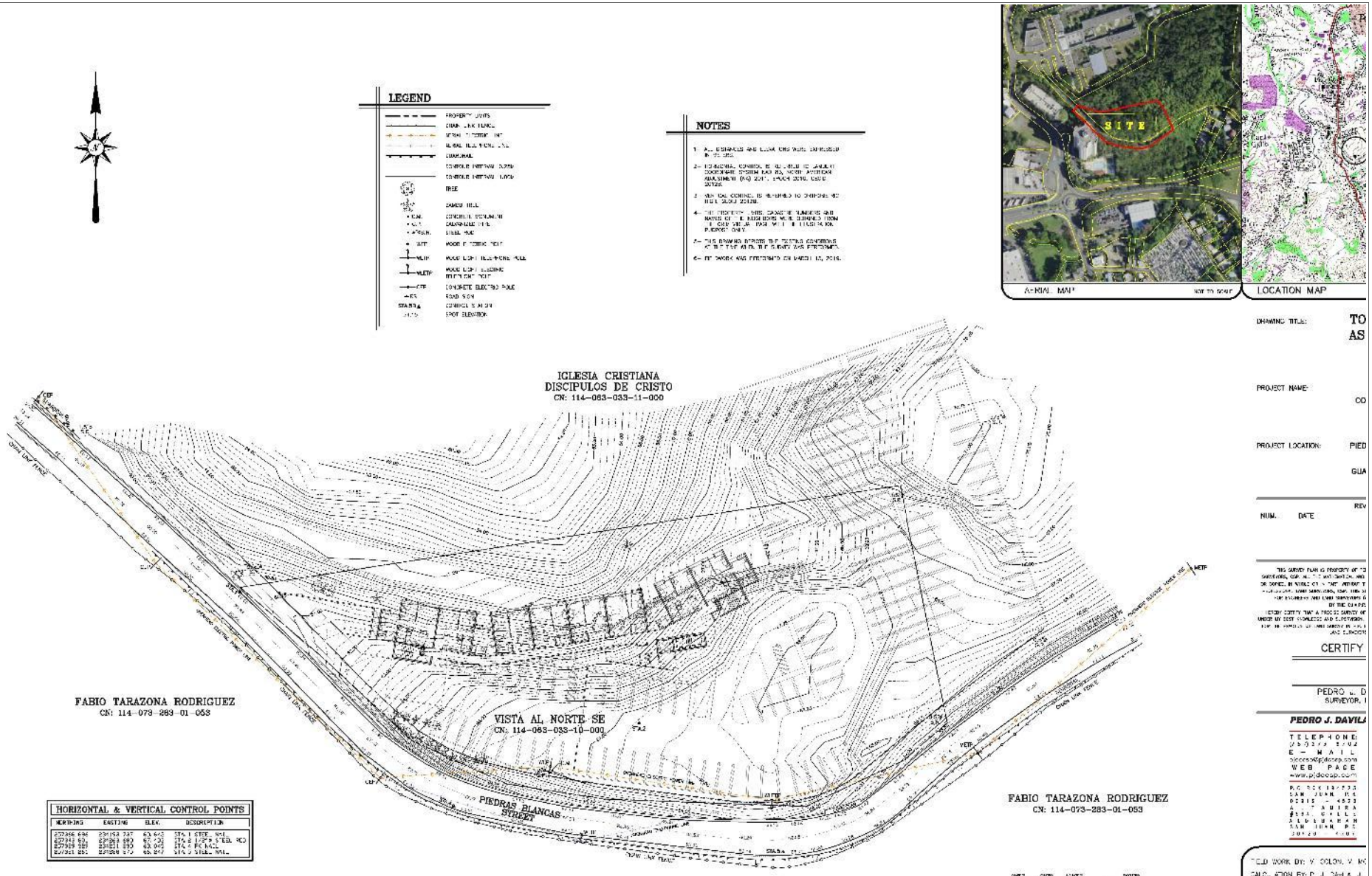

FIGURE 2 - PROJECT SITE PLAN

DRAWING TITLE: TO AS

PROJECT NAME: CO

PROJECT LOCATION: PIED GUA

REV

NUM. DATE

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PEDRO J. DAVILA

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FIELD WORK BY: V. COLON, V. MO
CALCULATION BY: P. J. DAVILA, J.
DRAWING BY: JOEL NAVAS PA
CADD NAME: 1387-ML.dwg
DATE: JUNE 24, 2019
SCALE: 1:300
PLAN NO.: JOD-1387

REVISIONS
NO. DATE

CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO

SITE PLAN

ARCHITECTS
SPACE PLANNERS
INTERIOR ARCHITECTS
Segundo Cardona F.A.I.A.

13 2nd Street, Metro Office Park
Guaynabo, P.R. 00968-1712

AS-101

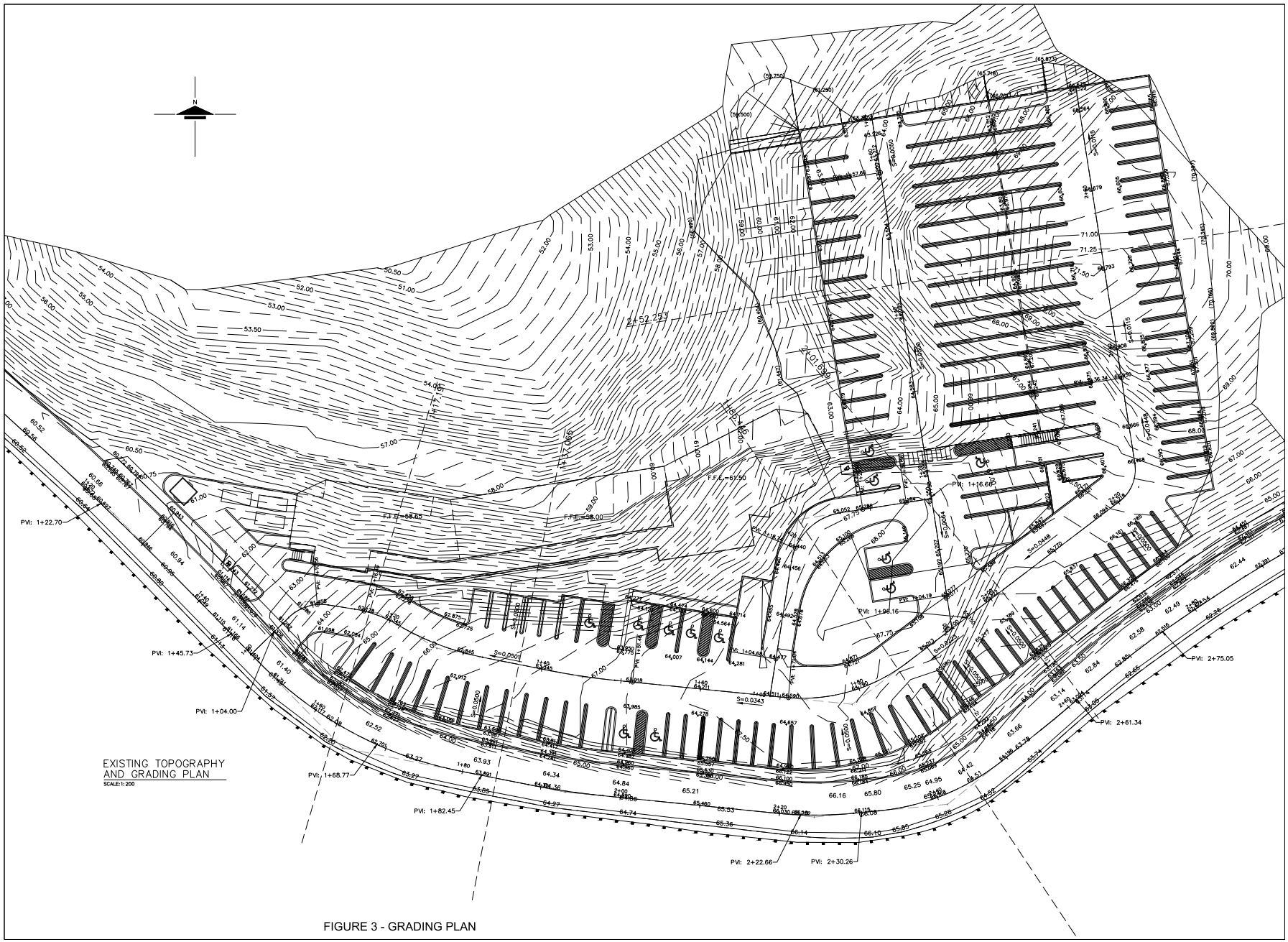

FIGURE 3 - GRADING PLAN

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R E V I S I O N S

MARK	DATE	DESCRIPTION

GP-1

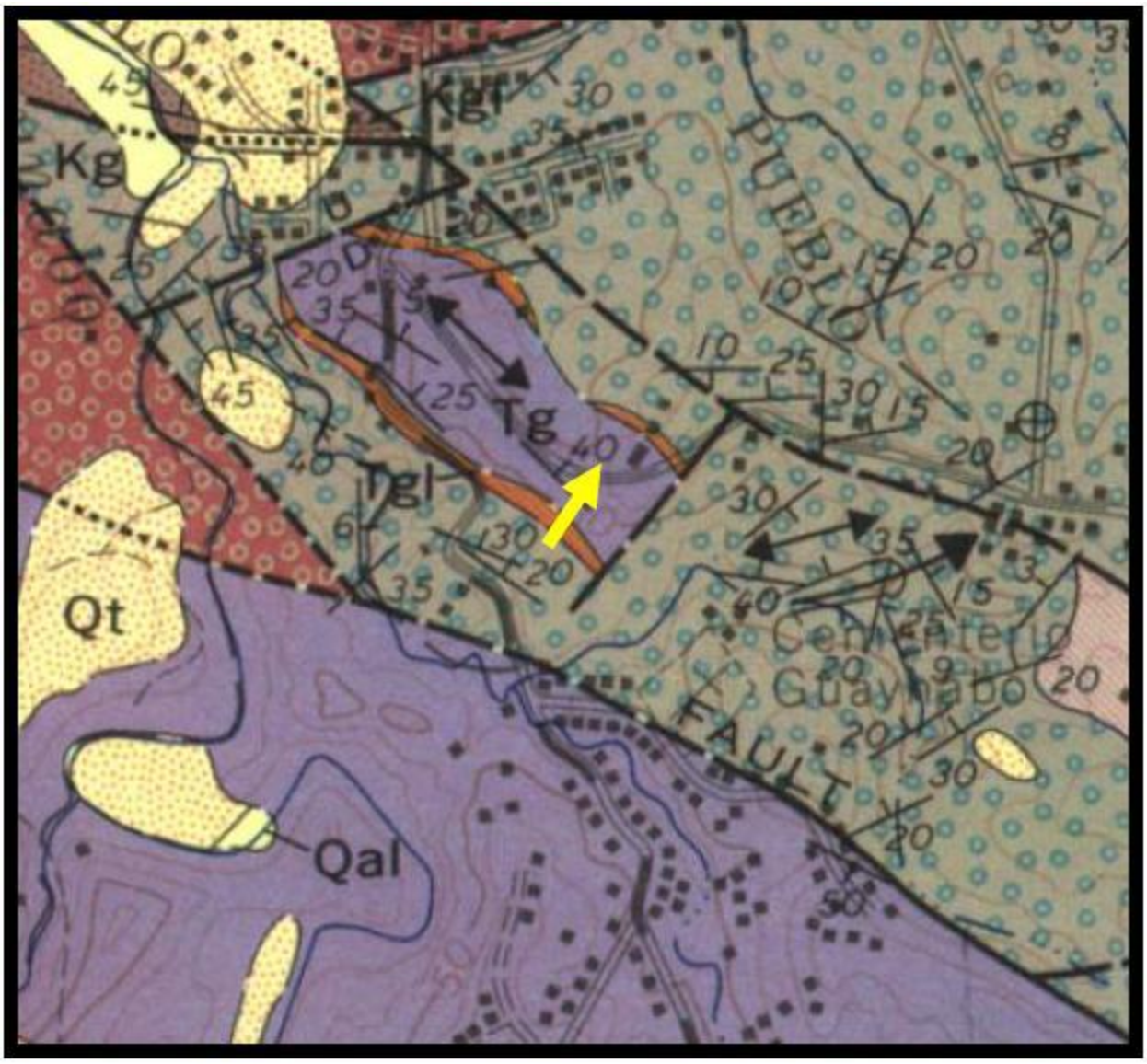
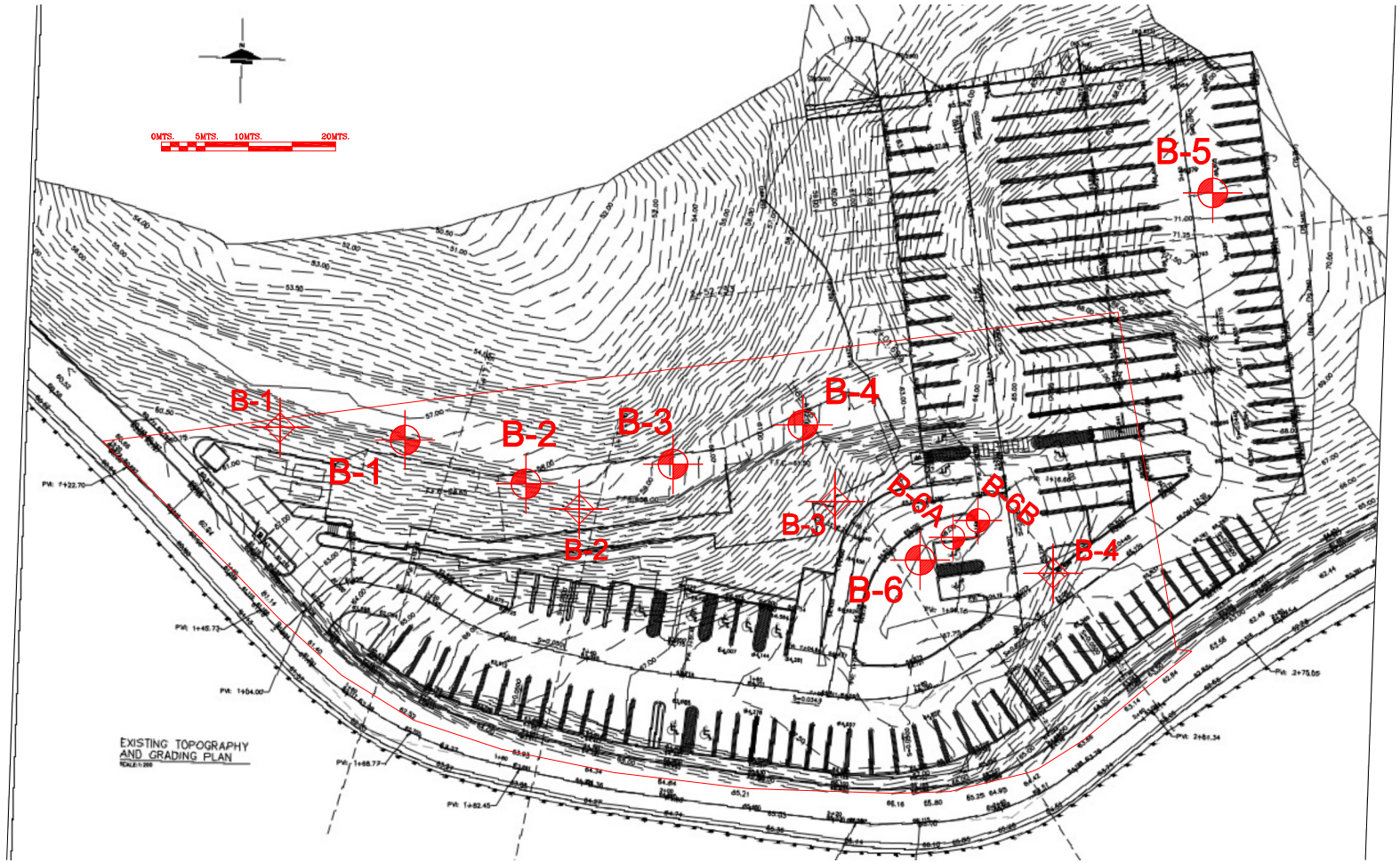


Figure 4: Portion of the Aguas Buenas geologic quadrangle map that shows the general geology of the area of the Condominio Vista al Norte site (arrow); north is up. The various map units are identified by different colors and letter symbols, three of which underlie the site and adjacent ground. These include the Guaracanal Andesite (purple unit labeled *Tg*) and its limestone member (orange-colored unit labeled *Tgl*) and the older Guaynabo Formation (gray with blue-circle patter labeled *Kg*). The area shown is about 1000 meters wide and the map contour interval is 10 meters. See report text for more information.

Figure 5a – Boring Location Plan on topographic plan
Figure 5b – Boring Location Plan on grading plan

Figure 6: Cross Sections



LEGEND:

B-1 NEW BORING LOCATION AND NUMBER

B-1 BORING LOCATION AND NUMBER (DRILLED ON 2007)

Giovanni: N:\0000-Project File\5258\drawing from segundo \ BORING LOCATION

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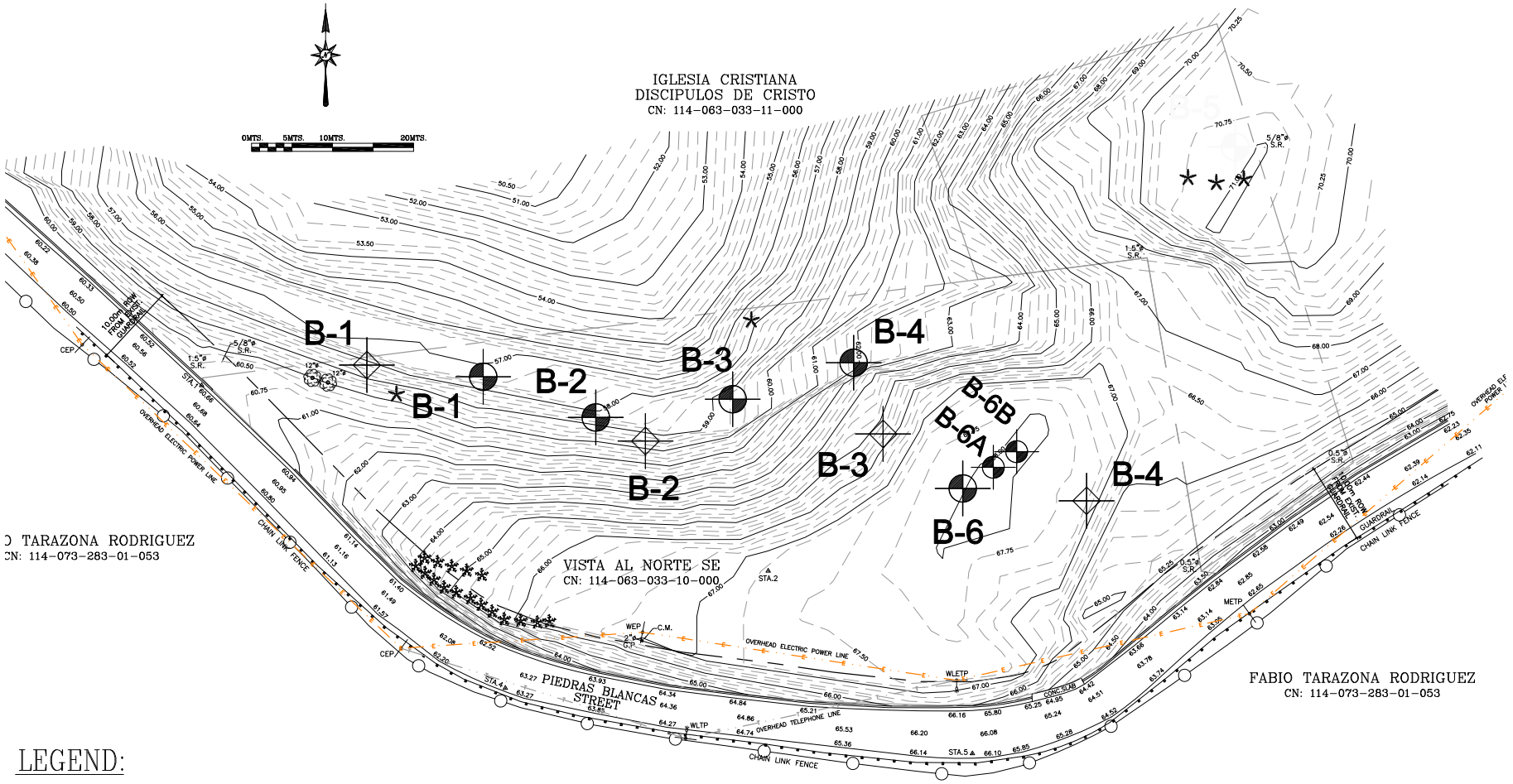
GEOTECHNICAL ENGINEERING CONSULTANTS
AMELIA DISTRIBUTION CENTER LOT. 26 A EMMA ST.
GUAYNABO, PUERTO RICO 00968-8007

Site and Grading Plan Showing Borings Location

Condominio Vista al Norte
Guaynabo, P.R.

DATE:	JOB NO:	CKD. BY.	SCALE:	DRW. BY:	FIGURE NO:
12/10/19	5258	L.O.G.	1:500	G.O.G.	5A



LEGEND:

B-1 NEW BORING LOCATION AND NUMBER

B-1 BORING LOCATION AND NUMBER (DRILLED IN 2007)

GeoCim

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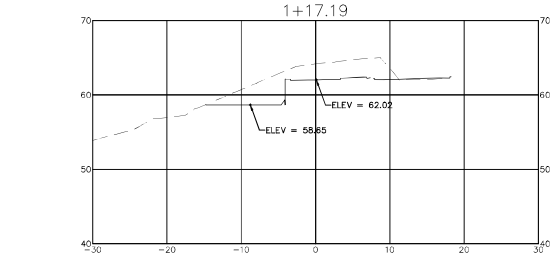
GUAYNABO, PUERTO RICO 00968-8007

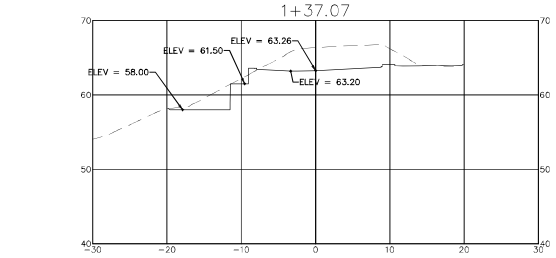
Topographic and Boring Location Plan

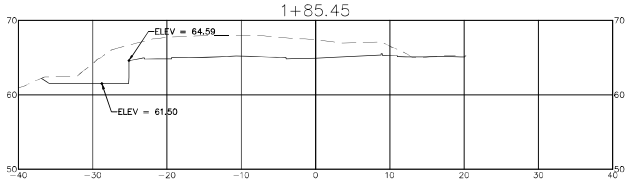
Condominio Vista al Norte
Guaynabo, P.R.

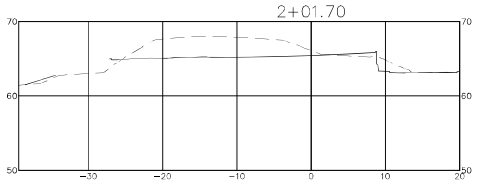
DATE:	JOB NO:	CKD. BY.	SCALE:	DRW. BY:	FIGURE NO:
12/10/19	5258	L.O.G.	1:500	G.O.G.	5B

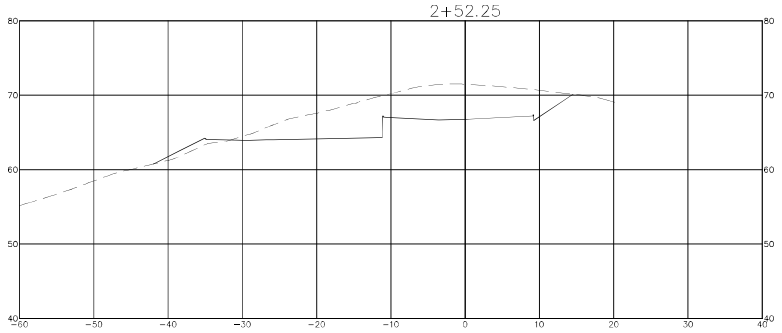
Giovanni: N:\0000-Project File\5258\drawing from segundo \ BORING LOCATION











CROSS SECTIONS
SCALE 1:200

Figure 6 - Cross Sections

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REVISIONS

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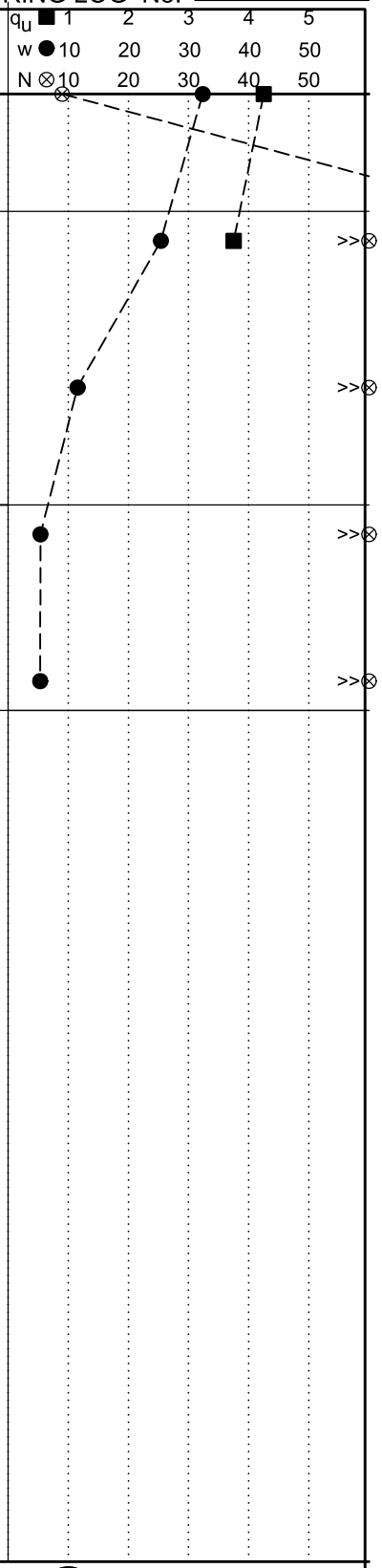
C-103

APPENDIX A

BORING LOGS

BORING LOG No: **B-01**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		3-5-4	9	(4.25)	32.4				Fill: Clay, trace gravel and sand, trace roots, medium stiff, dark brown, gray.
		8-22-50/5"	100	(3.75)	25.4				Thoroughly to highly weathered volcanic (?) rock; friable to weak; sampled as: sand, little to some silt, trace gravel; pale yellow, dark brown, gray.
5		32-50/3"	100		11.6				-highly weathered; friable to weak; gray, yellowish brown.
		50/4"	100		5.4				Volcanic breccia (?); mod. weathered, mod. strong to strong; gray.
10		50/2"	100		5.3				
									END OF BORING NO. B-01 AT 10.17 FEET DEPTH. NOTE: 1) Groundwater not encountered during drilling.



DATE HOLE	STARTED **6-28-19**	COMPLETED **6-28-19**	
ELEVATION TOP OF HOLE	**187.80 ft.; 57.25 m**		
ELEVATION GROUND WATER	**ft.**		
LOCATION (Coordinates or Station)	**N 257,362.8 E 234,228.4**		
NAME OF DRILLER	**Carlos Calderón**	DRILLING EQUIPMENT /METHOD **CME-55**	**SPT-M**

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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GEOTECHNICAL TESTING SERVICES
AMELIA DISTRIBUTION CENTER, EMMA ST. 26A, GUAYNABO, PR 00968

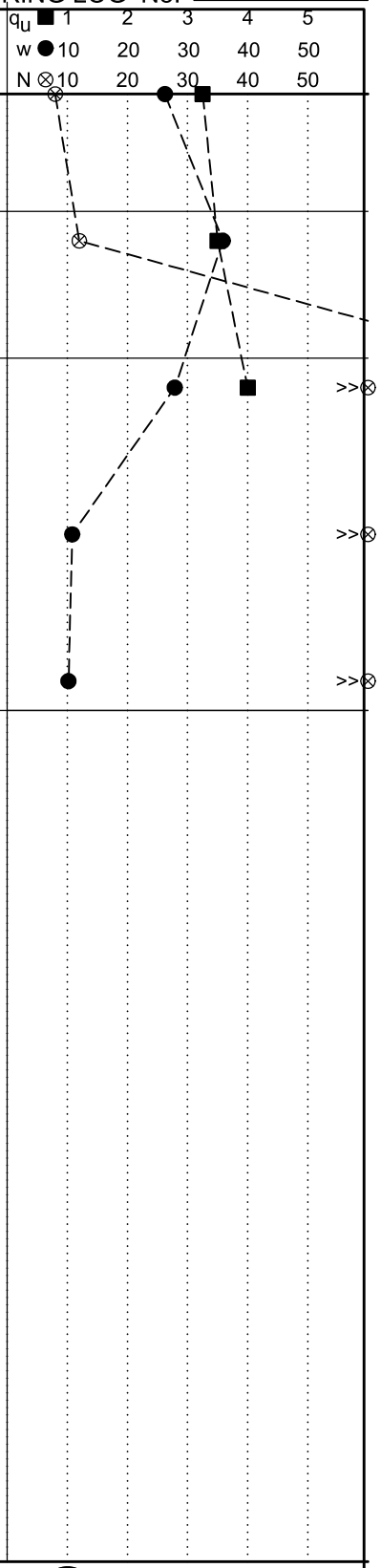
CONDOMINIO VISTA AL NORTE, GUAYNABO , PR

APPROVED	PROJECT No. **5258**	BORING No.
	1 OF **1** SHEETS	**B-01**

BORING LOG No: **B-02**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		5-3-5	8	(3.25)	26.2				Fill: Clay, trace silt and sand, trace gravel, medium stiff, dark brown.
		3-4-8	12	(3.50)	35.9				Residual silt, little sand, trace weathered rock fragments, stiff, brown.
5		50/6"	100	(4.00)	27.9				Thoroughly weathered volcanic (?) rock; friable to weak; sampled as: sand, little silt and gravel; brown.
		50/4.5"	100		10.8				Thoroughly to highly weathered rock; friable to mod. strong; sampled as above, little to some gravel.
10		50/4"	100		10.2				-mod. weathered, mod. strong.
									END OF BORING B-02 AT 10.33 FEET DEPTH.

NOTE:
1) Groundwater not encountered during drilling.



DATE HOLE	STARTED **6-27-19**	COMPLETED **6-27-19**
ELEVATION TOP OF HOLE	**191.72 ft.; 58.45 m**	
ELEVATION GROUND WATER	**ft.**	
LOCATION (Coordinates or Station)	**N 257,362.4 E 234,243.4**	
NAME OF DRILLER	**Carlos Calderón**	DRILLING EQUIPMENT /METHOD **CME-55** **SPT-M**

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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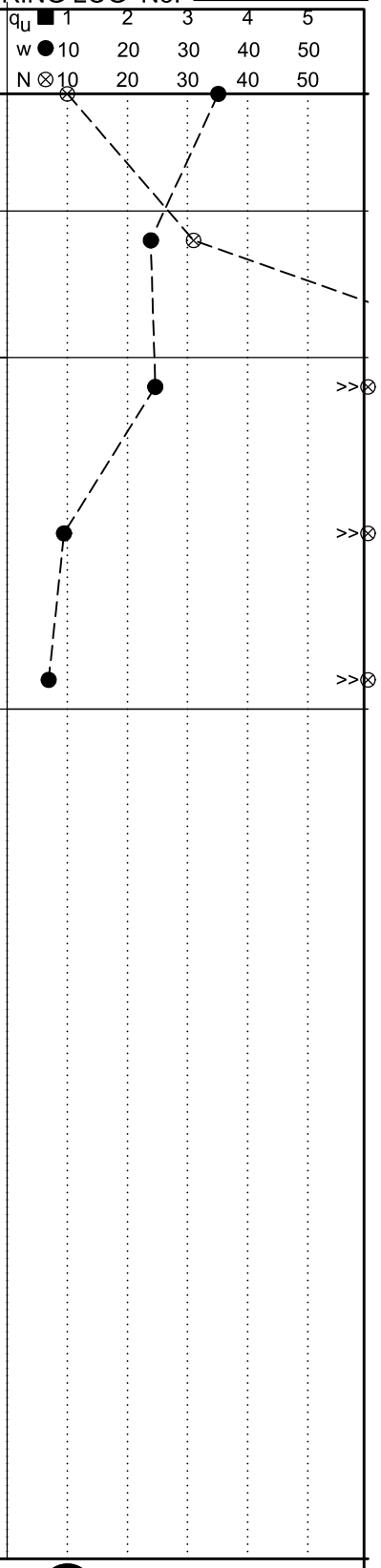
CONDOMINIO VISTA AL NORTE, GUAYNABO , PR

APPROVED	PROJECT No. **5258**	BORING No.
	1 OF **1** SHEETS	**B-02**

BORING LOG No: **B-03**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		3-4-6	10		35.1				Fill: Clay, little silt, trace sand and gravel, stiff, brown, gray.
		6-7-24	31		23.9				Thoroughly weathered volcanic (?) rock, sampled as: sand, little gravel and silt; trace roots; brown.
5		50/5"	100		24.6				Thoroughly to highly weathered rock; friable to weak; sampled as: sand, little gravel; trace silt, very dense, brown.
		50/3"	100		9.5				Volcanic breccia; mod. weathered, mod. strong to strong; dark gray.
10		50/4"	100		6.9				
									END OF BORING B-03 AT 10.33 FEET DEPTH.

NOTE:
1) Groundwater not encountered during drilling.



DATE HOLE	STARTED **6-27-19**	COMPLETED **6-27-19**	
ELEVATION TOP OF HOLE	**194.67 ft.; 59.35 m**		
ELEVATION GROUND WATER	**ft.**		
LOCATION (Coordinates or Station)	**N 257,365.0 E 234,259.3**		
NAME OF DRILLER	**Carlos Calderón**	DRILLING EQUIPMENT /METHOD **CME-55**	**SPT-M**

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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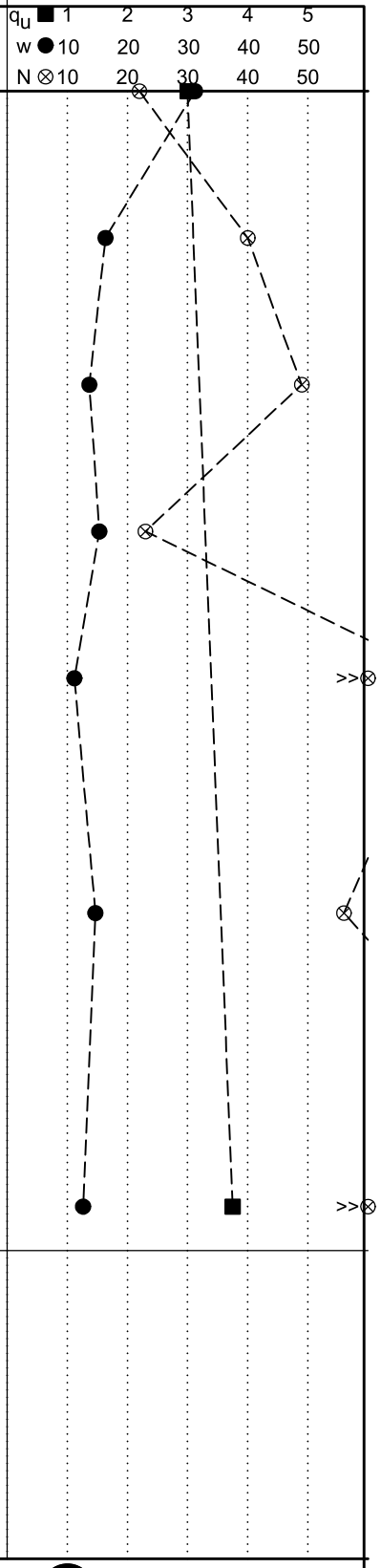
CONDOMINIO VISTA AL NORTE, GUAYNABO , PR

APPROVED	PROJECT No. **5258**	BORING No.
	1 OF **1** SHEETS	**B-03**

BORING LOG No: **B-04**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		6-8-14	22	(3.00)	31.3				Thoroughly weathered volcanic (?) rock; friable; sampled as: sand, little silt, trace gravel; trace roots; brown.
		17-20-20	40		16.4				-thoroughly to highly weatherd; friable to weak; no roots; brown, gray.
5		25-28-21	49		13.7				-highly weathered, weak, locally mod. strong; greenish gray.
		5-9-14	23		15.3				-highly to moderately weathered, weak to mod. strong;
10		17-42-31	73		11.2				-trace crystalline calcite; sampled as silty gravel, some sand; brown, gray, white.
15		24-24-32	56		14.7				Thoroughly to highly weathered volcanic (?) rock sampled as: sand, little silt and gravel; yellowish brown, brown.
		28-50/3"	100	(3.75)	12.6				-yellowish brown, gray.
									END OF BORING B-04 AT 19.75 FEET DEPTH.

NOTE:
1) Groundwater not encountered during drilling.



DATE HOLE	STARTED **6-27-19**	COMPLETED **6-27-19**	
ELEVATION TOP OF HOLE	**202.70 ft.; 61.8 m**		
ELEVATION GROUND WATER	**ft.**		
LOCATION (Coordinates or Station)	**N 257,369.5 E 234,274.2**		
NAME OF DRILLER	**Carlos Calderón**	DRILLING EQUIPMENT /METHOD	**CME-55** **SPT-M**

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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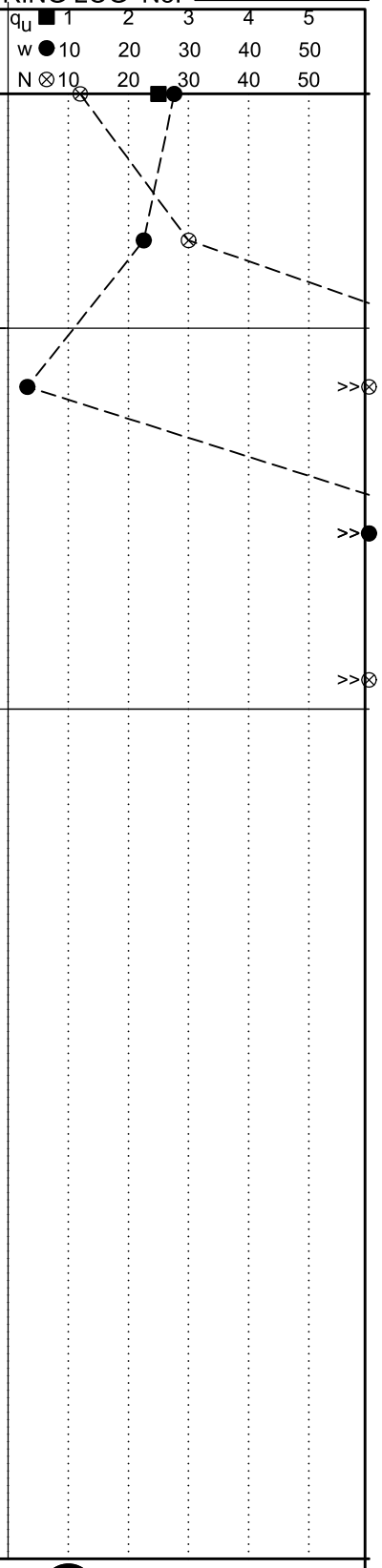
CONDOMINIO VISTA AL NORTE, GUAYNABO , PR

APPROVED	PROJECT No. **5258**	BORING No.
	1 OF **1** SHEETS	**B-04**

BORING LOG No: **B-05**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		3-5-7	12	(2.5)	27.6				Fill: Clay, trace to little rock fragments, trace sand and roots, stiff, dark brown, pale yellow.
		5-8-22	30		22.6				-some faintly weathered rock fragments, trace to little sand and silt, dark brown, pale yellow, yellow.
5		39-50/2"	100		3.2				Limestone, little weathered, strong; fine grained; little clay and sand, trace silt, light gray, light brown.
		50/2.5"	100		80.2				
10		50/2"	100						-No Recovery.
									END OF BORING NO. B-05 AT 10.17 FEET DEPTH. NOTE: 1) Groundwater not encountered during drilling.



DATE HOLE	STARTED **6-28-19**	COMPLETED **6-28-19**
ELEVATION TOP OF HOLE	**ft.**	
ELEVATION GROUND WATER	**ft.**	
LOCATION (Coordinates or Station)		
NAME OF DRILLER **Carlos Calderón**	DRILLING EQUIPMENT **CME-55**	/METHOD **SPT-M**

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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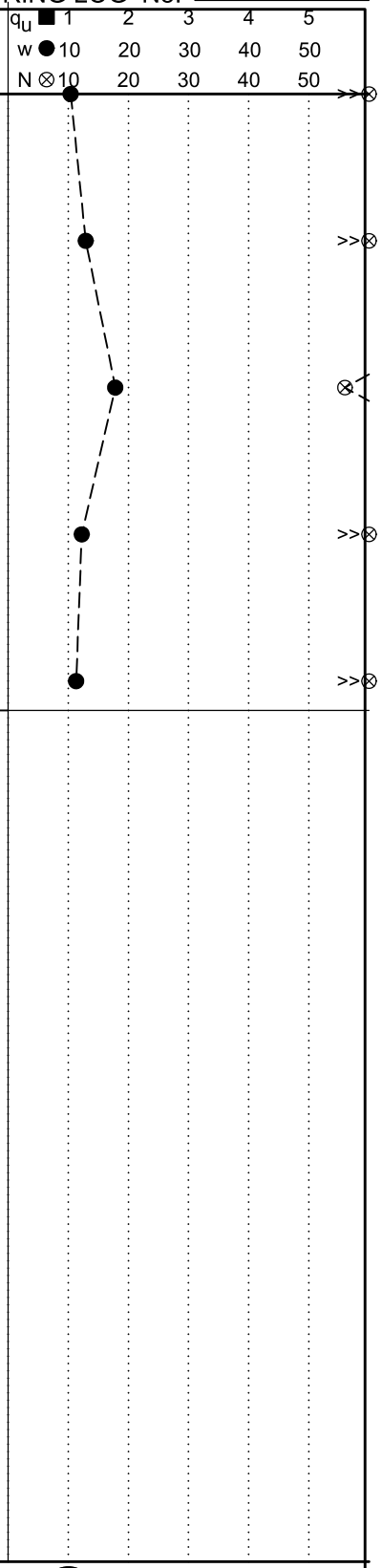
CONDOMINIO VISTA AL NORTE, GUAYNABO , PR

APPROVED	PROJECT No. **5258**	BORING No.
	1 OF **1** SHEETS	**B-05**

BORING LOG No: **B-06**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		8-31-50	81		10.4				Thin clayey surface fill (less than 0.5 ft. thick), then thoroughly to highly weathered volcanic (?) rock; friable to weak; gray, brown.
		31-50/5.5"	100		12.9				Volcanic breccia (?); highly to mod. weathered; weak to mod. strong; sampled as gravelly sand, trace silt, gray, olive brown; white.
5		21-24-32	56		17.8				-thoroughly to highly weathered, friable to weak; sampled as sand, little gravel and silt, gray, brown.
		50/6"	100		12.3				-mod. weathered, weak to mod. strong;
10		50/3"	100		11.3				
									END OF BORING NO. B-06 AT 10.5 FEET DEPTH. NOTE: 1) Groundwater not encountered during drilling.



DATE HOLE	STARTED **6-28-19**	COMPLETED **6-28-19**
ELEVATION TOP OF HOLE	**ft.**	
ELEVATION GROUND WATER	**ft.**	
LOCATION (Coordinates or Station)		
NAME OF DRILLER **Carlos Calderón**	DRILLING EQUIPMENT **CME-55**	/METHOD **SPT-M**

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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CONDOMINIO VISTA AL NORTE, GUAYNABO , PR

APPROVED	PROJECT No. **5258**	BORING No.
	1 OF **1** SHEETS	**B-06**

BORING LOG No: **B-06a-b**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		10-31-20	51						Volcanistic rock; highly weathered; locally mod. weathered; friable to strong; sampled as sandy-gravelly silt; gray, brownish gray.
		50/4"	100						
		50/1"	100						
	5	RUN NO. 1							Volc. breccia, mod. strong; closely to mod. fract., variable orientation (high to low angle); predom. tight or calcite healed; irreg., mod. to highly oxidized surfaces; greenish gray.
	10	30-26-23	49						-thoroughly weathered, friable, dark grayish brown.
		43-50/4"	100						
	15								END OF BORING NO. 200 AT 15 FEET DEPTH.

Notes:
1- No groundwater observed during drilling.

q_u ■ 1 2 3 4 5
w ● 10 20 30 40 50
N ⊗ 10 20 30 40 50

DATE HOLE	STARTED **09-12-19**	COMPLETED **09-12-19**
ELEVATION TOP OF HOLE	**ft.**	
ELEVATION GROUND WATER	**ft.**	
LOCATION (Coordinates or Station)		
NAME OF DRILLER **Melvin Galvez**	DRILLING EQUIPMENT /METHOD	

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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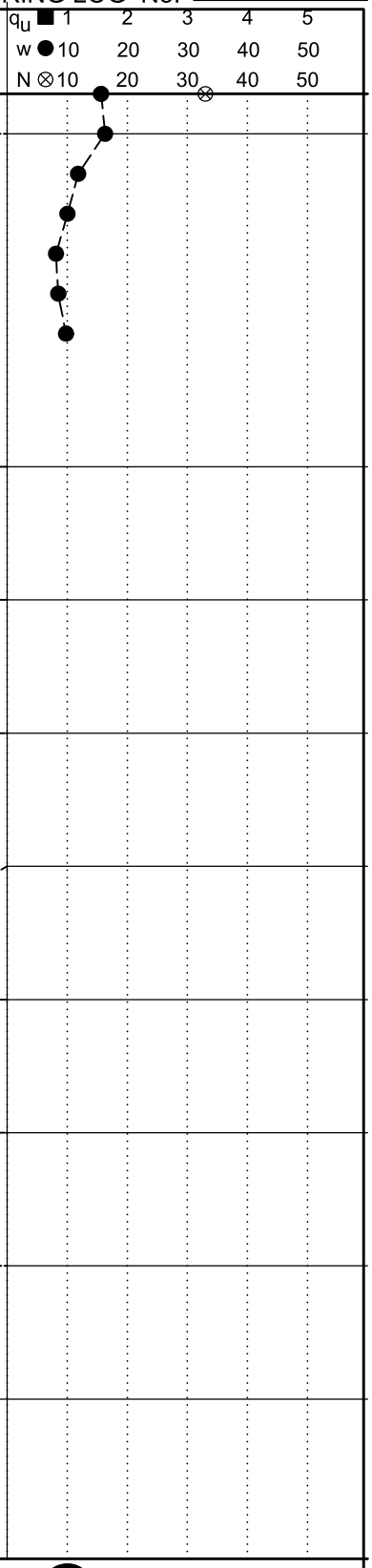
CONDOMINIO VISTA AL NORTE, GUAYNABO , PR

APPROVED	PROJECT No. **5258**	BORING No.
	1 OF **1** SHEETS	**B-06a-b**

BORING LOG No: **B-01**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		12-12-21	33		15.6				Sand, residual, little gravel trace silt, dense, brown and gray.
		33-50/5"			16.3				Weathered Rock: sampled as Silty Sand, residual, trace gravel, brown and yellow.
		52/6"			11.8				
	5	59/6"			10.0				
		68/6"			8.1				
		50/3"			8.5				
		61/6"			9.8				
	10								
		50/0"							Sandstone, fine to coarse grained (grades down); mod. wx., mod. hard, mod strong-strong; intensely-mod. fract.; dip >30 degs., tight-healed (calcite); mod-highly oxidized surfaces; soil-filled fract. at 15'2"; purplish gray.
	15	CORE RUN NO. 1							
	20	CORE RUN NO. 2							-sandstone as above; but fine grained, mod. strong; fractures as above; dip 0-60 degs. -Water loss at 22' during drilling.
	25	CORE RUN NO. 3							-begin as above, end with 13 in. of volc. breccia, mod. weathered, mod. strong, mod. hard, mod. fractured (as above); color as above.
	30	CORE RUN NO. 4							Volc. sandstone, locally with angular gravel-sized clasts; moderately wx., mod. hard. strong to strong; highly-mod. fract., variable dip (10-90 degs.), tight-slightly open-healed (calcite); slighty-mod. oxidized; purplish gray.
	35	CORE RUN NO. 5							-as above; large clast from 35'2" to 36'; soil-filled fracture (up to 1cm. ?) at 36'8"; color grade to grayish brown at end of run.
	40	CORE RUN NO. 6							Volc. sandstone; fine-med. grained; mod.-slightly wx. to approx. 40.5 ft., then 6 in. of highly wx. rock, some soil, then mod.-slighty wx., mod. hard, strong; fracturing as above.
	45	CORE RUN NO. 7							-as above; fine-coarse; mod.-slightly wx., mod. hard-hard, strong-v. strong, locally mod.



DATE HOLE	STARTED **03-02-07**	COMPLETED **03-07-07**	
ELEVATION TOP OF HOLE	**192.49 FT.(58.685 mts.)**		
ELEVATION GROUND WATER	**FT.**		
LOCATION (Coordinates or Station)	**N 257,369.2 E 234,214.1**		
NAME OF DRILLER	**Juan Calderón**	DRILLING EQUIPMENT /METHOD **CME-45**	**SPT**

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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CONDOMINIO VISTA DEL NORTE, GUAYNABO, PR

APPROVED	PROJECT No. **3570-06**	BORING No.
	1 OF **2** SHEETS	**B-01**

BORING LOG No: **B-01**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION	q_u ■ 1 2 3 4 5 / w ● 10 20 30 40 50 / N ⊗ 10 20 30 40 50
									strong; fracturing as above.	
									END OF BORING B-01 AT 49.0 FEET DEPTH	

DATE HOLE STARTED **03-02-07** COMPLETED **03-07-07**

ELEVATION TOP OF HOLE **192.49 FT.(58.685 mts.)**

ELEVATION GROUND WATER **FT.**

LOCATION (Coordinates or Station) **N 257,369.2 E 234,214.1**

NAME OF DRILLER **Juan Calderón** DRILLING EQUIPMENT /METHOD **CME-45** **SPT**

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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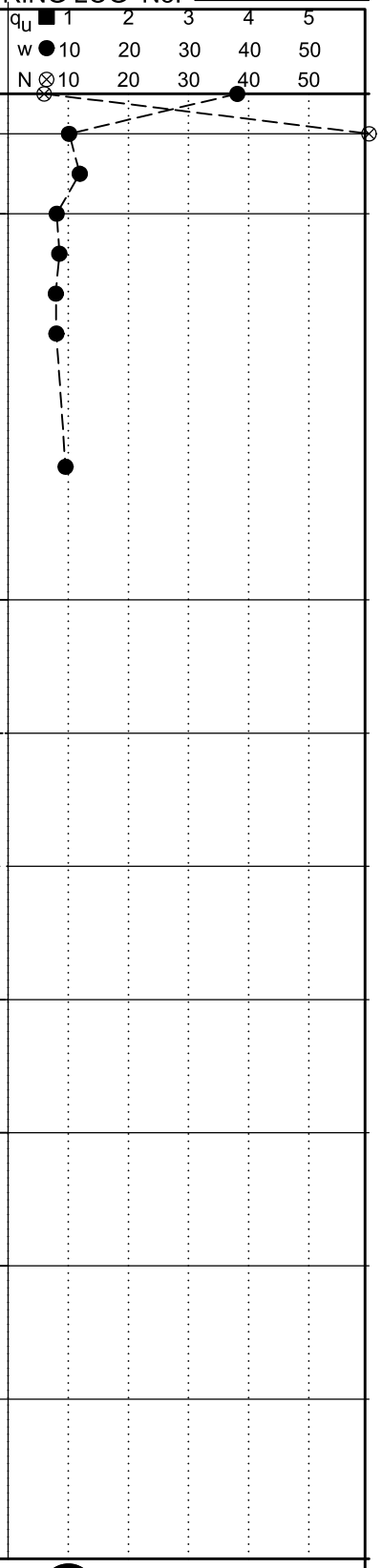
CONDOMINIO VISTA DEL NORTE, GUAYNABO, PR

APPROVED | PROJECT No. **3570-06** | BORING No. **B-01**

2 OF **2** SHEETS

BORING LOG No: **B-02**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		4-6-6	6	(4.5+)	38.1				Sandy Clay, trace silt, medium stiff, brown, yellow and olive gray.
		9-21-39	60		10.1				Silty Sand, residual, coarse to fine, very dense, pale brown and yellow.
		33-57/6"			11.9				
5		27-50/4"			8.1				Weathered Rock: sampled as Gravel, little silt and sand, pale brown and gray. -trace silt.
		63/5"			8.5				
		71/4"			7.9				
10		67/3"			8.0				
15		83/4"			9.6				
20		63/1"							Volc. conglomerate, matrix (sand) supported; mod. wx. mod. hard, mod. strong-strong; mod. fractured: irregular-wavy, mod. oxidized surfaces, dip 20-70 degs.; healed (calcite)-tight-slightly open; greenish gray.
25		CORE RUN NO. 1							
		CORE RUN NO. 2							Volcanic sandstone, coarse, few gravel-sized clasts; mod. wx., mod. hard, mod. strong; fractures as above but lower part of recovery intensely fract.; greenish gray.
30		CORE RUN NO. 3							-as above; mod. strong-strong; mod.-little fract., as above.
35		CORE RUN NO. 4							-as above.
40		CORE RUN NO. 5							-as above; locally highly fract.
45		CORE RUN NO. 6							-as above.
									END OF BORING B-02 AT 49.0 FEET DEPTH



DATE HOLE	STARTED 03-08-07	COMPLETED 03-12-07	
ELEVATION TOP OF HOLE	197.22 FT.(60.127 mts.)		
ELEVATION GROUND WATER	166.22 FT.		
LOCATION (Coordinates or Station)	N 257,359.8 E 234,248.5		
NAME OF DRILLER	Juan Calderón	DRILLING EQUIPMENT /METHOD	CME-45 SPT

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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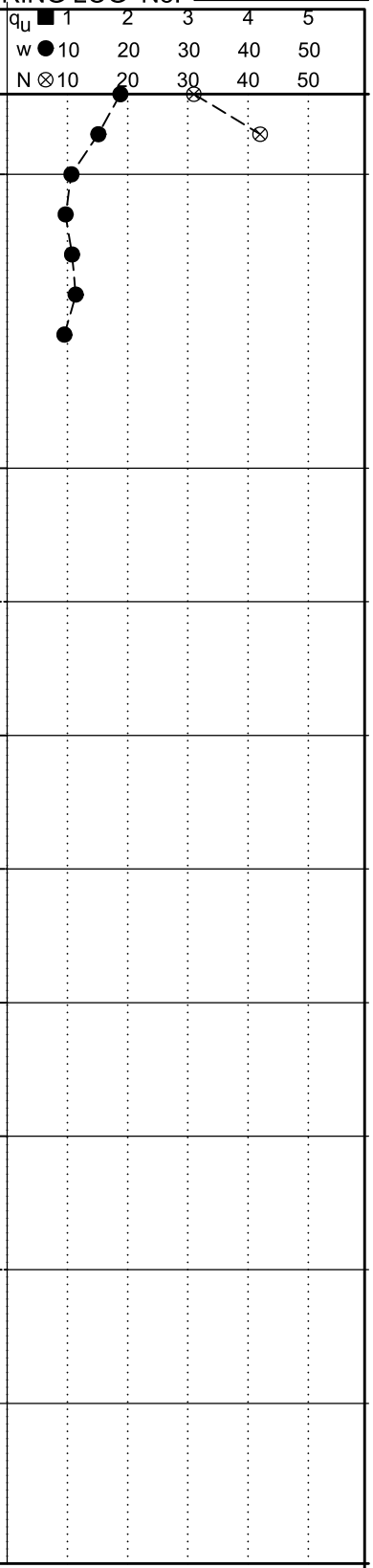
CONDOMINIO VISTA DEL NORTE, GUAYNABO, PR

APPROVED	PROJECT No. 3570-06	BORING No.
	1 OF 1 SHEETS	B-02

BORING LOG No: **B-03**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		1-3-6	31		18.8				Sand, residual, coarse to fine, some silt dense, brown and yellow.
		7-17-25	42		15.1				
		29-58/4"			10.7				Weathered Rock: sampled as Gravel, residual, little sand and silt, red, gray and pale brown.
	5	51/6"			9.7				
		74/6"			10.8				
		69/6"			11.4				
	10	78/4"			9.5				-Water loss at 21'.
	15	CORE RUN NO. 1							Volc. sandstone; mod.-highly wx., low-mod. hard; weak-mod. strong, intensely-closely fract.: healed (calcite)-tight-mod. open, wavy-irreg., mod. highly oxidized surfaces dip 10-80 degs.; greenish gray.
	20	CORE RUN NO. 2							-as above.
	25	CORE RUN NO. 3							Volc. breccia, highly-mod. wx., low-mod. hard, weak-mod. strong; mod.-little fract.: tight-slighty open, irreg.-wavy, mod. oxidized surfaces; greenish gray.
	30	CORE RUN NO. 4							-as above.
	35	CORE RUN NO. 5							-as above.
	40	CORE RUN NO. 6							-as above to 40.5; then volc. sandstone, fine-coarse, mod. weathered, mod. hard, mod. strong; highly-mod. fract., dip 0-90 degs., healed (calcite)-tight-slightly open, wavy-irreg., slightly-mod. oxidized surfaces; grayish green.
	45	CORE RUN NO. 7							-as above.
									END OF BORING B-03 AT 49.0 FEET DEPTH



DATE HOLE	STARTED 03-12-07	COMPLETED 03-15-07	
ELEVATION TOP OF HOLE	216.97 FT.(66.149 mts.)		
ELEVATION GROUND WATER	FT.		
LOCATION (Coordinates or Station)	N 257,360.7 E 234,277.9		
NAME OF DRILLER	Juan Calderón	DRILLING EQUIPMENT /METHOD	CME-45 SPT

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

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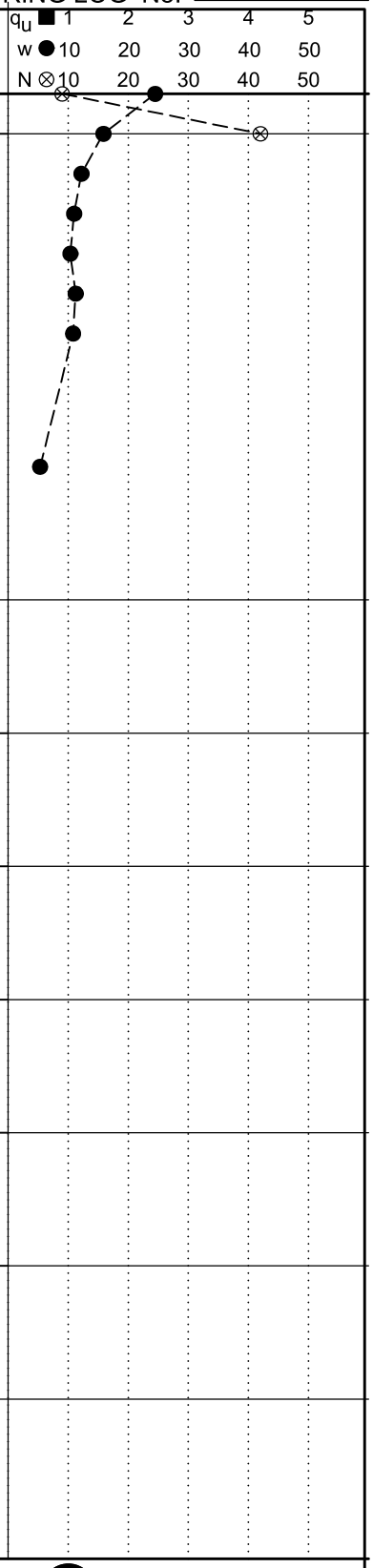
CONDOMINIO VISTA DEL NORTE, GUAYNABO, PR

APPROVED	PROJECT No. 3570-06	BORING No.
	1 OF 1 SHEETS	B-03

BORING LOG No: **B-04**

DEPTH M	DEPTH FT	BLOWS ON SAMPLER	N	q_u	w_n	LL	PI	Symbol	DESCRIPTION
		1-3-6	9		24.5				Silt, residual, some coarse to fine sand, trace roots, stiff, brown and light gray.
		7-17-25	42		15.9				
		39-50/2"			12.2				Weathered Rock: sampled as Sandy Silt, coarse to fine grained, trace roots, hard, brown and light gray.
5		63/6"			11.0				
		79/6"			10.4				
		70/5"			11.2				-sampled as Sand, some silt, little gravel, very dense, light gray and yellow.
		83/6"			10.8				
10									
									▽
		55/2"			5.3				-sampled as gravel, little sand, trace silt, very dense gray.
15									
20		CORE RUN NO. 1							Volcanic conglomerate; highly-mod. wx., low-mod. hard, weak-mod. strong; numerous irreg. fracts., many of which follow clast boundaries; healed (calcite)-tight-slightly open; mod. oxidized fract. surfaces; grayish green.
25		CORE RUN NO. 2							-as above.
30		CORE RUN NO. 3							-as above; intensely fract.; dip 0-90 degs., as above but mod.-highly oxidized.
35		CORE RUN NO. 4							-as above, mod. wx., mod. hard, mod. strong, locally weak; fracts. as above.
40		CORE RUN NO. 5							-as above; mod. wx. to 41'4", then slightly wx.
45		CORE RUN NO. 6							-as above, highly wx., low-hardness, weak; fracturing as above; one clay-filled fract.: 1 in. wide.
									END OF BORING B-04 AT 49.0 FEET DEPTH



DATE HOLE	STARTED **02-28-07**	COMPLETED **03-02-07**	
ELEVATION TOP OF HOLE	**223.49 FT.(68.137 mts.)**		
ELEVATION GROUND WATER	**FT.**		
LOCATION (Coordinates or Station)	**N 257,352.5 E 234,303.0**		
NAME OF DRILLER **Juan Calderón**	DRILLING EQUIPMENT /METHOD **CME-45**	**SPT**	

w_n	WATER CONTENT IN %	q_u	( ) PENETROMETER, TSF
N	BLOWS FROM S. P. T. (ASTM D-1586)	LL	LIQUID LIMIT IN %
q_u	UNCONFIED COMPRESSIVE STRENGTH, TSF	PL	PLASTIC LIMIT IN %
▼	WATER TABLE OR PHREATIC LEVEL	PI	PLASTICITY INDEX IN %

GeoCim
GEOTECNIA Y CIMIENTOS
GEOTECHNICAL TESTING SERVICES
AMELIA DISTRIBUTION CENTER, EMMA ST. 26A, GUAYNABO, PR 00968

CONDOMINIO VISTA DEL NORTE, GUAYNABO, PR

APPROVED	PROJECT No. **3570-06**	BORING No.
	1 OF **1** SHEETS	**B-04**

APPENDIX B

FIELD AND LABORATORY TESTING PROCEDURES

Appendix B

Field and Laboratory Soil Testing Procedures

I. DRILLING METHODS

A. Hollow Stem Auger Boring - Dry Sample method (ASTM-D-1452)

In the auger method, borings are advanced by turning a hydraulic powered auger into the ground in 5 feet increments or less. As the auger penetrates the cuttings rise to the surface on the spirals. The depth from which the material comes, however, cannot be accurately determined. Therefore, soil samples are not taken from the spiral augers. With the use of a hollow stem auger, a sampling apparatus may be inserted in the hollow stem to the bottom of the auger, eliminating the need for casings. The sampling procedures are described in the following paragraphs. Geo Cim, Inc. normally uses CME (Central Mining Equipment) drilling rigs which are trailer mounted and pulled with a 4x4 wheel drive F-350 or equivalent truck. The drilling rigs are either CME-45 or CME-55 models.

B. Wash Boring - Dry Sample Method

For inaccessible locations, a portable drilling unit is used which consists of a tripod mounted motorized cathead which is used to drive casings and sampling rods to conduct this method of drilling. Borings are advanced into the ground by the wash-boring-dry sample method. The borings are normally cased through most of this length by the drop of either a 350 or 140 lbs. hammer from a height of 30 inches. The casing diameter is 2-1/2 inches. The number of blows for every foot of penetration the casing advanced is recorded and is reported in the boring logs. When driving of the casing becomes too difficult due to the hardness of the soils encountered, and the hole does not cave-in, the boring may be advances without casing by continuous washing out of the soils with the drill rods. The color and nature of the soils washed out (gravel, sand, silts or clay) is examined and recorded in order to determine the extent of each soil strata this is complemented with the sampling operations which are regularly made every five feet.

C. Core Borings (ASTM-D-2113)

Core Borings are used when necessary to penetrate into rock and obtain a continuous rock sample. The sample is obtained by means of a core barrel which is attached to the drill rods. At the end of the core barrel is a special bit studded with industrial diamonds which cuts into the rock. The drill rod, and hence the core barrel and diamond bit are rotated as downward pressure is applied. As the bit cuts into the rock, the rock core is free to move into the inner core barrel head, which is suspended on a swivel and therefore does not follow the motion of the outer core barrel with its bit. Cooling water or bentonite slurry is circulated through the drill rod and the core barrel. Penetration depends on the length of the core barrel and the quality of the rock (number of joints or fractures). Rock discontinuities such as joints and fractures affect the length

of penetration in a given core run. The runs are longer as the rock quality increases. As the core barrel is withdrawn, the core lifter, located inside the diamond bit, wedges itself around the bottom of the rock core and thus permits it to be pulled free from the underlying rock. The two most common core sizes are NWM which produces a core of 2.15 inches diameter and HWM which produces a core 3.00 inches in diameter.

II. SAMPLING IN SOILS

A. Standard Penetration Test (ASTM-D-1586)

The standard penetration tests are made with a split-spoon sampler 2.0 inches/O.D. diameter, 1,375 inches I.D. diameter, 18 inches long. The sampler is driven into the ground by the drop of a 140 pounds hammer from a height of 30 inches. The number of blows from the three consecutive six inches of penetration of the sampler is recorded and the number of blows for the last foot of penetration is reported as the N-value. The samples are stored and sealed in glass jars for future classification tests in the laboratory.

The standard penetration test has been correlated with the consistency of fine grained soils and with the angle of internal friction or the relative density of sands. Such correlations can be used for preliminary estimates and to aid in the stratigraphic classification of the soil strata at a given site.

In the case of fine grained soils, the correlations of the SPT with the undrained shear strength of medium and stiff silts and clays of low sensitivity have been found to be fairly good; however, in the case of the soft silts and clays the SPT gives poor estimates of the undrained shear strength. Testing in undisturbed samples and vane shear tests are recommended in such cases.

B. Undisturbed Sampling

Undisturbed Samples are obtained using thin wall brass or zinc coated steel shelby tubes 2" to 3"O.D. by 24" to 30" long. The sampler is forced to penetrate the soil by static force or downward pressure and is pulled out also using static pull. The samplers are sealed in the field and shipped to the laboratory where the samples are extruded at the time of testing by pushing in the same direction that the sample penetrated the sampler. Special care is taken in packing and handling these samples to avoid disturbance.

III. LABORATORY TESTING

A. Atterberg Limits (ASTM-D-2166)

The Atterberg limits and related indices are very commonly used in soil mechanics works mainly for soil identification and classification purposes. They are also used in connection with some semi-empirical methods of design for preliminary estimates.

B. Unconfined Compression Test (ASTM-D-2166)

The best quality samples recovered in the split-spoon sampler are subjected to unconfined compression to failure. These samples cannot be regarded as "undisturbed" and the strengths obtained are lower than the "true" in-situ value due to the effect of disturbances and sensitivity of the soil. Furthermore, increased brittleness of friability of the soil structure results in strength values lower than the in-situ undrained strength. Therefore, the unconfined strength values measured in the split-spoon samples are used only as an index property for classification and identification purposes. When more accurate values of strength are needed, undisturbed samples from thin-wall Shelby tubes are used.

C. Natural Moisture Content (ASTM-D-2216)

The natural moisture content is the water content of the soil in-situ. The soil sample is obtained from the SPT sampler or shelby tubes. Approximately 40 gms. of soil are weighed and then placed in an oven for 24 hours at a temperature of 105□ - 110□C. The natural moisture content, "Wn" is obtained from the difference between the weights in the natural state and after oven drying, divided by the dry weight of the sample and expressed in percentage.

IV. SOIL DESCRIPTION (ASTM-D-2488)

The description of the soils includes the type (gravel, sand, silt, clay, organic), consistency (if a fine-grained soil), size and roundness (if a coarse-grained soil), color, and some other special characteristic which can aid in the identification and classification of the soil such as presence of rubbish, organic matter, shells and fossils, stratification and structure, cementation, mineral composition, relict structures, stains and others.

To aid in the preparation of these descriptions some simple tests are made such as those recommended by the Unified Soil Classification system for field classification (dilatancy, dry strength, shine, toughness). To approximate the consistency of fine grained soils (soft, medium, stiff, hard), a simple test is performed with the hand: a hard fine grained soil is difficult to indent with the thumbnail, stiff soils are readily indented with the thumb, medium soils can be penetrated by moderate thumb pressure and soft soils are easily penetrated with the thumb.

The description of coarse grained soils (sands and gravel) includes size (fine, medium coarse) and roundness (angular, sub-angular, sub-rounded, rounded and well-rounded).

The relative amount of coarse fractions in fine grained soils is estimated by placing a representative sample or some 50 Gms. in a graduated cylinder filled with water. The mix is shaken and allowed to settle. Particles of a size larger than a fine sand are visible to the naked eye while silts and clays are not. In this manner, estimates of the relative amounts of the coarse

fraction are made and reported as:

Trace	1	10%
Little	10	20%
Some	20	35%
Sandy, gravelly, silty or clayey	35	50%

The relative density of sands has been correlated with the results of the Standard Penetration Test, as follows:

For Granular Soils

N-Blows/ft.	Relative Density
0 – 4	Very loose
4 – 10	Loose
10 – 30	Medium
30 – 50	Dense
over 50	Very dense

These are very approximate correlations which vary with, among other factors, overburden pressure (Gibbs and Holtz, 1957, and Peck and Bazaraa, 1967). These correlations are meaningless in soils with a significant amount of gravel or cobbles.

The relative amounts of the fine-grained soils are estimated based on the reaction of the soils to the dilatancy, shine, dry strength and toughness tests, with adjective indicating the less active fraction i.e. a sandy clay behaves more like a clay than a sand.

The consistency of cohesive soils has also been correlated to the results of the Standard Penetration Test, as shown below. The correlation, however, is greatly affected by the clay structure and factors such as sensitivity.

For Cohesive Soils

Unconfined Compressive Strength (T.S.F.)	N-Blows/Ft.	Consistency
Less than 0.25	Less than 2	Very soft
0.25 – 0.50	2 – 4	Soft
0.50 – 1.00	4 – 8	Medium
1.00 – 2.00	8 – 15	Stiff
2.00 – 4.00	15 – 30	Very stiff
More than 4.00	More than 30	Hard

Once the soil samples have been tested, they are stored for three months after the date of our final report, and then destroyed, unless required in writing by the client to store them for a longer period.

Determinación de Cumplimiento Ambiental para Evaluación Ambiental

Condominio Vista al Norte

Fecha de Expedición:

07/APR/2020

Datos de Determinación

Presentado por

Municipio Autónomo de Guaynabo

Número de Caso

2019-263819-DEA-003630

Dirección Física

BO CAMARONES PARC 8 SEC PIEDRAS BLANCAS
Guaynabo Puerto Rico, 00969

Casos de Referencia

2019-263819-REA-003392

Número(s) de Catastro

114-063-033-10

Acción Propuesta

La Acción Propuesta consiste en un proyecto: Privada en el Distrito de Clasificación identificado a continuación. El mismo tiene los siguientes componentes:

Calificación

Distrito(s) de Calificación:

R-5

Distrito en el Mapa de Inundabilidad:

X

Tipo de Suelo:

RpE2 (56.0%), DaD (27.5%), RpD2 (16.6%)

Cabida del proyecto (Área Total Según

4955.37 metros cuadrados

Servidumbres Existentes

Acueductos (AAA), Alcantarillado (AAA), Electricidad (AEE), Vía municipal de acceso (Municipio), Vía estatal de acceso (DTOP), Cable TV, Telecomunicaciones (PRTC)

Movimiento de Tierra

Volumen: 8000 metros cúbicos

Volumen de corte: 0 metros cúbicos

Volumen de relleno: 0 metros cúbicos

Demolición

Conlleva demolición: No

Conlleva explosivos: No

Instalación de Generadores de Electricidad

Conlleva generadores: No

Capacidad: N/A

Tanque: N/A

Desperdicios Sólidos

Volumen en construcción: 246.53 yardas cúbicas

Tipo: NP

Volumen en operación: 5 yardas cúbicas

Tipo: NP

Descripción

Se propone la construcción de un complejo residencial multifamiliar de 13 niveles de piso que albergará 102 unidades de apartamento (52 unidades de 1 habitación y 50 unidades de 2 habitaciones) con sala, comedor, cocina, baños y balcón. Por la topografía del predio bajo nivel del terreno se propone ubicar la cisterna doméstica cisterna de control de incendio, cuarto mecánico, cuarto de telecomunicaciones y cuarto de mantenimiento. Sobre el nivel de piso, se proponen levantar una torre de 13 niveles de piso con altura máxima de 110 pies.

El condominio tendrá salón de reuniones, gimnasio, oficina administrativa, área de recepción, tres cajas de elevadores, cuarto mecánico, cuarto eléctrico, áreas para el depósito de desperdicios sólidos, por piso, y dos escaleras. Se proponen 172 espacios para estacionamientos, todos a nivel de superficie. Además, se construirá aceras, encintado, áreas verdes con jardines, áreas de circulación vehicular, accesos, zonas de carga y descarga, disposición de desperdicios sólidos, entre otros. El complejo de vivienda multifamiliar tendrá un área de ocupación de 7,663.43 pies cuadrados (711.95 metros cuadrados) y área bruta de piso de 97,812 pies cuadrados (9,087 metros cuadrados).

Impactos al Ambiente y Medidas de Mitigación

Los posibles impactos al ambiente serán de carácter temporero. La acción propuesta de movimiento de tierra incidental es de aproximadamente 3,000 a 8,000 metros cúbicos, para la limpieza y replanteo del terreno y poder alcanzar los niveles de suelo seguros para la fundación de la torre residencial. Para así mantener las características topográficas y el menor impacto al suelo. No se proponen cortes ni depósitos de materiales de relleno, al momento de redactar este documento. La operación que se llevará a cabo es una incluida dentro de las disposiciones de usos permitidos para el distrito que ostenta esta parcela. El uso propuesto no afectará la calidad del aire, toda vez que la operación es una residencial. Los niveles de ruidos durante la etapa de construcción serán de carácter temporero y en cumplimiento con los estándares del Reglamento de la JCA. Se implantará un Plan CES para el control de erosión y sedimentación, para controlar los materiales que pueda arrastrar las escorrentías pluviales en la etapa de construcción. De ser necesaria se implementarán charcas de captación para el recogido de aguas pluviales durante esta etapa de construcción.
A su vez se obtendrá un PFE y DS-3, todo como parte del Permiso General Consolidado. Se implantará la aspiración sistemática con agua sobre el terreno para controlar el material particulado. En cuanto a la disposición, almacenamiento y recolección de desperdicios sólidos, en este caso y por la naturaleza de la actividad de construcción propuesta, se proveerá un área de acopio provisional para el almacenamiento de capa vegetal, así como un área de acopio para el almacenamiento del material de escombros de construcción. El almacenamiento de desperdicios será almacenado en contenedores de 55 lbs y otros sobre el predio y a la mayor brevedad ese material será recogido y dispuesto en un vertedero autorizado, por el contratista. Se provee espacios para el almacén de desperdicios sólidos domésticos y reciclables. Todo en cumplimiento de las leyes y regulaciones estatales y federales, según apliquen. La distancia al Río Guaynabo y la actividad propuesta no será de afectación a este cuerpo de agua.

Determinación

Luego de revisado y analizado el expediente administrativo y discutidos todos los méritos del documento ambiental, al amparo de los poderes y facultades que le confiere a esta Oficina de Gerencia de Permisos, (en adelante “OGPe”) la Ley Núm. 161 - 2009, según enmendada y el Reglamento para el Proceso de Evaluación Ambiental de la Junta de Calidad Ambiental (en adelante “RPEA”), RESOLVEMOS:

- La Evaluación Ambiental (en adelante, “EA”) sometida por la Agencia Proponente para la acción propuesta, cumple con todos los requisitos de la Ley sobre Política Pública Ambiental, Ley Número 416 - 2004, según enmendada, y con el RPEA. En dicho documento ambiental fueron adecuadamente considerados y analizados los impactos ambientales que conlleva la acción, por lo que se aprueba el mismo, dando así por terminado el proceso de evaluación ambiental.

- De conformidad con el RPEA, las medidas de mitigación contenidas en el documento ambiental serán obligatorias y constituirán las medidas mínimas a tomarse en consideración para proteger el ambiente. La Agencia Proponente requerirá a las agencias con jurisdicción que incluyan las medidas de mitigación como condición indispensable de sus permisos.

Determinación de Cumplimiento Ambiental para Evaluación Ambiental

- La Agencia Proponente deberá procurar que al momento de llevarse a cabo el desarrollo del Proyecto, las recomendaciones emitidas por los Gerentes de Permisos de la OGPe sean adecuadamente observadas y consideradas. Asimismo, la Agencia Proponente será responsable de velar que la acción, de llevarse a cabo, se desarrolle acorde con la información suministrada en el documento ambiental presentado apercibiéndosele que, los permisos que administran las entidades gubernamentales en relación al cumplimiento de las mismas están supeditados a la información y datos contenidos en documento ambiental.

- Si luego de haberse dado cumplimiento con el Artículo 4 de la Ley Núm. 416, supra, surgieran variaciones sustanciales en la acción propuesta, según definida en el RPEA, la Agencia Proponente será responsable de evaluar dichos impactos mediante el documento ambiental que entienda correspondiente.

- Se le apercibe que esta determinación de cumplimiento ambiental no será revisable hasta tanto se emita una determinación final, cuyo componente sea la presente determinación.

Recomendación y/o Comentarios del Director de la División de Cumplimiento Ambiental

1. Previo a dar comienzo a las actividades de construcción del proyecto o efectuar algún movimiento de tierra (estimado en 8,000 metros cúbicos en corte y relleno), deberán solicitar y obtener a través de la Oficina de Gerencia de Permisos (OGPe), el Permiso Único Incidental Operacional (PUI), a tenor con la Regla 3.4.1 del Reglamento Número 9081, conocido como “Reglamento Conjunto para la Evaluación y Expedición de Permisos Relacionados al Desarrollo, Uso de Terrenos y Operación de Negocios” del 7 de junio de 2019.

2. Deberán tomar las medidas necesarias para evitar que residuos de sustancias orgánicas e inorgánicas como aceites, combustibles u otras sustancias químicas generadas durante la construcción del proyecto, puedan ser arrastradas por la escorrentía y ganen acceso a algún cuerpo de agua o al sistema pluvial del área.

3. Para instalar y operar generadores de electricidad con capacidad mayor de diez (10) caballos de fuerza y una operación no mayor de quinientas (500) horas al año durante la construcción y la operación del proyecto, deberán obtener a través de la OGPe, el Permiso General que establece el mencionado Reglamento para el Trámite de los Permisos Generales, que incluye el Permiso de Fuente de Emisión.

4. Para utilizar tanques de almacenamiento de combustible para abastecer a los generadores o para cualquier otro equipo durante la construcción y operación del proyecto, deberán presentar un Plan de Emergencia ante el Área de Calidad de Agua del DRNA, a tenor con la Regla 1306.5 del Reglamento Núm. 9079 del 26 de abril de 2019, conocido como el Reglamento de Estándares de Calidad de Agua", informando la acción a tomar para evitar, controlar y remediar derrames.

5. El almacenamiento, manejo, transportación y disposición de los desperdicios sólidos no peligrosos a generarse durante la construcción y operación del proyecto, debe realizarse en conformidad con el Reglamento Núm. 5717 del 14 de noviembre de 1997, conocido como el Reglamento para el Manejo de los Desperdicios Sólidos No Peligrosos".

6. Los camiones de acarreo de desperdicios deberán contar con el Permiso para Operar Servicios de Recolección o Transportación de Desperdicios Sólidos No Peligrosos (Permiso DS-I) emitido por el DRNA, para transportarlos hasta una instalación de disposición final o de reciclaje.

7. Deberán tomar las medidas necesarias para controlar el área durante la construcción, para evitar exponer a los vehículos a recoger lodo, polvo, sustancias pegajosas o material viscoso en las ruedas u otras partes del vehículo, los cuales a su vez puedan ser depositados en las calles u otro sitio público. Deberán mantener las vías públicas y alrededores del proyecto libres de acumulación de escombros y desechos de construcción.

8. Deberán cumplir con el Reglamento Núm. 8493 del 27 de junio de 2014, conocido como el “Reglamento para el Control y la Prevención de la Contaminación Lumínica", en cuanto a la instalación de fuentes emisoras de iluminación exterior y demás requisitos aplicables al proyecto que disponga dicho

Determinación de Cumplimiento Ambiental para Evaluación Ambiental

Recomendación y/o Comentarios del Director de la División de Cumplimiento Ambiental

reglamento.

9. Durante la construcción del proyecto deberán cumplir con el Reglamento Núm. 8019 del 9 de mayo de 2011, conocido como "Reglamento para el Control de la Contaminación por Ruido", en cuanto al nivel de sonido máximo permitido.

10. Previo a la fase del Permiso de Construcción deberá obtener la Certificación de Hábitat, según el Capítulo 9.13 del Reglamento Conjunto para la Evaluación y Expedición de Permisos Relacionados al Desarrollo, Uso de Terrenos y Operación de Negocios del 7 de junio de 2019. Dicha Certificación deberá ser tramitada en el DRNA, en conformidad con la Ley Núm. 241 de 15 de agosto de 1999, La Nueva Ley de Vida Silvestre de Puerto Rico, el Reglamento 6765 Reglamento para Regir La Conservación y el Manejo de La Vida Silvestre, Las Especies Exóticas y la Caza en el Estado Libre Asociado de Puerto Rico y la Orden Administrativa Núm. 2010-09, Para Establecer los Procedimientos y Requisitos Para La Evaluación, Categorización y Mitigación de Hábitats.

11. Deberán cumplir con las recomendaciones emitidas para este proyecto en la Recomendación Ambiental (2019-263819-REA-003392).

12. Se deberá cumplir a cabalidad con las Ordenanzas #86 Serie 2011-2012 y # 3 Serie 2013-2014 (http://www.guaynabocity.gov.pr/servicios/ordenanzas/) las cuales establecen las disposiciones que regirán el Programa de Manejo, Control y Prevención de la Contaminación de Aguas de Escorrentías; toda violación a esta Ordenanza conlleva multas entre $100 a $5,000.

13. Deberán someter ante el Municipio Autónomo de Guaynabo la Autorización para Corte, Poda, Trasplante y Siembra (ACP).

14. Las recomendaciones y requisitos presentados en esta comunicación, no eximen de cualquier otro requerimiento o permiso de esta Oficina u otras agencias concernidas, que sean aplicables a la acción propuesta.

Firma / Sellos

CERTIFICO: Que he notificado copia fiel y exacta de la presente determinación con sus anejos, bajo mi firma, a la Agencia Proponente.

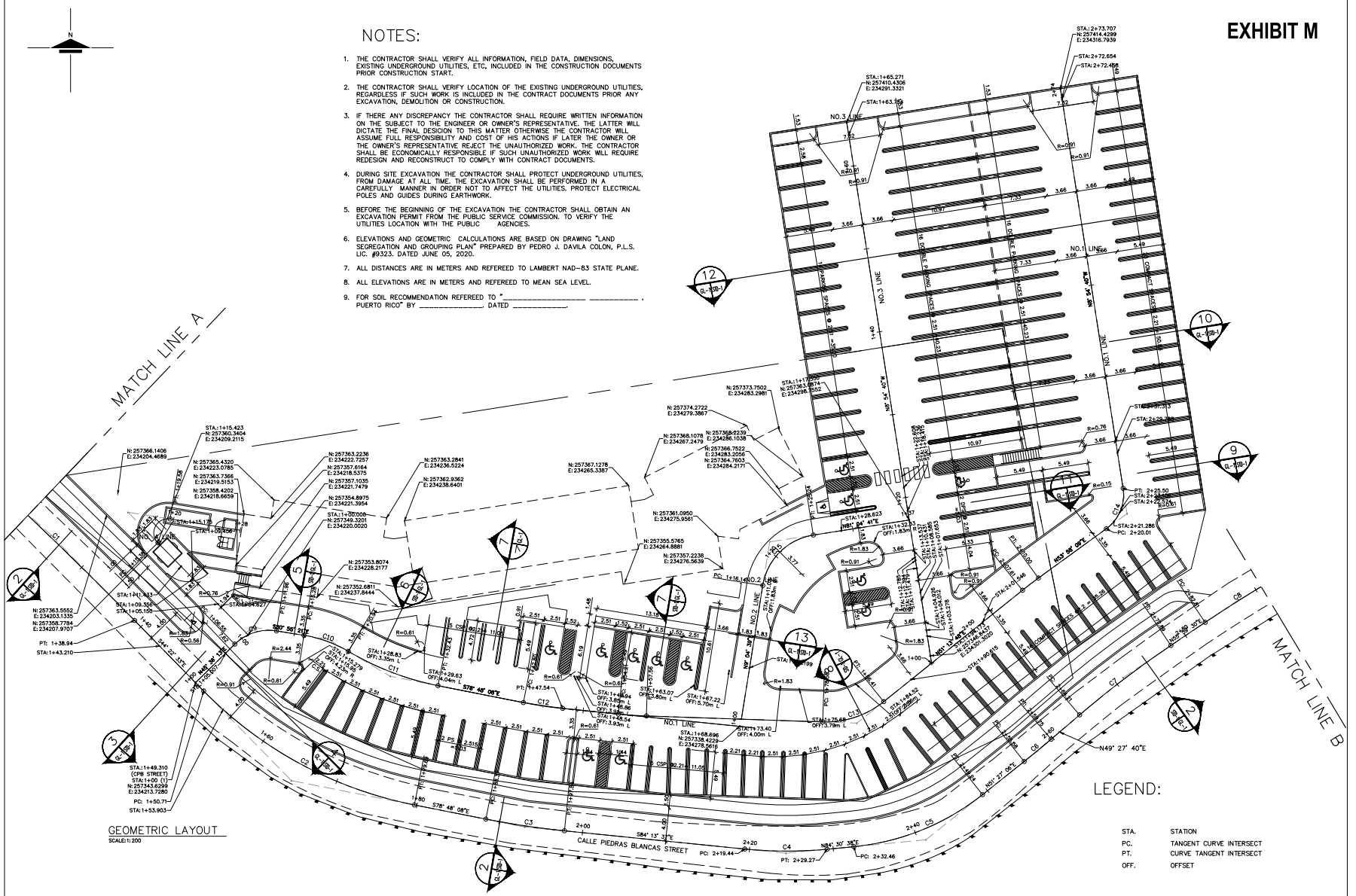
Fecha de Expedición:
07/APR/2020

Ing. Gabriel Hernández
Secretario Auxiliar
Departamento de Desarrollo Económico y Comercio de Puerto Rico
Oficina de Gerencia de Permisos

EXHIBIT M

NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL INFORMATION, FIELD DATA, DIMENSIONS, EXISTING UNDERGROUND UTILITIES, ETC, INCLUDED IN THE CONSTRUCTION DOCUMENTS PRIOR CONSTRUCTION START.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF THE EXISTING UNDERGROUND UTILITIES, REGARDLESS IF SUCH WORK IS INCLUDED IN THE CONTRACT DOCUMENTS PRIOR ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.
3. IF THERE ANY DISCREPANCY THE CONTRACTOR SHALL REQUIRE WRITTEN INFORMATION ON THE SUBJECT TO THE ENGINEER OR OWNER'S REPRESENTATIVE. THE LATTER WILL DICTATE THE FINAL DESICION TO THIS MATTER OTHERWISE THE CONTRACTOR WILL ASSUME FULL RESPONSIBILITY AND COST OF HIS ACTIONS IF LATER THE OWNER OR THE OWNER'S REPRESENTATIVE REJECT THE UNAUTHORIZED WORK. THE CONTRACTOR SHALL BE ECONOMICALLY RESPONSIBLE IF SUCH UNAUTHORIZED WORK WILL REQUIRE REDESIGN AND RECONSTRUCT TO COMPLY WITH CONTRACT DOCUMENTS.
4. DURING SITE EXCAVATION THE CONTRACTOR SHALL PROTECT UNDERGROUND UTILITIES, FROM DAMAGE AT ALL TIME. THE EXCAVATION SHALL BE PERFORMED IN A CAREFULLY MANNER IN ORDER NOT TO AFFECT THE UTILITIES. PROTECT ELECTRICAL POLES AND GUIDES DURING EARTHWORK.
5. BEFORE THE BEGINNING OF THE EXCAVATION THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM THE PUBLIC SERVICE COMMISSION. TO VERIFY THE UTILITIES LOCATION WITH THE PUBLIC AGENCIES.
6. ELEVATIONS AND GEOMETRIC CALCULATIONS ARE BASED ON DRAWING "LAND SEGREGATION AND GROUPING PLAN" PREPARED BY PEDRO J. DAVILA COLON, P.L.S. LIC. #9323. DATED JUNE 05, 2020.
7. ALL DISTANCES ARE IN METERS AND REFEREED TO LAMBERT NAD-83 STATE PLANE.
8. ALL ELEVATIONS ARE IN METERS AND REFEREED TO MEAN SEA LEVEL.
9. FOR SOIL RECOMMENDATION REFEREED TO "_____ _____ . PUERTO RICO" BY _____. DATED _____.


MATCH LINE A
MATCH LINE B
NO.1 LINE
NO.2 LINE
NO.3 LINE
CALLE PIEDRAS BLANCAS STREET
N49° 27' 40"E
S84° 13' 32"E
S78° 48' 08"E
S44° 27' 33"E
S80° 56' 21"E
N85° 04' 41"E
N85° 58' 09"E
N87° 54' 44"E
N89° 27' 04"E
N85° 30' 30"E
N65° 30' 30"E
N65° 30' 30"E
N65° 27' 04"E
N84° 30' 38"E
STA:1+15.423
N: 257360.3404
E: 234209.2115
STA:1+65.271
N: 257410.4306
E: 234291.3321
STA:2+73.707
N: 257414.4299
E: 234316.7939
STA:2+72.654
STA:1+49.310
(CPB STREET)
STA:1+00 (1)
N: 257343.6299
E: 234213.7280
PC: 1+50.71
STA:1+53.903
PT: 1+38.94
STA:1+43.210
PC: 2+20.01
PT: 2+25.50
STA: 2+21.286
STA: 2+29.313
STA: 2+29.313
STA:1+28.623
STA:1+32.313
STA:1+07.623
STA:1+07.623
STA:1+09.908
STA:1+04.278
STA:1+00.615
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STA:1+75.68
STA:1+68.696
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STA:1+67.22
OFF:5.70m L
STA:1+63.07
OFF:3.80m L
STA:1+47.54
STA:1+29.63
OFF:4.04m L
STA:1+28.83
OFF:3.35m L
STA:1+15.279
OFF:3.62m R
STA:1+09.358
STA:1+05.156
STA:1+41.433
STA:1+44.827
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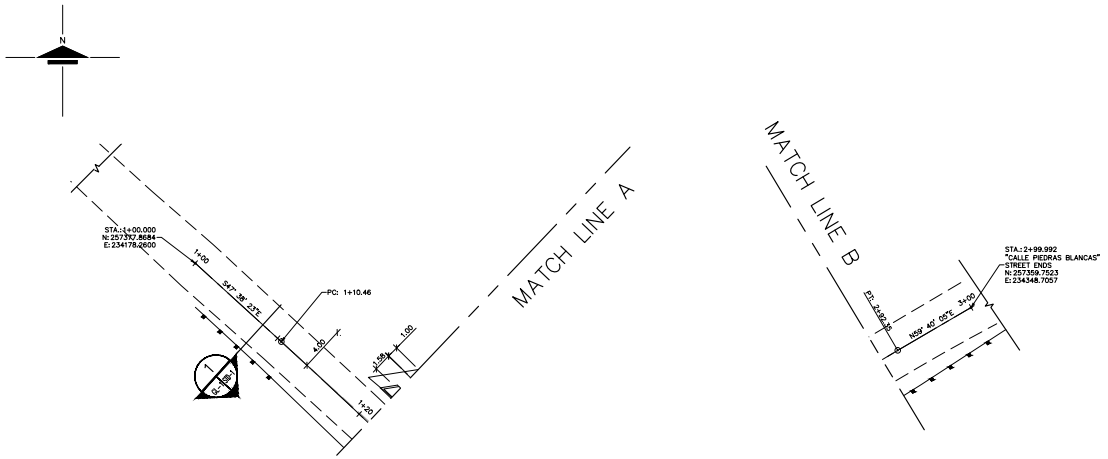

GEOMETRIC LAYOUT
SCALE: 1:200

VERTEX DATA							
CURVE #	Δ	R	T	E	L	N	E
C9	126°31'34"	5.7933	2.9184	(.0.6936)	(5.4069,)	257350.2568	234220.4960
C10	158°21'37"	15.0000	2.8668	(.0.2715)	(5.6652,)	257348.8210	234229.4823
C11	160°28'50"	33.7294	5.8017	(.0.4953)	(11.4909,)	257344.3932	234236.9346
C12	174°34'31"	50.0000	2.3687	(.0.0561)	(4.7339,)	257340.7927	234255.1218
C13	139°17'21"	11.0103	4.0849	(.0.7334)	(7.8232,)	257338.8074	234292.5534
C14	117°07'11"	4.9999	3.0568	(.0.8604)	(5.4873,)	257363.7807	234324.7352
C1	176°44'10"	500.0000	14.2451	(.0.2029)	(28.4826,)	257361.2251	234196.5121
C2	145°34'25"	48.2228	14.9397	(.2.2612)	(28.9749,)	257331.9502	234225.1560
C3	174°34'31"	100.0000	4.7374	(.0.1122)	(9.4677,)	257326.4419	234252.9808
C4	168°44'14"	50.0000	4.9302	(.0.2425)	(9.8286,)	257323.2967	234284.0897
C5	146°56'28"	29.0835	8.6312	(.1.2537)	(16.7808,)	257324.8992	234300.7645
C6	178°00'35"	120.0000	2.0845	(.0.0181)	(4.1686,)	257335.5272	234314.1026
C7	173°28'10"	120.0000	6.8461	(.0.1951)	(13.6773,)	257344.2327	234324.2815
C8	176°19'25"	148.6945	4.7722	(.0.0766)	(9.5411,)	257353.4855	234337.9951
C15	107°59'59"	7.2390	5.2595	(.1.7089)	(9.0968,)	257360.4054	234282.1509

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NOMBRE DE CONSULTOR

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STRUCTURAL CONSULTANT

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CONDOMINIO VISTA AL NORTE

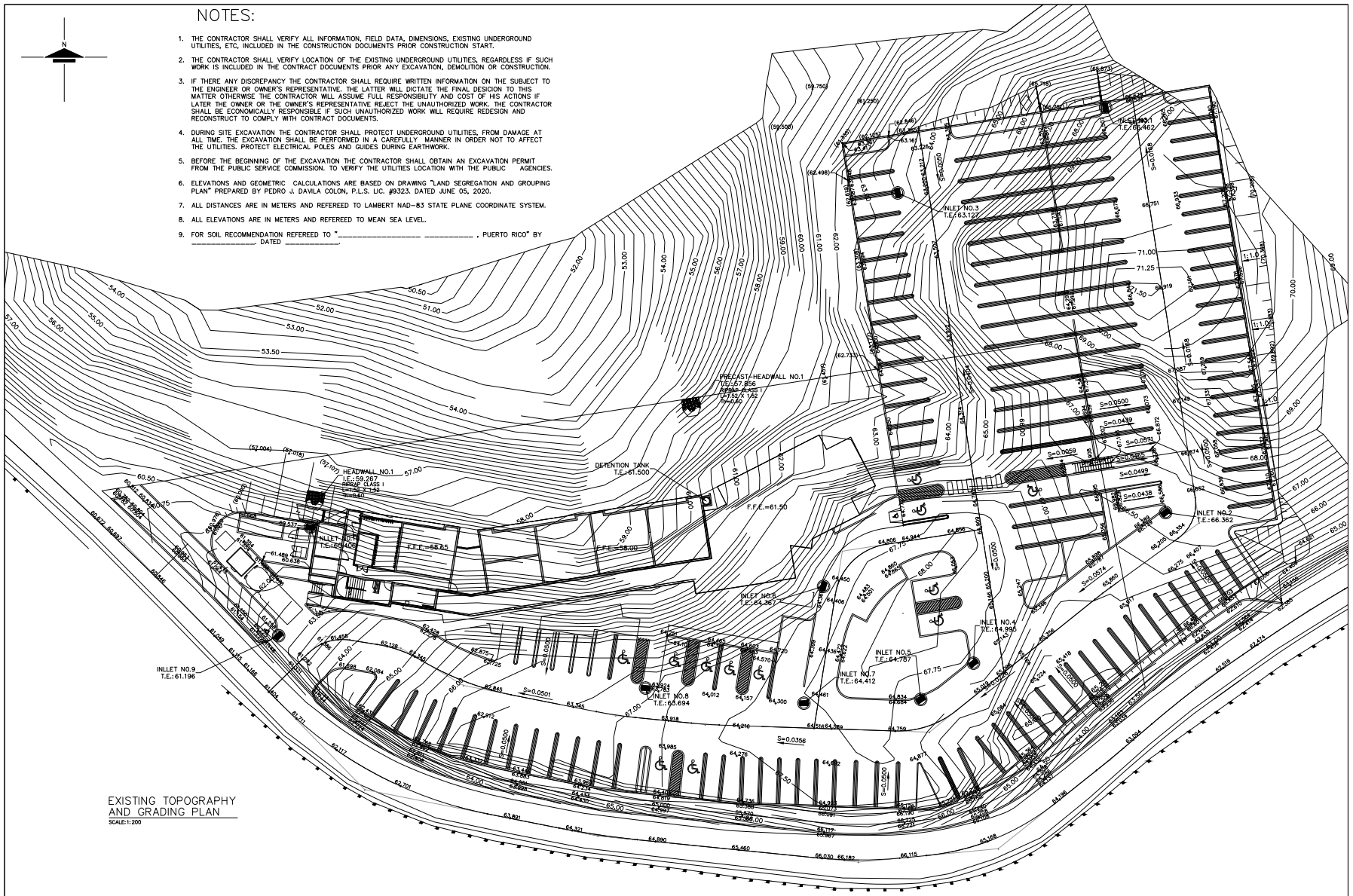
CAMINO PIEDRAS BLANCAS, BARRIO PUEBLO , GUAYNABO, PUERTO RICO

REVISIONS		
MARK	DATE	DESCRIPTION

GL-2

NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL INFORMATION, FIELD DATA, DIMENSIONS, EXISTING UNDERGROUND UTILITIES, ETC, INCLUDED IN THE CONSTRUCTION DOCUMENTS PRIOR CONSTRUCTION START.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF THE EXISTING UNDERGROUND UTILITIES, REGARDLESS IF SUCH WORK IS INCLUDED IN THE CONTRACT DOCUMENTS PRIOR ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.
3. IF THERE ANY DISCREPANCY THE CONTRACTOR SHALL REQUIRE WRITTEN INFORMATION ON THE SUBJECT TO THE ENGINEER OR OWNER'S REPRESENTATIVE. THE LATTER WILL DICTATE THE FINAL DESICION TO THIS MATTER OTHERWISE THE CONTRACTOR WILL ASSUME FULL RESPONSIBILITY AND COST OF HIS ACTIONS IF LATER THE OWNER OR THE OWNER'S REPRESENTATIVE REJECT THE UNAUTHORIZED WORK. THE CONTRACTOR SHALL BE ECONOMICALLY RESPONSIBLE IF SUCH UNAUTHORIZED WORK WILL REQUIRE REDESIGN AND RECONSTRUCT TO COMPLY WITH CONTRACT DOCUMENTS.
4. DURING SITE EXCAVATION THE CONTRACTOR SHALL PROTECT UNDERGROUND UTILITIES, FROM DAMAGE AT ALL TIME. THE EXCAVATION SHALL BE PERFORMED IN A CAREFULLY MANNER IN ORDER NOT TO AFFECT THE UTILITIES. PROTECT ELECTRICAL POLES AND GUIDES DURING EARTHWORK.
5. BEFORE THE BEGINNING OF THE EXCAVATION THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM THE PUBLIC SERVICE COMMISSION. TO VERIFY THE UTILITIES LOCATION WITH THE PUBLIC AGENCIES.
6. ELEVATIONS AND GEOMETRIC CALCULATIONS ARE BASED ON DRAWING "LAND SEGREGATION AND GROUPING PLAN" PREPARED BY PEDRO J. DAVILA COLON, P.L.S. LIC. #9323. DATED JUNE 05, 2020.
7. ALL DISTANCES ARE IN METERS AND REFEREED TO LAMBERT NAD-83 STATE PLANE COORDINATE SYSTEM.
8. ALL ELEVATIONS ARE IN METERS AND REFEREED TO MEAN SEA LEVEL.
9. FOR SOIL RECOMMENDATION REFEREED TO "_____ _____ , PUERTO RICO" BY _____. DATED _____.



EXISTING TOPOGRAPHY AND GRADING PLAN

SCALE: 1: 200

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REVISIONS		
MARK	DATE	DESCRIPTION

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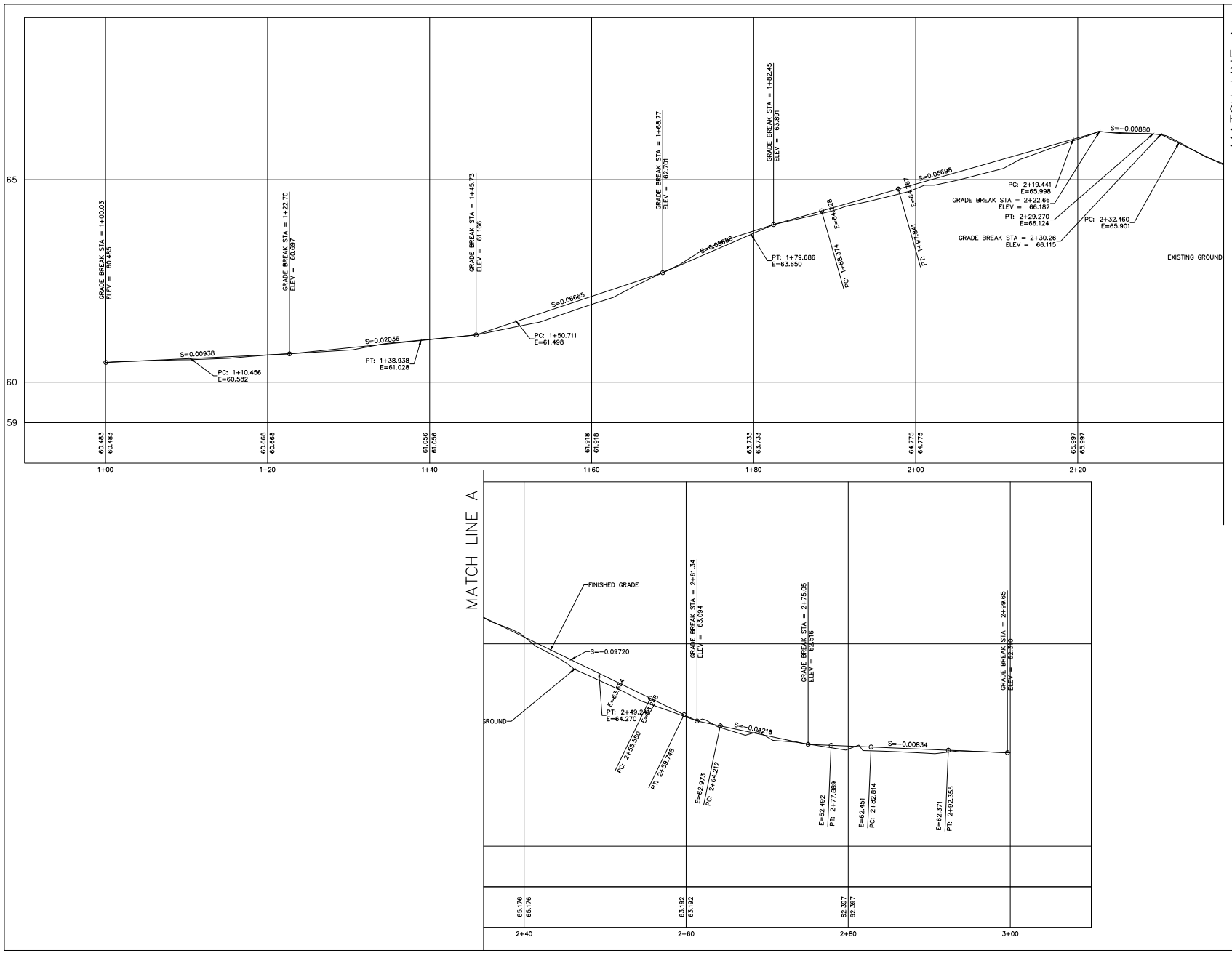

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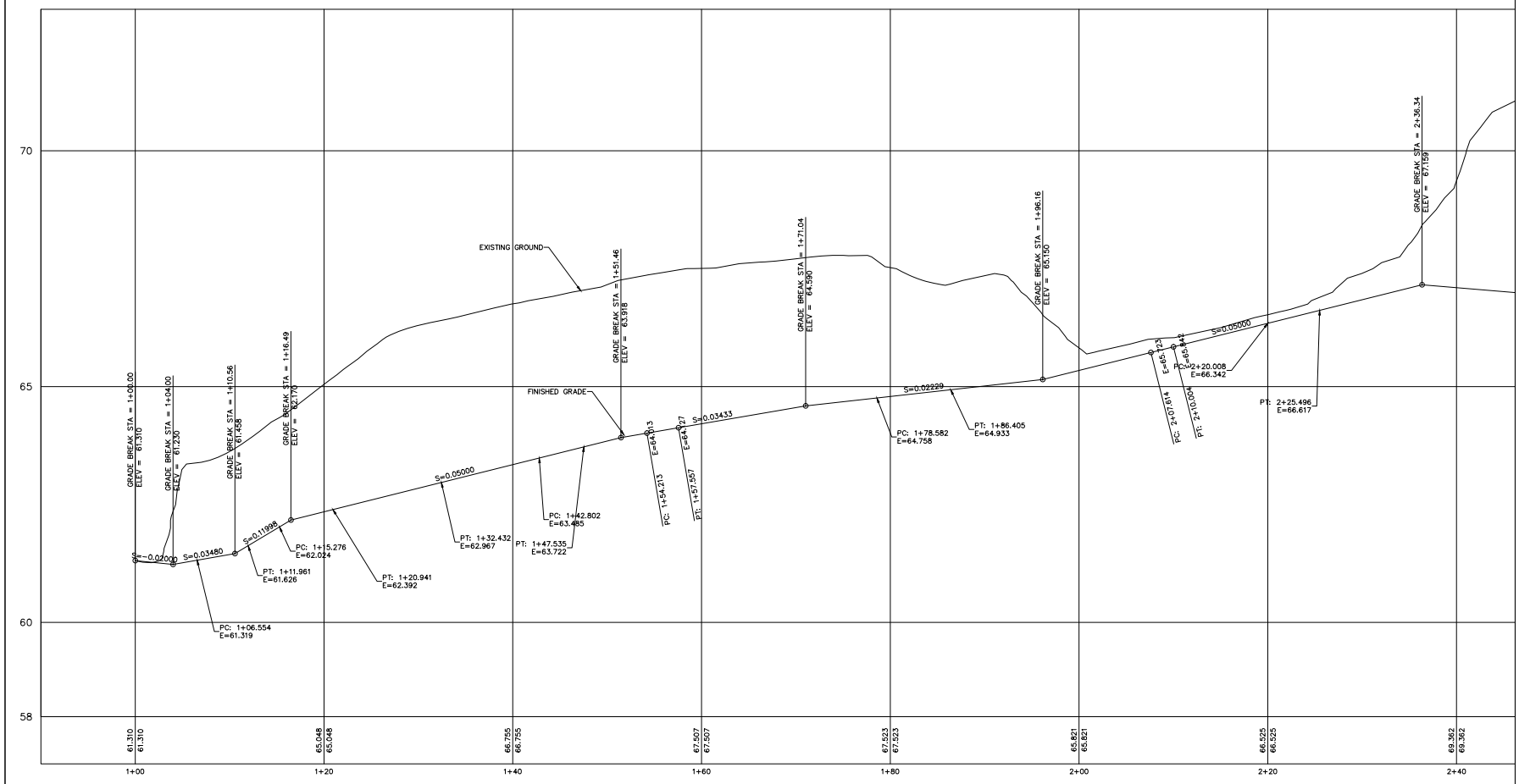
GUAYNABO, PUERTO RICO 00968
T 787.781.9090 F 787.781.9095

CONDOMINIO VISTA AL NORTE

CAMINO PIEDRAS BLANCAS, BARRIO PUEBLO , GUAYNABO, PUERTO RICO

REVISIONS		
MARK	DATE	DESCRIPTION

STP-1



NO.1 LINE PROFILE
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V= 1:40

SCF ARQUITECTOS

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CIVIL CONSULTANT

Q STRUCTURAL
STRUCTURAL CONSULTANT

LEONARDO J. VIDAL, PE
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ADG ENGINEERING, PSC
MECHANICAL CONSULTANT

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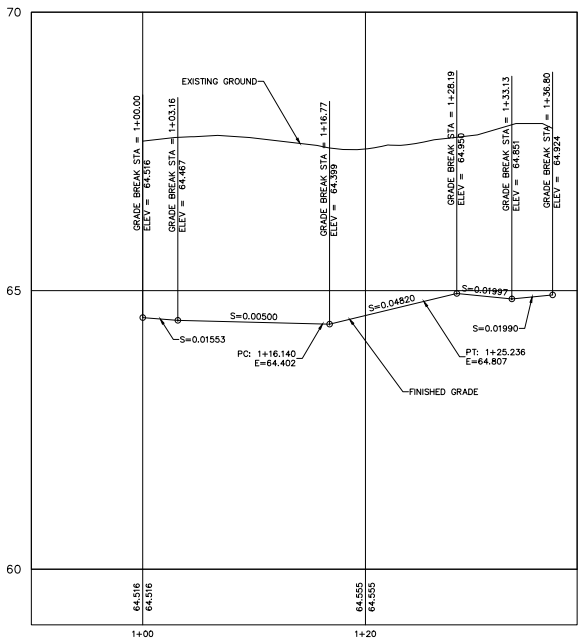
CAMINO PIEDRAS BLANCAS, BARRIO PUEBLO , GUAYNABO, PUERTO RICO

REVISIONS		
MARK	DATE	DESCRIPTION

STP-2



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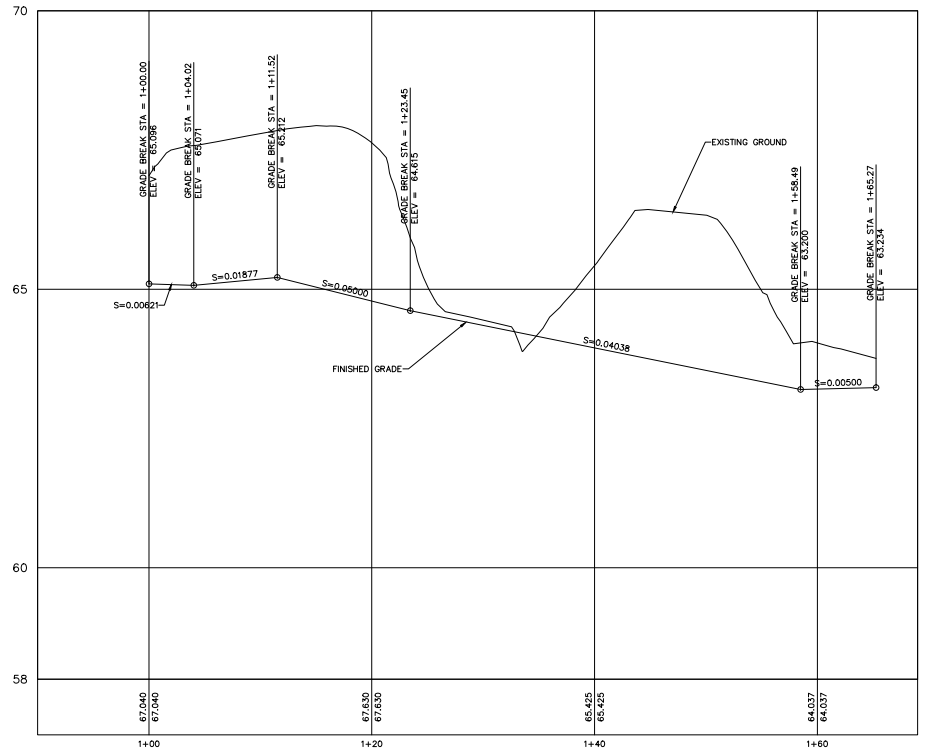

NO.3 LINE PROFILE
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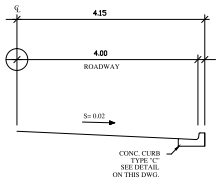
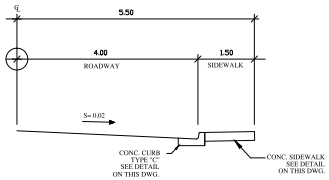
CAMINO PIEDRAS BLANCAS, BARRIO PUEBLO , GUAYNABO, PUERTO RICO

R E V I S I O N S		
MARK	DATE	DESCRIPTION

STP-3



1 GL-1SD-1 TYPICAL TRANSVERSE FOR 4.15 mts.
HALF SECTION STREET (ASPHALT PAVEMENT)
SC.:N.T.S.



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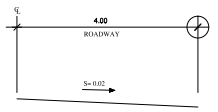

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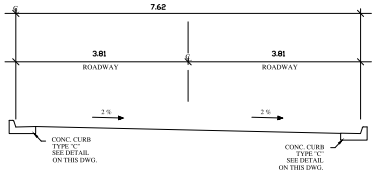

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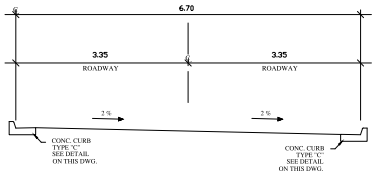

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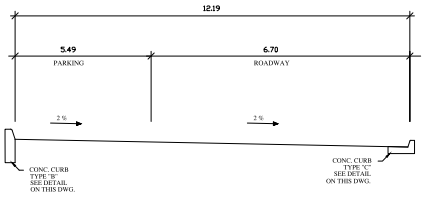
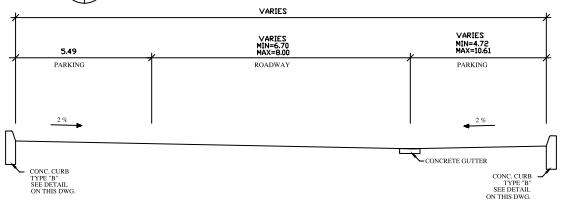


6 GL-1SD-1 TYPICAL TRANSVERSE FOR 12.19 mts.
SECTION STREET
SC.:N.T.S.



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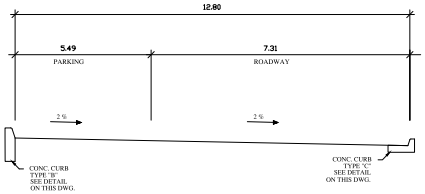
23.45 (MAX) mts. SECTION STREET
SC.:N.T.S.



8 GL-1SD-1 TYPICAL TRANSVERSE FOR 12.19 mts.
SECTION STREET
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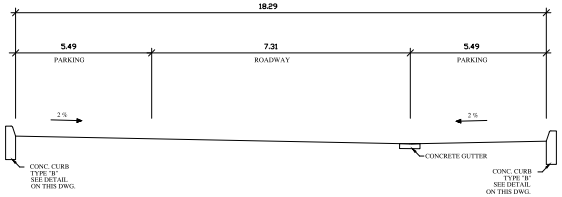

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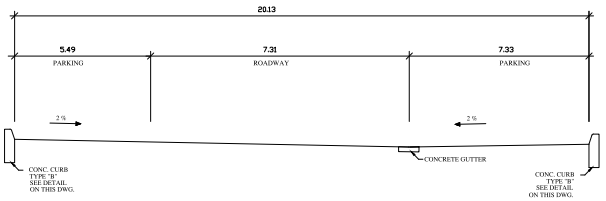

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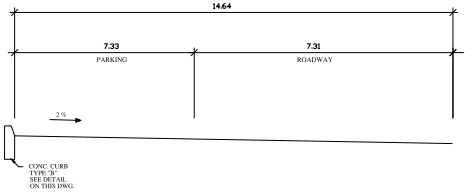

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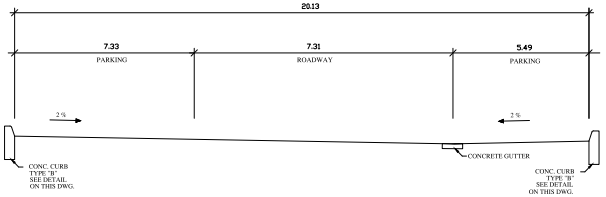
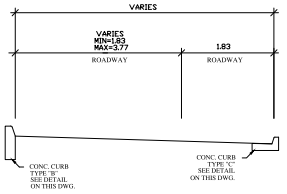


12 GL-1SD-1 TYPICAL TRANSVERSE FOR 20.13 mts
SECTION STREET
SC.:N.T.S.



13 GL-1SD-1 TYPICAL TRANSVERSE FOR 3.66 (MIN) mts
5.60 (MAX) mts. SECTION STREET
SC.:N.T.S.

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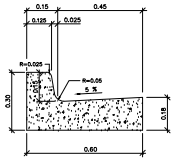
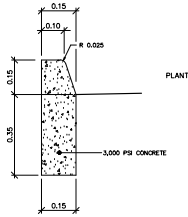
MARK	DATE	DESCRIPTION

STD-2

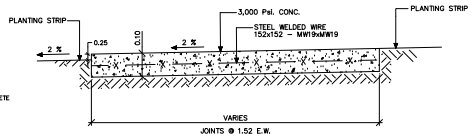


CONC. CURB AND GUTTER TYPE "C" DETAIL (NON – MOUNTABLE)

SCALE : 1:10



CONC. TYPE "B"



CONCRETE SIDEWALK DETAIL

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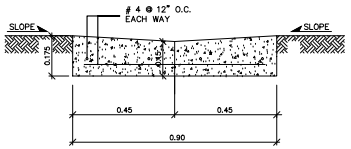

CONC. PARKING GUTTER DETAIL

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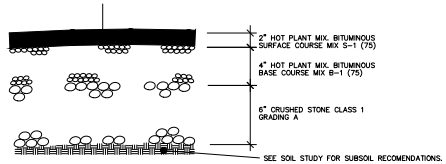

TYPICAL ASPHALT PAVEMENT DETAIL

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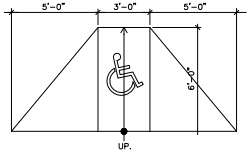
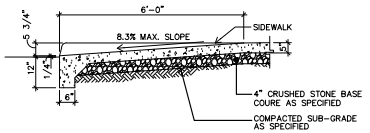
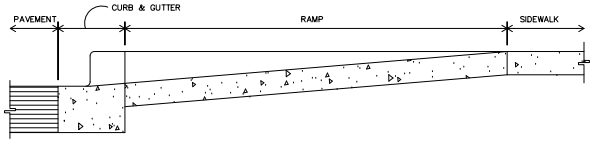




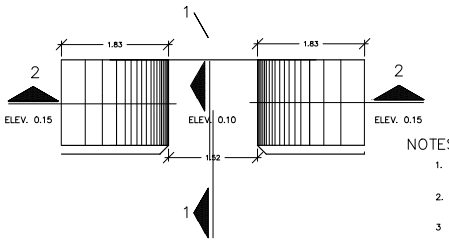


NOTE:

1. HANDICAPPED CURB RAMPS MUST HAVE THE SAME REINFORCEMENT OF THE SIDEWALK DETAIL

HANDICAPPED TYPICAL CURB RAMP DETAIL (11 / C–8)

NOT TO SCALE



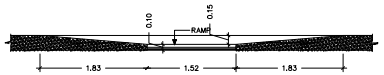
PLAN

TYPICAL DETAIL OF RAMP FOR HANDICAPPED

SCALE: N.T.S.

NOTES:

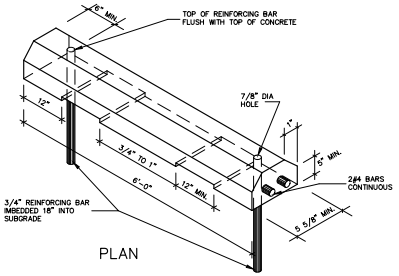
1. RAMP FOR DISSABLED SHALL BE PROVIDED AT STREET INTERSECTIONS.
2. RAMP SHALL BE LOCATED IN POSITION AS NOT TO INTERFERE WITH CARPORT ENTRANCES , ELECTRICAL OR LIGHTING POLES , ETC.
3 ALL CONCRETE TO BE 3,000 P.S.I.



SECTION 2–2



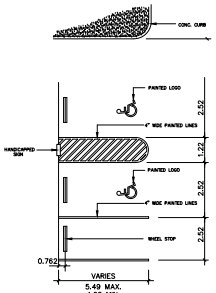
SECTION 1–1



PLAN

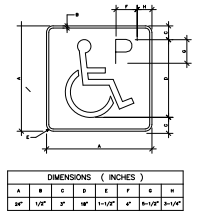
TYP. PRE–CAST CONCRETE WHEEL STOP TO ALL PARKING SPACES

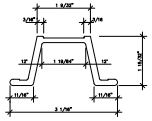
NOT TO SCALE



TYPICAL HANDICAPPED PARKING LAYOUT

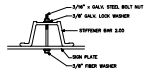
NOT TO SCALE



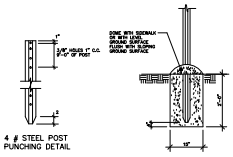


STIFFENER BAR 2.00
W 1.7 FT = 1.90 = 2.10#

MIN. SEC MOD. X–X =0.20–0.25IN.^{3}
HOT–ROLLED HAS CHANNEL STEEL WITH
MINIMUM YIELD STRENGTH OF 36KSI.
ASTM DESIGNATION A1052
DIMENSIONS SHOWN ARE NOMINAL



FOR SIMPLE MOUNTING



4 #4 STEEL POST PUNCHING DETAIL

FOUNDATION DETAIL

NOT TO SCALE

TYPICAL TYPE OF MOUNTING

TYPICAL DETAIL FOR HANDICAPPED SPACES SIGN

NOT TO SCALE

STREET DETAILS

SCALE: AS SHOWN

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C O N D O M I N I O V I S T A A L N O R T E

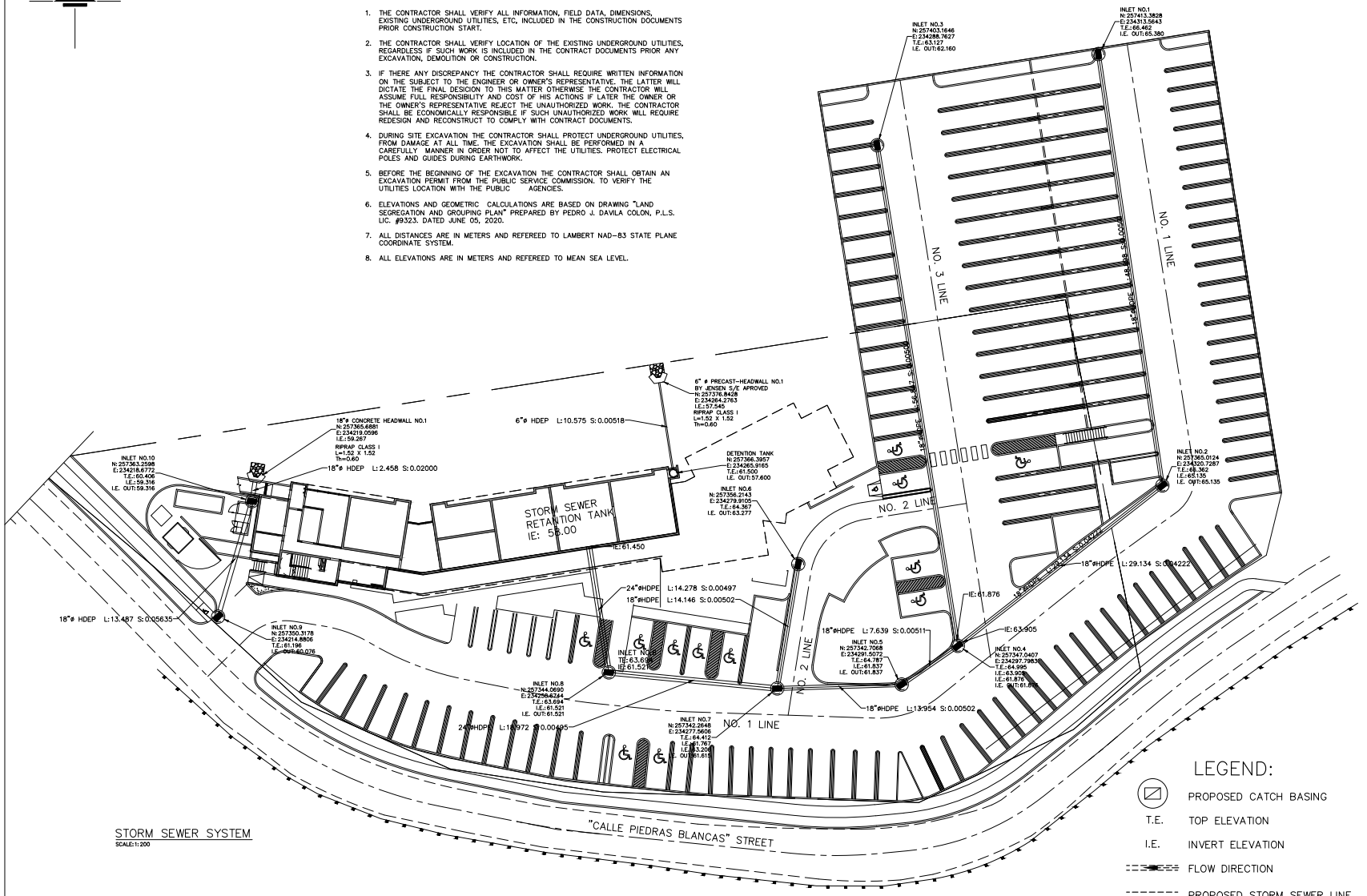
CAMINO PIEDRAS BLANCAS, BARRIO PUEBLO , GUAYNABO, PUERTO RICO

REVISIONS		
MARK	DATE	DESCRIPTION

STD-2

NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL INFORMATION, FIELD DATA, DIMENSIONS, EXISTING UNDERGROUND UTILITIES, ETC, INCLUDED IN THE CONSTRUCTION DOCUMENTS PRIOR CONSTRUCTION START.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF THE EXISTING UNDERGROUND UTILITIES, REGARDLESS IF SUCH WORK IS INCLUDED IN THE CONTRACT DOCUMENTS PRIOR ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.
3. IF THERE ANY DISCREPANCY THE CONTRACTOR SHALL REQUIRE WRITTEN INFORMATION ON THE SUBJECT TO THE ENGINEER OR OWNER'S REPRESENTATIVE. THE LATTER WILL DICTATE THE FINAL DESICION TO THIS MATTER OTHERWISE THE CONTRACTOR WILL ASSUME FULL RESPONSIBILITY AND COST OF HIS ACTIONS IF LATER THE OWNER OR THE OWNER'S REPRESENTATIVE REJECT THE UNAUTHORIZED WORK. THE CONTRACTOR SHALL BE ECONOMICALLY RESPONSIBLE IF SUCH UNAUTHORIZED WORK WILL REQUIRE REDESIGN AND RECONSTRUCT TO COMPLY WITH CONTRACT DOCUMENTS.
4. DURING SITE EXCAVATION THE CONTRACTOR SHALL PROTECT UNDERGROUND UTILITIES, FROM DAMAGE AT ALL TIME. THE EXCAVATION SHALL BE PERFORMED IN A CAREFULLY MANNER IN ORDER NOT TO AFFECT THE UTILITIES. PROTECT ELECTRICAL POLES AND GUIDES DURING EARTHWORK.
5. BEFORE THE BEGINNING OF THE EXCAVATION THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM THE PUBLIC SERVICE COMMISSION. TO VERIFY THE UTILITIES LOCATION WITH THE PUBLIC AGENCIES.
6. ELEVATIONS AND GEOMETRIC CALCULATIONS ARE BASED ON DRAWING "LAND SEGREGATION AND GROUPING PLAN" PREPARED BY PEDRO J. DAVILA COLON, P.L.S. LIC. #9323. DATED JUNE 05, 2020.
7. ALL DISTANCES ARE IN METERS AND REFEREED TO LAMBERT NAD-83 STATE PLANE COORDINATE SYSTEM.
8. ALL ELEVATIONS ARE IN METERS AND REFEREED TO MEAN SEA LEVEL.



STORM SEWER SYSTEM
SCALE: 1: 200

LEGEND:

	PROPOSED CATCH BASING
T.E.	TOP ELEVATION
I.E.	INVERT ELEVATION
	FLOW DIRECTION
	PROPOSED STORM SEWER LINE
H.D.E.P.	HIGH-DENSITY POLYETHYLENE PIPE N-12 PER AS ASTM F2648

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STRUCTURAL CONSULTANT

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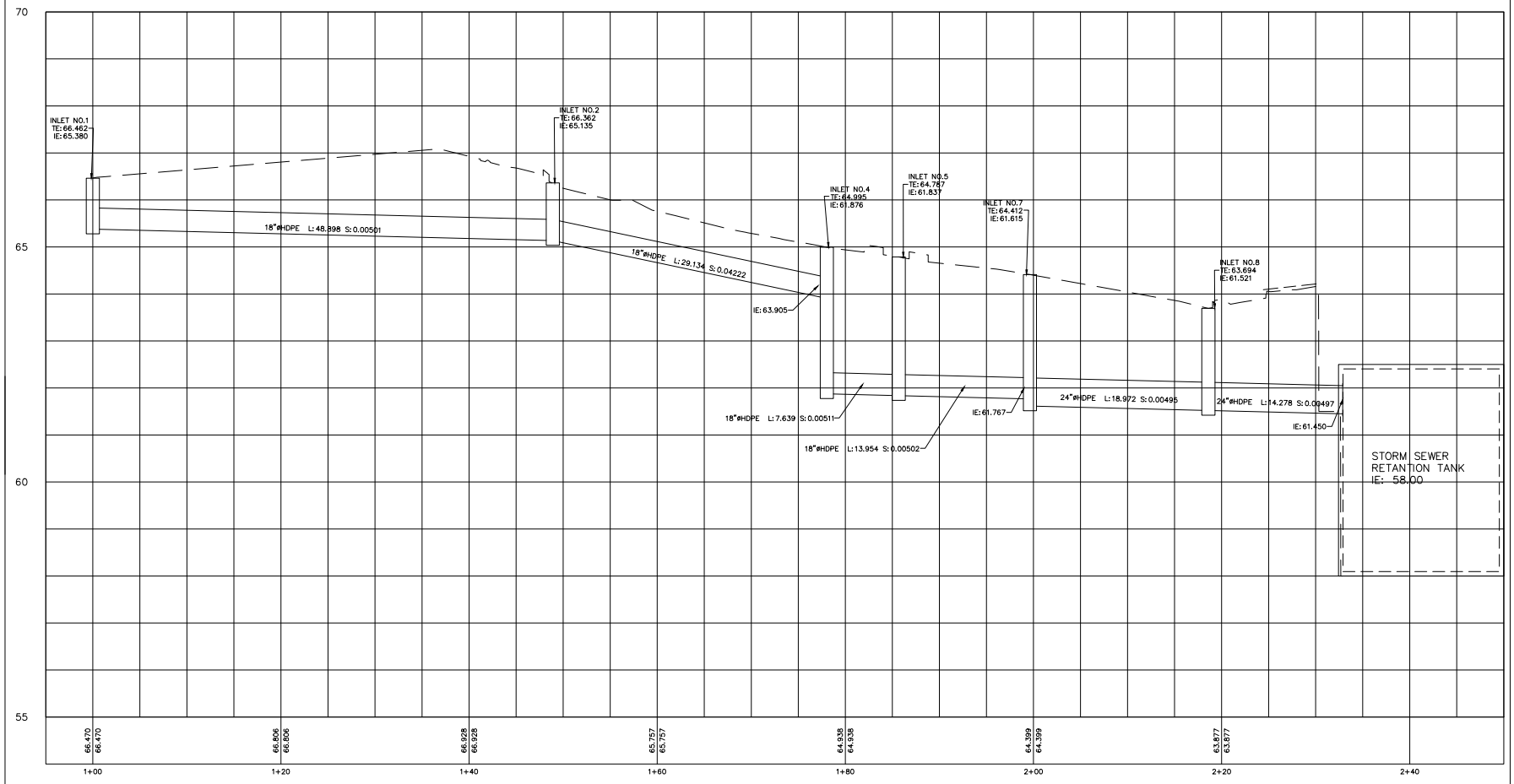
C O N D O M I N I O V I S T A A L N O R T E

CAMINO PIEDRAS BLANCAS, BARRIO PUEBLO , GUAYNABO, PUERTO RICO

REVISIONS		
MARK	DATE	DESCRIPTION

SSS-1



STORM SEWER PROFILE 1
FROM INLET NO.1 TO DETENTION TANK
SCALE: H=200
V=40

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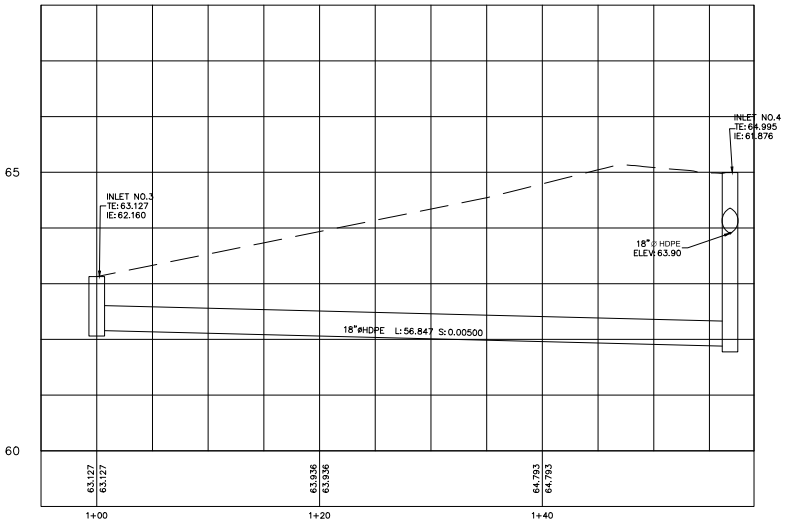
CONDOMINIO VISTA AL NORTE

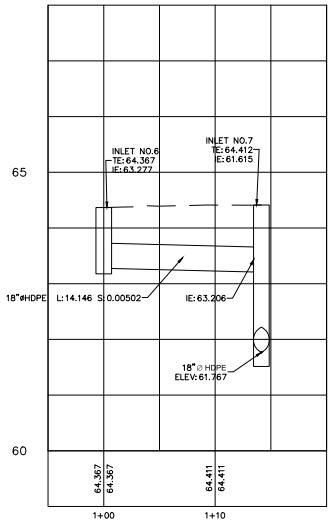
CAMINO PIEDRAS BLANCAS, BARRIO PUEBLO , GUAYNABO, PUERTO RICO

REVISIONS		
MARK	DATE	DESCRIPTION

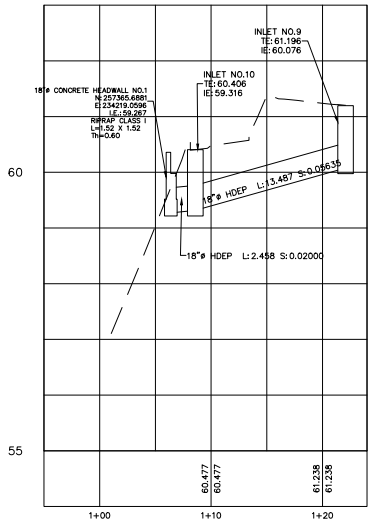
SSP-1



STORM SEWER PROFILE 2
FROM INLET NO.3 TO INLET NO.4
SCALE: H=200
V=40



STORM SEWER PROFILE 3
FROM INLET NO.10 TO HEADWALL NO.1
SCALE: H=200
V=40



STORM SEWER PROFILE 4
FROM INLET NO.10 TO HEADWALL NO.1
SCALE: H=200
V=40

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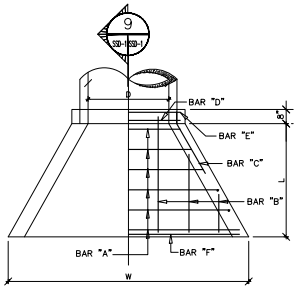
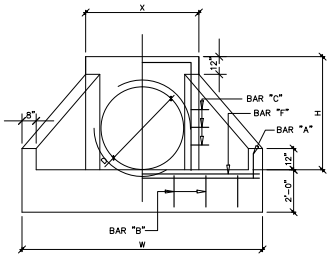
R E V I S I O N S		
MARK	DATE	DESCRIPTION

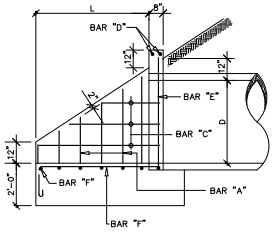
SSP-1



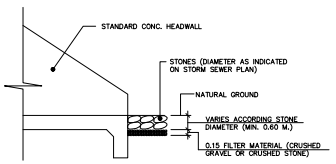
PLAN



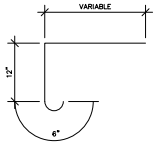
ELEVATION



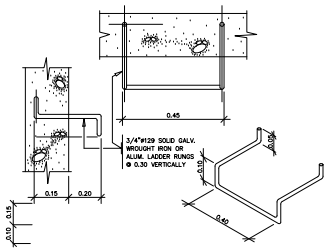
10 SECTION
SC.:N.T.S.



LOOSE RIP RAP DETAIL
SCALE : N.T.S.



BAR "B" DETAIL

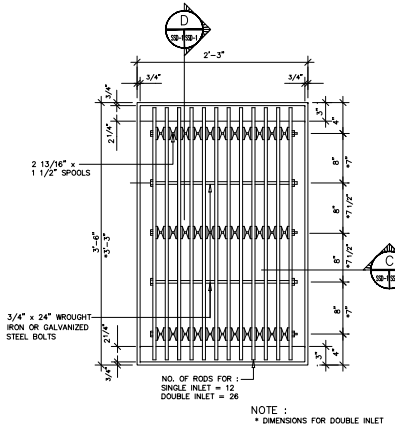


LADDER RUNG'S DETAIL
NOT TO SCALE

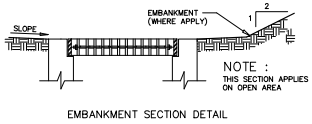
TABLE OF DIMENSIONS AND QUANTITIES FOR TYPE "B" HEADWALL

NO. OF PIPES	DIAMETER	TABLE OF DIMENSIONS					BILL OF REINFORCING STEEL AND QUANTITIES FOR ONE HEADWALL														QUANTITIES		
							5/8" ø BAR "A" @ 12" C.C.			3/8" ø BAR "B" @ 18" C.C.			3/8" ø BAR "C" @ 12" C.C.	3/8" ø BAR "D"		5/8" ø BAR "E"		3/8" ø BAR "F"		STEEL (LBS)	CONC (C.M'S.)	UNCL. EXC.
		W	X	H	L	G	NO.	LENGTH	LENGTH	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH			
							EACH																
1	18	1.49	0.93	0.91	0.48		3	2.03	2.08		3	0.99			2	0.81	2	0.81	2	0.97	1.37	31	0.40	1
1	24	1.91	1.08	1.07	0.71		4	2.46	2.51	2.56	4	1.22			4	0.91	2	0.97	2	1.12	1.80	46	0.61	1
1	36	2.73	1.38	1.37	1.17		4	3.20 3.65	3.40	3.45	4	1.68	2	0.80	4	0.91	2	3.06	2	1.27	4.75	100	1.79	2

CONCRETE HADWALL DEATILS
SCALE : N.T.S.

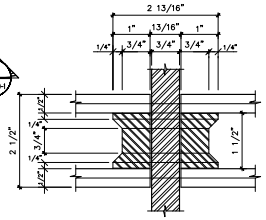


NOTE :
* DIMENSIONS FOR DOUBLE INLET

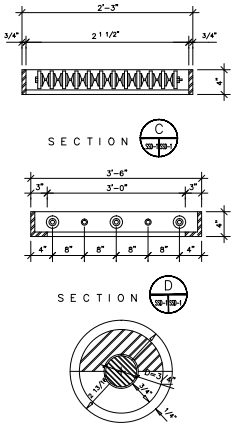


NOTE :
THIS SECTION APPLIES ON OPEN AREA

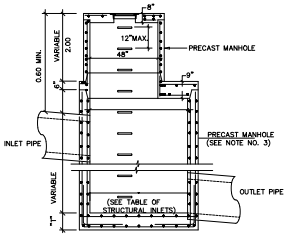
EMBANKMENT SECTION DETAIL



SPOOL CROSS SECTION



SPOOL HALF PLAN & HALF SECTION



STORM SEWER MANHOLE
N.T.S.

TABLE OF STRUCTURAL INLETS

MAX. PIPE DIA. (IN.)	"D" MH. DIA. (IN.)	"T"(IN)
18"	48"	8"
30"	66"	8"
36"	72"	8"
42"	84"	10"

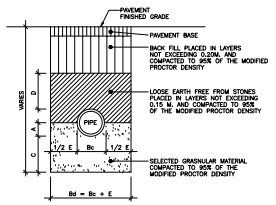
NOTES FOR MANHOLES:

1 – SEE STORM SEWER LAYOUT & PROFILE FOR PROPER PIPE DIAMETER AND ARRANGEMENT

2 – PRECAST MANHOLE SHALL WITHSTAND HS-30 LOADING.

3 – PRECAST MANHOLE SHALL COMPLY WITH ASTM C-478.

4 – WHEN MANHOLE IS MORE THAN 20 FEET DEEP, A PLATFORM OF 4" THICKNESS SHALL BE INSTALLED AT EVERY 10 FEET. SEE DETAIL NO.1.



STORM SEWER PIPE TRENCH DETAIL
NOT TO SCALE

TRENCH DATA TABLE

DIAM.	Bc	E	Bd	A	C	D
12"	0.41	0.40	0.81	0.11	0.10	0.30
18"	0.56	0.50	1.08	0.18	0.12	0.30
24"	0.77	0.60	1.37	0.20	0.16	0.39
30"	0.94	0.60	1.34	0.24	0.19	0.47
36"	1.11	0.75	1.86	0.28	0.23	0.56
42"	1.30	0.75	2.05	0.33	0.27	0.65
48"	1.48	0.90	2.38	0.37	0.31	0.74
36"x60"	1.80	0.90	2.70	0.62	0.35	0.90

ALL DIMENSIONS IN METERS EXCEPT DIA.

NOTES:

1 – PROVIDE 2 # 4 DIAGONAL BARS ALL AROUND WALL OPENINGS EXTENDING 2'-0" MIN. BEYOND THE EDGES.

2 – ALL REINFORCEMENT SHALL BE NEW BILLET STEEL DEFORMED BARS GRADE 60.

3 – THE 28 DAYS COMPRESSIVE STRENGTH OF CONCRETE 3,000 PSI.

STORM SEWER DETAILS
SCALE:AS SHOWN

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SAMUEL E. RIVERA GONZALEZ

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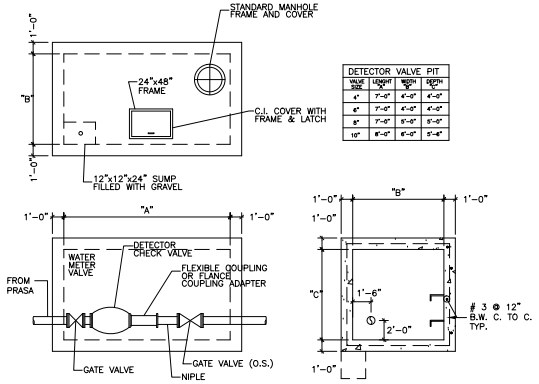
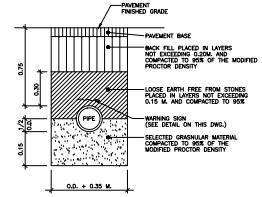
REVISIONS		
MARK	DATE	DESCRIPTION

SSD-1

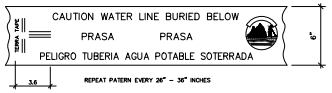


DETECTOR VALVE PIT			
VALVE SIZE	LENGHT "A"	WIDTH "B"	DEPTH "C"
4"	7'-0"	4'-0"	4'-0"
6"	7'-0"	4'-0"	4'-0"
8"	7'-0"	5'-0"	5'-0"
10"	8'-0"	6'-0"	5'-6"

4" DETECTOR CHECK VALVE PIT DETAIL
NOT TO SCALE



WATER PIPE TRENCH DETAIL
NOT TO SCALE



WARNING SIGN
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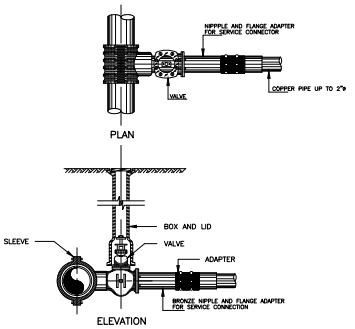
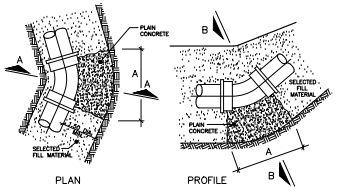
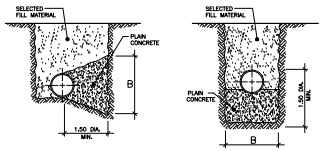


DETAIL OF TAPPING VALVE AND SLEEVE
SCALE : NOT TO SCALE





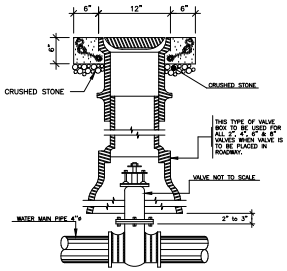
90° BEND		
DIA.	A	B
4"	2'-0"	2'-0"
6"	3'-0"	3'-0"
8"	4'-0"	4'-0"
10"	4'-0"	4'-0"
16"	7'-0"	7'-0"

22 1/2° BEND		
DIA.	A	B
4"	1'-0"	1'-0"
6"	2'-0"	2'-0"
8"	2'-0"	2'-0"
10"	2'-0"	2'-0"
16"	4'-0"	4'-0"

45° BEND		
DIA.	A	B
4"	2'-0"	2'-0"
6"	2'-0"	2'-0"
8"	3'-0"	3'-0"
10"	3'-0"	3'-0"
16"	5'-0"	5'-0"

11 1/4° BEND		
DIA.	A	B
4"	1'-0"	1'-0"
6"	1'-0"	1'-0"
8"	2'-0"	2'-0"
10"	2'-0"	2'-0"
16"	3'-0"	3'-0"

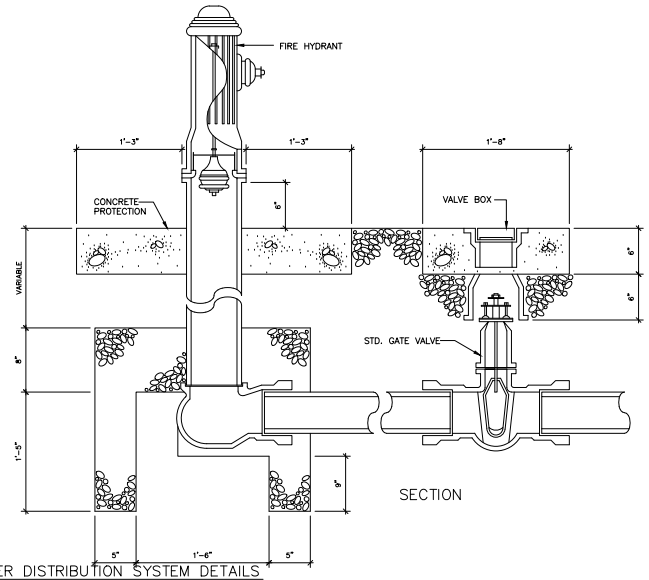
THRUST BLOCK FOR HORIZONTAL AND VERTICAL BENDS
NOT TO SCALE

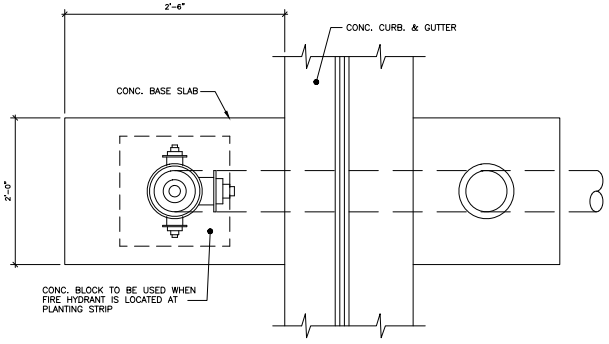


CAST IRON VALVE BOX DETAIL
SCALE : NOT TO SCALE

SIZES
4" x 2" FOR CONNECTIONS TO WATER MAIN AND FOR FIRE HYDRANTS

WATER DISTRIBUTION DETAILS
SCALE: AS SHOWN





FIRE HYDRANT DETAILS
NOT TO SCALE

WATER DISTRIBUTION SYSTEM DETAILS
SCALE: AS SHOWN

AAA-RM-19-32-0033
OGPe: 2019-263819-SRI-028339

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SAMUEL E. RIVERA GONZALEZ

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REVISIONS

MARK	DATE	DESCRIPTION

WAD-1

WATER DISTRIBUTION NOTES :

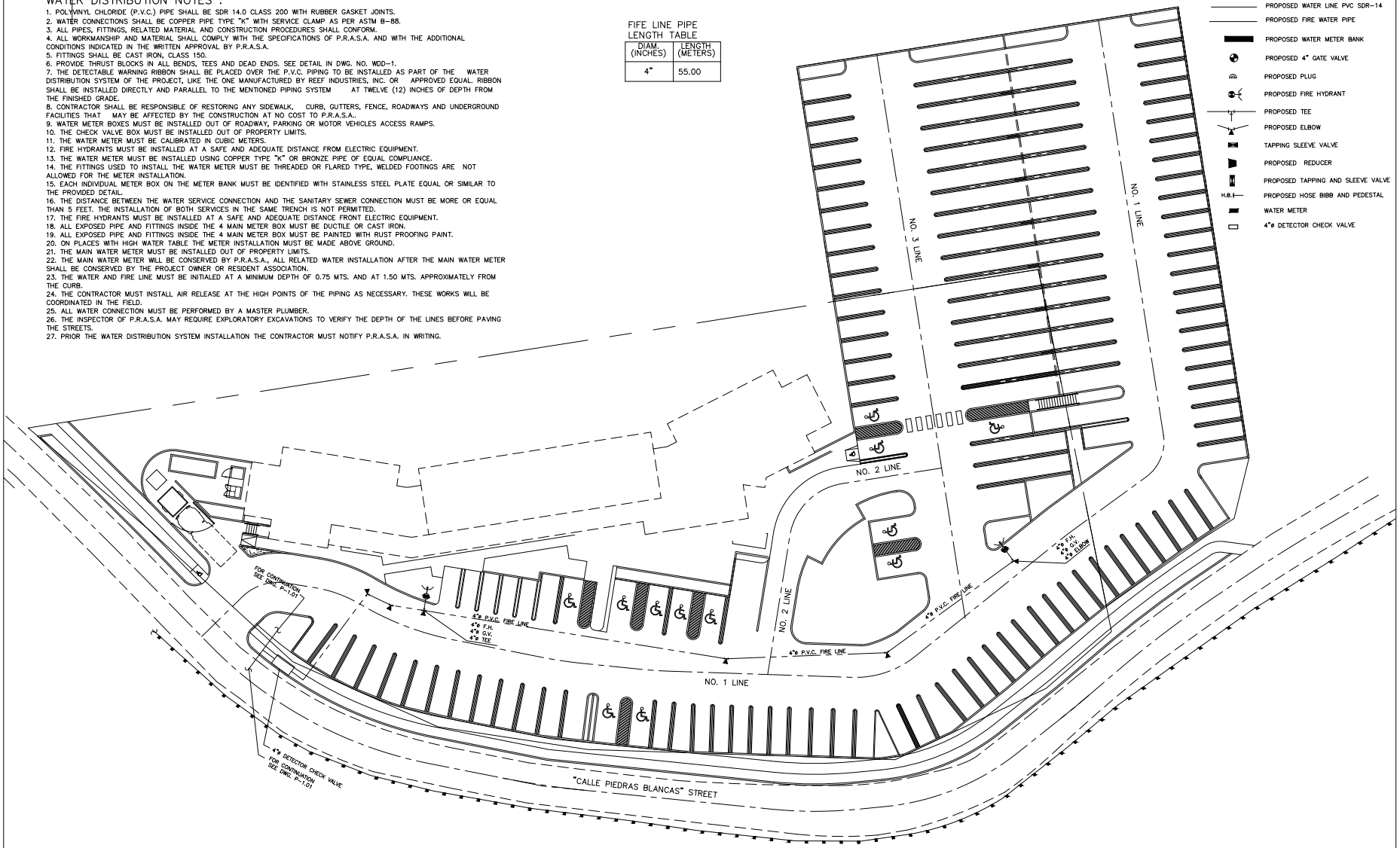
1. POLYVINYL CHLORIDE (P.V.C.) PIPE SHALL BE SDR 14.0 CLASS 200 WITH RUBBER GASKET JOINTS.
2. WATER CONNECTIONS SHALL BE COPPER PIPE TYPE "K" WITH SERVICE CLAMP AS PER ASTM B-88.
3. ALL PIPES, FITTINGS, RELATED MATERIAL AND CONSTRUCTION PROCEDURES SHALL CONFORM.
4. ALL WORKMANSHIP AND MATERIAL SHALL COMPLY WITH THE SPECIFICATIONS OF P.R.A.S.A. AND WITH THE ADDITIONAL CONDITIONS INDICATED IN THE WRITTEN APPROVAL BY P.R.A.S.A.
5. FITTINGS SHALL BE CAST IRON, CLASS 150.
6. PROVIDE THRUST BLOCKS IN ALL BENDS, TEES AND DEAD ENDS. SEE DETAIL IN DWG. NO. WDD-1.
7. THE DETECTABLE WARNING RIBBON SHALL BE PLACED OVER THE P.V.C. PIPING TO BE INSTALLED AS PART OF THE WATER DISTRIBUTION SYSTEM OF THE PROJECT, LIKE THE ONE MANUFACTURED BY REEF INDUSTRIES, INC. OR APPROVED EQUAL. RIBBON SHALL BE INSTALLED DIRECTLY AND PARALLEL TO THE MENTIONED PIPING SYSTEM AT TWELVE (12) INCHES OF DEPTH FROM THE FINISHED GRADE.
8. CONTRACTOR SHALL BE RESPONSIBLE OF RESTORING ANY SIDEWALK, CURB, GUTTERS, FENCE, ROADWAYS AND UNDERGROUND FACILITIES THAT MAY BE AFFECTED BY THE CONSTRUCTION AT NO COST TO P.R.A.S.A..
9. WATER METER BOXES MUST BE INSTALLED OUT OF ROADWAY, PARKING OR MOTOR VEHICLES ACCESS RAMPS.
10. THE CHECK VALVE BOX MUST BE INSTALLED OUT OF PROPERTY LIMITS.
11. THE WATER METER MUST BE CALIBRATED IN CUBIC METERS.
12. FIRE HYDRANTS MUST BE INSTALLED AT A SAFE AND ADEQUATE DISTANCE FROM ELECTRIC EQUIPMENT.
13. THE WATER METER MUST BE INSTALLED USING COPPER TYPE "K" OR BRONZE PIPE OF EQUAL COMPLIANCE.
14. THE FITTINGS USED TO INSTALL THE WATER METER MUST BE THREADED OR FLARED TYPE, WELDED FOOTINGS ARE NOT ALLOWED FOR THE METER INSTALLATION.
15. EACH INDIVIDUAL METER BOX ON THE METER BANK MUST BE IDENTIFIED WITH STAINLESS STEEL PLATE EQUAL OR SIMILAR TO THE PROVIDED DETAIL.
16. THE DISTANCE BETWEEN THE WATER SERVICE CONNECTION AND THE SANITARY SEWER CONNECTION MUST BE MORE OR EQUAL THAN 5 FEET. THE INSTALLATION OF BOTH SERVICES IN THE SAME TRENCH IS NOT PERMITTED.
17. THE FIRE HYDRANTS MUST BE INSTALLED AT A SAFE AND ADEQUATE DISTANCE FRONT ELECTRIC EQUIPMENT.
18. ALL EXPOSED PIPE AND FITTINGS INSIDE THE 4 MAIN METER BOX MUST BE DUCTILE OR CAST IRON.
19. ALL EXPOSED PIPE AND FITTINGS INSIDE THE 4 MAIN METER BOX MUST BE PAINTED WITH RUST PROOFING PAINT.
20. ON PLACES WITH HIGH WATER TABLE THE METER INSTALLATION MUST BE MADE ABOVE GROUND.
21. THE MAIN WATER METER MUST BE INSTALLED OUT OF PROPERTY LIMITS.
22. THE MAIN WATER METER WILL BE CONSERVED BY P.R.A.S.A., ALL RELATED WATER INSTALLATION AFTER THE MAIN WATER METER SHALL BE CONSERVED BY THE PROJECT OWNER OR RESIDENT ASSOCIATION.
23. THE WATER AND FIRE LINE MUST BE INITIALED AT A MINIMUM DEPTH OF 0.75 MTS. AND AT 1.50 MTS. APPROXIMATELY FROM THE CURB.
24. THE CONTRACTOR MUST INSTALL AIR RELEASE AT THE HIGH POINTS OF THE PIPING AS NECESSARY. THESE WORKS WILL BE COORDINATED IN THE FIELD.
25. ALL WATER CONNECTION MUST BE PERFORMED BY A MASTER PLUMBER.
26. THE INSPECTOR OF P.R.A.S.A. MAY REQUIRE EXPLORATORY EXCAVATIONS TO VERIFY THE DEPTH OF THE LINES BEFORE PAVING THE STREETS.
27. PRIOR THE WATER DISTRIBUTION SYSTEM INSTALLATION THE CONTRACTOR MUST NOTIFY P.R.A.S.A. IN WRITING.

FIFE LINE PIPE
LENGTH TABLE

DIAM. (INCHES)	LENGTH (METERS)
4"	55.00

LEGEND :

- EXISTING WATER PIPE
- PROPOSED WATER LINE PVC SDR-14
- PROPOSED FIRE WATER PIPE
- PROPOSED WATER METER BANK
- PROPOSED 4" GATE VALVE
- PROPOSED PLUG
- PROPOSED FIRE HYDRANT
- PROPOSED TEE
- PROPOSED ELBOW
- TAPPING SLEEVE VALVE
- PROPOSED REDUCER
- PROPOSED TAPPING AND SLEEVE VALVE
- H.B. PROPOSED HOSE BIBB AND PEDESTAL
- WATER METER
- 4"ø DETECTOR CHECK VALVE



WATER DISTRIBUTION SYSTEM
SCALE: 1: 200

AAA-RM-19-32-0033
OGPe: 2019-263819-SRI-028339

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SAMUEL E. RIVERA GONZALEZ

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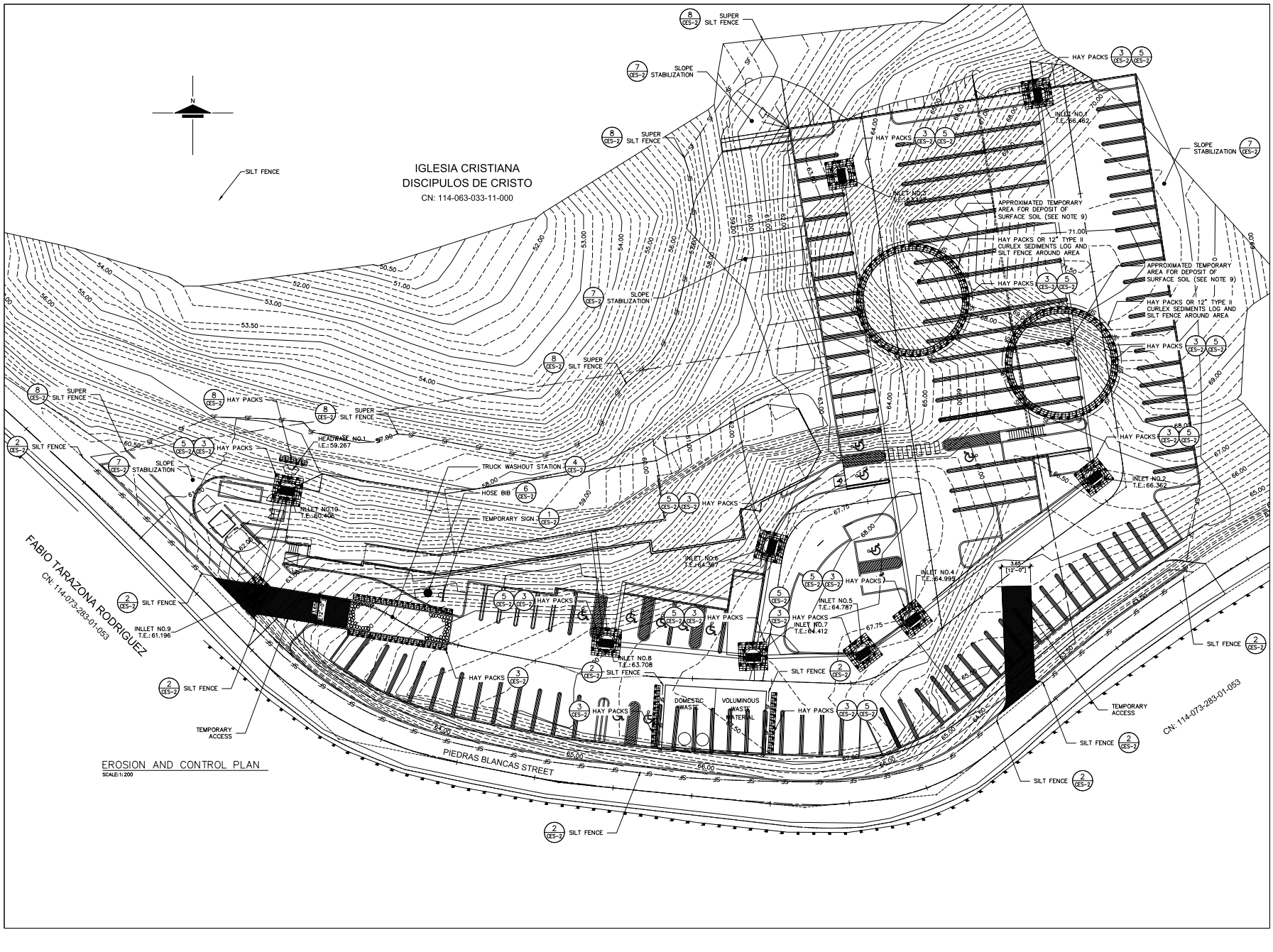
REVISIONS

MARK	DATE	DESCRIPTION

WAT-1



EROSION AND CONTROL PLAN
SCALE:1:200

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NOMBRE DE CONSULTOR

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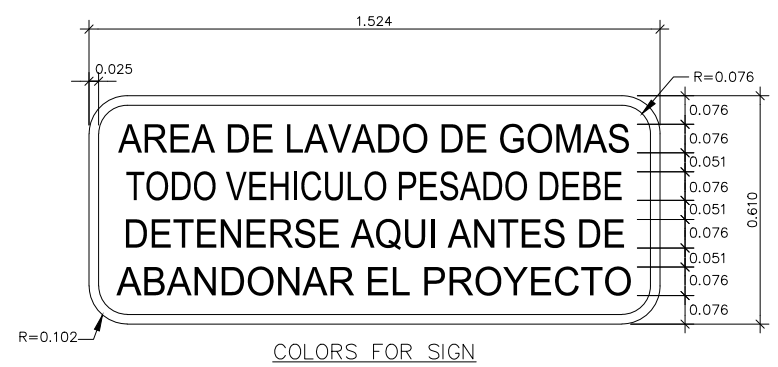
REVISIONS

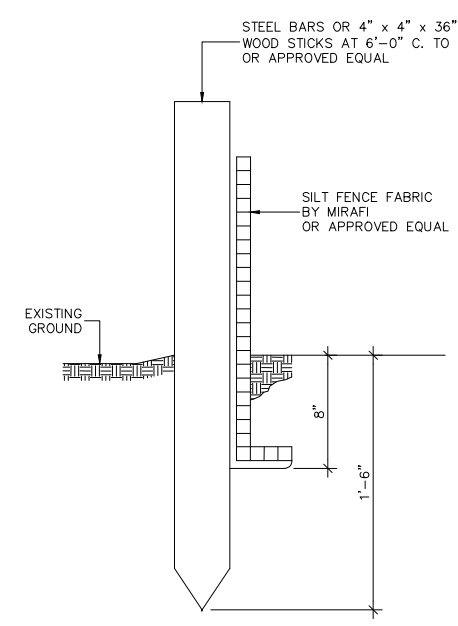
MARK	DATE	DESCRIPTION

CES-1

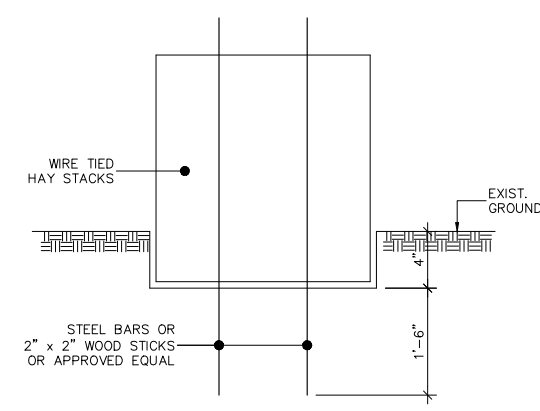


COLORS FOR SIGN
LETTER STYLE–ARIAL
BACKGROUND–WHITE
BORDER AND LETTERS–BLACK

TEMPORARY SIGN DETAIL (1 / CES-2)
N.T.S.



SILT FENCE DETAIL (2 / CES-2)
N.T.S.



BARRIER DETAIL (3 / CES-2)
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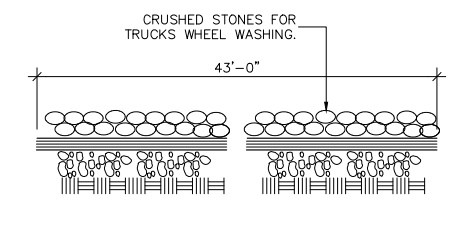
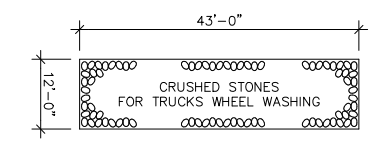
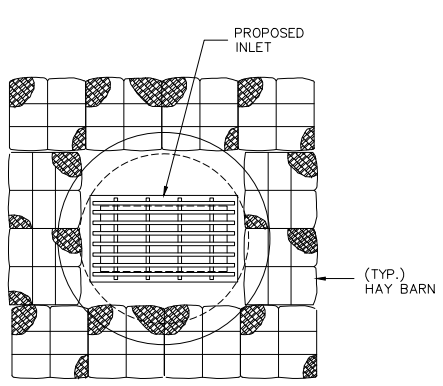


CRUSHED STONE DETAIL (4 / C-15.1)
N.T.S.

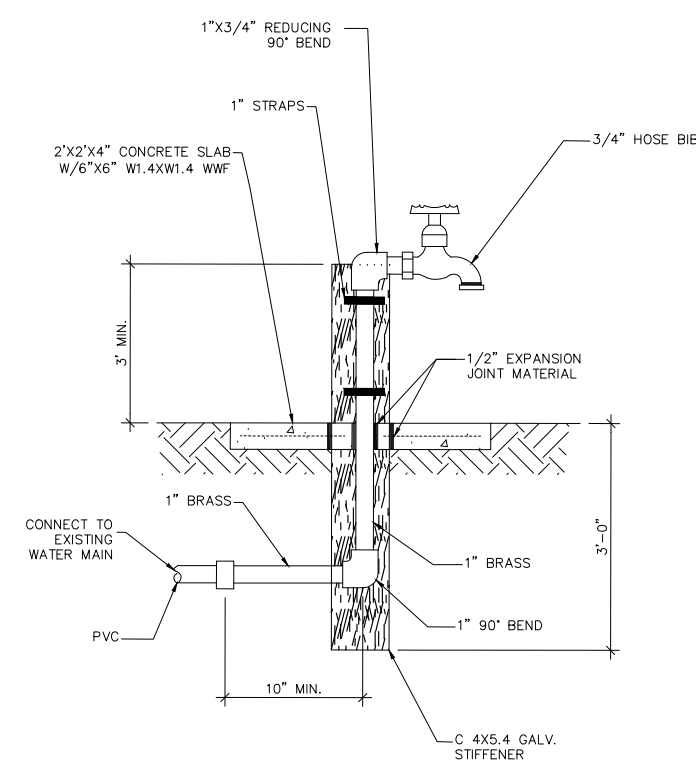


(TO BE LOCATED AS REQUESTED BY CES PLAN INSPECTOR.)

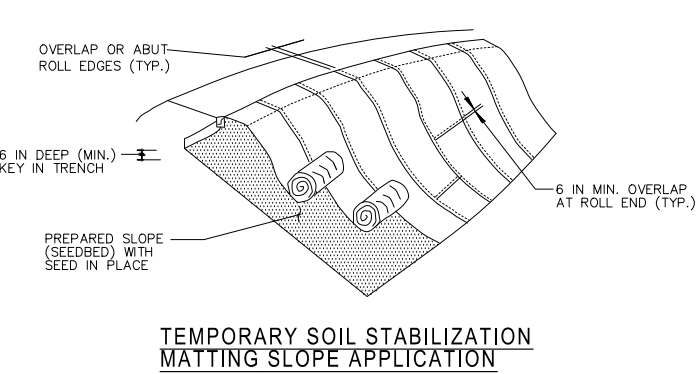


PLAN

TYPICAL INLENT PROTECTION DETAIL (5 / CES-2)
N.T.S.



TEMPORARY HOSE BIB DETAIL (6 / CES-2)
N.T.S.



TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

TEMPORARY STABILIZATION SLOPES DETAIL (7 / CES-2)
N.T.S.

CONSTRUCTION SPECIFICATIONS

1. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN–MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON–LEACHING AND NON–TOXIC TO VEGETATION AND SEED GERMINATION AND NON–INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2X2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.

2. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF
6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH–SAWN HARDWOOD,
12 TO 24 INCHES IN LENGTH, 1X3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.

3. PERFORM FINAL GRADING, TOPSOIL APPLICATON, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.

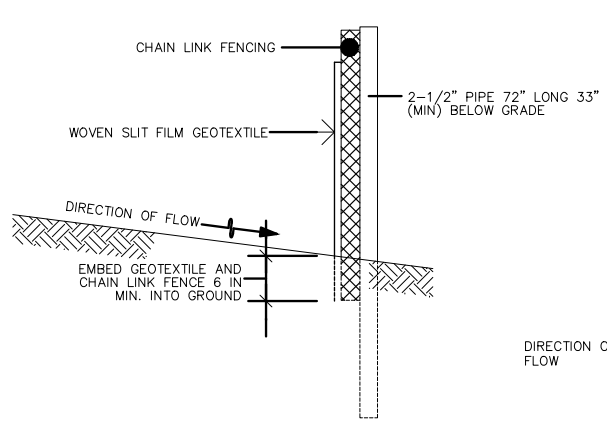
4. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.

5. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY
6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.

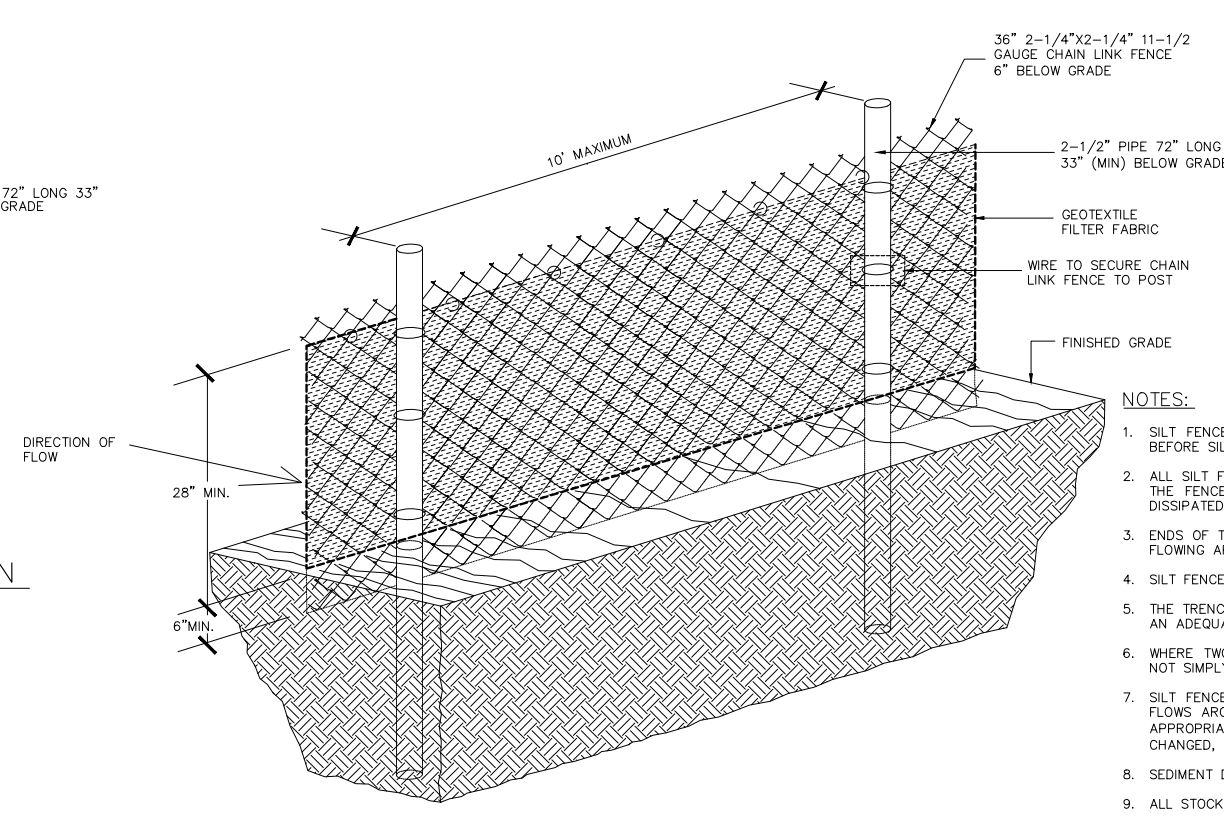
6. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.

7. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND
2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.

8. USE TM14S HIGH PERFORMANCE TURF BY MIRAFI OR SIMILAR APROVED STABILIZATION MAT.



SUPER SILT FENCE SECTION
N.T.S.



TYPICAL SUPER SILT FENCE DETAIL (8 / CES-2)
N.T.S.

NOTES:

1. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE GROUND COVER IS REMOVED. CLEARING, GRUBBING, AND STUMPING CAN OCCUR BEFORE SILT FENCE INSTALLATION IF GROUND COVER IS NOT REMOVED.
2. ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS THAT MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
3. ENDS OF THE SILT FENCES SHALL BE BROUGHT UPSLOPE SLIGHTLY SO THAT WATER PONDED BY THE SILT FENCE WILL BE PREVENTED FROM FLOWING AROUND THE ENDS.
4. SILT FENCE SHOULD PREFERABLY BE A MINIMUM OF 10 FEET FROM THE TOE OF SLOPE.
5. THE TRENCH SHALL BE MADE WITH A TRENCHER, CABLE LAYING MACHINE, SLICING MACHINE, OR OTHER SUITABLE DEVICE THAT WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.
6. WHERE TWO SECTIONS OF PREFABRICATED SILT FENCE ARE COMBINED INTO ONE RUN, THE END POSTS SHALL BE CONNECTED TOGETHER, NOT SIMPLY OVERLAPPED.
7. SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: A) AN ADDITIONAL RUN OF SILT FENCE SHALL BE PLACED UPSTREAM, B) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, C) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR D) OTHER PRACTICES SHALL BE IMPLEMENTED.
8. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN THE DEPOSIT REACHES APPROXIMATELY ONE–HALF OF THE HEIGHT OF THE SILT FENCE.
9. ALL STOCKPILES SHALL BE INCIRCLED WITH SILT FENCE.
10. SILT FENCE FABRIC SHALL MEET THE FOLLOWING SPECIFICATIONS: MINIMUM TENSILE STRENGTH 120 LBS., ASTM D 4632; MAXIMUM ELONGATION AT 60 LBS., 15%%%, ASTM D 4632; MINIMUM PUNCTURE STRENGTH 50 LBS., ASTM D 4833; MINIMUM TEAR STRENGTH 40 LBS., ASTM D 4533, APPARENT OPENING SIZE <= 0.84MM, ASTM D 4751; MINIMUM PERMITTIVITY 1X10–2SEC.–1, ASTM D 4491; WATER FLOW RATE 15GAL./MIN/SQ. FT.; UV EXPOSURE STRENGTH RETENTION, 70%%%, ASTM G 4355.

LEGEND:

●	TEMPORARY HOSE BIB DETAIL
(sign symbol)	TEMPORARY SIGN
(hay packs around catch basin symbol)	HAY PACKS AROUND CATCH BASIN
(hay packs symbol)	HAY PACKS
— SF —	SILT FENCE

NOTES:

1. ALL INFORMATION, DATA, DETAILS, DIMENSIONS ETC. IN THE PLANS OF THIS PROJECT SHALL BE CAREFULLY CHECKED AND VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION STARTS. IN THE CASE OF ANY DISCREPANCIES, THE CONTRACTOR SHALL REQUEST WRITTEN INFORMATION ON THE MATTER FROM THE ENGINEER. THE ENGINEER WILL HAVE FINAL DECISION ON WHAT SHALL BE CORRECTED AND/OR ACCEPTED DURING CONSTRUCTION.

2. ALL FIELD DATA SHOULD BE FURTHER VERIFIED BY THE CONTRACTOR BEFORE LAYING OUT ANY CONSTRUCTION.

3. THE CONTRACTOR SHALL INSTALL EITHER HAY PACKS, CURLEX SEDIMENTS LOG AND/OR SILT FENCES (EROSION CONTROL EQUIPMENT) ON ALL DRAINAGE STRUCTURES LOCATED ALONG THE PROJECT (INCLUDING DRAINAGE STRUCTURES NOT SHOWN ON THIS DRAWING). THE INSTALLATION SHALL FOLLOW THE CONSTRUCTION SCHEDULE AS TO AVOID ANY TRAFFIC PROBLEMS ON THE PROJECT OR ADJACENT AREAS. THE CONTRACTOR SHALL PROTECT ALL CATCH BASINS WITH SILT FABRIC AFTER THE CONSTRUCTION OF EACH STRUCTURE.

4. THE INSTALLATION OF THE EROSION CONTROL EQUIPMENT SHALL FOLLOW THE INCLUDED TYPICAL INSTALLATION DETAILS WHENEVER POSSIBLE. IF FOR ANY REASON THE CONTRACTOR CANNOT INSTALL THE EROSION CONTROL EQUIPMENT FOLLOWING THE TYPICAL DETAILS, THE CONTRACTOR SHALL ENSURE AND BE RESPONSIBLE FOR A PROPER METHOD OF INSTALLATION AS TO PROTECT THE STORM WATER MANAGEMENT SYSTEM STRUCTURES FROM RECEIVING SEDIMENTS ON RAIN EVENTS.

5. THE CONTRACTOR SHALL FIELD ADJUST, RELOCATE IF NEEDED, THE EROSION CONTROL MEASUREMENTS LOCATED IN THE PROJECT AS APPROVED BY THE CES PLAN INSPECTOR.

6. ALL DISTANCES AND ELEVATIONS ARE EXPRESSED IN METERS.

7. THE CONTRACTOR SHALL ENSURE THAT THE EROSION CONTROL MEASUREMENTS ARE INSTALLED IN ALL EARTH MOVEMENTS AREAS FOR THE PROJECT.

8. FOR TRUCK WASH AREA LOCATION, THE CONTRACTOR MUST COORDINATE WITH OWNER REPRESENTATIVE AND CES PLAN INSPECTOR. THE CONTRACTOR MUST ADJUST THE LOCATION OF THE WASH AREA ACCORDING TO PROJECT PROGRESS. THE CONTRACTOR SHALL COORDINATE WITH OWNER FOR LOCATION OF POTABLE WATER CONNECTION IF THERE NOT ANY EXISTING WATER LINE TO CONNECT, THE CONTRACTOR MUST PROVIDE NON POTABLE WATER TO WASH TRUCKS PRIOR TO EXIT THE PROJECT.

9. FOR DEPOSIT OF SURFACE SOIL AREA LOCATION, THE CONTRACTOR SHALL COORDINATE WITH OWNER REPRESENTATIVE AND CES PLAN INSPECTOR. TWO POSSIBLE ALTERNATIVES OF LOCATION ARE GIVEN IN THIS DRAWING, THE CONTRACTOR SHALL USE ONLY THESE AREAS FOR DEPOSIT OF SOILS OR DEMOLISHED CONCRETE.

10. THE LOCATION OF THE SILT FENCE SHALL BE FIELD COORDINATED WITH THE CES PLAN INSPECTOR.

11. THE IMPLEMENTATION OF THE CURLEX SEDIMENTS LOG LOCATION SHALL BE FIELD COORDINATED WITH THE CES PLAN INSPECTOR.

12. THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE TECHNIQUE TO MINIMIZE OFFSITE TRACKING OF SEDIMENT. THE ALTERNATIVE MUST BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ITS USE.

13. THE CONTRACTOR SHALL PAY FOR ANY FEES RELATED TO ANY FEDERAL OR STATE GOVERNMENTAL AGENCY AND SHALL COMPLY WITH THE FOLLOWING REGULATIONS OF PUERTO RICO ENVIRONMENTAL QUALITY BOARD:
A. GENERAL CONSTRUCTION PERMIT.
B. APPLICATION FOR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE ENVIRONMENTAL PROTECTION AGENCY (EPA) (IF APPLY).

SITE EXCAVATION NOTES:

1. ALL PROJECT EXCAVATIONS SHALL BE PERFORMED IN A CAREFULLY MANNER IN ORDER NOT TO AFFECT EXISTING UNDERGROUND UTILITIES.
2. THE EXACT LOCATION OF THE EXISTING UNDERGROUND UTILITIES IS UNKNOWN AND MUST BE PROTECTED FROM DAMAGE AT ALL TIMES.
3. AFTER DISCOVERING ALL EXISTING UNDERGROUND UTILITIES, CONTRACTOR SHALL PREPARE AN AS–BUILT DRAWING TO INDICATE THEIR LOCATIONS AND ELEVATIONS, TO VERIFY HOW THE PROJECT SCHEDULE COULD BE AFFECTED. THE RELOCATION (IF REQUIRED) OF THE UTILITIES SHALL BE COORDINATED WITH THE CORRESPONDING GOVERNMENT AGENCY.
4. THE EXISTING UNDERGROUND UTILITY SHALL BE PROTECTED UNTIL DECISION OF ITS RELOCATION IS GRANTED BY THE GOVERNMENT AGENCY OR OWNER'S REPRESENTATIVE.
5. EXCAVATION WORK ACTIVITIES SHALL ALSO CONSIDER ANY ADDITIONAL REQUIREMENTS INDICATED IN THE CONTRACT DOCUMENTS.
6. PRIOR TO START SITE EXCAVATION THE CONTRACTOR SHALL OBTAIN PERMIT FROM THE OWNER REPRESENTATIVE.

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NOMBRE DE CONSULTOR

Yo, Samuel E. Rivera, con número de licencia 11585, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables de los Reglamentos y Códigos de Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento 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 disciplinaria ante cualquier autoridad competente.

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C O N D O M I N I O
VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BARRIO PUEBLO , GUAYNABO, PUERTO RICO

R E V I S I O N S		
MARK	DATE	DESCRIPTION

CES-2

EXHIBIT N

Market Study and Economic Impact of Vistas al Norte in Guaynabo, Puerto Rico



At: Mr. Pablo Muñiz, Executive Director of the Puerto Rico Housing Finance Authority
November 5, 2020

By: José G. García López, M.A
Economic Consultant

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Executive Summary

- The proposed ***Vistas al Norte*** project would be located on a 1.672 *cuerdas*, equivalent to 6,575 square meters of area. It is located in the *Camarones* Ward at Urban Center of Municipality of Guaynabo, Puerto Rico. Main access to the property is by 169 State Road. It's strategic location, accessible from *Martinez Nadal* Expressway and *San Ignacio* Avenue, gives this project direct connection to San Juan, Caguas and Bayamon with congestion -free access at all times.

- The project is designed to provide affordable housing units to low-income families as defined by the **Low-Income Housing Tax Credit (LIHTC) Program** regulations and the **Community Development Block Grant-Disaster Recovery (CDBG-DR) criteria.**

- The proposed ***Vistas al Norte*** rental housing development consists of thirteen (13) levels. It will contain a total of 102 apartments.

- All units will be available for low-income families following the LIHTC rents and income requirements (household income equivalent to 50% of the median income for the Primary Market Area).

- **The Municipality of Guaynabo is located in the San Juan Metropolitan Region (SJMR). San Juan is the center of economic activity in the metropolitan region and the island.** The SJMR is composed of thirteen municipalities on the north area, which are: Bayamón, Carolina, Canóvanas, Cataño, Dorado, Guaynabo, Loíza, San Juan, Toa Baja, Toa Alta, Trujillo Alto, Vega Alta and Vega Baja.

- **The economic activity of the Municipality of Guaynabo is one of the most vibrant in the San Juan Metropolitan Region.** It has a diversified economy with manufacturing establishments, distribution centers, warehouses, office buildings, sports facilities, schools, universities, shopping centers, public transportation, theaters, hospitals, banks, tourist attractions, restaurants and government offices.

- The Census Tract Map of 2010 for the Municipality of Guaynabo indicates that the subject site is located within *Census Tract* number 405 (see fig.14). The site is part of Census Tract 405, which is one of high population density within the Municipality of Guaynabo. According to the US Census Bureau (2010), the population density in this census tract is 6,981.8 persons per square mile. Also, the density of homes in the area is around 3,345.8 units per square mile (see a Table II)

- **As seen in Desirables Activities Map around 35.8%, are below the poverty line in Census Tract 405 of Municipality of Guaynabo according to Federal Financial Institution's Examinations Council's (FFIEC, 2020).**

- **For this analysis, the Primary Market Area (PMA) was defined as the Guaynabo, Aguas Buenas, and Cataño municipalities**. This definition is based on the distance between the adjacent municipalities and labor mobility prevailing in this region**.**

- In terms of the unemployment rate, Guaynabo stands at 4.7% and showing a declining trend during the last years (see Chart IV). This level of unemployment is lower than that observed for the Island (9.1%).

- The Municipality of Guaynabo experienced a population decrease of -1.8% per year between 2010 and 2018, which was compared with the decrease for all of Puerto Rico, -1.7% per year. Both the population of Puerto Rico as a whole and that of Guaynabo specifically experienced a process of aging between 2000 and 2018, although for the island it was more noticeable. The median age in Guaynabo was 45.5 years, and 43 years in PMA.

- For the purposes of this report the total population in the PMA was estimated to be around 131,879 for the year 2018, according to estimates released by the US Census. The following table VIII shows the population by age in the PMA for 2018.

- Around 21,780 persons, or 26.1%, are below the poverty line in Guaynabo. The poverty rate was higher, 45.3%, for those families with related children of the householder under 18 years.

- **The Potential Demand for rental housing in PMA was estimated to be around 8,331 units for 2018. We have projected that for 2023 start date of the proposed project the potential demand for rental housing would be 7,776 units.**

- According to developer information about Vistas al Norte project, gross rents fluctuate around $290 to $418 per unit per month**. The** Fair Market Rents (FMR) in the San Juan Region (including PMA) in 2019 for one-bedroom units is $459 and for two-bedroom units is $549.The rents proposed for this project are competitive compared to the rent range seen in the market area according with a manager´s survey.

- **The *Vistas al Norte* project will offer one hundred four (102) units for rent, which represent only 1.3% of the potential demand for rental housing estimated in the PMA for 2022.**

- This rental multifamily housing project implies an investment of $26.2 million and the creation of 324 direct and indirect jobs during the construction phase and 5 direct jobs during the operational phase. Indirect and induced jobs are estimated in 274 according to multipliers published by the Puerto Rico Planning Board.

- **Considering all these positive aspects of the project location, its facilities and low caption rate, which was estimated in 1.3%, we understand that the units can be absorbed by the market in a short period of time. According to interviews to local property managers, the absorption of *Vistas al Norte* units will take between three to four months at an average rate of 25 units per month.**

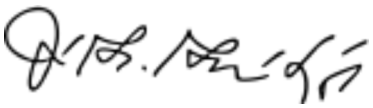
- Due to the strong potential demand for rental subsidized multifamily housing in the PMA, ***Vista Al Norte*** will be well received by the PMA market. The subject development as proposed should be very successful in the rental-assisted market.

- ***Vista del Norte*** **project will provide 102 multifamily housing units in the Urban Center of the Municipality of Guaynabo, which will contribute to mitigating the increase in the need for housing caused by Hurricanes Irma and María, as well as providing a resilient architectural and structural design to the community before a natural disaster (see Annex 1- Certification).**

CERTIFICATION

This Market Study has been prepared by José G. García López, economic consultant with good standing in the practice of the profession. This study has been prepared in accordance with the standards adopted by the National Council of Affordable Housing Market Analysis (NCAHMA) for studies in the market analysis industry. The standards include the *Standard Definition of Key Terms Used in Market Studies for Affordable Housing Projects and Model Content Standard for the Content of Market Studies for Affordable Housing Projects.* The use of these standards is voluntary, and the NCAHMA assumes no legal responsibility regarding their use. In addition, we adopted the requirements established by the Puerto Rico Housing Financing Authority (PRHFA) and the *Qualified Allocation Plan 2020.*

The consultant is duly qualified and experienced in providing market analysis for affordable housing projects. Mr. García has thirty years of experience in the field of economics and served as an economist to the Puerto Rico Housing Finance Corporation (PRHFC), a subsidiary of the Government Development Bank for Puerto Rico. Mr. García is an independent market analyst and has no financial interest whatsoever in the development for which this analysis has been undertaken.



Name: José G. García López, M.A.

Date: November 5, 2020

Introduction

The provision of affordable multifamily rental housing is much needed for the socioeconomic development of communities. Through this type of housing concept, the market can provide decent and safe housing to middle and low-income families. The rental multifamily market is a high diversity market that provides housing for young working people who are starting their careers, families on fixed incomes, and to the elderly and disabled citizens. In the particular case of working families, the market must provide homes near their workplaces, which will produce economies, security and increased productivity.

The Department of Housing of Puerto Rico, in its **PR State Housing Plan 2014-18** (PRSHP), recognizes the need to provide affordable housing for the working population, single-parent families, young adults, the elderly and population with special needs, such as the homeless.

According to the **PRSHP 2014-18**, in Puerto Rico nearly 120,000 families share housing and there are 110,000 substandard housing units. There are 29,792 persons in the public housing waiting list and 7,955 on that for Section 8 housing. There are over 3,400 homeless persons and some 18,500 households are in some stage of a foreclosure procedure. The **PRSHP** indicates that the Island housing market will be required to serve 14,000 new low and moderate-income households that are expected to be formed during the next five years. The PRSHP sustains other important issues, such as the considerable number of project-based affordable housing units that are also at risk of conversion to market-rate housing during the period 2014-18. Around 103 multifamily projects with 8,860 units have contracts expiring between 2013 and 2018. Most probably State and other local jurisdictions will take steps to help preserve these units under the existing programs.

The PRSHP points out that additional rental units in appropriate locations and adequate conditions will be required to serve the needs of households undergoing increasing affordability issues, the elderly, persons with special needs and younger households, with high propensity to rent. There is a wide range of state and federal programs pursuing to facilitate developments and financing of multifamily rental housing to low- and middle-income persons.

After Hurricane María passed through the island on September 20, 2017, the need for housing has increased substantially. Based on the official estimates of the Government of Puerto Rico, Hurricane María affected around 472,000 housing units, of which 70,000 were totally destroyed, and another 254,564 suffered major damages.

Home Damages by Hurricane María in Guaynabo

Hurricane María that hit the Island on September 20, 2017 caused major damage in most municipalities. Being a Category 4 Hurricane caused damages and economic loss as about $40,000 millions according to the Puerto Rico Planning Board. At the total level, the Island was affected almost all the housing inventory (1,571,744 units) to a greater or lesser degree. It has been estimated that about 70,000 homes were destroyed by this atmosphere. **In the particular case of the Municipality of Guaynabo, around 6,712 homeowners suffered damage or 2% from total units.**

Trajectory of Hurricane María

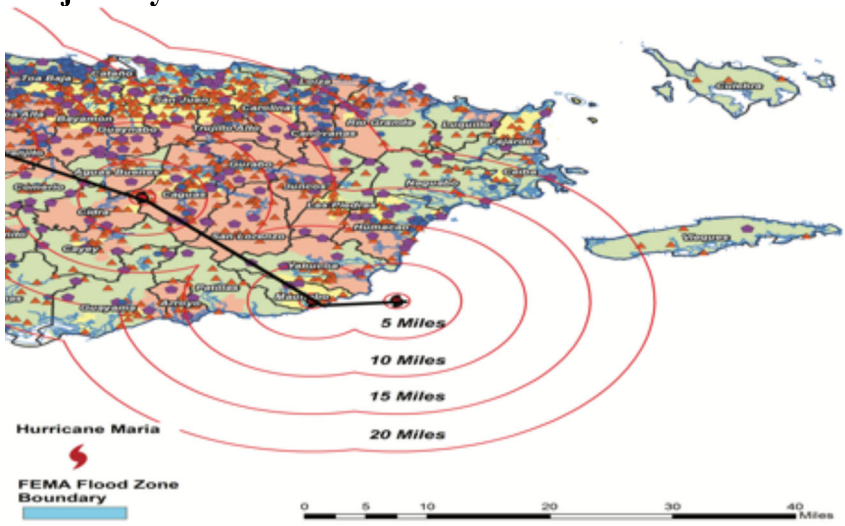
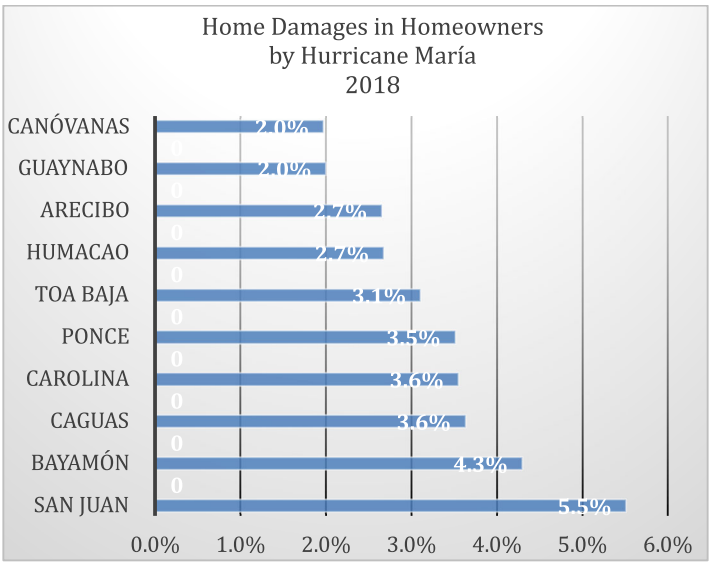


Figure I: FEMA Map. Source: FEMA.gov and Hunter College, Center for Puerto Rico Studies, CUNY-University /June 2018

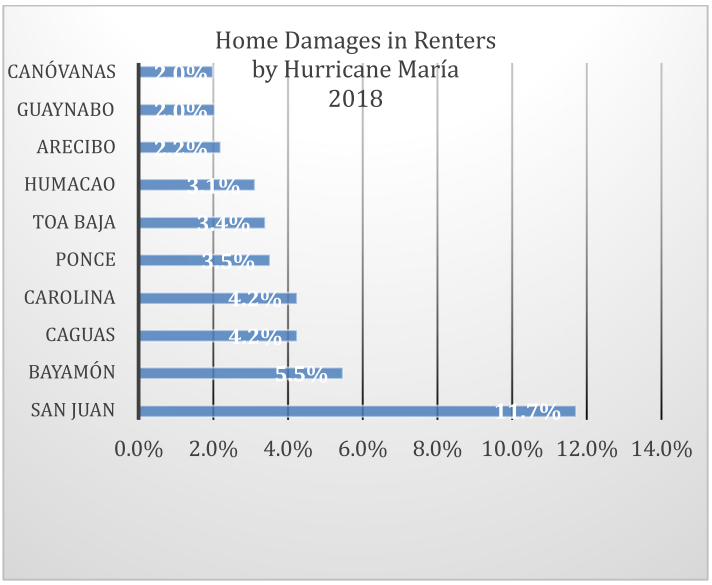
According to the Center Economic Studies of Hunter College, a total of 452,386 Individual Assistance (IA) applications have been approved to help survivors with housing and disaster related expenses, totaling an approved amount of $1.23 billion dollars. Among home renters, FEMA reported a total of 22,407 homes damaged by Hurricane Maria (see Chart II). About 42 percent of the damaged homes were also located within the San Juan metropolitan area and coastal counties with high housing density: San Juan (12%), Toa Baja (5%), Caguas (4%), Bayamón (4%), Carolina (4%), Ponce (3%), Arecibo (3%), Canóvanas (2%), Humacao (2%), and **Guaynabo (2%).** According to FEMA, home damages among renters ranged between moderate (73%) to major damages (26%); however, no "substantial damages" were reported.

Chart I



Source: FEMA.gov, data as of 5/11/2018 and Hunter College, Center for Puerto Rico Studies, CUNY- University /June 2018

Chart II



Source: FEMA.gov, data as of 5/11/2018 and Hunter College, Center for Puerto Rico Studies, CUNY- University /June 2018

Puerto Rico: Disaster Recovery Action Plan

The *Disaster Recovery Action Plan (DRAP)* defines the use of Community Development Block Grant-Disaster Recovery (CDBG-DR) funds allocated in response to the damages caused by Hurricanes Irma and María on the Island, as disclosed on May 10, 2018 by the Department of Housing of Puerto Rico. The DRAP seeks to provide an effective plan to serve as a guide to meet the needs generated by the disaster and distribute the first $1.5 billion allocated by the Federal Department of Housing and Urban Development (HUD), which are administered through the CDBG-DR.

Objectives of the National CDBG-DR Program

In accordance with the *DRAP*, all assistance programs supported by HUD/CDBG-DR must demonstrate benefits to individuals and communities. They should also meet one of the three national objectives to spend money on projects. These are the following:

- Benefit people of low and moderate income.
- Help in the prevention and elimination of slums.
- Address the needs that have a particular urgency.

Low to moderate income is defined as those households that do not exceed income of 80% of their area median income (AMI) as determined by HUD. These income levels can be grouped into the following classifications:

- Extremely Low Income - 30% or less of AMI
- Very Low Income-31% -50% of AMI
- Low Income - 50% -80% of AMI

It should be noted that the proposed projects are required to fully comply with the provisions of the *Housing and Community Development Act (HCD Act-83 FR 5844)*. The primary objective of HCD Act is fostering viable urban communities by providing decent housing and a sustainable environment that will allow expanding economic opportunities for low and moderate-income people (42 USC. 5301). To enforce the objectives of the law, it is required that no less than 70% of the aggregate funds of the CDBG-DR program be used to benefit low- and moderate-income families**.** At the time of the evaluation, priority will be given to LIHTC-type projects with specific objectives that consider and correlate with revitalization efforts, opportunity areas or growth centers in the city.

Scope of Report

The purpose of this report is to develop a market study on the need for multifamily rental housing in **the Primary Market Area (PMA) that includes the municipalities of Guaynabo, Aguas Buenas, and Cataño**.

This report includes:

- Description of the *Puerto Rico Disaster Recovery Action Plan, 2019*.
- A physical inspection of the proposed site.
- The project description.
- The site and neighborhood analysis.
- The analysis of historical, current and projected demographic and socioeconomic data.
- Analysis of the labor force and economic trends of the Primary Market Area.
- Analysis of the current rental market based on the type of project proposed, the existing rental conditions, and the proposed rental projects in the Primary Market Area.
- The estimation of potential demand, caption and absorption rate.
- A telephone survey of existing rental properties in the Primary Market Area, including LIHTC properties, HUD and other subsidized properties.
- Economic impact analysis.

In order to carry out this study, we used the methodology established by the National Council of Affordable Housing Market Analysis (NCAHMA) for studies in the market analysis industry. The standards include the *Standard Definition of Key Terms Used in Market Studies for Affordable Housing Projects and Model Content Standard for the Content of Market Studies for Affordable Housing Projects.* **In addition, we adopted the requirements established by the Puerto Rico Housing Financing Authority (PRHFA) and the *Qualified Allocation Plan 2020* .**

Information Sources

The information and data contained in this report comes from agencies of the Government of Puerto Rico, **the Municipality of Guaynabo**, the Federal Government, private institutions, and other sources, including but not limited to:

US Department of Commerce, Bureau of Census, American Community Survey-2013-18, Employment, Population, Household, Income, Occupancy, Tenure, Poverty, Census Tract and Economic Census.

- US Department of Housing (HUD), Fair Markets Rents and Income Limits, 2020.
- Puerto Rico Housing Financing Authority (PRHFA), **Qualified Allocation Plan 2020.**
- Government of Puerto Rico, *Puerto Rico Disaster Recovery Action Plan, 2019*.
- Government of Puerto Rico, *Annual Action Plan: 2018-2019.*
- Puerto Rico Housing Financing Authority (PRHFA), *Qualified Allocation Plan 2020.*
- Puerto Rico Department of Housing, Housing Plan 2014-18.
- Puerto Rico Planning Board, *Joint Regulation for the Evaluation and Expedition of Development-Related Permits Use Land and Business Operation, June 7,2019.*
- National Council of Affordable Housing Market Analysis (NCAHMA), *Standard Definition of Key Terms Used in Market Studies for Affordable Housing Projects and Model Content Standard for the Content of Market Studies for Affordable Housing Projects.*
- Puerto Rico Planning Board, Input-Output Multipliers.
- Puerto Rico Department of Labor and Human Resources, Bureau of Labor Statistics, Labor Force Data, 2019.
- Municipality of Guaynabo, Planning Division, *Plan de Ordenamiento Territorial* (Land Use Plan).
- Hunter College, Center for Puerto Rico Studies, CUNY- University /June 2018
- Google Maps.
- Survey to managers of LIHTC and Section 8 properties in PMA-Guaynabo.
- Information provided by Developer.

Project Description

The proposed ***Vistas al Norte*** project would be located on a 1.672 *cuerdas*, equivalent to 6,575 square meters of area. It is located in the Camarones Ward at Urban Center of Municipality of Guaynabo, Puerto Rico. Main access to the property is by 169 State Road. It's strategic location, accessible from *Martinez Nadal* Expressway and *San Ignacio* Avenue, gives this project direct connection to San Juan, Caguas and Bayamon with congestion -free access at all times.

The project is designed to provide affordable housing units to low-income families as defined by the **Low-Income Housing Tax Credit (LIHTC) Program regulations and the Community Development Block Grant-Disaster Recovery (CDBG-DR) criteria**.

SITE



Figure 2: Site Map/Source Google Map.

The Developer is ***Desarrollo Arquitectónicos*, LLC, (*DASE*), Inc**., whose principal is Architect Segundo Cardona who has been a successful architect for over 30 years and among his commercial activities is the development and construction of multi-family housing projects.

The Owner of the project is **Nordenblick, LLC,** DASE is the controlling member. This entity was organized with the purpose of building and operating the apartment complex herein described.

Proposed Project

The proposed ***Vistas Al Norte project*** is a rental housing development consisting of thirteen (13) levels. It will contain a total of 102 apartments. The units are divided in 52 one-bedroom apartments and 50 two bedrooms apartments with two bathrooms and two parking spaces. Kitchens are completely integrated to living and dining area to maximize space utilization and enjoyment. Equipped with 100% power generator back up, water cistern and three highspeed elevators, these 13 floors (110 square feet) tower is designed with resilient features such as battery -operated elevators and water supply charged by solar power. The project will be providing 174 parking spaces of which 20 spaces are for visitors and 13 spaces for handicapped.

The Project will include a series of facilities among which are the following: laundry area, conference room, and playground for children. The Project will be a gated community with controlled access. The principal access for the Project will be by State Road Num.169 in Guaynabo.

The parcel where this Project will be located has a surface of 1.672 *cuerdas*, equivalent to 6,575 square meters of area. The site has road infrastructure and facilities for electric power, potable water, sewage, disposal of surface water and communications within its perimeter.

Vista del Norte project will provide 102 multifamily housing units in the Urban Center of the Municipality of Guaynabo, which will contribute to mitigating the increase in the need for housing caused by Hurricanes Irma and María, as well as providing a resilient architectural and structural design to the community before a natural disaster (see Annex 1-Certification). The structural design of *Vistas al Norte* has been conducted in compliance with 2018 International Building Code (IBC 2018) and the amendments established in the Puerto Rico Building Code of 2018(ORBC 2018). ***Vistas del Norte*** will be equipped with 245 collector panels and 240 kilowatts storage capacity provided by 40 batteries. The potable water cistern has capacity for 3 days of water supply at a rate of 100 gallons per day per apartments. **This project is designed to provide dignified living environment for low income families and individuals following high design standard.** The site plan, layout of floors and apartments is shown below.



Source: Architect, Segundo Cardona.
Figure 3: Site Plan.

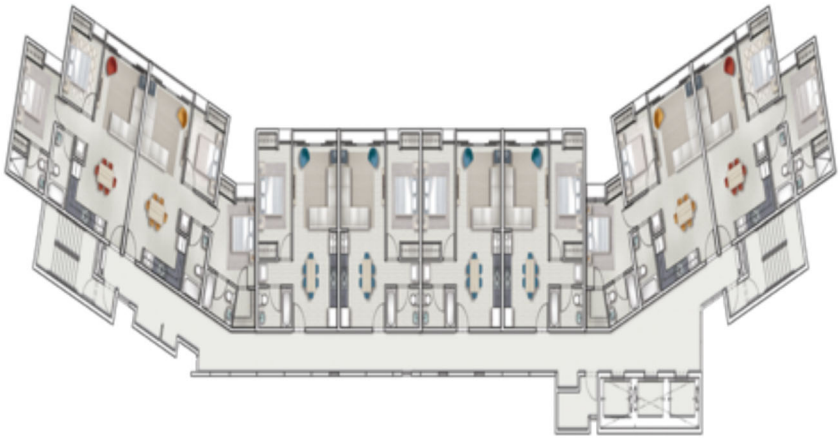


Figure 4: Typical Apartment Level with Layouts for Models A and B



Figure 5: Kitchen/Dining & Living Area for Model A



Figure 6: Model A Floor Plan Layout



Figure 7: Living Area for Models B



Figure 8: Model B Floor Plan Layout



Figure 9: Kitchen/Dining Area for Models B



Figure 10: Model B Floor Plan Layout



Figure 11: Amenities: Gym & Activity Rooms

The Project will have three types models of apartments. 52 one (1) bedrooms-1 bathroom with 553 square feet of net living area; 50 two (2) bedrooms-1 bathroom with 779 square feet of net living area. All apartments include a living room, dining room, kitchen and 1-2 bathroom (see Table I).

Table I

Model	# of units	Square Feet	Gross Rent	Utility Allowance
A-1 BDR	52	553	$290-$348	$78.00
B-2 BDR	50	779	$348-$418	$78.00

All units will be available for low-income families following the LIHTC rents and income requirements (Household income equivalent to 50% (CDBG-DR- of the median income for Primary Market Area).

Construction Schedule

Start Date	Construction Period	Expected Completion
First Semester 2021	24 months	Second Semester 2023

Site and Neighborhood Description

The proposed ***Vistas Al Norte*** project would be located on a 1.672 *cuerdas*, equivalent to 6,575 square meters of area. **It is located in the *Piedras Blancas* Street**, ***Camarones Ward of Guaynabo, Puerto Rico***. Main access to the property is by 169 State Road. Since the lot is in an already developed area, it incorporates multiple infrastructure services, such as electricity, telecommunications, cable TV, water and sewage. In general terms the site's immediate neighborhood includes a combination of residential and commercial land uses.



Figure 12: View of Project Site. Inspection Date September 15, 2020.

Zoning

According to the *Joint Regulation for the Evaluation and Expedition of Development-Related Permits Use Land and Business Operation from Puerto Rico Planning Board (June 7,2019),* the property is classified as urban soil and the qualification is Urban Residential (R-U). This district is established to identify existing residential areas or those that can be developed with a high population density in soils classified as urban or developable, close to main centers of economic activity where, due to the environment where they are located exist or can be provided some infrastructure such as sewerage, drinking water, electric power and transportation system, among others.

Zoning Map



Figure 13: POT of Municipality of Guaynabo, Zoning Map. Map 1- Zoning Code R-U for a Site.

Census Tract

The Census Tract Map of 2010 for the Municipality of Guaynabo indicates that the subject site is located within *Census Tract* number 405 (see map below). The site is part of Census Tract 405, which is one of high population density within the Municipality of Guaynabo. According to the US Census Bureau (2010), the population density in this census tract is 6,981.8 persons per square mile. Also, the density of homes in the area is around 3,345.8 units per square mile (see a Table II).

Census Tract Map

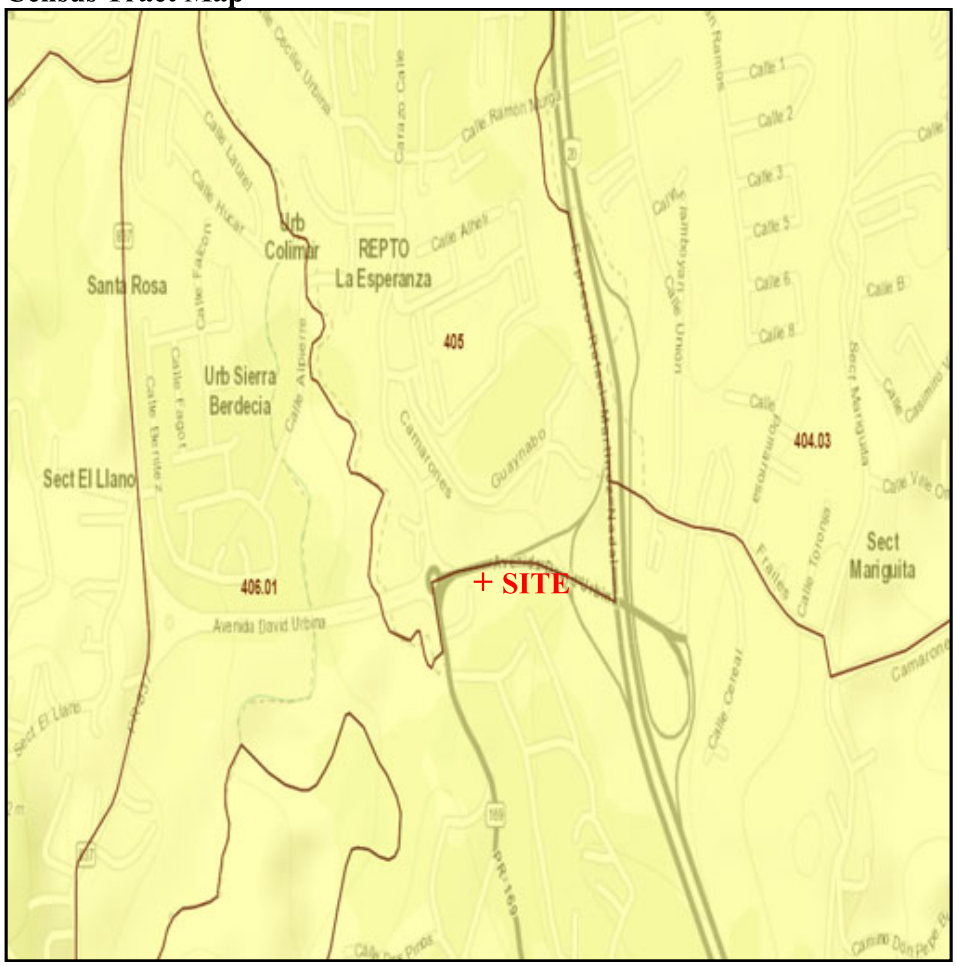


Figure 14: US Census, 2010.

As seen in Desirables Activities Map around 35.8%, are below the poverty line in Census Tract 405 of Municipality of Guaynabo according to Federal Financial Institution's Examinations Council's (FFIEC, 2020).

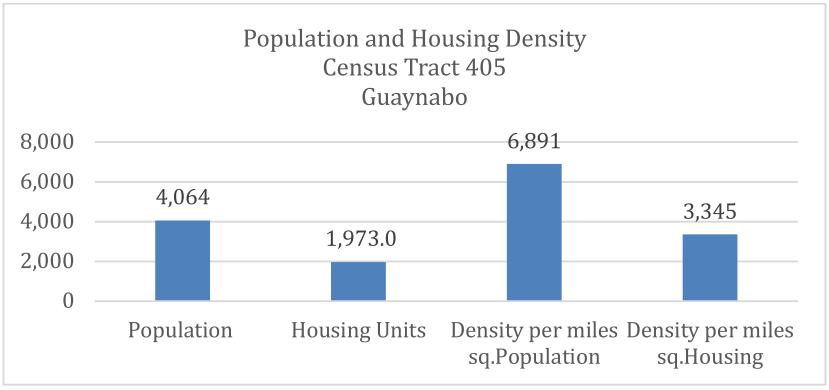
Guaynabo Census Tract

Table II

Geographic area	Population	Housing units	Area in square miles			Density per square mile of land area	
			Total area	Water area	Land area	Population	Housing units
Guaynabo Municipio	97,924	42,012	27.76	0.19	27.58	3,550.7	1,523.4
Census Tract 401.01	2,817	1,130	0.43	0.13	0.30	9,410.1	3,774.7
Census Tract 401.02	2,378	1,009	0.12	0.00	0.12	19,100.8	8,104.6
Census Tract 401.03	2,068	835	0.12	0.00	0.12	16,688.3	6,738.3
Census Tract 402	5,215	1,862	2.53	0.00	2.52	2,066.4	737.8
Census Tract 403.01	1,651	995	0.20	0.00	0.20	8,182.2	4,931.1
Census Tract 403.02	2,311	1,529	0.42	0.00	0.42	5,445.6	3,602.9
Census Tract 403.03	1,968	1,271	0.20	0.00	0.20	10,080.3	6,510.2
Census Tract 403.04	5,550	2,285	0.73	0.00	0.73	7,620.2	3,137.3
Census Tract 404.03	6,174	2,824	0.96	0.00	0.96	6,417.9	2,935.6
Census Tract 404.11	4,867	2,020	0.67	0.00	0.67	7,226.1	2,999.1
Census Tract 404.12	1,945	859	0.20	0.00	0.20	9,597.4	4,238.6
Census Tract 404.21	9,563	4,066	1.31	0.02	1.29	7,398.2	3,145.6
Census Tract 404.22	3,040	1,335	0.28	0.00	0.28	10,669.8	4,685.6
Census Tract 404.32	2,539	1,167	0.27	0.00	0.27	9,559.0	4,393.6
Census Tract 404.42	3,930	1,793	0.42	0.00	0.42	9,270.2	4,229.4
Census Tract 405	**4,064**	**1,973**	**0.59**	**0.00**	**0.59**	**6,891.8**	**3,345.8**
Census Tract 406.01	4,741	2,058	1.23	0.00	1.23	3,865.6	1,678.0
Census Tract 406.02	9,230	3,410	0.95	0.01	0.94	9,829.7	3,631.6
Census Tract 407	8,353	3,359	3.94	0.01	3.93	2,125.9	854.9
Census Tract 408	4,178	1,668	1.75	0.00	1.75	2,383.6	951.6
Census Tract 409	4,437	1,734	5.07	0.00	5.07	875.8	342.3
Census Tract 410	2,791	1,159	1.87	0.00	1.87	1,491.8	619.5
Census Tract 411	4,114	1,671	3.48	0.01	3.48	1,182.8	480.4

Source: US Census, 2010.

Chart III



Source: US Census, 2010.

Site Neighborhood

The proposed ***Vistas al Norte*** project will be located in the *Camarones* Ward at Urban Center of Municipality of Guaynabo, Puerto Rico The principal access for the Project will be by State Road Num.169 in Guaynabo. This sector is very close to the Urban Center of the Municipality of Guaynabo. It is an urban space that comprises residential, commercial, and mass transportation facilities, as well as medical offices, hospitals, health care providers, churches, schools, banks, government offices, public transportation facilities, a fine arts center and a coliseum. The Project's surrounding area is well endowed with services and facilities with easy access for project tenants at walking distance to:

It is located.

- Guaynabo Town Center
- Municipal Office Building
- Primary and Secondary Public Schools
- Pharmacies
- Medical Clinic
- Laboratories
- Guaynabo Professional Hospitals
- US Mail Office
- Public Transportation Terminal and Ferries
- Guaynabo Fine Arts Center

The Proposed site's surroundings can be considered as superior for the location of a project such as the one evaluated in this market study report.

Desirables Activities Map

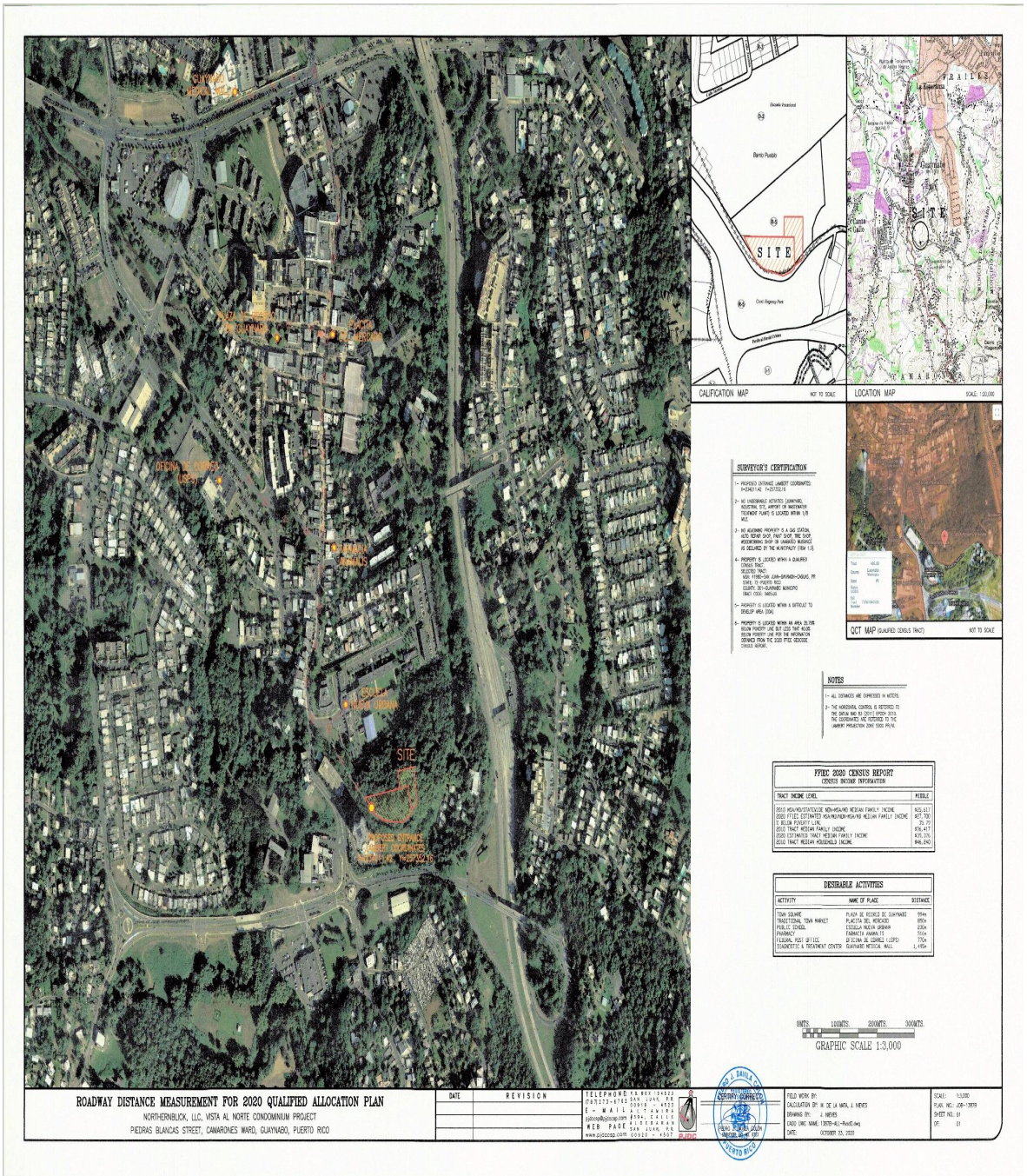


Figure 15: Desirables Activities Map.

Guaynabo City-Town Center



Figure 16: Guaynabo Town Center-Church (994 m)



Figure17:GuaynaboTownCenter-Municipal(994 m)



Figure 18: New Elementary Public School (230 m)

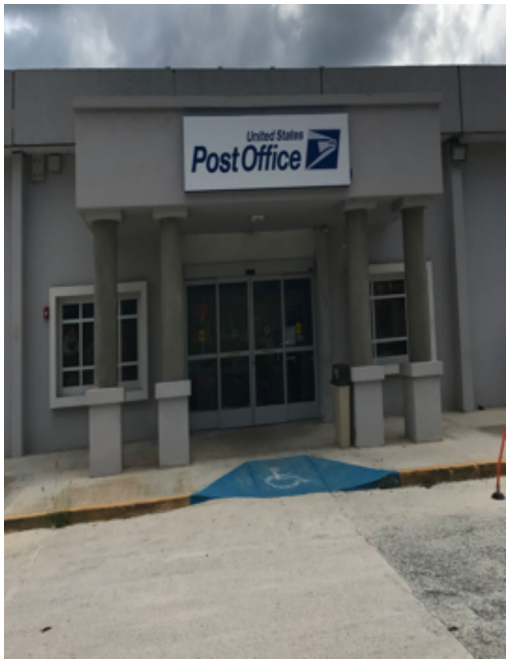


Figure 19: US Post Office(770 m)



Figure 20: Pharmacy (516 m)



Figure 21: Medical Offices



Figure 22: Traditional Town Market (850 m)



Figure 23: Guaynabo Medical Center (1,495 m)



Figure 24: Guaynabo Fine Arts.

San Juan Metropolitan Region

The Municipality of Guaynabo is located in the San Juan Metropolitan Region (SJMR). San Juan is the center of economic activity in the metropolitan region and the island. The SJMR is composed of thirteen municipalities on the north area. These are: Bayamón, Carolina, Canóvanas, **Cataño,** Dorado, **Guaynabo,** Loíza, San Juan, Toa Baja, Toa Alta, Trujillo Alto, Vega Alta and Vega Baja (see a map below). Its strategic location, geographical features, natural and physical resources, financial activity, and trade account for its diversity of uses and urban growth patterns. This economic activity of the capital city led to the urban expansion in all surrounding municipalities and a high concentration of people in the metropolitan area in order to have the best employment opportunities.

Map of San Juan Metropolitan Region



Figure 25: Source: Google Map.

The Municipality of Guaynabo is located at a very close distance from San Juan, which allows its residents to have immediate access to the commercial, sports, educational, cultural and tourist facilities of the capital of Puerto Rico. Highways PR-1, PR-2, and PR-22 depart from San Juan to the rest of the island. PR-22 and Highway *Las Americas* help to alleviate the heavy traffic in the area. There is a complex system of around 360 kilometers of roads and avenues servicing the metropolitan area.

The public transportation system is mostly provided by the Metropolitan Bus Authority and Metrobus, heavily concentrated in the north and central San Juan and Carolina areas. There are also public transportation vehicles that provide a source of transportation, mainly to the municipalities of Bayamón, Guaynabo, Caguas, and the Río Piedras sector.

Given the large traffic congestion in the metropolitan area, the Government of Puerto Rico developed the *Tren Urbano* light-rail system. Its main route goes from Bayamón-Guaynabo to Hato Rey. A Plan is under way to extend the system to reach Caguas, Carolina and others northern coastal towns. The master plan is to integrate the train with a number of buses that move people to most sections of the SJMR.

According to the American Community Survey (ACS) of the US Census Bureau, the SJMR population averaged 1,223,632 inhabitants in the 2014-18 period (see Table III). The PMA that we have defined represented 8.8% of the estimated population for the SJMR. This region has a median income of around $25,807, which is greater than the median estimated income for the PMA ($21,226). The number of households in the PMA was estimated at 37,451, representing the 8.9% of SJMR. According to the American Community Survey (ACS) of the US Census Bureau, the SJMR population averaged 1,263,343 inhabitants in the 2014-18 period (see Table III). The PMA that we have defined (Guaynabo and Cataño) represented 9.5 % of the estimated population for the SJMR. This PMA has a median income of around $26,420 which is greater than the median estimated income for the SJMR ($24,583). The number of households in the PMA was estimated at 50,575, which represents 9.3% of the total households in the SJMR.

Table III

SAN JUAN METROPOLITAN REGION			2014-18		
			Density/	Units	Median
Region	Population	%	sq. miles	Occupy.	Income ($)
San Juan	344,606	28.2%	8,262	147,790	21,395
Bayamón	182,985	14.9%	4,695	70,950	24,612
Canóvanas	46,108	3.8%	1,450	14,664	20,426
Carolina	157,453	12.9%	3,900	64,408	28,611
Cataño	28,140	2.3%	5,809	9,190	18,562
Dorado	37,208	3.0%	1,653	12,036	28,133
Guaynabo	88,663	7.2%	3,551	34,724	33,979
Loiza	26,463	2.2%	1,552	8,810	18,184
Toa Alta	73,405	6.0%	2,741	22,375	29,578
Toa Baja	79,726	6.5%	3,604	28,261	23,889
Trujillo Alto	67,780	5.5%	1,441	24,660	30,427
Vega Alta	37,724	3.1%		12,667	18,312
Vega Baja	53,371	4.3%	1,301	17,356	17,634
Total	**1,223,632**	**100.0%**	**X**	**467,891**	**25,807**
PMA	**107,866**	**8.8%**	**X**	**37,451**	**28,934**

Source: US Census, American Community Survey, 2014-18.

Market Analysis

Primary Market Area

An affordable housing primary market area (PMA) is typically based on analysis of economic conditions, population, housing development, transportation and geographic patterns, housing stock conditions, and the location of competitive affordable housing. **For this analysis, the PMA was defined as the Guaynabo, Cataño and Aguas Buenas municipalities.** This definition is based on the distance between the adjacent municipalities and labor mobility prevailing in this region**.**

The site is located in the Municipality of Guaynabo, which is bordered by the following:

North: Municipality of Cataño and San Juan Bay
South: Municipality of Aguas Buenas
East: Municipality of San Juan
West: Municipality of Bayamón

Map Municipality of Guaynabo and PMA



Figure 26: Source/ Google Maps.

Guaynabo was founded in 1769. The territory consists of an area of 27.0 square miles or 70.2 square kilometer. It has a population of 83,787 (2018) inhabitants and a population density of 3,551 persons per square mile. This municipality is constituted in the urban area by the town of Guaynabo, Frailes, Camarones, Guaraguao, Hato Nuevo, Mamey, Pueblo Viejo, Río, Santa Rosa and Sonadora.

Economy in Guaynabo

The economic activity of the Municipality of Guaynabo is one of the most vibrant in the San Juan Metropolitan Region. It has a diversified economy with manufacturing establishments, distribution centers, warehouses, office buildings, shopping centers, sports facilities, schools, universities, public transportation, theaters, museums, hospitals, banks, tourist attractions, port facilities, and government offices.

Labor Force

The labor market situation in the primary market area is one of the economic factors affecting supply and demand for housing. To the extent that labor market conditions allow for the creation of employment opportunities, they also provide for the construction of new housing units and generate the revenue needed for their rental**.** The following table shows the Guaynabo labor force for the period 2010-19.

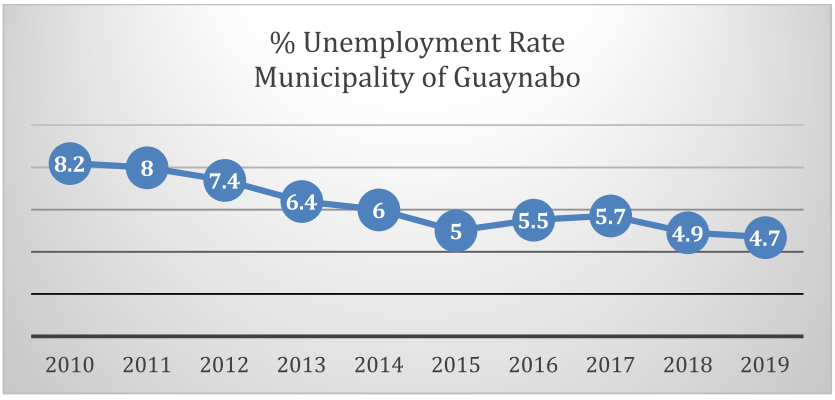
Table IV

	Puerto Rico		Guaynabo	
Labor Market	**2010**	**2019**	**2010**	**2019**
Labor Force	1,280,000	1,044,500	42,193	35,498
Employment	1,074,000	949,200	36,786	33,839
Unemployment	206,000	95,369	3,465	1,659
% Unemployment Rate	**16.1**	**9.1**	**8.2**	**4.7**

Source: PR Department of Labor and Human Resources, 2010-19.

According to the Puerto Rico Department of Labor and Human Resource, the labor force in the Municipality of Guaynabo was estimated at 35,498 in December 2019. Total employment was 33,839. In terms of the unemployment rate, Guaynabo stands at 4.7% and showing a declining trend during the last years (see Chart IV). This level of unemployment is lower than that observed for the Island (9.1%).

Chart IV



Source: PR Department of Labor and Human Resources, 2010-19.

Employment by Industry

Employment by industry is one of the principal indicators to explain the structure of economic activity in a primary market area. According to the US Census Bureau, in 2018 the American Community Survey (ACS) showed that Guaynabo had an average of 35,408 persons employed. Table V shows the employment distribution by major industrial sector.

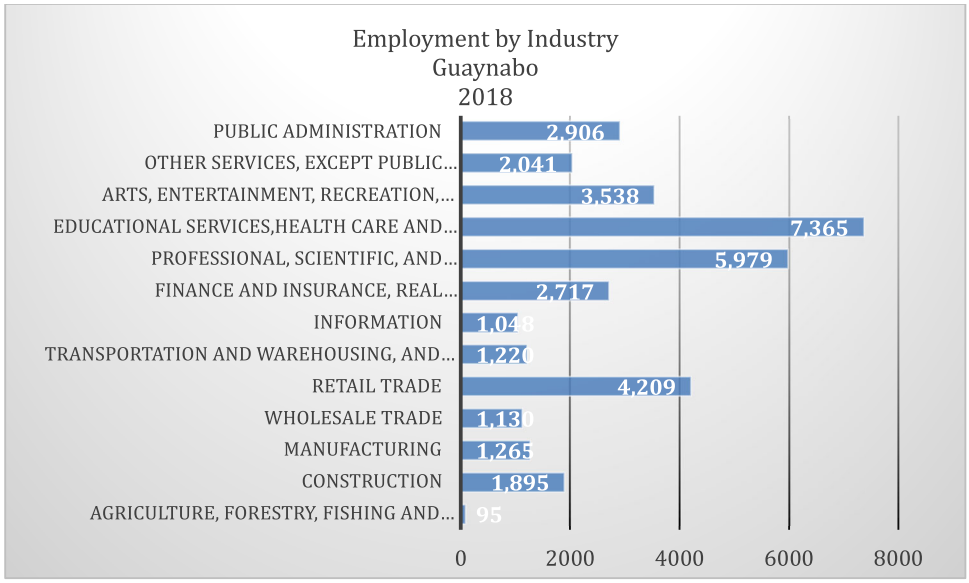
Table V

Total Employment by Industry	**35,408**	**100.0%**
2018		
Agriculture, forestry, fishing and hunting, and mining:	95	0.3%
Construction	1,895	5.4%
Manufacturing	1,265	3.6%
Wholesale trade	1,130	3.2%
Retail trade	4,209	11.9%
Transportation and warehousing, and utilities:	1,220	3.4%
Information	1,048	3.0%
Finance and insurance, real estate, rental	2,717	7.7%
Professional, scientific, management-waste	5,979	16.9%
Educational services, health care, social	7,365	20.8%
Arts, entertainment, recreation, acc, food	3,538	10.0%
Other services, except public adm.	2,041	5.8%
Public administration	2,906	8.2%

Source: US Census, American Community Survey, 2018.

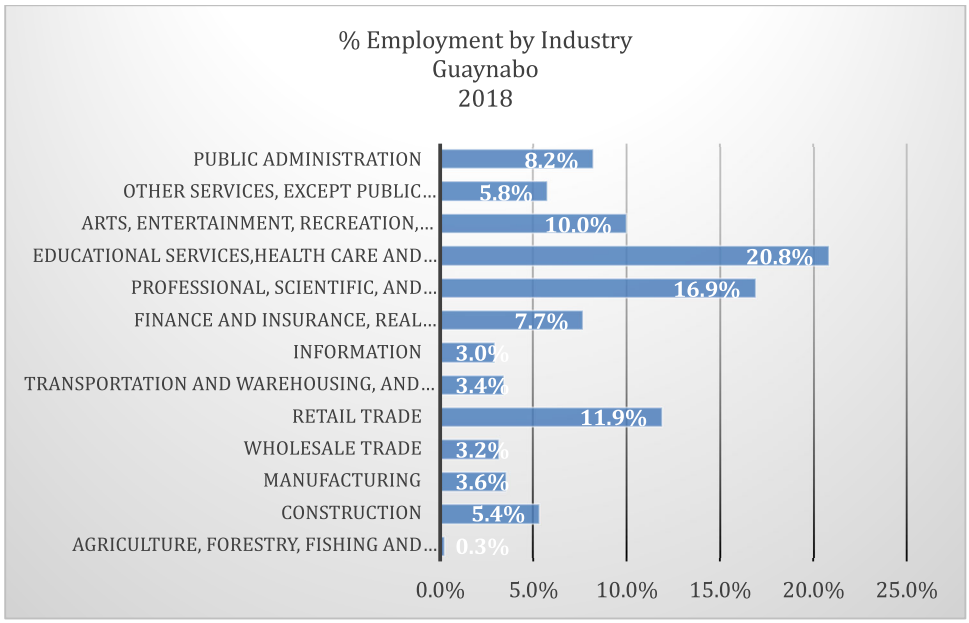
The most relevant industrial sectors in the Municipality of Guaynabo were educational services, health care and social assistance (20.8%); professional, scientific, management and waste management services (16.9%); retail trade (11.9%); finance and insurance, and real estate and rental and leasing (7.7%); and public administration (8.2%). These industries together currently represent around 64.8% of Guaynabo's total employment. One of the largest employment sectors is educational, health care and social assistance (20.8%), which will serve the multifamily project's population needs. In addition, the Municipality of Guaynabo has educational centers at the primary, secondary, undergraduate and graduate levels.

Chart V



Source: US Census, American Community Survey, 2018.

Chart VI



Source: US Census, American Community Survey, 2018.

Mayor's Business Employers

Manufacturing	Construction	Professional Services
Olimpic Industrial,Inc.	Aireko Services,Inc	Business Excellence Services
Rovira Foods,Inc.	Rio Construction Inc.	ROV Engineering
Molinos de Puerto Rico	CIC,Construction	BMA,Group.
Pan American Grain, Inc.	Jafer Construction	*Marichal,Hernandez, Santiago, Law Firm*
Nu Vue Industries,Inc.	*Empresas Sadurni*	Remax

Retail	Wholesale	Gasoline Dealers
Santa Maria Shopping	*V Suarez, Inc.*	PUMA Energy
Plaza Caparra Shopping	Allied Logistic Corp.	Texaco
Office Max	Carrier Center Distribution	Shell
Pep Boy's	Universal Warehouse	Toral
Advance Auto	MAX Distributors	**Automobile Dealers**
Econo Supermarket	Venture Distributors	Chrysler
Amigo-Wall Mart	Techinical Distributors	Autogermana BMW
Super Max	MME Distribuotors	Acura & Honda
Education	**Restaurants**	**Communications**
Adianez School	Chilli's	El Nuevo Día
San Pedro Martir School	Cayo Caribe	CLARO
Margarita Janer School	Pizza Hut	Univision
Rosa Bell	Burger King	WAPA-TV
Phoenix University	Wendy's	ATT-Liberty,Inc.
Antilles University	Mc Donald	T Movil
	Faccio Pizza	
Health	Denny's	
Guaynabo Medical Mall	Longhorn	**Finances Services**
Professional Hospital	Olive Garden	Popular Bank
Walgreens Pharmacy	*Metropol*	First Bank
CVS	Applebee's	Oriental Bank
Salus	Burger Fi	Merill Financial Advisors
Laboratory Borinquen	Church	Pen Fed Credit Unions
Medflix	Star Bucks	Caribe Federal Credit

Source: Google and Economic Consultant.

Demographic and Housing Trends

Puerto Rico Population

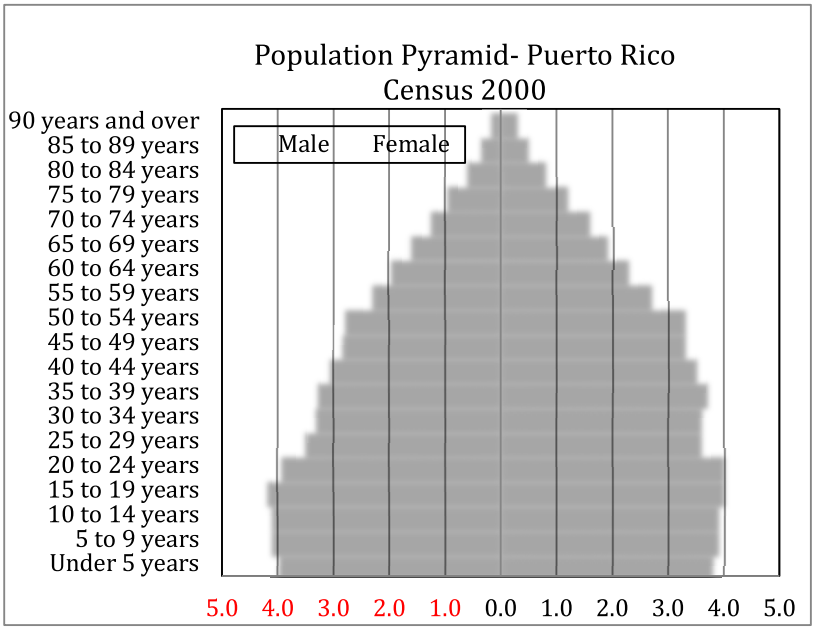
According to the 2010 Census data, the population of Puerto Rico in 2010 was 3,725,789, which reflected a reduction of 82,811 individuals or -0.2% per year, when compared to the year 2000. This reduction during the last decade is related with an outbound migratory pattern. The net out migration is around 61,000 persons annually. During the last decades there have been significant changes in Puerto Rico's population (see Table VI and Chart VII-VIII). The group of persons over 65 years of age increased in absolute and relative terms. This group showed a solid increase of 21.2% during the 2000-18 period. The last estimate of the Puerto Rico population was 3,195,153 for 2018, according to ACS. This estimate represented a reduction of 526,980 persons, or -1.8% per year, in the Puerto Rico population during the 2010-18 period.

Table VI

Population in Puerto Rico							**Annual**
Estimates	**2010**		**2018**		**Change**	**%Ch**	**Rate**
Total:	**3,722,133**	**100**	**3,195,153**	**100**	**-526,980**	**-14.2%**	**-1.8%**
Under 5 years	223,247	6.0%	125,796	3.9%	-97,451	-43.7%	-5.5%
5 to 17 years	674,397	18.1%	468,214	14.7%	-206,183	-30.6%	-3.8%
18 to 24 years	379,556	10.2%	313,113	9.8%	-66,443	-17.5%	-2.2%
25 to 44 years	970,295	26.1%	778,424	24.4%	-191,871	-19.8%	-2.5%
45 to 54 years	486,273	13.1%	422,128	13.2%	-64,145	-13.2%	-1.6%
55 to 64 years	442,644	11.9%	426,262	13.3%	-16,382	-3.7%	-0.5%
65 to 74 years	313,604	8.4%	361,819	11.3%	48,215	15.4%	1.9%
75 years over	232,117	6.2%	299,397	9.4%	67,280	29.0%	3.6%
Under 5 years	**223,247**	**6.0%**	**125,796**	**3.9%**	**-97,451**	**-43.7%**	**-5.5%**
Under 18	**897,644**	**24.10**	**594,010**	**19**	**-303,634**	**-33.8%**	**-4.2%**
65 years/over	**545,721**	**14.7%**	**661,216**	**20.7%**	**115,495**	**21.2%**	**2.6%**
Median Age	**36.9**	**X**	**40.9**	**X**	**4.00**	**X**	**X**

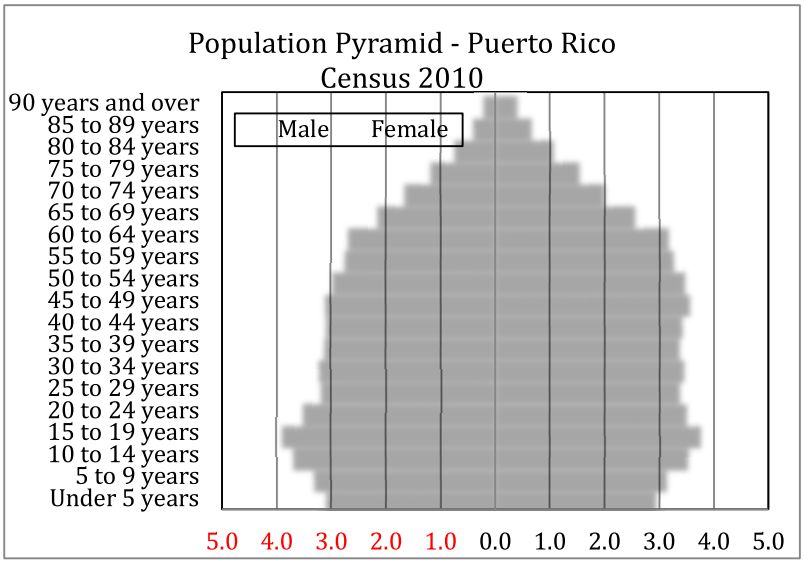
Source: US Census, 2010 and estimates for 2018.

Chart VII



Source: US Census, 2000.

Chart VIII



Source: US Census, 2010

Population in Guaynabo and PMA

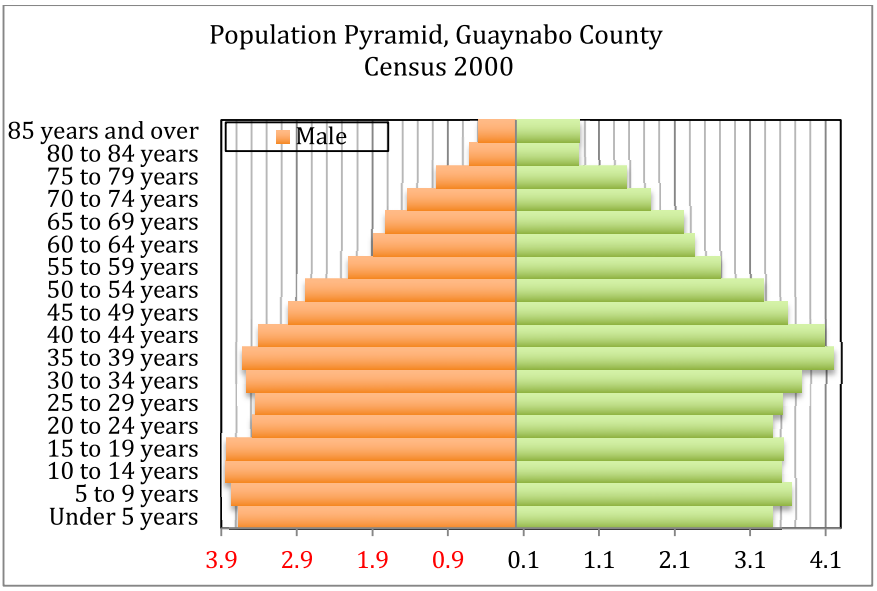
The population of Guaynabo reflects a similar behavior to that observed at the level of the total population, where younger-age groups are decreasing while the older-age groups are growing. Also, it reflects the reduction of population due to the pattern of emigration that began during the last decade. According to the US Census, in 2010 Guaynabo had a total population of 97,924. It represented a decrease around -14%. The last estimate of US Census for 2018 was 83,787. Table VII shows the population by age in Guaynabo for 2018.

Table VII

Population	Census			Population Estimate (as of July 1)					
		2010			2017			2018	
Age and Sex	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
Total	**97,924**	**46,540**	**51,384**	**87,057**	**40,984**	**46,073**	**83,787**	**39,421**	**44,366**
Under 5 years	5,031	2,593	2,438	3,376	1,736	1,640	2,956	1,501	1,455
5 to 9 years	5,669	2,888	2,781	3,815	1,960	1,855	3,512	1,814	1,698
10 to 14 years	6,266	3,237	3,029	4,482	2,254	2,228	4,119	2,088	2,031
15 to 19 years	6,753	3,430	3,323	5,013	2,604	2,409	4,686	2,425	2,261
20 to 24 years	6,188	3,295	2,893	5,753	3,019	2,734	5,312	2,831	2,481
25 to 29 years	6,462	3,220	3,242	5,822	3,036	2,786	5,713	2,950	2,763
30 to 34 years	6,488	3,281	3,207	5,165	2,641	2,524	4,817	2,501	2,316
35 to 39 years	6,460	3,192	3,268	5,558	2,682	2,876	5,276	2,546	2,730
40 to 44 years	6,756	3,142	3,614	5,257	2,565	2,692	5,031	2,434	2,597
45 to 49 years	7,084	3,226	3,858	5,615	2,574	3,041	5,374	2,502	2,872
50 to 54 years	7,106	3,178	3,928	6,177	2,777	3,400	5,858	2,632	3,226
55 to 59 years	6,269	2,795	3,474	6,271	2,728	3,543	6,165	2,695	3,470
60 to 64 years	5,581	2,501	3,080	6,160	2,716	3,444	6,136	2,707	3,429
65 to 69 years	4,672	2,039	2,633	5,263	2,338	2,925	5,271	2,352	2,919
70 to 74 years	3,746	1,624	2,122	4,578	1,973	2,605	4,569	1,961	2,608
75 to 79 years	3,134	1,287	1,847	3,392	1,436	1,956	3,522	1,475	2,047
80 to 84 years	2,244	902	1,342	2,747	1,094	1,653	2,762	1,115	1,647
85 years over	2,015	710	1,305	2,613	851	1,762	2,708	892	1,816
Under 18 year	**21,068**	**10,793**	**10,275**	**14,660**	**7,480**	**7,180**	**13,345**	**6,805**	**6,540**
Under 5 years	**5,031**	**2,593**	**2,438**	**3,376**	**1,736**	**1,640**	**2,956**	**1,501**	**1,455**
25 to 44 years	**26,166**	**12,835**	**13,331**	**21,802**	**10,924**	**10,878**	**20,837**	**10,431**	**10,406**
65 years over	**15,811**	**6,562**	**9,249**	**18,593**	**7,692**	**10,901**	**18,832**	**7,795**	**11,037**
Median age(years)	**39.7**	**37.1**	**42.1**	**44.3**	**41.1**	**47.2**	**45.5**	**42.1**	**48.3**

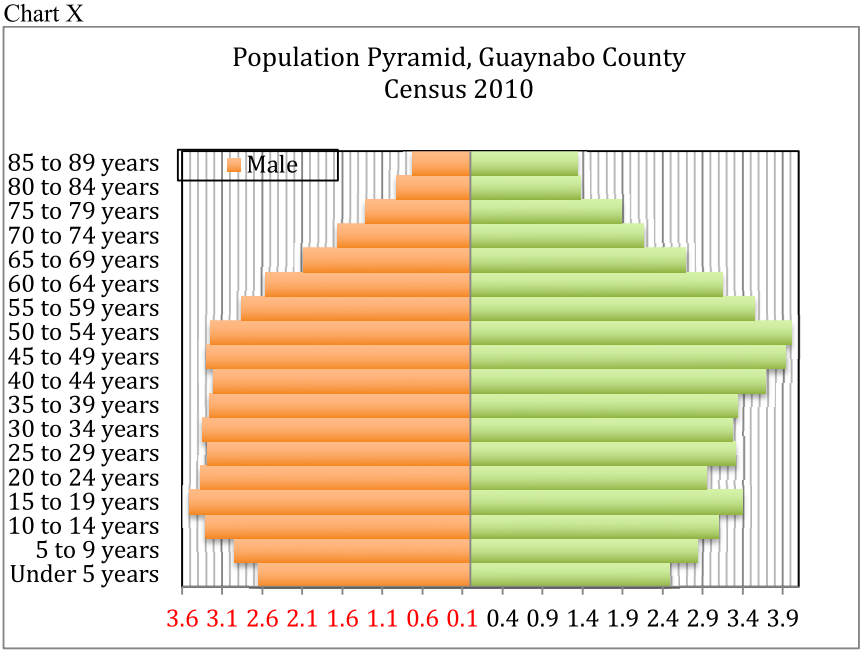
Source: US Census, Estimates 2010, 2017 and 2018.

Chart IX



Source: US Census, 2000.

Chart X



Source: US Census, 2010.

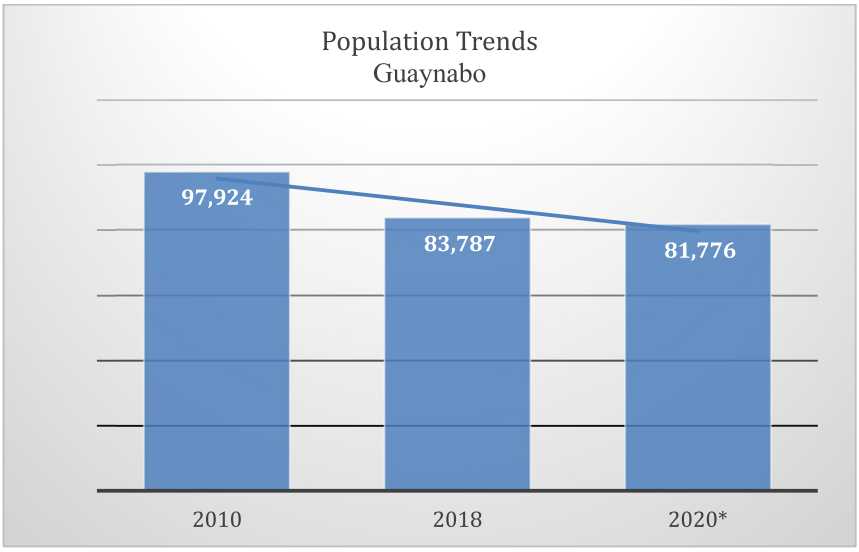
The Municipality of Guaynabo experienced a population decrease of 1.8% per year between 2010 and 2018, which was compared with the decrease for all of Puerto Rico, -1.7% per year. Both the population of Puerto Rico as a whole and that of Guaynabo specifically experienced a process of aging between 2000 and 2018, although for the island it was more noticeable. The median age in Guaynabo was 45.5 years, and 43.5 years in PMA. For the purposes of this report the total population in the PMA was defined and estimated to be 131,879 for the year 2018, according to estimates released by the US Census. The age group of 18 years or less represented 17.1% (22,514) of the population in the PMA. In addition, the age group of 25 to 44 years represented 24.9% (32,860) of the population in the PMA the following table VIII shows the population by age in the PMA for 2018.

Table VIII

Population		Aguas		Total	
2018	Guaynabo	Buenas	Cataño	PMA	%
Total	**83,787**	**24,848**	**23,244**	**131,879**	100
Under 5 years	2,956	878	959	4,793	3.6%
5 to 9 years	3,512	1,281	1,261	6,054	4.6%
10 to 14 years	4,119	1,523	1,398	7,040	5.3%
15 to 19 years	4,686	1,630	1,541	7,857	6.0%
20 to 24 years	5,312	1,652	1,545	8,509	6.5%
25 to 29 years	5,713	1,654	1,588	8,955	6.8%
30 to 34 years	4,817	1,407	1,456	7,680	5.8%
35 to 39 years	5,276	1,511	1,451	8,238	6.2%
40 to 44 years	5,031	1,667	1,289	7,987	6.1%
45 to 49 years	5,374	1,515	1,262	8,151	6.2%
50 to 54 years	5,858	1,720	1,476	9,054	6.9%
55 to 59 years	6,165	1,785	1,682	9,632	7.3%
60 to 64 years	6,136	1,651	1,646	9,433	7.2%
65 to 69 years	5,271	1,420	1,358	8,049	6.1%
70 to 74 years	4,569	1,324	1,167	7,060	5.4%
75 to 79 years	3,522	965	781	5,268	4.0%
80 to 84 years	2,762	656	600	4,018	3.0%
85 years over	2,708	609	784	4,101	3.1%
Under 18 years	**13,345**	**4,655**	**4,514**	**22,514**	**17.1%**
Under 5 years	**2,956**	**878**	**959**	**4,793**	**3.6%**
25 to 44 years	**20,837**	**6,239**	**5,784**	**32,860**	**24.9%**
65 years over	**18,832**	**4,974**	**4,690**	**28,496**	**21.6%**
Median age	**45.5**	**42.5**	**41.6**	**43.5**	**X**

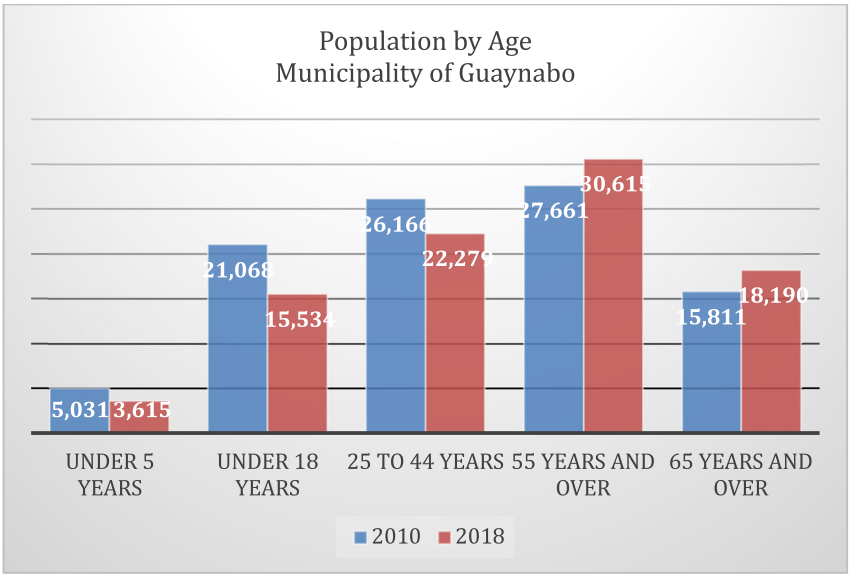
Source: Source: US Census 2010, Estimates for 2010 and 2018.

Chart XI



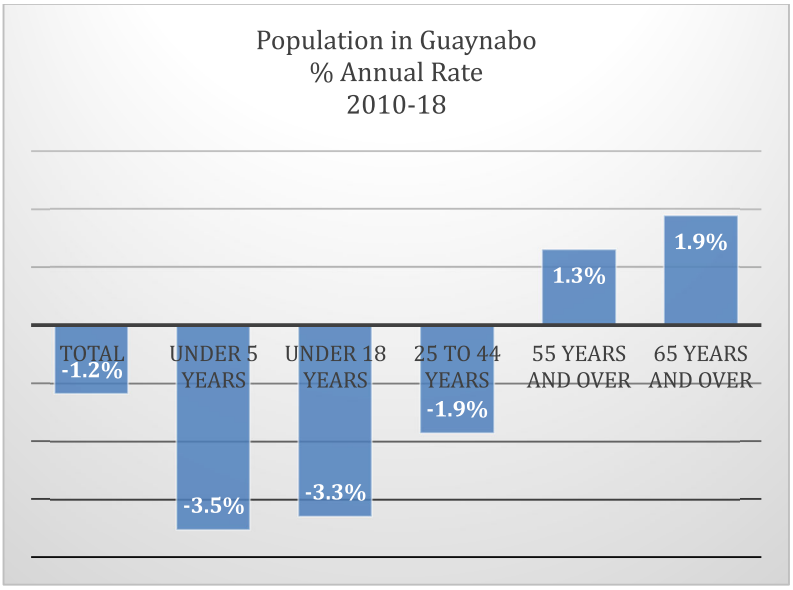
Source: US Census, American Community Survey, 2014-18.

Chart XII



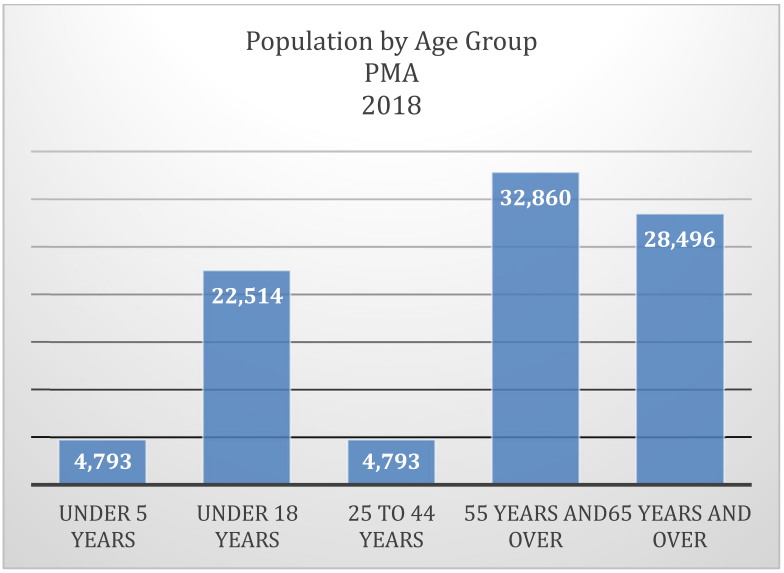
Source: US Census, American Community Survey, 2014-18.

Chart XIII



Source: US Census, American Community Survey, 2014-18.

Chart XIV



Source: US Census, American Community Survey, 2014-18.

Housing Occupancy

Of the total existing units (61,339) in the PMA, 79% were occupied housing units. The rental vacancy rate was around 8.6% (see a Table X below).

Table X

HOUSING OCCUPANCY IN PMA. 2018

	Guaynabo		Aguas Buenas		Cataño		PMA	
Total housing units	**39,923**	**100**	**10,762**	**100**	**10,654**	**100**	**61,519**	**100**
Occupied	30,963	77.6%	8,469	78.7%	8,972	82.5%	48,224	79%
Vacant	8,960	22.4%	2,293	21.3%	1,862	17.5%	13,115	21%
Homeowner vacancy rate	6.7	(X)	1.4	X	2.9	X	3.7	X
Rental vacancy rate	8.3	(X)	12.4	X	5.2	X	8.6	X

Source: Us Census, American Community Survey, 2014-18.

Housing Tenure

Based on the ACS for 2018, the PMA has a total of 48,224 occupied homes units. Of this total, 33,845 (67%) are occupied by their owners and **14,379 (33%) are occupied by renters**. The average household size of an owner-occupied unit is 2.9 persons and the household size of a renter-occupied unit is 2.7 persons. Table XI shows the housing tenure in the PMA for 2010-18.

Table XI

2018

HOUSING TENURE	Guaynabo		Aguas Buenas		Cataño		PMA	
Occupied units	**30,963**	**100**	**8,469**	**100**	**8,972**	**100**	**48,224**	**100**
Owner-occupied	22,849	74%	5,665	66%	5,331	60%	33,845	67%
Renter-occupied	**8,114**	**26%**	**2,804**	**34%**	**3,461**	**40%**	**14,379**	**33%**
Average size of an owner-occupied	2.9	**x**	3.2	**x**	2.9	**x**	2.9	**x**
Average size renter-occupy. unit	**2.7**	**x**	**2.9**	**x**	**2.7**	**x**	**2.7**	**x**

Source: Us Census, American Community Survey, 2014-18**.**

Chart XV

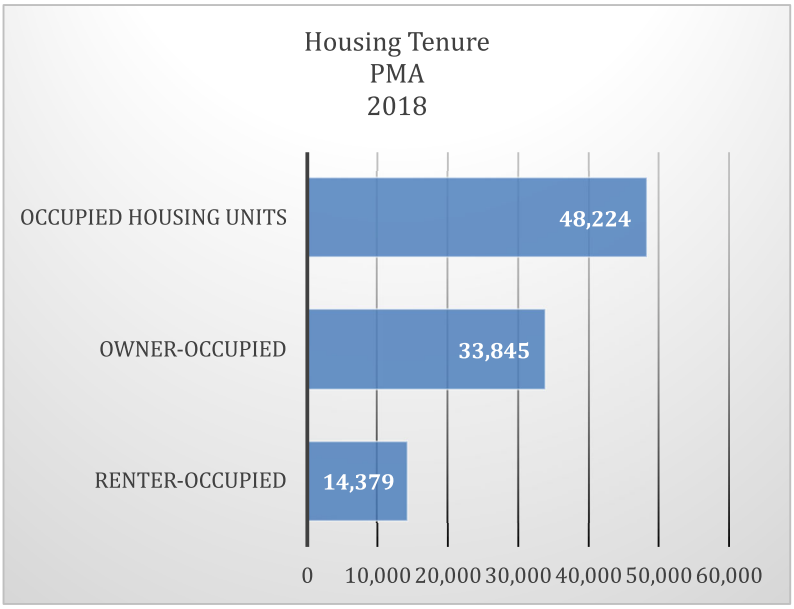
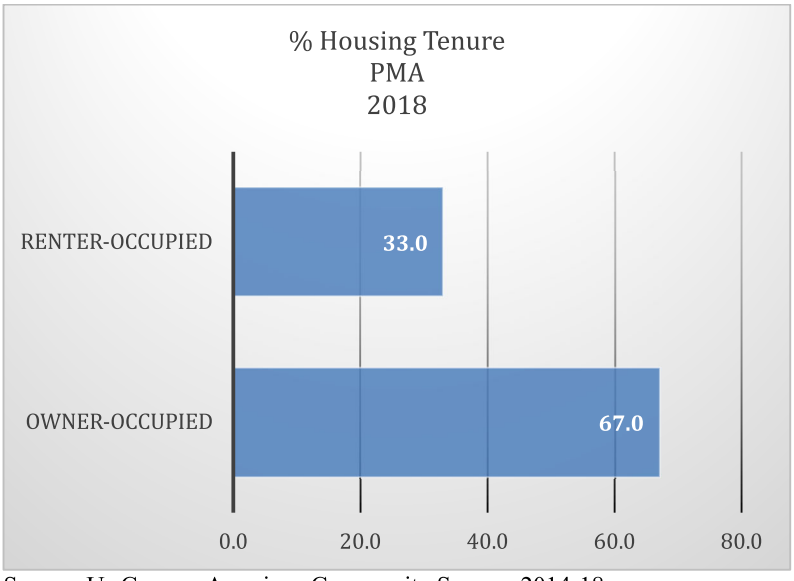


Chart XVI



Source: Us Census, American Community Survey, 2014-18.

Income Distribution for Households

Income distribution is important in determining the number of households within the market area that have the capability to afford the cost of renting the existing units available or the units that might become available due to future rental housing development.

Table XII includes the income levels and the distribution for the PMA.

Table XII

Income Distribution for Household in PMA	2018							
	Guaynabo		Aguas Buenas			Cataño	PMA	%
Total	**30,963**	**100**	**8,469**	**100**	**8,792**	**100**	**48,224**	**100**
Less than $10,000	5,078	16.4%	2,634	31.1%	2,849	32.4%	10,560	21.9%
$10,000 to $14,999	3,158	10.2%	1,109	13.1%	958	10.9%	5,252	10.9%
$15,000 to $24,999	4,242	13.7%	1,618	19.1%	1,380	15.7%	7,565	15.7%
$25,000 to $34,999	3,406	11.0%	965	11.4%	897	10.2%	4,915	10.2%
$35,000 to $49,999	3,251	10.5%	1,033	12.2%	967	11.0%	5,300	11.0%
$50,000 to $74,999	4,335	14.0%	728	8.6%	818	9.30%	4,481	9.3%
$75,000 to $99,999	2,044	6.6%	195	2.3%	334	3.80%	1,831	3.8%
$100,000 to $149,999	2,663	8.6%	110	1.3%	413	4.70%	2,265	4.7%
$150,000 to $199,999	1,053	3.4%	51	0.6%	106	1.2%	578	1.2%
$200,000 or more	1,734	5.6%	34	0.4%	70	0.8%	385	0.8%
Median income ($)	**33,937**	**X**	**17,255**	**X**	**18,253**	**X**	**25,581**	**X**
Mean income ($)	61,989	X	27,066	X	31,223	X	40,092	X

Source: US Census, American Community Survey, 2014-18.

We observed significant changes in the levels and distribution of income for households that are part of PMA for the period (average) of 2014-18:

- Total households were 48,224 in the PMA, during the 2018.
- The area median income (AMI) for the total of households in Guaynabo was 33,937.

- The AMI for the total of households in PMA was $25,581.

- Around 15,812 households (32.8%) had incomes of approximately 50%-60% of the median income $15,348 or the PMA, or less of $14,999.
- Households with income levels of $25,000 or more represented 41%.

Poverty Status

The US Census calculates the figures of individuals and families whose household income falls below poverty limits based on income, family size and number of children of each household. Poverty limits are updated annually using Consumer Price Index (CPI) from the U. S. Bureau of Labor Statistics.

Table XIII

POVERTY LEVEL GUAYNABO	Total	Below	% Below
2018	**Persons**	**Poverty**	**Poverty**
Population for whom poverty status	**83,413**	**21,780**	**26.1%**
AGE			
Under 18 years	**13,196**	**5,973**	**45.3%**
Under 5 years	**2,831**	**1,180**	**41.7%**
5 to 17 years	10,365	4,793	46.2%
Related children of householder under 18 years	13,092	5,869	44.8%
18 to 64 years	51,610	10,779	20.9%
18 to 34 years	17,770	3,633	20.4%
35 to 64 years	33,840	7,146	21.1%
60 years and over	25,088	**6,681**	**26.6%**
65 years and over	18,607	5,028	27.0%
Male	40,048	9,919	24.8%
Female	43,365	11,861	27.4%

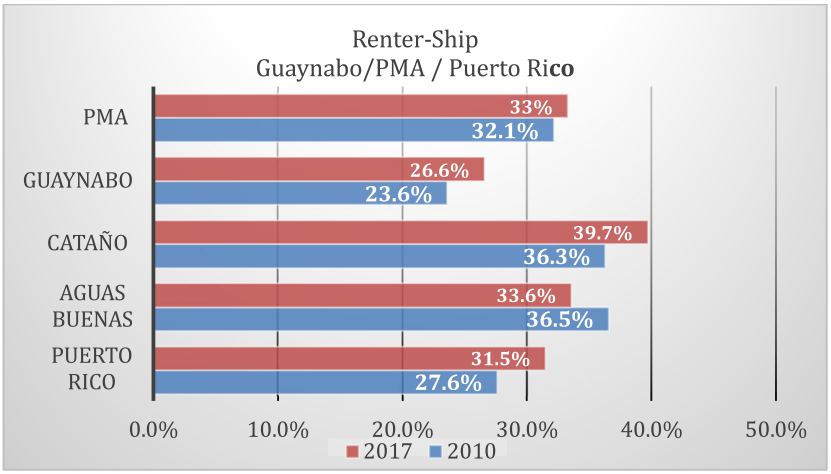
Source: US Census, American Community Survey, 2014-18

As seen in Table XIII, around 21,780 persons, or 26.1%, are below the poverty line in Guaynabo. The poverty rate was higher, 45.3%, for those families with related children of the householder under 18 years.

Rental Housing in PMA

The demand for rent in Puerto Rico has been increasing significantly during the present decade (2010-2017). Economic, social, and demographic factors seem to have influenced families to prefer renting as an optimal option. Particularly the millennials preference towards rental tenure is one factor noted in studies conducted in the United States and Puerto Rico. Chart XVI shows the estimates of the renter ship indicator (renter / total occupied units) for PMA and Puerto Rico during the period of 2010-17. As shown in Chart XVI, the PMA where the proposed project would be located had an estimated renter ship indicator of 33% in 2017, higher than that observed for Puerto Rico (31.5%).

Chart XVI



Source: US Census, Population Estimates, American Community Survey, 2013-17

The Municipality of Guaynabo had a total occupied housing unit of 30,963 in 2018, of which 8,114 were renter-occupied units, representing 26% (see a Table XIV below). The average rental vacancy rate in Guaynabo was 8.3%. Of the 8,114 rental units in 2018, around 5,305 were occupied units paying rents. In addition, 2,809 units did not pay rents.

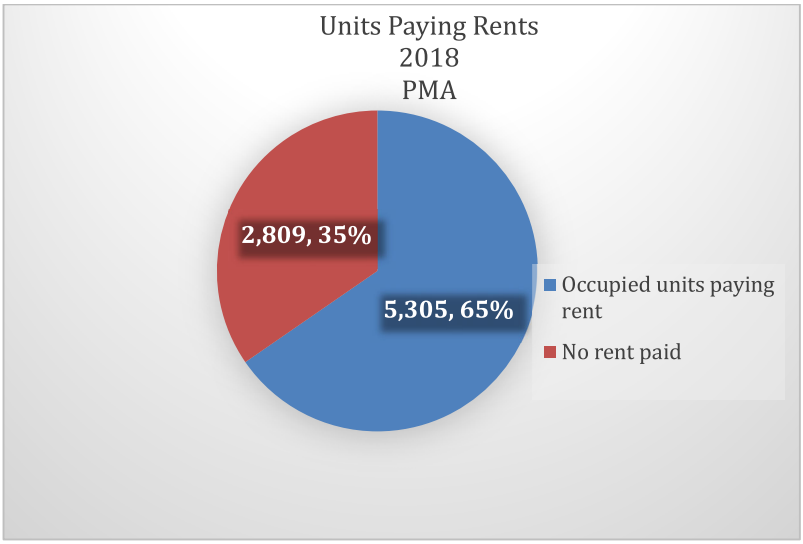
Table XIV

GROSS RENT IN GUAYNABO 2018		
Occupied units paying rent	**5,305**	**100**
Less than $500	**1,971**	**37.2%**
$500 to $999	1,663	31.3%
$1,000 to $1,499	967	18.2%
$1,500 to $1,999	373	7.0%
$2,000 to $2,499	46	0.9%
$2,500 to $2,999	159	3.0%
$3,000 or more	126	2.4%
Median (dollars)	**722**	**(X)**
No rent paid	2,809	(X)

Source: US Census, Population Estimates, American Community Survey, 2014-18

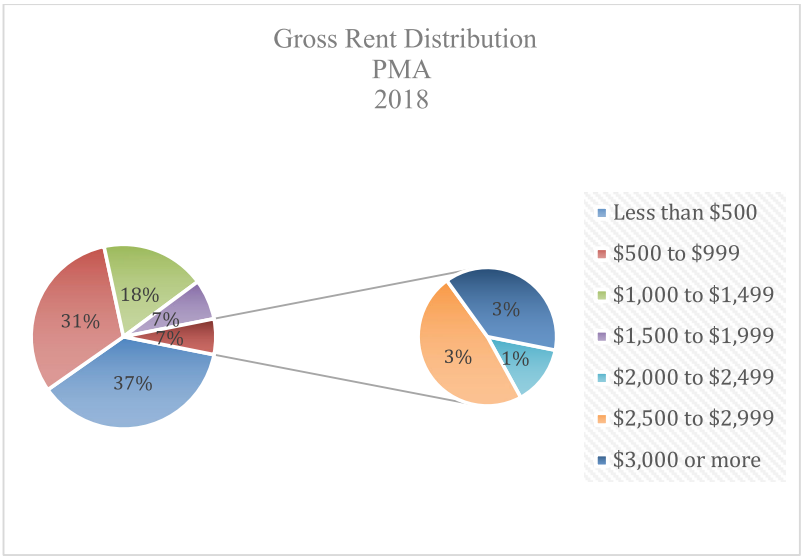
Of the 5,305 occupied units paying rent in the Guaynabo, around 1,971 or 37.2% pay less than $500 for rent. **The subject rent limits are between $290 to $418 under LIHTC Program.**

Chart XVII



Source: US Census, American Community Survey, 2014-2018

Chart XVIII



Source: US Census, American Community Survey, 2014-2018

Demand and Supply Analysis in PMA

The estimate of the potential demand for housing units for the population is determined by various demographic and socioeconomic factors. These are: population, the number of households, tenure, replacement needs (number of units with housing problems), labor mobility and income.

Table XV

	Actual	Forecast*
PMA		
	2018	**2022**
Population	131,879	122,647
Household	48,224	46,605

Source: US Census, Population Estimates, 2018 and ACS, 2014-18.*Forecast by Consultant

According to US Census estimates for 2018 the total population in the PMA was 131,879 and the total households were 48,224 (ACS, 2018). Also, around 21,780 persons, or 26%, are below the poverty line in Guaynabo. **The proposed 102 units are targeted to meet the housing needs of low-income families in PMA.**

Income-Eligible Household

Housing units with tax credits are subject to income limits that are based on a percentage of the median income of the area. Table XVI shows the Income Limits for the year 2020 published by HUD for the San Juan Region (including the PMA), which are based on low and medium income (50% AMI).

Table XVI

Income Limit	50%
1 person	10,850
2 persons	12,400
3 persons	13,950
4 persons	**15,450**
5 persons	16,700
6 persons	17,950

Source: HUD, Income Limits, 2020

The maximum qualifying incomes range from $10,850 for a 1-person household to 15,450 for 4 person household for 50% income limits. **The proposed subject units with 1-2 bedrooms will most likely target qualifying household with one to four persons with maximum income limits of $10,850 to $15,450.** According to ACS, the median income in PMA for 2018 was $25,581.

For the purpose of this study we must identify the potential demand for the subject units and the total number of households that could qualify in the PMA. The following table summarizes the distribution of income class for households in the PMA according to ACS data for the year 2018.

Table XVII

PMA-2018		
Households 50% AMI	**Total**	**%**
$10,000 to $14,999	5,252	10.9
$15,000 to $$24,99	7,565	15.7
Total Households	**12,817**	**26.6**

Source: US Census, Population Estimates, American Community Survey, 2014-18

As seen in Table XVII, the number of households with income levels between $10,000 to $24,999 in the PMA or 50%-60 of AMI for 2018 was 12,817 (26.6%).

Proposed Project Rents

The proposed ***Vistas al Norte*** is a rental housing development consisting of thirteen (13) levels. It will contain a total of 102 apartments. According to information obtained gross rents will be in a range of $290 to $418 per month for units. The Fair Market Rents guidelines set by HUD for the PMA in the year 2020 are as follow:

Table XVIII

FY 2020 Fair Market Rent –Guaynabo Municipality

	Efficiency	1BR	2BR	3BR	4BR
FMRs	$416	$451	$531	$706	$868

Source: HUD, Fair Market Rents, 2020

Fair Market Rents (FMR) in the San Juan Metropolitan Region in 2020 for one-bedroom units is $451; for two-bedroom units is $531; for three-bedroom units is $706; and for four-bedroom units is $868. A utility fee in the range of $62 to $121 per unit per month is typically charged, which follows PRHFA guidelines. All units will be available for low-income families following the LIHTC rents and income requirements (Household income equivalent to 60% of the median income for Primary Market Area).

Potential Demand

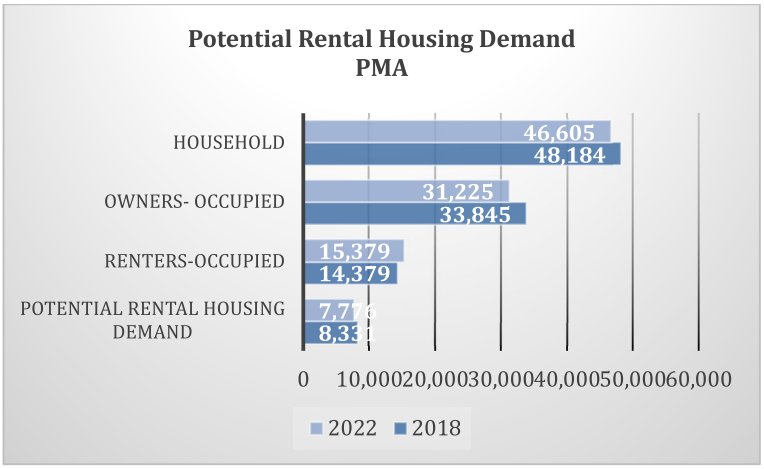
The Table XIX shows an estimate of the **Potential Demand** for rental housing from families who qualify for the housing units proposed. As a basis we take those families with an income level between $10,000 and $24,999 or 50%-60% of AMI which were 12,817 in 2018. These families qualify to pay rents within the range of $325 to $560 monthly, according to ACS data for the PMA.

Table XIX

PMA	2018	2023
	Actual	Forecast*
Total Population	131,879	122,647
Total Household	48,184	46,605
Renters-occupied	14,379	15,379
% Renter ship	33.0	33.0
Average Household Size of Renter	2.7	2.6
Potential Demand for Rental Housing	**8,331**	**7,776**

Source: US Census, American Community Survey, 2014-18. *Forecast for 2022 by Consultant.

Chart XIX



Source: US Census, American Community Survey, 2014-18. *Forecast for 2023 by Consultant.

The Potential Demand for rental housing in PMA was estimated to be around 8,331 units for 2018. We have projected that for 2023 start date of the proposed project the potential demand for rental housing would be 7,776 units.

Competitive Properties Survey

The supply analysis of rental units in the PMA was based on a survey made by the consultant among managers of multifamily rental subsidized properties. **This survey was realized during days of September 8 to 11 of 2020.** Four (4) projects are located in the PMA, but only two (2) of them are located in the Guaynabo Municipality. These properties have a total of 940 rental units under the LIHTC, Section 8, Home, and Rural Development programs (see a Table XX below).

Name of Properties	**Year Const.**	**Units**	**Occupy.**	**Vac.**	**Dist. Unit**	**Rooms**	**Market Gross Rents**	**Comments**
Villa Venecia Road 20, Martinez Nadal, Guaynabo, PR 00966	2003	360	100%	0	60 200 60	1BD/IBH 2BD/IBH 3BD/IBH 4B/1BH	n/a	LIHTC and Section 8 program building. -- parking spaces per unit and for visitors, activity room, coin laundry, electric generator, public areas, water cistern. **10 persons in waiting list.**
Hannia María Apts. 16 Street, Montebello, Guaynabo PR 00965	Not available	260	100%	0	n/a	1BD/IBH 2BD/IBH 3BD/IBH	n/a	LIHTC and Section 8 program building. -- parking spaces per unit and for visitors, activity room, coin laundry, electric generator, public areas, water cistern. **Persons in waiting list.**
Vista de Jagueyes, Road 173, Km.03 Jagueyes Ward, Aguas Buenas, PR 00703	1982	114	100%	0	n/a	1BD/IBH 2BD/IBH 3BD/IBH 4B/1BH	583 659 702 784	LIHTC and Section 8 program building. parking spaces per unit and for visitors, activity room, public areas, passive park, basketball court. **50 persons in waiting list.**
Angeli Apartments Road 869 KM 5.01 Palmas Ward, Cataño, PR. 00902	1980	206	100%	0	n/a	1BD/IBH 2BD/IBH 3BD/IBH 4BD/IBH	n/a	Section 8. Controlled access and security, passive park, 180 parking spaces, management offices, and basketball court. **Persons in waiting list.**

Table XX

Source: Properties Survey realized by Consultant during days of **September 8 to 11 of 2020.**

Among the most important findings of our survey, we can highlight the following:

- The managers informed us that the rent of the units in these properties was determined based on 50%-60% of their gross income in most of the cases. These projects are classified as LIHTC and Section 8.

- Of the properties surveyed, a majority offer unit for rent with 1 to 4 bedrooms, which is very typical in multifamily housing properties. All units include stove, refrigerator and heater.

- Most of the projects were built between the years 1980 and 2003.

- With regard to the facilities offered by these properties, we have found that some have controlled access, parking, laundry room, and recreational facilities such as swimming pool, basketball court, playground for children, meeting areas and security.

- **Most of the managers interviewed indicated that they had occupancy of 100% and no vacancies. All of the properties surveyed had persons in their waiting lists. The high occupancy rates and no vacancies evidence the potential demand for low-income rental housing in the PMA.**

- The residents of the featured properties are mainly from the municipalities of Guaynabo, Agua Buenas and Cataño.

- It is worth noting that besides the existing properties surveyed there are no other construction projects in the PMA.

- According to information obtained from the developer, gross rents for the proposed project will fluctuate in the range of $290 to $418 per unit per month. Fair Market Rents (FMR) in the Guaynabo Region in 2020 for one-bedroom units is $451 and for two-bedroom units is $531. **The rents proposed for this project are competitive compared to the rent range seen in the market area according with a survey.**

Properties Surveyed in the PMA



Figure 27: Hannia Apartments

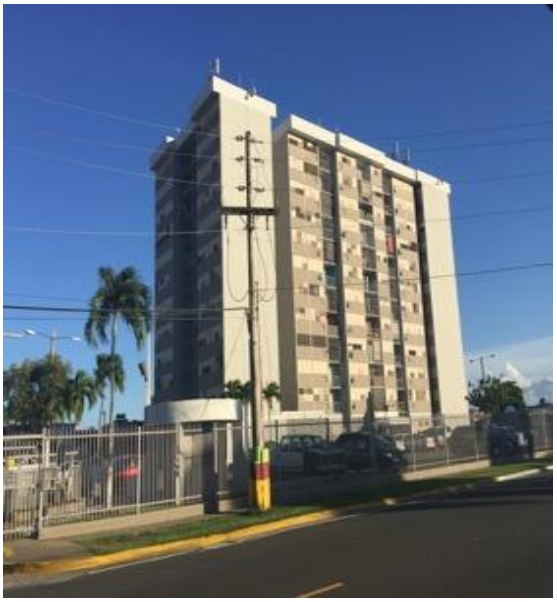


Figure 28: Angeli Apartments



Figure 29: *Vistas de Jagueyes*



Figure 30: *Villa Venecia*

Competitive Advantage

The proposed ***Vistas Al Norte*** project will be located at *Camarones Ward*, in the Municipality of Guaynabo, Puerto Rico. Based on the information gathered in our survey, the subject site has certain competitive advantages over existing comparable properties in the PMA. Foremost among these is its excellent location in the Guaynabo Municipality and the easy access to the school, pharmacies, transportation facilities, medical clinics, commercial malls, churches, the coliseum, and government offices.

The economic activity of the Municipality of Guaynabo is one of the most vibrant in the San Juan Metropolitan Region. It has a diversified economy with manufacturing establishments, distribution centers, warehouses, office buildings, shopping centers, sports facilities, schools, universities, public transportation, theaters, museums, hospitals, banks, tourist attractions, port facilities, and government offices. In terms of the unemployment rate, Guaynabo stands at 4.9% and showing a declining trend during the last years. This level of unemployment is lower than that observed for the Island.

According to the Project Market Study, the potential demand for rental of multifamily housing units as indicated by the Primary Market Area (PMA) is approximately 8,331 units for 2018. **The Market Study projections for 2023 occupancy date of the project, the Potential Demand for rental multifamily housing would be of 7,776 units**. This estimate considers that 50% of renter's households will have incomes of 50% or below of the AMI.

Vista del Norte **project will provide 102 multifamily housing units in the Urban Center of the Municipality of Guaynabo, which will contribute to mitigating the increase in the need for housing caused by Hurricanes Irma and María, as well as providing a resilient architectural and structural design to the community before a natural disaster according with architect certification (see Annex 1-Certification).Vistas del Norte is designed to provide a dignified, secure and resilient rental housing in urban center of Guaynabo.** The structural design of *Vistas al Norte* has been conducted in compliance with 2018 International Building Code (IBC 2018) and the amendments established in the Puerto Rico Building Code of 2018(ORBC 2018). These codes are the most updated code editions and reflect that latest accepted research on wind seismic load. The structural design conducted for the *Vistas del Norte* will proved the intended performance levels for which the code provisions have been developed. Vistas del Norte will be equipped with 245 collector panels and 240 kilowatts storage capacity provided by 40 batteries. The potable water cistern has capacity for 3 days of water supply at a rate of 100 gallons per day per apartments. **This project is designed to provide dignified living environment for low income families and individuals following high design standard.**

The entrance of this project to the PMA does not affect the existing properties as there is a high potential demand and waiting lists for multifamily units. These properties currently have an occupancy rate of 100% and waiting lists. Hence, the proposed project would not affect their operations. The proposed project will help meet the existing needs of rental housing for low- and middle-income families in the PMA.

Caption Rate and Absorption

The *Vistas al Norte Housing* project will offer one hundred (102) units for rent, which represent only 1.3% of the potential demand estimated in the PMA for 2018 (see Table XIX). Considering that as of four, there are only two comparable subjects in the Municipality of Guaynabo, and that the project has a low caption rate (1.3%), it is quite likely that the 102 units will be quickly absorbed as they are made available and applicants are processed. **According to interviews to local property managers and appraisers, the absorption of 102 units will take between three to four months, at an average rate of 25 units per month.**

Economic Impact of *Vistas al Norte*

The Vistas al Norte project is within the coverage area of the **Municipality of Guaynabo**. The project has been designed as a typical rental housing development for families with children with 102 units. **The estimated total construction cost is $15.4 million**. The process of developing and constructing new housing generates substantial local economic activity, including new income, jobs and additional revenue for local governments. Below we present the economic impact of ***Vistas al Norte*** project and its contribution to the local economy within the area, which is mostly bounded by the sector.

Methodology

The impact of an economic event is the total of direct effects and indirect effects. For example, when a million dollars are invested in building a new apartment complex in a city, that money represents a stimulus that flows through the local economy multiple times as construction materials are purchased, and construction workers spend their paychecks at local supermarkets, restaurants and other retailers, which is turned by more inventory, and so on. That is, an initial stimulus triggers a chain of spending. This chain of spending is estimated via multipliers derived from input-output analysis that measure how all of the major variables in an economic system interact.

To estimate the economic impact of this project, multipliers from the Input-Output Model of the Puerto Rico Planning Board for 2007 were used. The model determines the economic impact of the proposed project following the methodology known as the "Multipliers Model".

Employment Impact

In relation to the generation of jobs, the project impacts the local economy at three levels: generating direct, indirect and induced jobs. The following table summarizes the estimates for employment impact.

Table XXI

Jobs	Construction	Operation	Total
Direct	180	5	185
Indirect	144	3	147
Induced	126	1	127
Total	450	9	459

Source: Puerto Rico Planning Board, Input-Output Model 2007 and Consultant.

- A total of 180 jobs are estimated to be created in the area during the construction phase of development and 5 jobs during the operational phase of the Project.
- Of the total 459 jobs, a total of 185 direct jobs are generated.
- A total of 147 indirect jobs will be generated by purchases in establishments operating within the project area during its construction and operational phases.

- As the result of local and regional purchases by those 185 individuals holding the direct jobs, 127 additional induced jobs will be supported in the economy.

Income Impacts

The impacts are measured through wages and salaries received by individuals directly employed due to the project's development and building activities. This, in turn, generates an additional impact through the 147 indirect jobs and 127 induced jobs resulting from the project (see a Table XXII). The income impact estimated for the project through additional income created for the economy is estimated in $9.8 million during the construction phase. During its operational phase, the project expects to impact the economy with approximately $230,971 more annually.

Table XXII

Personal Income	**Construction Phase**	**Operation Phase**	**Total**
Direct	$3,750,000	$88,495	$3,838,495
Indirect	$3,825,000	$90,264	$3,915,264
Induce	$2,212,500	$52,212	$2,264,712
Total Income	**$9,787,500**	**$230,971**	**$10,018,471**

Source: Puerto Rico Planning Board, Input-Output Model 2001-2002 and Consultant.

Fiscal Impacts

Tax impacts are tax payments to state and local governments by firms and individuals whose jobs are directly dependent on and supported by (induced jobs) the project's construction phase and its operational activity. The project's fiscal impact, as measured by tax collections, amounts to $2.5 million.

Table XXI11

Fiscal Impacts	**Construction Phase**	**Operation Phase**	**Total**
Construction Permits	$58,966	0	$58,966
Tax	$41,277	$2,000	$43,277
Const. Tax	$1,044,000	0	$1,044,000
Income Tax	$559,585	$12,500	$572,085
Corp. Tax	$65,449	$600	$66,049
Sales Tax	$698,362	$15,000	$713,362
Total	**$2,467,639**	**$30,100**	**2,497,739**

Source: Puerto Rico Planning Board, Input-Output Model 2007 and Consultant.

Business Activity Impact

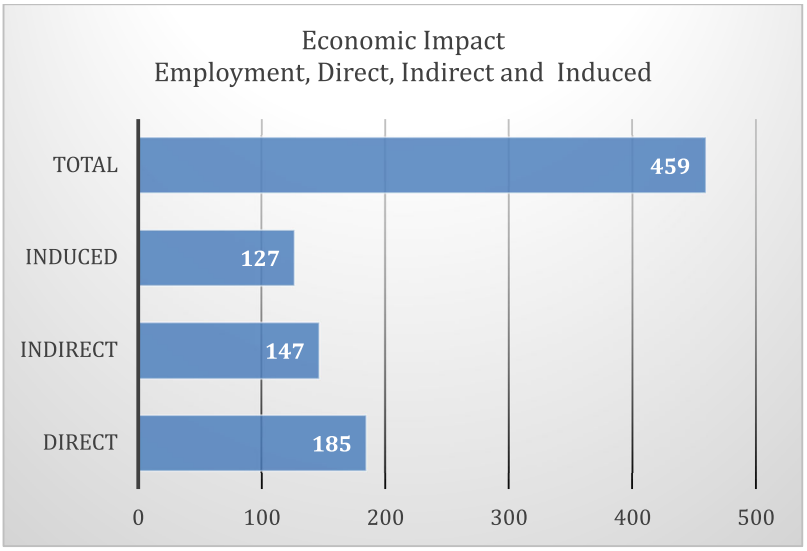
The business activity revenues to be generated by the ***Vistas al Norte*** in the PMA during the construction stage are around $3.9 million and $87,777 annually during its operation.

Table XXIV

Personal Income	Construction Phase	Operation Phase	Total
Direct	$537,310	$12,154	$549,464
Indirect	$1,182,082	$26,632	$1,208,714
Induce	$2,174,526	$48,991	$2,223,517
Total Income	**$3,893,917**	**$87,777**	**$3,981,695**

Source: Puerto Rico Planning Board, Input-Output Model 2007 and Consultant.

Chart XX



Source: Puerto Rico Planning Board, Input-Output Model 2007 and Consultant.

Conclusions and Recommendations

The proposed ***Vistas al Norte*** is located on a hilltop 450 meters away and seven -minute walk from the traditional Urban Center of Municipality of Guaynabo. It's strategic location, directly accessible from 169 State Road, gives this project direct connection to San Juan, Caguas and Bayamon with congestion free access at all times. The Municipality of Guaynabo is located in the San Juan Metropolitan Region (SJMR). SJMR is the center of economic activity in the metropolitan region and the island. The economic activity of the Municipality of Guaynabo is one of the most vibrant in the San Juan Metropolitan Region. It has a diversified economy with manufacturing establishments, distribution centers, warehouses, office buildings, shopping centers, sports facilities, schools, universities, public transportation, theaters, museums, hospitals, banks, tourist attractions, port facilities, and government offices.

The proposed project complies with the public policy of the Government of Puerto Rico and its *PR State Housing Plan 2014-18 (PRSHP)* and *PR Disaster Recovery Action Plan* 2019, which recognize the need to provide housing for low and moderate-income families in the island. In the case of the Municipality of Guaynabo there is a high potential demand for rental multifamily housing, but it currently does not have any properties offering a service comparable to those proposed for ***Vistas Al Norte***.

Vista al Norte **project will provide 102 multifamily housing units in the Urban Center of the Municipality of Cataño, which will contribute to mitigating the increase in the need for housing caused by Hurricanes Irma and María, as well as providing a resilient architectural and structural design to the community before a natural disaster (see Annex I).** ***Vistas del Norte*** **is designed to provide a dignified, secure and resilient rental housing in urban center of Guaynabo.**

The PMA where the proposed project would be located had an estimated renter ship indicator of 33% in 2017, higher than that observed for Puerto Rico (31.5%). Given the strong demand for rental subsidized multifamily housing in the PMA, ***Vistas al Norte*** will be well received by the PMA market. The subject development as proposed should be very successful in the rental-assisted market.

This rental multifamily housing project implies an investment of $26.2 million, with the creation of 324 direct and indirect jobs during the construction phase and 5 direct jobs during the operational phase. Indirect and induced jobs are estimated in 274 according to multipliers published by the Puerto Rico Planning Board. The total employment creation is around 459 jobs.

According to the Project Market Study, the potential demand for rental of multifamily housing units as indicated by the Primary Market Area (PMA) is approximately 8,625 units for 2018. The Market Study projections for 2023 occupancy date of the project, the Potential Demand for rental multifamily housing would be of 7,776 units. This estimate considers that 50% of renter's households will have incomes of 60% or below of the AMI.

Considering all these positive aspects of the project location, neighborhood, its facilities, rents, economic impact and low caption rate, which was estimated in 1.3%; we understand that the units can be absorbed by the market in a short period of time. According to interviews to local property managers, the absorption of *Vistas al Norte* units will take between three to four months at an average rate of 25 units per month.

Annexes

CERTIFICATION OF COMMUNITY BENEFITS MARKET STUDY

I, Segundo R. Cardona Colom, Architect for Vista al Norte, CERTIFY that the proposed project provides that

- Shortage of adequate housing in Puerto Rico has been remarkably evident after Hurricane Irma and Maria. Sub standard informal housing construction, specifically in poor communities were mostly affected by the storm leaving thousands of families without shelter. Numerous low-income working families, single parents, elderly couples, and elderly people living alone as well as young couples cannot afford or do not qualify for a home loan in the Guaynabo market.

  Vista al Norte is designed to provide a dignified, secure, and resilient rental housing in the heart of Guaynabo within a 7-minute walk from the city square.

- The structural design of Vista al Norte has been conducted in compliance with the 2018 International Building Code (IBC 2018) and the amendments established in the Puerto Rico Building Code of 2018 (ORBC 2018) made to conform the IBC 2018 to local construction laws and regulations. In accordance with the aforementioned building codes the wind and seismic loads used to design the structure were calculated based on ASCE 7-16. These codes are the most updated code editions and reflect that latest accepted research on wind and seismic loads. The structural design conducted for the Vista al Norte will proved the intended performance levels for which the code provisions have been developed. The ASCE basic wind speed used for design correspond to approximately 7% probability of exceedance in 50 years (mean recurrence interval of 700 years) and the seismic loads that have a 2% probability of exceedance in 50 years (mean recurrence interval of 2475 years).

- Vista al Norte Will be equipped with 245 solar collector panels and 240 kilowatts storage capacity provided by 40 batteries. This system is capable of maintaining uninterrupted electrical capacity for common areas, elevators, and water pumps for a full 24-hour cycle. For rainy days, the additional power source to compensate the loss of solar power will come from the power company and in the absence of power from the grid, batteries will be reflagged by a diesel electrical generator. Potable water cistern has a capacity for 3 days of water supply at a rate of 100 gals per day per apartment. Apartments will be equipped with storm resistant windows able to withstand the wind pressure criteria required by code.

- Power and water are essential to any household and will be assured in any event at Vista al Norte. This project is designed to provide dignified living environment for low income families and individuals following high design standards. The Architectural design concept was conceived to allow every resident to enjoy great views to the city.

At the city of Guaynabo, Puerto Rico this 2nd day of November of the year 2020.

SEGUNDO R. CARDONA ARQUITECTO LICENCIADO LIC.6737 PUERTO RICO

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Lic.6737

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Education

M.A. with specialization in Economy, University of Puerto Rico	1989
B.A. with Major in Economy, University of Puerto Rico	1981
Doctorate courses in International Business, Inter American University, Metropolitan Campus	2003-06

Professional Experience

Economic Consultant	2008-20
Economic Advisor to the Treasury Commission of the Puerto Rico Senate	2013-16
Assistant Advisor in Economic Affairs, Office of The Chief of Staff	2006-08
Assistant Director and Assistant Vice President for Economic Studies, Government Development Bank for Puerto Rico (GDB)	2004-08
Executive Director to the José M. Berrocal Institute for Economics and Finance	2002-08
Special Assistant to the GDB President	2002-04
Economic and Sector Studies Manager, GDB	1990-02
Economist IV-GDB	1987-90
Financial Economist IV-GDB	1985-87
Statistician, Treasury Department	1982-85

Academic Experience

Adjunct Professor of the University of Puerto Rico, Río Piedras Campus, Economy Department, School of Public Administration	2008 to the present
Economic Department Assessment Program Coordinator, UPR, Río Piedras Campus	2013
Professor, Inter American University, Metropolitan Campus Economy Department and Business Administration Graduate School	1989- 2012

Courses Taught: Introduction to Economy, Microeconomy, Macroeconomy, Management Economy, Labor Economy, Statistics, Management Statistics, Public Finance, Fiscal Policy and Financial Management, Seminar on Budget and Establishing Economic Policy, Public Management Thesis Seminar.

Certifications and Memberships

Licensed Professional Planner, #695
Project Management Course Certification
Member of the Puerto Rico Economists Association
Puerto Rico Planning Society
American Economic Association (AEA)
Member of the National Association for Business Economics (NABE)

Recognitions

Nominated for the Manuel A. Pérez Award by the Government Development Bank 2003.

Management and Human Resources Society, Recognition Program Coordinator, GDB, 1999.

Special Recognition, Public Employees Charity Campaign, 1997 and 2004.

Consulting Services Rendered

Areas of Counseling: Economic analysis, business plans, site analysis, market studies for businesses and housing projects, viability studies, socioeconomic impact analysis, projections, private financing, loss of earnings, economic loss, public finances, and legislation.

Entities

VDP 1, LLC
San Patricio 5, LLC
TNV Capital, LLC
Desarrollos Urbanos del Caribe,Inc.
Terranova, LLC.
Puerto Rico Multifamily, LLC
NEVA Development, LLC.
Multifamily Housing Solutions, LLC
Somoza Holding, SE
Institute of Socioeconomic Development for Housing (INDESOVI)
Galería Urbana, LLC.
Vissepo & Diez Construction Corp.
ViewPoint At Roosevelt, LLC
Vistas del Boulevard, LLC
MAPA Development Corp.
Puerto Rico Senate, Treasury and Public Finances Commission
Government Development Bank for Puerto Rico (GDB)
Human Resources Office of the Commonwealth of Puerto Rico (ORHELA).
Carlos A. Rodríguez-Ortiz Law Firm
Agrait-Lladó Law Firm
Police Credit Union

Other Professional Positions

- President, Secretary and Director of the Puerto Rico Economists Association (1993, 1994,1995, 2010, 2014).
- President, Vice President, Secretary and Director *Quintas Reales* Residents Association (2011-17).
- Economy Department Assessment Program Coordinator, UPR, Río Piedras Campus (August to December 2013).
- Member of the Cargo Tariff Revision Committee, Public Service Commission (2005).
- Coordinator of the Elected Officers Orientation Program of the Comptroller's Office (2003-2004).
- Member of the Tax Reform Advisory Committee (2003)
- Member of the Board of Directors of the Trade and Economic Sciences International Students Association (1997-1998).
- Member of the Catastrophic Diseases Fund Evaluating Board (2004-2007).
- Member of the Drafting Committee of the Governor's Economic Report (1995 and 2002).
- Member of the Municipal Reform Technical Committee (2001).
- Member of the Tourism Company Intelligence Committee (2001).
- Member of the Energy Committee of Consumer's Affairs Department (2001).
- Member of the Planning Board National Accounts Revision Committee (1995).
- Member of the GDB Executive Committee (1995).
- Member of the Puerto Rico Housing Finance Authority's Section 8 Rents Revision Committee (2003).
- Member of the Editorial Board of Ceteris Paribus journal, URP Mayagüez Campus (1995).
- Member of the Oil Spill Interagency Committee (1994).
- Member of the Editorial Board of the Puerto Rico Business Review (1998).
- Member of the Puerto Rico 2005 Project Committee (1992).

Publications and Research

- Fiscal Plan or Socioeconomic Development, *El Nuevo Día*, Plan. May 6, 2020.
- The 936 Section resurrection. *El Nuevo Día*. March 19, 2020.
- To run the wheel with CDBG funds. *El Nuevo Día*, March 6, 2020.
- Unfocused fiscal austerity measures at UPR. *El Nuevo Día*, March 2,2020.
- Federal obstacles to affordable housing obsolescence in PR. *El Nuevo Día* February 4, 2020.
- Housing obsolecence in Puerto Rico. *El Nuevo Día*, January 12, 2020.
- Urgent Resolution: To solve the shortage of affordable housing. *El Nuevo Día*, January 1, 2020.

- The economic impact of the Christmas bonus. *El Nuevo Día* December 10, 2019.
- The erosion of the PR tax base. *El Nuevo Día*, September 27, 2019.
- The cut in pensions. *El Nuevo Día*, June 19, 2019.
- Potential of the Rental Market in Puerto Rico, *El Nuevo Día* April 8, 2019.
- How to prevent the waste of public funds. *El Nuevo Día*, December 19, 2019.
- Development Tax Incentives*, El Nuevo Día*, *Tribuna Invitada*. October 27, 2018.
- Impact of Act 80 and Labor Participation Rate. *Diálogo Digital*, UPR, June 9, 2018.
- Remarks on the Appraisal of the Damages of Hurricane María in Puerto Rico, Public Administration Journal, UPR-RP. Vol.49 (2018), pp.157-182.
- Satellite Accounts for Tourism Resiliency (Submitted). *Diálogo Digital*, UPR, November 14, 2017.
- Tax Reforms in Puerto Rico during the 1975-2015 Period. A Comparative Analysis. November 2017. Economic Research Unit, UPR.
- Chronicle of a Financial Bankruptcy. *El Nuevo Día*. Revista de Negocios, March 2017.
- Tax Reforms: Saying and Doing Are Two Different Things. *Diálogo Digital*-UPR, May 2016.
- Let's Rescue Our Fiscal Space. *Diálogo Digital* -UPR, October 2014.
- Alternatives to the Fiscal Crisis in Light of International Experience (Series of three articles). *Diálogo Digital* –UPR, September 2014.
- Proposal for a New Economic Development Strategy for Puerto Rico: Sustainability, Equity, and Social Security. With J. Alameda and *Colectivo de Economistas Universitarios*. Ediciones Situm, 2013.
- Impact of Federal Transfers in Labor Participation (updated), *Diálogo*-UPR, February 2012.
- The Origin of the Fiscal Crisis. *El Nuevo Día*, Revista de Negocios, December 18, 2011.
- The Myth of Tax Equity. *El Nuevo Día, Revista de Negocios*, November 6, 2011.
- Impact of Employment and Transfers in Labor Participation. El Nuevo Día, Revista de Negocios, October 2011.
  Real vs Official Unemployment. *El Nuevo Día, Revista de Negocios*, June 12, 2011.
- Recession and Economic Growth, *El Nuevo Día, Revista de Negocios*, May 1, 2011.
- What Caused the Loss of Wealth? *El Nuevo Día, Revista de Negocios*. February 6, 2011.
- Knowledge Investment is Crucial. *El Nuevo Día, Revista de Negocios*, February 20, 2011.
- Recession and the Loss of Productive Capacity. Published by *El Vocero* , 2010.
- The Creation of Knowledge: A Source of Competitive Advantage, *Revista de Recursos Humanos*, Vol.3, No.1, 2007.
- Tourism Satellite Account. Chapter of the Economic Report to the Governor, Planning Board, Fiscal Year 2002.
- Tourism Satellite Account. Bulletin of the Puerto Rico Economists Association, 2001.

- Privatization: Experience in the International Arena. Economic Research Unit. University of Puerto Rico, No. 9, May 2001.
- Book Review: The New Entrepreneur Mystic: Tomorrow's Winners in the Business World. *Aquí BGF*, October-December 2001.
- The Local Tourism Industry: Performance for Fiscal Year 2001-02 and Perspectives For 2002-03. Puerto Rico Business Review, March 2002,March,Vol.27,No.1.
- The Puerto Rico Tourism Industry: Performance in Fiscal Year 1997, Puerto Rico Business Review, Jan.-March, Vol.23, No.1
- Analysis of the Tourism Activity in Puerto Rico: Fiscal Year 1994-95, and Perspectives. Puerto Rico Economists Associations Bulletin.
- Infrastructure, Chapter of the Economic Report to the Governor, Fiscal Year 1995
- Profile of the Pharmaceutical Industry in Puerto Rico. Puerto Rico Business Review, April-June,1995, Vol.20, No.4.
- Analysis of the Performance of Local Tourist Activity: Fiscal Year 1992-93, Puerto Rico Business Review, Juy-Sept.1993, Vol.18, No.3.
- Study on the Manufacturing Strategic Sectors in Puerto Rico, Ceteris Paribus, Universidad de Puerto Rico, Mayagüez Campus, April 1992 (with Prof. Santos Negrón).
- Study on the Performance of the Puerto Rico Tourism Sector: New Challenges and Perspectives- 1948-91 Period. Research Series of the Government Development Bank, 1992.
- Analysis of the Concept of Poverty and Measuring Tools (with Emil Nieves) – Research Series of the GDB, 1991.
- Analysis of Determinants of Labor Participation Rate by Sex and Age Group: 1951-86. Thesis for the Master's Degree, Economy Department, UPR, 1989.
- Profiles of High-Tech Industries in Puerto Rico:1963-87, Puerto Rico Business Review, August1988, Vol.13, No.8 (con Iliana Meza).
- Profiles of Furniture Industry, Puerto Rico Business Review, Vol.12, September1987.
- Analysis of the Economic Impact of Hurricane Hugo (with Dr. Fernando Zalacaín). Research Series of the Government Development Bank, December 1989.

Conferences, Seminars, and Workshops

- Workshop: Puerto Rico, Resiliency, and Solidarity- Meet up with the Diaspora. Graduate School of Planning, UPR and *Centro de Estudios Puertorriqueños*, June 15, 2018.
- Symposium: Planning and Resilient Recovery in Puerto Rico, Graduate School of Planning, UPR-FE<A, Thursday, May 17, 2018.
- International Conference – Recovery of Natural Disasters, Economy Department, UPR-RP, April 11, 2018.
- Deliver lecture on Reflections on Hurricane María. Government and Public Affairs Multidisciplinary Studies Center (CEMGAP, by its Spanish acronym), Law School, UPR, April 4, 2018.

- Puerto Rico Economists Association Annual Convention, Reconstructing Puerto Rico, August 2017.
- Puerto Rico Economic Development Forum. Puerto Rico Economists Association, May 19. 2017.
- Online Certification on Act 238 – Bill of Rights of Persons with Disabilities, Academic Excellence Center of the UPR, April 2017.
- Restructuring the Debt of Countries: Theory and Evidence. Puerto Rico Economists Association, January 25, 2017.
- Use of the Ipad in the Classroom. UPR, LabCAB. December 2017.
- Second Annual Conference Hermenegildo Quiñones: Mobility and Equity. October 26, 2016.
- Seminar of Ethic Conduct. Puerto Rico Senate. June 2016.
- Seminar on the Use of Information Systems and Social Networks Regarding Work. Puerto Rico Senate. June 2016.
- Forum on Labor Trends of the Puerto Rico Labor Market. Department of Labor and the Puerto Rico Economists Association. February 15, 2016.
- First Annual Conference Dr. Hermenegildo Ortiz, Moderator of the Financing and Government Operations Development Forum. University of Puerto Rico, *Río Piedras* Campus. November 2015.
- Puerto Rico Economists Association Annual Convention, August 2015. Moderator of the Public Debt Panel.
- Forum: Puerto Rico Develops. Puerto Rico Housing Department. August 3-5, 2015.
- Legislative Resources Seminar. Puerto Rico Senate. July 17, 2015.
- INPAE Conferences. Inclusion as a Criterion in Public Policies and Management. May 25-26, 2015.
- Tax Reform Forum Seminar, Certified Public Accountants Association, December 5, 2014.
- Seminar on Constitutional Aspects of Legislative Processes, October 10, 2014.
- Seminar on Functions and Procedures in the Commissions, Puerto Rico Senate, November 2013.
- Puerto Rico Economists Association Annual Convention, August 2014.
- Puerto Rico Economists Association Annual Convention, August 2013.
- Annual Convention of the Inter American Network on Public Administration Education, April 2012.
- Legislative Process Seminar: Legislative Services Office, Capitol Building, February 2013.
- Delivered lecture on Job Creation Sources in Puerto Rico (*Colectivo de Economistas*), Association of Municipal Legislators, September 2011.

- Delivered lecture: An Evaluation of Tax Reforms in Puerto Rico, October 2011. Economy Department, UPR, and Economy Students Association.
- Low-Income Housing Congress, Puerto Rico Bankers Association, September 2011.
- Puerto Rico Economists Association Annual Convention, Coordinator of Panel on Economic and Community Panel, August 2011.
- 2011 Tax Reform Conference. Inter American University and Accounting Students Association, March 2011.
- Delivered lecture on Legal Framework of Agencies Related to Economic Development. José M. Berrocal Institute, GDB, June 2010.
- Delivered lecture New Challenges of Municipal Economy In Face of the World Crisis in Times of Recession. Puerto Rico Associated Municipalities and Latin American Cities Symposium, March 2010.
- Information Competencies Integration Seminar. Center for Academic Excellence. Academic Affairs Deanship, UPR, August 2010.
- Open Source Workshop: Technological Tools for Professors and Researchers, Center for Academic Excellence, Academic Affairs Deanship, UPR. August 2010.
- Puerto Rico Economists Association Annual Convention, August 2010.
- Puerto Rico Economists Association Annual Convention, August 2009.
- Livable City Congress, Planning Society, August 2008.
- Regional Development Seminar and the Catastrophic Risks of Natural Events. Puerto Rico Economists Association, August 2008.
- Conference on SUT and Municipal Development, Puerto Rican Planning Society, 2007.
- Delivered lecture in Government Reform Forum: Repercussion, Challenges, and Projections for Puerto Rico, April 2007.
- Puerto Rico Economists Association Annual Convention, August 2006.
- Puerto Rico Economists Association Annual Convention, August 2005.
- Seminar on Supervision to Strengthen Productivity, Commonwealth Human Resources Office (ORHELA), July 2004.
- Puerto Rico Economists Association Annual Convention, August 2004.
- Puerto Rico Economists Association Annual Convention, August 2003.
- Statistics Seminar, Economic Commission for Latin America (ECLAC), Chile, 2003.
- Workshop of Citizens Participation as Planning Tool, Planning Society, November 2003.
- Tax Seminar: Tax Credits and Incentives Laws, Certified Public Accountant Association, 2003.
- Tax Seminar: Tax Credits and Incentives Laws, Certified Public Accountant Association, January 2002.
- Puerto Rico Economists Association Annual Convention, August 2002.
- Seminar on Case Law in Loss of Earnings Appraisals, Economists Association and Puerto Rico Bar Association.
- Workshop on Fundamentals of Community Development, Planning Society, May 2002.

- Delivered lecture on The Relationship of State and Enterprises with Research and Development. State Department, 2001.
- Project Management Course, University of New Orleans, April 2001
- Seminar on Tourism Policies and Strategies, Tourism World Organization, May 2001.
- Puerto Rico Economists Association Annual Convention, August 2001.
- Course: The Seven Habits of Highly Effective People, 2001.
- Leadership and Management Strategies to Develop the Institution of the Future, Quality Business Success, January 2000.
- Speed Reading Course, GDB, October 2000.
- Seminar on Tourism Satellite Accounts, Tourism World Organization, México, 1998.
- Delivered lecture on Challenges and Opportunities for the Economist Profession, UPR, Cayey Campus, September 1998.
- Economic Sciences Congress, Inter American University, Seminar for the Access Program, February 1997.
- Workshop on Economic Perspectives, PR Chamber of Commerce, 1996.
- Puerto Rico Economists Association Annual Convention, May 1995.
- Delivered lecture on The Contract with America. UPR, Economy Department, Mayagüez Campus, April 1995.
- Delivered lecture: Puerto Rico White House Conference on Travel and Tourism, March 1995.
- Workshop on Economic Perspectives, PR Chamber of Commerce, 1995.
- Delivered lecture: A New Policy Regime: The End of Incrementalism, National Association of Business Economist. Washington, March 1994.
- Seminar on REMI Econometric Model, University of Massachusetts, Amherst, MA, 1994.
- Puerto Rico Economists Association Annual Convention, May 1994.
- 1994 Tax Reform Forum. Puerto Rico Economists Association, November 1994.
- Delivered lecture on Outstanding Aspects of GDB's Performance, November 1994.
- Seminar on Financial Reports, Dun & Bradstreet, November 1994.
- Puerto Rico Economists Association Annual Convention, May 1993.
- Seminar on Opportunities for Investments and Project Development, October 1993.
- Seminar on Trade and Project Development, February 1993.
- Economic Perspectives Forum, PR Chamber of Commerce, 1993.
- Puerto Rico Economists Association Annual Convention, May 1992.
- Housing Seminar – CHAS, Washington, D.C., 1992.
- Seminar on Exports, World Trade Center, New York, 1989.
- Economic Perspectives Forum, PR Chamber of Commerce, January 1987,
- First Caribbean Basin Regional Conference, September 1986,
- American Economic Association Annual Conference, New Orleans, 1986,
- Tax Reform Seminar: Analysis and Scope, November 1984.
- Puerto Rico Economists Association Annual Convention, March, 1984.
- Seminar on Principles of Appraisal of Immovable Property. Treasury Department, 1983.

EXHIBIT O

GOBIERNO DE PUERTO RICO

Departamento de Recursos Naturales y Ambientales

OCT 0 3 2019

MAYRA MARRERO BERIO
URB LA SERRANÍA #216
CAGUAS PR 00725

Estimada señora Marrero Berio:

Certificación para Categorización de
Hábitats Naturales para Vida Silvestre
Vista al Norte
Calle Piedras Blancas
Bo. Camarones, Guaynabo
O-SE-CCH01-SJ-01605-27092019

El Departamento de Recursos Naturales y Ambientales (DRNA) evaluó una Solicitud de Certificación para Categorización de Hábitats Naturales para la Vida Silvestre para el proyecto de epígrafe. La misma fue evaluada de acuerdo con las disposiciones relacionadas con la fauna y la flora de la Ley 416 del 2004, según enmendada (*Ley Sobre Política Pública Ambiental*), su Reglamento 7948 de 2010 (*Reglamento de evaluación y trámite de documentos ambientales de la Junta de Calidad Ambiental*), la Ley 23 del 1972, según enmendada (*Ley Orgánica del Departamento de Recursos Naturales y Ambientales de Puerto Rico*), de la Ley 241 del 1999, según enmendada (*Nueva Ley de vida silvestre de Puerto Rico*) y sus Reglamentos 6765 de 2004 (*Reglamento para regir la conservación y el manejo de la vida silvestre, las especies exóticas y la caza en el Estado Libre Asociado de Puerto Rico*) y 6766 del 2004 (*Reglamento para regir las especies vulnerables y en peligro de extinción en el Estado Libre Asociado de Puerto Rico*), así como de la Orden Administrativa del DRNA 2010-09.

El predio del proyecto ocupa unos 1.7 cdas. Es un predio residencial donde la estructura existente fue abandonada y luego demolida. El predio quedo baldío y fue utilizado entonces como vertedero clandestino. Desarrolló un bosque secundario, pero (según foto satelital provista por el peticionario) a principios de este año la capa vegetal fue removida, como parte de los esfuerzos para remover los desperdicios sólidos depositados allí. No hay reportes de especies amenazadas ni en peligro de extinción. Se propone la construcción de un proyecto residencial multifamiliar de 102 unidades.

Como resultado de dicha evaluación, hemos calificado el predio como **Hábitat Natural con Bajo Potencial de Convertirse en Hábitat Esencial, de Alto Valor Ecológico o de Valor Ecológico (Categoría 6).** El Artículo 2.03 del Reglamento 6765, *supra*, establece lo siguiente para esta Categoría:

"La meta de la mitigación es minimizar el impacto al hábitat... y que evite el impacto a otro hábitat fuera del área a impactarse".

Este documento es una cualificación de los hábitats naturales sitos en el predio de epígrafe, requerida por los estatutos legales vigentes. **No constituye un permiso para la construcción u operación del proyecto propuesto.**

Esta certificación es solamente aplicable a la situación de hechos y los datos según presentados y evaluados en el caso y la Secretaria se reserva el derecho de evaluar, 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 de surgir nueva información oficial específica estableciendo que el derecho aplicable o las condiciones ambientales en el predio han cambiado sustancialmente o cuando la certificación original se emitió bajo premisas falsas o fraudulentas.

Si tiene alguna pregunta o necesita orientación sobre este asunto, puede escribirnos a la dirección indicada o comunicarse al teléfono 787-999-2200 extensiones 2834 y 2846.

Cordialmente,

Joanna C. Cepeda Díaz
Secretaria Interina de Permisos, Endosos y Servicios Especializados

JCCD/fgr

EXHIBIT P

ERTEC

REPORT
LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT (PHASE II ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER 235869

PREPARED FOR:

MR. SEGUNDO CARDONA, AIA
SCF ARQUITECTOS
POPULAR CENTER 8TH FLOOR
13 CALLE 2, SUITE 301 METRO OFFICE PARK
GUAYNABO, PUERTO RICO 00968

DATE PREPARED:

MARCH 29, 2023

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ACRONOMYS AND ABBREVIATIONS

DPT	Direct Push Technology
GPR	Ground Penetrating Radar
JSA	Job Safety Analysis
MDL	Method Detection Limit
Mg/Kg	Milligrams per kilogram
OVA	Organic Vapor Analyzer
PAH	Polyaromatic Hydrocarbon
PID	Photoionization detector
PPE	Personal Protective Equipment
PPM	Parts per million
PREQB	Puerto Rico Environmental Quality Board
QC	Quality Control
UST	Underground storage tank
VOC	Volatile Organic Compound

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REPORT
LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT (PHASE II ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER 235869

1.0 INTRODUCTION

On February 28, 2023, SCF Architects contracted ERTEC P.S.C. Environmental Consultants (**ERTEC**) services to conduct a Limited Phase II Environmental Site Assessment (Phase II ESA) at the proposed Condominio Vista al Norte Property located at Camino Piedras Blancas, Bo. Piedras Blancas, in the municipality of Guaynabo, Puerto Rico. Field activities were performed on March 15, 2023, by ERTEC personnel. This report presents a summary of site investigation activities and soil sampling analytical results.

1.1 Objective

The objective of the limited site investigation was to verify the possible presence of concentrations of volatile compounds associated with the operation of a former furniture manufacturing facility that operated at the site as par of the findings of a phase I ESA performed at site in 2019 that identified this former facility as a Recognized Environmental Condition (REC).

1.2 Limitations

This report was prepared by ERTEC for and is intended for the exclusive use of the Client, SCF Architects. The report's content may not be relied upon by any party other than the Client without the express written permission of ERTEC. The report's findings are based on conditions that existed at the time of ERTEC's conducted the investigation and should not be relied upon to precisely represent conditions at any other time. The conclusions included in this report are based on ERTEC's observation of existing site conditions, the results of a program of subsurface exploration, sample screening and chemical testing. The concentrations of compounds detected, if any, may not be representative of conditions between locations sampled. Be aware that conditions may change at any sampled or un-sampled locations as a function of time in response to natural conditions, chemical reactions, and/or other events.

Conclusions about site conditions under no circumstances comprise a warranty that conditions in all areas within the site and beneath structures are of the same quality as those sampled. Recognized, too, that other conditions may exist in forms not indicated by the investigation conducted by ERTEC.

The scope of service that ERTEC implemented was based, in part, on rules and regulations that ERTEC understood to be current or expected at the time that ERTEC developed its proposal. Changes in regulations, interpretations, and/or enforcement policies may occur at any time and such changes could affect the extent of investigation and remediation required, if deemed necessary.

1.3 Scope of Work

This Limited Phase II ESA consisted of the following tasks:

- Location of soil borings.
- Utility clearance at selected soil boring's location.

- Drilling of five (5) soil borings to a depth ranging from 4 of 12' feet with soil sample collection.
- Field screening of soil samples and selection of one (1) sample from each of the soil borings. The selected sample was the bottom sample or the sample showing the highest Organic Vapor Analyzer (OVA) readings under field screening.
- Conducting laboratory analysis of soils and QA/QC samples for the following parameter: volatile organic compounds (VOCs) by USEPA Method 8260B.

1.4 Report Organization

This report is organized into the following sections:

- **Section 2.0** Site Information;
- **Section 3.0** Investigation Procedures;
- **Section 4.0** Results of the Investigation;
- **Section 5.0** Conclusions and Recommendations; and
- **Section 6.0** References

2.0 SITE INFORMATION

2.1 Site Description

The subject property is located at Camino Piedras Blancas, Bo. Piedras Blancas, in the municipality of Guaynabo, Puerto Rico. The Site is currently a vacant lot covered in low- and high-rise vegetation. **Figure 1** presents the Site location on a U.S. Geological Survey Topographic Map (1:20,000 scale) of the Aguas Buenas Quadrangle. The Site is bordered to the North by vacant lot of “Discípulos de Cristo” Church and the Caribbean Consolidated Schools facility, to the south by Piedras Blancas road and Regency Park Condominium, to the east vacant lot and to the west by Piedras Blancas road. The Site topography elevation on the southern area of the site is approximately 55 meters above mean sea level (msl). The site slopes to the north to elevations of approximately 45 meters msl.

2.2 Topography

According to the USGS Topographic Map of the Aguas Buenas, Puerto Rico Quadrangle, the Site topography elevation on the southern area of the site is approximately 55 meters above mean sea level (msl). The site slopes to the north to elevations of approximately 45 meters msl.

3.0 INVESTIGATION PROCEDURES

The Limited Phase II ESA consisted of the drilling of five (5) soil borings for the collection of soil samples for field screening and laboratory analyses including QA/QC samples. Soil borings S-1 through S-5 were located in proximity of former building footprint.

3.1 Health and Safety Procedures

According to ERTEC Health and Safety Plan a daily safety meeting was conducted by Field Supervisor before the commencement of field work to identify, at a minimum, the following:

- Physical risks associated with activities to be performed (i.e., traffic control, proper use of equipment, emergency procedures, etc.)
- Potential chemical exposure risks to residual chemicals, and
- Possible physical risks associated with underground utilities.

During the safety meeting, field personnel was also instructed regarding the use of personal protective equipment (PPE) including safety glasses, hard hat, safety boots, reflective vest, ear plugs (“Level D”), name, address and telephone number of the nearest hospital, and the following safety concerns, among others: hand protection, traffic safety control, and emergency procedures.

The fieldwork was monitored to ensure that appropriate health and safety procedures were followed. No health or safety-related issues occurred during field activities. Field documentation including Safety Meeting Form, Job Safety Analysis (JSA) form, Field Equipment Calibration Forms and Subsurface Clearance Protocol Checklist form are included in **Appendix 5**.

3.2 Subsurface Clearance Procedures

Subsurface clearance of underground utilities was performed at soil boring location prior to drilling/soil sampling activities on March 15, 2023. The utility survey was performed with a Ground Penetrating Radar (GPR).

3.3 Drilling and Soil Sampling Procedures

Five (5) soil borings identified as S-1 through S-5 were drilled as part of the investigation (refer to **Figure 2**) on March 15, 2023. Drilling and soil sampling activities were performed using Direct Push Technology (DPT) with a Geoprobe 7822DT drill rig. Continuous soil samples were collected and retrieved within a polyethylene liner inside a Macrocore system at two-foot intervals until reaching a depth of 12-feet below ground surface or until boring refusal. Samples depths ranged from 4 to 12 feet depending on the soil resistance. A total of twenty-two (22) soil samples were obtained from the drilling activities. Physical description of soil samples, sample collection time, and sample depths were recorded by ERTEC's field personnel on soil borings logs included in **Appendix 1**.

Soil materials from each depth interval were screened directly from the core liner with a portable Organic Vapor Analyzer – Photoionization Detector (OVA-PID) instrument. The OVA-PID instrument was calibrated prior to soil sampling procedures (refer to **Appendix 5**). PID readings were recorded in soil borings log for each soil boring drilled at Site (refer to **Appendix 1**). Soil sample with the highest PID reading were selected for laboratory analyses.

Soil borings were grouted with a mixture of cement/water until ground surface after completion of soil sampling activities.

3.4 Quality Assurance/Quality Control (QC) Samples

QA/QC samples collected during soil sampling activities included the following:

- One duplicate soil sample obtained from sample **S-1 (10-12')** identified as **S-A**.
- One field blank identified as **FB-031523** was collected during soil sampling activities.
- One trip blank identified as **TB-031523** was included in sample cooler with soil and QC samples until delivery to Pace Analytical Service, Inc. laboratory service center in Guaynabo, Puerto Rico.
- One equipment blank identified as **EB-031523** was collected before soil sampling activities.

For Standard operating procedures and QA/QC standards used refer to **Appendix 4.**

3.5 Decontamination Procedures

Non-disposable equipment used during soil sampling activities (drilling tools) were decontaminated by washing with low-phosphate detergent (e.g., Alconox®), rinsed with tap water, and thoroughly rinse with distilled water.

3.6 Management of Investigation-Derived Waste (IDW)

Drill soil cuttings were deposited back into borehole. Discarded liners/spatulas were disposed in plastic bags and later disposed of as common trash.

3.7 Laboratory Analysis

ERTEC field personnel performed the drilling and soil sampling activities at Site and provided custody of soil and QC samples until delivery to Pace Laboratories service center in Guaynabo, Puerto Rico on March 15, 2023. Soil samples were kept on ice

during sampling and transport to the laboratory service center. Proper chain of custody documentation accompanied the sample until delivery to laboratory service center. Copy of the chain of custody form is included in **Appendix 2**.

Soil and QC samples collected during limited soil investigation activities were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260C

Trip blank was also analyzed for VOCs. The list of analytical parameters including the Method Detection Limit (MDL) for soil samples is provided in **Table 2**.

4.0 RESULTS OF THE INVESTIGATION

This section presents the results of the field activities performed to the compounds analyzed at the Site.

4.1 Field Observations

Based on soil descriptions prepared during the soil boring program, the soil beneath the explorations consisted of grey and brown, soft, sandy silt, silt, and rock fragments with dry consistency. **Appendix 1** presents the soil boring logs prepared during drilling activities.

In addition, VOCs readings were collected with a portion of each sample that were field checked with a portable Organic Vapor Analyzer. The sample from each soil boring showing the highest OVA readings were selected for laboratory analysis. VOCs readings are summarized in **Table 1**. As can be observed in **Table 1**, VOCs readings ranged from 0.0 ppm to 1.3 ppm. Samples showing the highest ppm reading, or the immediate sample with enough sample volume, or the bottom sample of the exploration if undetected VOCs concentrations were found, were selected for laboratory analysis.

4.2 Analytical Results – Soil Samples

Analytical results are summarized in **Table 2**. Laboratory reports are included in **Appendix 3**.

The results obtained were compared against the Regional Screening Levels (SLs) published by EPA version of November 2022. The RSLs are EPA criteria to trigger remediation activities. As can be observed in **Table 2**, none of the samples collected exceeded the EPA RSLs for VOCs.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the investigation ERTEC considers that the RECs detected at the 2019 Phase I ESA did not have impact over the Site. ERTEC does not recommend additional activities to characterize the Site except to use this report as a baseline of the conditions when the Site was acquired.

6.0 REFERENCES

- 1964, United States Geological Survey, Topographic Map of the Aguas Buenas, Puerto Rico Quadrangle, Puerto Rico. 7.5 Minute Series (Topographic), 1 plate.

- EPA, 2023, Regional Screening Levels Summary Table, 20pp.

FIGURES

LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT (PHASE II ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER 235869

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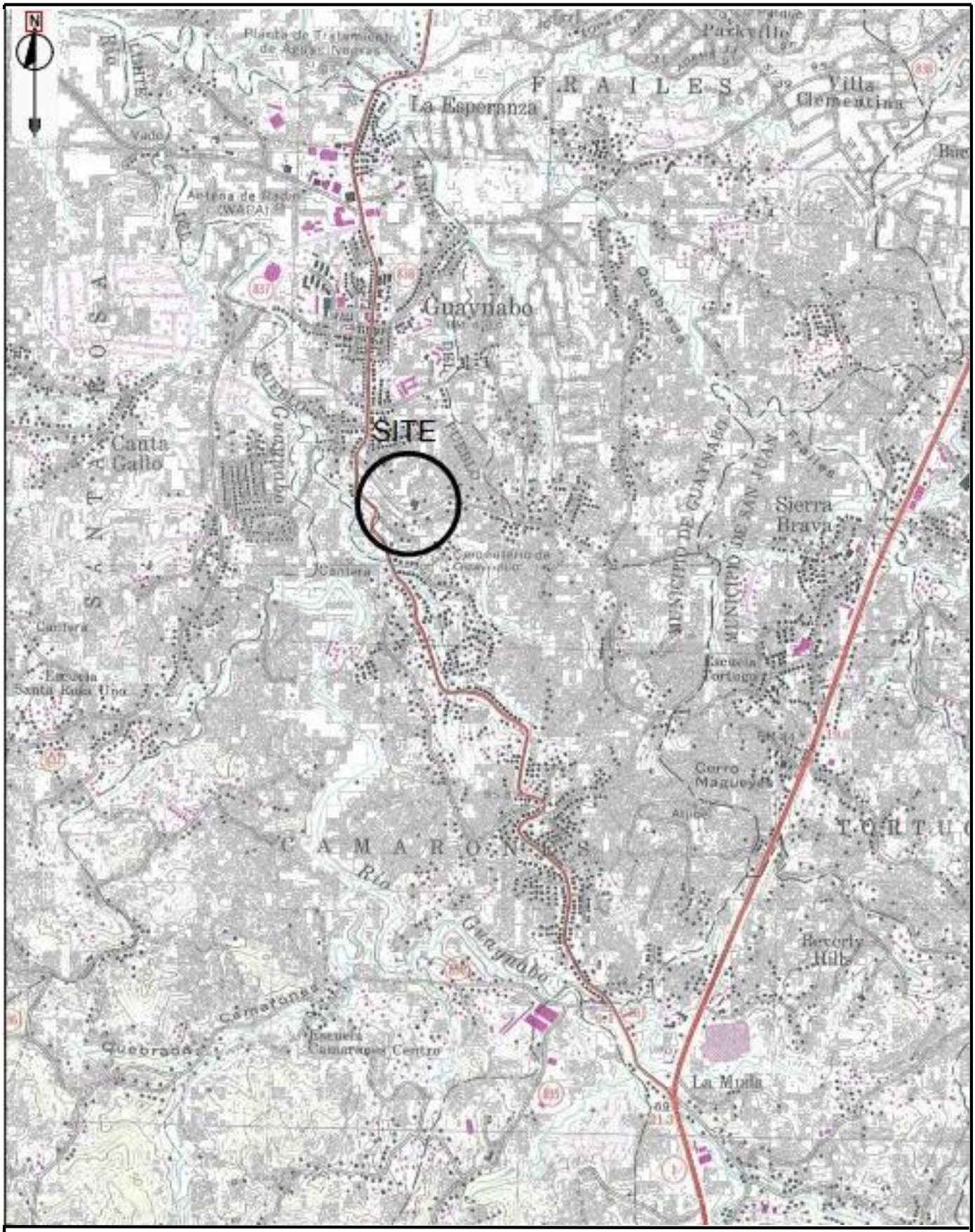

(U.S.G.S. Topographic Map of the Aguas Buenas, Puerto Rico Quadrangle, 1977 revised 1982)

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FIGURE 1 SITE LOCATION MAP
CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO
ERTEC PROJECT NUMBER E-235869



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FIGURE 2 SOIL BORINGS LOCATION
CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO
ERTEC PROJECT NUMBER-E235869

TABLES

LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT (PHASE II ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER 235869

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TABLE 1
SUMMARY FIELD SCREENING RESULTS
SOIL SAMPLES (ppm)
LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT
CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO
PROJECT NUMBER: E 235869

Sample Depth (ft)	Soil Boring No.				
	S-1	**S-2**	**S-3**	**S-4**	**S-5**
0-2'	0.0	0.0	0.0	0.0	0.0
2-4'	0.0	0.0	0.0	0.0	0.0
4-6'	0	**0.0**	**0.0**	0.0	0.0
6-8'	0	NM	NM	**0.0**	0.0
8-10'	0.6	NM	NM	NM	0.0
10-12'	**1.3**	NM	NM	NM	**0.0**

Notes Samples in bold were selected for laboratory analysis.
ND- Not Detected
NM- Not Measured
ft Feet
ppm Parts Per Million

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TABLE 2
SUMMARY LABORATORY ANALYSIS RESULTS
LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT
CONDOMINIO VISTA AL NORTE
GUAYNABO, PUERTO RICO
PROJECT NUMBER : E235869

Sample No.	Method	EPA Soil Screening Levels 2022		S-1 (10'-12')	S-A*	S-2 (4' -6')	S-3 (4'-6')	S-4 (6'-8')	S-5 (6'-8')
Date				3/15/2023	3/15/2023	3/15/2023	3/15/2023	3/15/2023	3/15/2023
Units		Residential	Industrial	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
VOCs									
Acetone	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
1,1,1-Trichlorethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
1,1-Dicholorethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropanone	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
1,2-Dibromomethane (EDB)	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
2-Hexanone	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Benzene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Bromodichloromethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Bromoform	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Bromomethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Carbon disulfide	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Cgloromethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Chlorobenzene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Chloroethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Chloroform	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
cis-1,2-Dichlorethene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Dibromochlormethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Ethylbenzene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Isopropylbenzene (Cumene)	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
m&p-Xylene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Methyl acetate	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Methylene chloride	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Methyl-tert-butyl ether	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
o-Xylene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Styrene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Tetrachloroethene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Toluene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND
Vynil chloride	8260	Not Necessary	Not Necessary	ND	ND	ND	ND	ND	ND

Legend

ND Not Detected

VOCs Volatile Organic Compounds

ug/kg Micrograms per Kilograms

S Soil Boring

* S-A Duplicate S-1 (10' - 12")

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APPENDIX 1

SOIL BORINGS LOGS

LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT (PHASE II ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER 235869

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ENVIRONMENTAL
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BORING LOG

JOB NO. : 235869 **BORING NO. : S-1**

PROJECT : PHASE II CONDOMINIO VISTA AL NORTE

LOCATION : GUAYNABO, PUERTO RICO

CLIENT : SCF ARQUITECTOS

TOTAL DEPTH :	12 FT	DRILL RIG :	GEOPROBE	DRILLER :	AURIO CLAUDIO
SURFACE ELEV. :	NA	DRILL METHOD :	DIRECT PUSH	LOGGED BY :	JOSE L. RIVERA
WATER ELEV. :	NA	SAMPLER :	MACRO-CORE	DATE STARTED :	03/15/2023
ELAPSED TIME :	NA	HAMMER WEIGHT :	N/A	DATE ENDED :	03/15/2023

WATER LEVEL	FEET	METER	SAMPLES	BLOWS (per 6 in.)	RECOVERY	PID (ppm) 0 2000 / DT (ppm) 0 2000	GRAPHIC LOG	DESCRIPTION	TIME COLLECTED	PID (PPM)	DT (PPM)	TIME READ PID or DT
	0	0	-	DPT	24"			Silty clay, rock fragment, sandy silt, brown, soft	-	0.0	-	-
			-	DPT	24"			Sandy silt, Greenish brown, soft, dry	-	0.0	-	-
	5	1	-	DPT	24"			Silt, fine sand, brown, soft, dry	-	0.1	-	-
			-	DPT	24"			Sandy silt, fine sand, light grey, soft, dry	-	0.3	-	-
	10	2	-	DPT	12"			Rock fragment, sandy silt, brown, greenish brown, soft, dry	-	0.6	-	-
			-	DPT	12"			Rock fragment, sandy silt, greenish grey, brown, soft dry	-	1.3	-	-
	15	3						END OF BORING 12 FEET				
		4										
	20	5										
		6										
	25	7										

NOTE: ALL DEPTH REFERRED TO EXISTING GRADE

COMMENTS: FT.-FEET, DPT- DIRECT PUSH TECHNOLOGIES, *SAMPLE TO LABORATORY, N/A- NOT APPLICABLE

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ENVIRONMENTAL RESOURCE TECHNOLOGIES

BORING LOG

JOB NO. : 235869 **BORING NO. : S-2**

PROJECT : PHASE II CONDOMINIO VISTA AL NORTE

LOCATION : GUAYNABO, PUERTO RICO

CLIENT : SCF ARQUITECTOS

TOTAL DEPTH :	6FT	DRILL RIG :	GEOPROBE	DRILLER :	AURIO CLAUDIO
SURFACE ELEV. :	NA	DRILL METHOD :	DIRECT PUSH	LOGGED BY :	JOSE L. RIVERA
WATER ELEV. :	NA	SAMPLER :	MACRO-CORE	DATE STARTED :	03/15/2023
ELAPSED TIME :	NA	HAMMER WEIGHT :	N/A	DATE ENDED :	03/15/2023

WATER LEVEL	FEET	METER	SAMPLES	BLOWS (per 6 in.)	RECOVERY	PID (ppm) 0 2000 / DT (ppm) 0 2000	GRAPHIC LOG	DESCRIPTION	TIME COLLECTED	PID (PPM)	DT (PPM)	TIME READ PID or DT
	0	0	-	DPT	24"			3" Silt, brown, rock fragment, sandy silt, grey	-	0.0	-	-
		1	-	DPT	24"			Rock fragment, sandy silt, brown, soft, dry	-	0.0	-	-
	5	2	-	DPT	24"			Same as above	-	0.0	-	-
								END OF BORING 6 FEET				
	10	3										
		4										
	15	5										
		6										
	20	7										
	25											

NOTE: ALL DEPTH REFERRED TO EXISTING GRADE

COMMENTS: FT.-FEET, DPT- DIRECT PUSH TECHNOLOGIES, *SAMPLE TO LABORATORY, N/A- NOT APPLICABLE

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ENVIRONMENTAL RESOURCE TECHNOLOGIES

BORING LOG

JOB NO. : 235869 **BORING NO. : S-3**

PROJECT : PHASE II CONDOMINIO VISTA AL NORTE

LOCATION : GUAYNABO, PUERTO RICO

CLIENT : SCF ARQUITECTOS

TOTAL DEPTH :	6FT	DRILL RIG :	GEOPROBE	DRILLER :	AURIO CLAUDIO
SURFACE ELEV. :	NA	DRILL METHOD :	DIRECT PUSH	LOGGED BY :	JOSE L. RIVERA
WATER ELEV. :	NA	SAMPLER :	MACRO-CORE	DATE STARTED :	03/15/2023
ELAPSED TIME :	NA	HAMMER WEIGHT :	N/A	DATE ENDED :	03/15/2023

WATER LEVEL	FEET	METER	SAMPLES	BLOWS (per 6 in.)	RECOVERY	PID (ppm) 0 2000 / DT (ppm) 0 2000	GRAPHIC LOG	DESCRIPTION	TIME COLLECTED	PID (PPM)	DT (PPM)	TIME READ PID or DT
	0	0	-	DPT	20"			Rock fragment, grey, brown, sand, soft, dry	-	0.0	-	-
		1	-	DPT	24"			Rock fragment, sandy silt, soft, dry, grey	-	0.0	-	-
	5	2	-	DPT	24"			Rock fragment, sandy silt, medium, soft, dry	-	0.0	-	-
								END OF BORING 6 FEET				
	10	3										
		4										
	15	5										
		6										
	20	7										
	25											

NOTE: ALL DEPTH REFERRED TO EXISTING GRADE

COMMENTS: FT.-FEET, DPT- DIRECT PUSH TECHNOLOGIES, *SAMPLE TO LABORATORY, N/A- NOT APPLICABLE

ERTEC
ENVIRONMENTAL RESOURCE TECHNOLOGIES

BORING LOG

JOB NO. : 235869 **BORING NO. : S-4**

PROJECT : PHASE II CONDOMINIO VISTA AL NORTE

LOCATION : GUAYNABO, PUERTO RICO

CLIENT : SCF ARQUITECTOS

TOTAL DEPTH :	8FT	DRILL RIG :	GEOPROBE	DRILLER :	AURIO CLAUDIO
SURFACE ELEV. :	NA	DRILL METHOD :	DIRECT PUSH	LOGGED BY :	JOSE L. RIVERA
WATER ELEV. :	NA	SAMPLER :	MACRO-CORE	DATE STARTED :	03/15/2023
ELAPSED TIME :	NA	HAMMER WEIGHT :	N/A	DATE ENDED :	03/15/2023

WATER LEVEL	FEET	METER	SAMPLES	BLOWS (per 6 in.)	RECOVERY	PID (ppm) 0 2000 / DT (ppm) 0 2000	GRAPHIC LOG	DESCRIPTION	TIME COLLECTED	PID (PPM)	DT (PPM)	TIME READ PID or DT
	0	0	-	DPT	24"			Silt, brown, soft, dry	-	0.0	-	-
		1	-	DPT	24"			Rock fragment, sandy silt, grey, soft, dry	-	0.0	-	-
	5	2	-	DPT	12"			Rock fragment, sandy silt,grey, soft, dry	-	0.0	-	-
			-	DPT	24"			Rock fragment, sandy silt,grey, soft, dry	-	0.0	-	-
	10	3						END OF BORING 8 FEET				
	15	4										
		5										
	20	6										
		7										
	25											

NOTE: ALL DEPTH REFERRED TO EXISTING GRADE

COMMENTS: FT.-FEET, DPT- DIRECT PUSH TECHNOLOGIES, *SAMPLE TO LABORATORY,N/A- NOT APPLICABLE

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ENVIRONMENTAL RESOURCE TECHNOLOGIES

BORING LOG

JOB NO. : 235869 **BORING NO. : S-5**

PROJECT : PHASE II CONDOMINIO VISTA AL NORTE

LOCATION : GUAYNABO, PUERTO RICO

CLIENT : SCF ARQUITECTOS

TOTAL DEPTH :	12FT	DRILL RIG :	GEOPROBE	DRILLER :	AURIO CLAUDIO
SURFACE ELEV. :	NA	DRILL METHOD :	DIRECT PUSH	LOGGED BY :	JOSE L. RIVERA
WATER ELEV. :	NA	SAMPLER :	MACRO-CORE	DATE STARTED :	03/15/2023
ELAPSED TIME :	NA	HAMMER WEIGHT :	N/A	DATE ENDED :	03/15/2023

WATER LEVEL	FEET	METER	SAMPLES	BLOWS (per 6 in.)	RECOVERY	PID (ppm) 0 2000 / DT (ppm) 0 2000	GRAPHIC LOG	DESCRIPTION	TIME COLLECTED	PID (PPM)	DT (PPM)	TIME READ PID or DT
	0	0	-	DPT	24"			Silty sand, brown, soft, dry	-	0.0	-	-
		1	-	DPT	24"			Rock fragment, silty sand, grey, soft, dry	-	0.0	-	-
	5		-	DPT	24"			Sandy silt, reddish brown, rock fragment, grey, soft, dry	-	0.0	-	-
		2	-	DPT	24"			Sandy silt, reddish brown, rock fragment, grey, soft, dry	-	0.0	-	-
			-	DPT	24"			Rock fragment, sandy silt, reddish brown, soft, dry	-	0.0	-	-
	10	3	-	DPT	24"			Rock fragment, silty sand, grey, medium, soft, dry	-	0.0	-	-
		4						END OF BORING 12 FEET				
	15											
		5										
	20	6										
		7										
	25											

NOTE: ALL DEPTH REFERRED TO EXISTING GRADE

COMMENTS: FT.-FEET, DPT- DIRECT PUSH TECHNOLOGIES, *SAMPLE TO LABORATORY, N/A- NOT APPLICABLE

APPENDIX 2

CHAIN OF CUSTODY FORM

LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT (PHASE II ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER 235869

ERTEC

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: ERTEC	Billing Information:
Address: [illegible]	
Report To: [illegible]	Email To: [illegible]
Copy To: [illegible]	Site Collection Info/Address:
Customer Project Name/Number: [illegible]	State: NM / County/City: / Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET
Phone: [illegible] Email: [illegible]	Site/Facility ID #: / Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): [illegible]	Purchase Order #: / Quote #: / DW PWS ID #: / DW Location Code:
Collected By (signature): [illegible]	Turnaround Date Required: STD / Immediately Packed on Ice: [ ] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) / Field Filtered (if applicable): [ ] Yes [ ] No / Analysis: _____

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips: _____	
Sample pH Acceptable	Y N NA
pH Strips: _____	
Sulfide Present	Y N NA
Lead Acetate Strips: _____	

LAB USE ONLY:
Lab Sample # / Comments:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses
TB 031523	WT	G/A			3/15/23	0600		3	X
EB 031523	WT	G/A			3/15/23	0820		3	X
~~SP~~ S-1 (10-12)	SL	G/A			3/15/23	0900		1	X
S-A	SL	G/A			3/15/23	0910		1	X
S-2 (4-6)	SL	G/A			3/15/23	0955		1	X
S-3 (4-6)	SL	G/A			3/15/23	1020		1	X
S-4 (5-8)	SL	G/A			3/15/23	1045		1	X
S-5 (10-12)	SL	G/A			3/15/23	1115		1	X
FB 031523	WT	G/A			3/15/23	1140		3	X

Customer Remarks / Special Conditions / Possible Hazards:

Level II

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2815709

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:

Relinquished by/Company: (Signature) [illegible] ERTEC	Date/Time: 3-15-23	Received by/Company: (Signature) [illegible]	Date/Time: 3-15-23
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: _____ of: _____

APPENDIX 3

ANALYTICAL LABORATORY REPORTS

LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT (PHASE II ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER 235869

ERTEC

March 24, 2023

Jose Agrelot
ERTEC
P.O. Box 195336
San Juan, PR 009195336

RE: Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Dear Jose Agrelot:

Enclosed are the analytical results for sample(s) received by the laboratory on March 15, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:
- Pace Analytical Services - New Orleans

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Juan Redondo
juan.redondo@pacelabs.com
(787)720-0319
Project Manager

Enclosures

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CERTIFICATIONS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Pace Analytical Services New Orleans

Florida Department of Health (NELAC): E87595
Illinois Environmental Protection Agency: 0025721
Kansas Department of Health and Environment (NELAC): E-10266
Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006
Texas Commission on Env. Quality (NELAC): T104704405-09-TX
U.S. Dept. of Agriculture Foreign Soil Import: P330-10-00119

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Lab ID	Sample ID	Matrix	Date Collected	Date Received
20272227001	TB 031523	Water	03/15/23 06:00	03/15/23 14:48
20272227002	EB 031523	Water	03/15/23 08:20	03/15/23 14:48
20272227003	S-1 (10-12')	Solid	03/15/23 09:02	03/15/23 14:48
20272227004	S-A	Solid	03/15/23 09:10	03/15/23 14:48
20272227005	S-2 (4-6')	Solid	03/15/23 09:55	03/15/23 14:48
20272227006	S-3 (4-6')	Solid	03/15/23 10:20	03/15/23 14:48
20272227007	S-4 (6-8')	Solid	03/15/23 10:45	03/15/23 14:48
20272227008	S-5 (10-12')	Solid	03/15/23 11:15	03/15/23 14:48
20272227009	FB 031523	Water	03/15/23 11:40	03/15/23 14:48

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SAMPLE ANALYTE COUNT

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
20272227001	**TB 031523**	EPA 5030B/8260	SLK	45	PASI-N
20272227002	**EB 031523**	EPA 5030B/8260	SLK	45	PASI-N
20272227003	**S-1 (10-12')**	EPA 8260	JRP	45	PASI-N
20272227004	**S-A**	EPA 8260	JRP	45	PASI-N
20272227005	**S-2 (4-6')**	EPA 8260	JRP	45	PASI-N
20272227006	**S-3 (4-6')**	EPA 8260	JRP	45	PASI-N
20272227007	**S-4 (6-8')**	EPA 8260	JRP	45	PASI-N
20272227008	**S-5 (10-12')**	EPA 8260	JRP	45	PASI-N
20272227009	**FB 031523**	EPA 5030B/8260	SLK	45	PASI-N

PASI-N = Pace Analytical Services - New Orleans

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PROJECT NARRATIVE

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Method: **EPA 8260**
Description: 8260 MSV 5035 Low Level
Client: ERTEC
Date: March 24, 2023

General Information:
6 samples were analyzed for EPA 8260 by Pace Analytical Services New Orleans. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 5035/5030B with any exceptions noted below.

Initial Calibrations (Including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 281622

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20272227008

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1348981)
  - 1,2-Dibromoethane (EDB)
  - 1,2-Dichloropropane
  - Chlorobenzene
  - Dibromochloromethane

R1: RPD value was outside control limits.

- MSD (Lab ID: 1348982)
  - 1,1,2,2-Tetrachloroethane
  - 1,1,2-Trichloroethane

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PROJECT NARRATIVE

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Method: **EPA 8260**
Description: 8260 MSV 5035 Low Level
Client: ERTEC
Date: March 24, 2023

QC Batch: 281622

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 20272227008

R1: RPD value was outside control limits.

- 1,1-Dichloroethane
- 1,2-Dibromo-3-chloropropane
- 1,2-Dibromoethane (EDB)
- 1,2-Dichloroethane
- 1,2-Dichloropropane
- 2-Butanone (MEK)
- 2-Hexanone
- 4-Methyl-2-pentanone (MIBK)
- Acetone
- Benzene
- Bromodichloromethane
- Bromoform
- Chlorobenzene
- Chloroform
- Dibromochloromethane
- Ethylbenzene
- Isopropylbenzene (Cumene)
- Methyl acetate
- Methyl-tert-butyl ether
- Methylene Chloride
- Styrene
- Tetrachloroethene
- Toluene
- Trichloroethene
- cis-1,2-Dichloroethene
- cis-1,3-Dichloropropene
- m&p-Xylene
- o-Xylene
- trans-1,3-Dichloropropene

Additional Comments:

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PROJECT NARRATIVE

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Method: **EPA 5030B/8260**
Description: 8260 MSV Low Level
Client: ERTEC
Date: March 24, 2023

General Information:
3 samples were analyzed for EPA 5030B/8260 by Pace Analytical Services New Orleans. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: TB 031523 **Lab ID: 20272227001** Collected: 03/15/23 06:00 Received: 03/15/23 14:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 5030B/8260 Pace Analytical Services - New Orleans								
Acetone	**18.9**	ug/L	4.0	2.0	1		03/23/23 15:08	67-64-1	
Benzene	ND	ug/L	0.50	0.16	1		03/23/23 15:08	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	0.12	1		03/23/23 15:08	75-27-4	
Bromoform	ND	ug/L	1.0	0.58	1		03/23/23 15:08	75-25-2	
Bromomethane	ND	ug/L	0.50	0.25	1		03/23/23 15:08	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	0.50	1		03/23/23 15:08	78-93-3	
Carbon disulfide	ND	ug/L	1.0	0.38	1		03/23/23 15:08	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	0.078	1		03/23/23 15:08	56-23-5	
Chlorobenzene	ND	ug/L	0.50	0.14	1		03/23/23 15:08	108-90-7	
Chloroethane	ND	ug/L	0.50	0.47	1		03/23/23 15:08	75-00-3	
Chloroform	ND	ug/L	0.50	0.18	1		03/23/23 15:08	67-66-3	
Chloromethane	ND	ug/L	0.50	0.17	1		03/23/23 15:08	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	0.20	0.10	1		03/23/23 15:08	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	0.12	1		03/23/23 15:08	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.14	1		03/23/23 15:08	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	0.23	1		03/23/23 15:08	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	0.21	1		03/23/23 15:08	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	0.35	1		03/23/23 15:08	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	0.21	1		03/23/23 15:08	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.35	1		03/23/23 15:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.22	1		03/23/23 15:08	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	0.15	1		03/23/23 15:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.18	1		03/23/23 15:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.26	1		03/23/23 15:08	10061-02-6	
Ethylbenzene	ND	ug/L	0.50	0.17	1		03/23/23 15:08	100-41-4	
2-Hexanone	ND	ug/L	1.0	0.37	1		03/23/23 15:08	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	0.13	1		03/23/23 15:08	98-82-8	
Methyl acetate	ND	ug/L	2.0	1.3	1		03/23/23 15:08	79-20-9	
Methylene Chloride	ND	ug/L	0.50	0.50	1		03/23/23 15:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	0.64	1		03/23/23 15:08	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	0.16	1		03/23/23 15:08	1634-04-4	
Styrene	ND	ug/L	1.0	0.14	1		03/23/23 15:08	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.24	1		03/23/23 15:08	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	0.14	1		03/23/23 15:08	127-18-4	
Toluene	ND	ug/L	0.50	0.17	1		03/23/23 15:08	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.17	1		03/23/23 15:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.27	1		03/23/23 15:08	79-00-5	
Trichloroethene	ND	ug/L	0.50	0.21	1		03/23/23 15:08	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.58	1		03/23/23 15:08	75-69-4	
Vinyl chloride	ND	ug/L	0.50	0.16	1		03/23/23 15:08	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.24	1		03/23/23 15:08	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.15	1		03/23/23 15:08	95-47-6	
Surrogates									
Dibromofluoromethane (S)	96	%.	72-126		1		03/23/23 15:08	1868-53-7	
4-Bromofluorobenzene (S)	97	%.	68-124		1		03/23/23 15:08	460-00-4	

REPORT OF LABORATORY ANALYSIS

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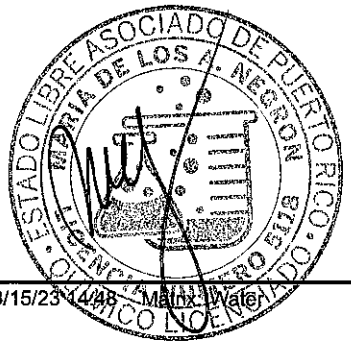

ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: TB 031523 **Lab ID: 20272227001** Collected: 03/15/23 06:00 Received: 03/15/23 14:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 5030B/8260 Pace Analytical Services - New Orleans								
Surrogates									
Toluene-d8 (S)	101	%.	79-119		1		03/23/23 15:08	2037-26-5	

Sample: EB 031523 **Lab ID: 20272227002** Collected: 03/15/23 08:20 Received: 03/15/23 14:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 5030B/8260 Pace Analytical Services - New Orleans								
Acetone	ND	ug/L	4.0	2.0	1		03/23/23 15:28	67-64-1	
Benzene	ND	ug/L	0.50	0.16	1		03/23/23 15:28	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	0.12	1		03/23/23 15:28	75-27-4	
Bromoform	ND	ug/L	1.0	0.58	1		03/23/23 15:28	75-25-2	
Bromomethane	ND	ug/L	0.50	0.25	1		03/23/23 15:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	0.50	1		03/23/23 15:28	78-93-3	
Carbon disulfide	ND	ug/L	1.0	0.38	1		03/23/23 15:28	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	0.078	1		03/23/23 15:28	56-23-5	
Chlorobenzene	ND	ug/L	0.50	0.14	1		03/23/23 15:28	108-90-7	
Chloroethane	ND	ug/L	0.50	0.47	1		03/23/23 15:28	75-00-3	
Chloroform	ND	ug/L	0.50	0.18	1		03/23/23 15:28	67-66-3	
Chloromethane	ND	ug/L	0.50	0.17	1		03/23/23 15:28	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	0.20	0.10	1		03/23/23 15:28	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	0.12	1		03/23/23 15:28	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.14	1		03/23/23 15:28	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	0.23	1		03/23/23 15:28	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	0.21	1		03/23/23 15:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	0.35	1		03/23/23 15:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	0.21	1		03/23/23 15:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.35	1		03/23/23 15:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.22	1		03/23/23 15:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	0.15	1		03/23/23 15:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.18	1		03/23/23 15:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.26	1		03/23/23 15:28	10061-02-6	
Ethylbenzene	ND	ug/L	0.50	0.17	1		03/23/23 15:28	100-41-4	
2-Hexanone	ND	ug/L	1.0	0.37	1		03/23/23 15:28	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	0.13	1		03/23/23 15:28	98-82-8	
Methyl acetate	ND	ug/L	2.0	1.3	1		03/23/23 15:28	79-20-9	
Methylene Chloride	ND	ug/L	0.50	0.50	1		03/23/23 15:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	0.64	1		03/23/23 15:28	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	0.16	1		03/23/23 15:28	1634-04-4	
Styrene	ND	ug/L	1.0	0.14	1		03/23/23 15:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.24	1		03/23/23 15:28	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	0.14	1		03/23/23 15:28	127-18-4	

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ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: EB 031523 **Lab ID: 20272227002** Collected: 03/15/23 08:20 Received: 03/15/23 14:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 5030B/8260 Pace Analytical Services - New Orleans								
Toluene	ND	ug/L	0.50	0.17	1		03/23/23 15:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.17	1		03/23/23 15:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.27	1		03/23/23 15:28	79-00-5	
Trichloroethene	ND	ug/L	0.50	0.21	1		03/23/23 15:28	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.58	1		03/23/23 15:28	75-69-4	
Vinyl chloride	ND	ug/L	0.50	0.16	1		03/23/23 15:28	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.24	1		03/23/23 15:28	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.15	1		03/23/23 15:28	95-47-6	
Surrogates									
Dibromofluoromethane (S)	96	%.	72-126		1		03/23/23 15:28	1868-53-7	
4-Bromofluorobenzene (S)	100	%.	68-124		1		03/23/23 15:28	460-00-4	
Toluene-d8 (S)	99	%.	79-119		1		03/23/23 15:28	2037-26-5	

Sample: S-1 (10-12') **Lab ID: 20272227003** Collected: 03/15/23 09:02 Received: 03/15/23 14:48 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
Acetone	ND	ug/kg	10.9	4.8	1	03/21/23 12:00	03/21/23 17:32	67-64-1	
Benzene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:32	71-43-2	
Bromodichloromethane	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	75-27-4	
Bromoform	ND	ug/kg	5.5	1.8	1	03/21/23 12:00	03/21/23 17:32	75-25-2	
Bromomethane	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	74-83-9	
2-Butanone (MEK)	ND	ug/kg	10.9	3.2	1	03/21/23 12:00	03/21/23 17:32	78-93-3	
Carbon disulfide	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.5	1.2	1	03/21/23 12:00	03/21/23 17:32	56-23-5	
Chlorobenzene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	108-90-7	
Chloroethane	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 17:32	75-00-3	
Chloroform	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:32	67-66-3	
Chloromethane	ND	ug/kg	5.5	1.3	1	03/21/23 12:00	03/21/23 17:32	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.5	2.0	1	03/21/23 12:00	03/21/23 17:32	96-12-8	
Dibromochloromethane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:32	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:32	106-93-4	
Dichlorodifluoromethane	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 17:32	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:32	10061-02-6	

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ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: S-1 (10-12') **Lab ID: 20272227003** Collected: 03/15/23 09:02 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
Ethylbenzene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:32	100-41-4	
2-Hexanone	ND	ug/kg	10.9	2.4	1	03/21/23 12:00	03/21/23 17:32	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:32	98-82-8	
Methyl acetate	ND	ug/kg	10.9	2.2	1	03/21/23 12:00	03/21/23 17:32	79-20-9	
Methylene Chloride	ND	ug/kg	5.5	5.1	1	03/21/23 12:00	03/21/23 17:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	10.9	2.0	1	03/21/23 12:00	03/21/23 17:32	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	1634-04-4	
Styrene	ND	ug/kg	5.5	1.8	1	03/21/23 12:00	03/21/23 17:32	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.5	2.1	1	03/21/23 12:00	03/21/23 17:32	79-34-5	
Tetrachloroethene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	127-18-4	
Toluene	ND	ug/kg	5.5	2.3	1	03/21/23 12:00	03/21/23 17:32	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 17:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	79-00-5	
Trichloroethene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:32	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.5	1.3	1	03/21/23 12:00	03/21/23 17:32	75-69-4	
Vinyl chloride	ND	ug/kg	2.2	1.2	1	03/21/23 12:00	03/21/23 17:32	75-01-4	
m&p-Xylene	ND	ug/kg	10.9	3.5	1	03/21/23 12:00	03/21/23 17:32	179601-23-1	
o-Xylene	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:32	95-47-6	
Surrogates									
Toluene-d8 (S)	98	%.	75-125		1	03/21/23 12:00	03/21/23 17:32	2037-26-5	
4-Bromofluorobenzene (S)	95	%.	64-139		1	03/21/23 12:00	03/21/23 17:32	460-00-4	
Dibromofluoromethane (S)	92	%.	66-143		1	03/21/23 12:00	03/21/23 17:32	1868-53-7	

Sample: S-A **Lab ID: 20272227004** Collected: 03/15/23 09:10 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
Acetone	ND	ug/kg	11.1	4.9	1	03/21/23 12:00	03/21/23 17:50	67-64-1	
Benzene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:50	71-43-2	
Bromodichloromethane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:50	75-27-4	
Bromoform	ND	ug/kg	5.5	1.8	1	03/21/23 12:00	03/21/23 17:50	75-25-2	
Bromomethane	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:50	74-83-9	
2-Butanone (MEK)	ND	ug/kg	11.1	3.2	1	03/21/23 12:00	03/21/23 17:50	78-93-3	
Carbon disulfide	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:50	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.5	1.2	1	03/21/23 12:00	03/21/23 17:50	56-23-5	
Chlorobenzene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:50	108-90-7	
Chloroethane	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 17:50	75-00-3	
Chloroform	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:50	67-66-3	
Chloromethane	ND	ug/kg	5.5	1.3	1	03/21/23 12:00	03/21/23 17:50	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.5	2.0	1	03/21/23 12:00	03/21/23 17:50	96-12-8	

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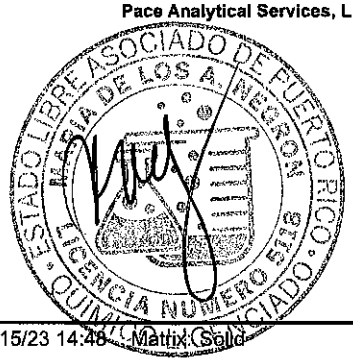

ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: S-A **Lab ID: 20272227004** Collected: 03/15/23 09:10 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
Dibromochloromethane	ND	ug/kg	5.5	1.8	1	03/21/23 12:00	03/21/23 17:50	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:50	106-93-4	
Dichlorodifluoromethane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:50	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:50	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:50	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:50	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 17:50	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:50	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.5	1.8	1	03/21/23 12:00	03/21/23 17:50	10061-02-6	
Ethylbenzene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:50	100-41-4	
2-Hexanone	ND	ug/kg	11.1	2.4	1	03/21/23 12:00	03/21/23 17:50	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 17:50	98-82-8	
Methyl acetate	ND	ug/kg	11.1	2.3	1	03/21/23 12:00	03/21/23 17:50	79-20-9	
Methylene Chloride	ND	ug/kg	5.5	5.1	1	03/21/23 12:00	03/21/23 17:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	11.1	2.1	1	03/21/23 12:00	03/21/23 17:50	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:50	1634-04-4	
Styrene	ND	ug/kg	5.5	1.8	1	03/21/23 12:00	03/21/23 17:50	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.5	2.1	1	03/21/23 12:00	03/21/23 17:50	79-34-5	
Tetrachloroethene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:50	127-18-4	
Toluene	ND	ug/kg	5.5	2.3	1	03/21/23 12:00	03/21/23 17:50	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 17:50	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:50	79-00-5	
Trichloroethene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 17:50	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 17:50	75-69-4	
Vinyl chloride	ND	ug/kg	2.2	1.2	1	03/21/23 12:00	03/21/23 17:50	75-01-4	
m&p-Xylene	ND	ug/kg	11.1	3.6	1	03/21/23 12:00	03/21/23 17:50	179601-23-1	
o-Xylene	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 17:50	95-47-6	
Surrogates									
Toluene-d8 (S)	96	%.	75-125		1	03/21/23 12:00	03/21/23 17:50	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	64-139		1	03/21/23 12:00	03/21/23 17:50	460-00-4	
Dibromofluoromethane (S)	97	%.	66-143		1	03/21/23 12:00	03/21/23 17:50	1868-53-7	

Sample: S-2 (4-6') **Lab ID: 20272227005** Collected: 03/15/23 09:55 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
Acetone	ND	ug/kg	10.4	4.6	1	03/21/23 12:00	03/21/23 18:08	67-64-1	
Benzene	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	71-43-2	

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ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: S-2 (4-6') **Lab ID: 20272227005** Collected: 03/15/23 09:55 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
Bromodichloromethane	ND	ug/kg	5.2	1.6	1	03/21/23 12:00	03/21/23 18:08	75-27-4	
Bromoform	ND	ug/kg	5.2	1.7	1	03/21/23 12:00	03/21/23 18:08	75-25-2	
Bromomethane	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	74-83-9	
2-Butanone (MEK)	ND	ug/kg	10.4	3.1	1	03/21/23 12:00	03/21/23 18:08	78-93-3	
Carbon disulfide	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.2	1.1	1	03/21/23 12:00	03/21/23 18:08	56-23-5	
Chlorobenzene	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	108-90-7	
Chloroethane	ND	ug/kg	5.2	1.3	1	03/21/23 12:00	03/21/23 18:08	75-00-3	
Chloroform	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	67-66-3	
Chloromethane	ND	ug/kg	5.2	1.3	1	03/21/23 12:00	03/21/23 18:08	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.2	1.9	1	03/21/23 12:00	03/21/23 18:08	96-12-8	
Dibromochloromethane	ND	ug/kg	5.2	1.7	1	03/21/23 12:00	03/21/23 18:08	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.2	1.6	1	03/21/23 12:00	03/21/23 18:08	106-93-4	
Dichlorodifluoromethane	ND	ug/kg	5.2	1.6	1	03/21/23 12:00	03/21/23 18:08	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.2	1.6	1	03/21/23 12:00	03/21/23 18:08	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.2	1.6	1	03/21/23 12:00	03/21/23 18:08	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.2	1.4	1	03/21/23 12:00	03/21/23 18:08	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.2	1.3	1	03/21/23 12:00	03/21/23 18:08	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.2	1.6	1	03/21/23 12:00	03/21/23 18:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.2	1.7	1	03/21/23 12:00	03/21/23 18:08	10061-02-6	
Ethylbenzene	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	100-41-4	
2-Hexanone	ND	ug/kg	10.4	2.3	1	03/21/23 12:00	03/21/23 18:08	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.2	1.4	1	03/21/23 12:00	03/21/23 18:08	98-82-8	
Methyl acetate	ND	ug/kg	10.4	2.1	1	03/21/23 12:00	03/21/23 18:08	79-20-9	
Methylene Chloride	ND	ug/kg	5.2	4.8	1	03/21/23 12:00	03/21/23 18:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	10.4	2.0	1	03/21/23 12:00	03/21/23 18:08	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	1634-04-4	
Styrene	ND	ug/kg	5.2	1.7	1	03/21/23 12:00	03/21/23 18:08	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.2	2.0	1	03/21/23 12:00	03/21/23 18:08	79-34-5	
Tetrachloroethene	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	127-18-4	
Toluene	ND	ug/kg	5.2	2.2	1	03/21/23 12:00	03/21/23 18:08	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	5.2	1.3	1	03/21/23 12:00	03/21/23 18:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.2	1.6	1	03/21/23 12:00	03/21/23 18:08	79-00-5	
Trichloroethene	ND	ug/kg	5.2	1.5	1	03/21/23 12:00	03/21/23 18:08	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.2	1.3	1	03/21/23 12:00	03/21/23 18:08	75-69-4	
Vinyl chloride	ND	ug/kg	2.1	1.2	1	03/21/23 12:00	03/21/23 18:08	75-01-4	
m&p-Xylene	ND	ug/kg	10.4	3.4	1	03/21/23 12:00	03/21/23 18:08	179601-23-1	
o-Xylene	ND	ug/kg	5.2	1.6	1	03/21/23 12:00	03/21/23 18:08	95-47-6	
Surrogates									
Toluene-d8 (S)	97	%.	75-125		1	03/21/23 12:00	03/21/23 18:08	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	64-139		1	03/21/23 12:00	03/21/23 18:08	460-00-4	
Dibromofluoromethane (S)	98	%.	66-143		1	03/21/23 12:00	03/21/23 18:08	1868-53-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: S-3 (4-6') **Lab ID: 20272227006** Collected: 03/15/23 10:20 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
Acetone	ND	ug/kg	9.9	4.3	1	03/21/23 12:00	03/21/23 18:26	67-64-1	
Benzene	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	71-43-2	
Bromodichloromethane	ND	ug/kg	4.9	1.5	1	03/21/23 12:00	03/21/23 18:26	75-27-4	
Bromoform	ND	ug/kg	4.9	1.6	1	03/21/23 12:00	03/21/23 18:26	75-25-2	
Bromomethane	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	74-83-9	
2-Butanone (MEK)	ND	ug/kg	9.9	2.9	1	03/21/23 12:00	03/21/23 18:26	78-93-3	
Carbon disulfide	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.9	1.1	1	03/21/23 12:00	03/21/23 18:26	56-23-5	
Chlorobenzene	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	108-90-7	
Chloroethane	ND	ug/kg	4.9	1.2	1	03/21/23 12:00	03/21/23 18:26	75-00-3	
Chloroform	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	67-66-3	
Chloromethane	ND	ug/kg	4.9	1.2	1	03/21/23 12:00	03/21/23 18:26	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.9	1.8	1	03/21/23 12:00	03/21/23 18:26	96-12-8	
Dibromochloromethane	ND	ug/kg	4.9	1.6	1	03/21/23 12:00	03/21/23 18:26	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.9	1.5	1	03/21/23 12:00	03/21/23 18:26	106-93-4	
Dichlorodifluoromethane	ND	ug/kg	4.9	1.5	1	03/21/23 12:00	03/21/23 18:26	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.9	1.5	1	03/21/23 12:00	03/21/23 18:26	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.9	1.5	1	03/21/23 12:00	03/21/23 18:26	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.9	1.3	1	03/21/23 12:00	03/21/23 18:26	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.9	1.5	1	03/21/23 12:00	03/21/23 18:26	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.9	1.5	1	03/21/23 12:00	03/21/23 18:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.9	1.6	1	03/21/23 12:00	03/21/23 18:26	10061-02-6	
Ethylbenzene	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	100-41-4	
2-Hexanone	ND	ug/kg	9.9	2.1	1	03/21/23 12:00	03/21/23 18:26	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	98-82-8	
Methyl acetate	ND	ug/kg	9.9	2.0	1	03/21/23 12:00	03/21/23 18:26	79-20-9	
Methylene Chloride	ND	ug/kg	4.9	4.6	1	03/21/23 12:00	03/21/23 18:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	9.9	1.8	1	03/21/23 12:00	03/21/23 18:26	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	1634-04-4	
Styrene	ND	ug/kg	4.9	1.6	1	03/21/23 12:00	03/21/23 18:26	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.9	1.9	1	03/21/23 12:00	03/21/23 18:26	79-34-5	
Tetrachloroethene	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	127-18-4	
Toluene	ND	ug/kg	4.9	2.1	1	03/21/23 12:00	03/21/23 18:26	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	4.9	1.2	1	03/21/23 12:00	03/21/23 18:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.9	1.5	1	03/21/23 12:00	03/21/23 18:26	79-00-5	
Trichloroethene	ND	ug/kg	4.9	1.4	1	03/21/23 12:00	03/21/23 18:26	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.9	1.2	1	03/21/23 12:00	03/21/23 18:26	75-69-4	
Vinyl chloride	ND	ug/kg	2.0	1.1	1	03/21/23 12:00	03/21/23 18:26	75-01-4	
m&p-Xylene	ND	ug/kg	9.9	3.2	1	03/21/23 12:00	03/21/23 18:26	179601-23-1	
o-Xylene	ND	ug/kg	4.9	1.5	1	03/21/23 12:00	03/21/23 18:26	95-47-6	
Surrogates									
Toluene-d8 (S)	97	%.	75-125		1	03/21/23 12:00	03/21/23 18:26	2037-26-5	

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ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: S-3 (4-6') **Lab ID: 20272227006** Collected: 03/15/23 10:20 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
Surrogates									
4-Bromofluorobenzene (S)	97	%.	64-139		1	03/21/23 12:00	03/21/23 18:26	460-00-4	
Dibromofluoromethane (S)	97	%.	66-143		1	03/21/23 12:00	03/21/23 18:26	1868-53-7	

Sample: S-4 (6-8') **Lab ID: 20272227007** Collected: 03/15/23 10:45 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
Acetone	ND	ug/kg	10.6	4.7	1	03/21/23 12:00	03/21/23 18:44	67-64-1	
Benzene	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	71-43-2	
Bromodichloromethane	ND	ug/kg	5.3	1.6	1	03/21/23 12:00	03/21/23 18:44	75-27-4	
Bromoform	ND	ug/kg	5.3	1.7	1	03/21/23 12:00	03/21/23 18:44	75-25-2	
Bromomethane	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	74-83-9	
2-Butanone (MEK)	ND	ug/kg	10.6	3.1	1	03/21/23 12:00	03/21/23 18:44	78-93-3	
Carbon disulfide	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.3	1.1	1	03/21/23 12:00	03/21/23 18:44	56-23-5	
Chlorobenzene	ND	ug/kg	5.3	1.6	1	03/21/23 12:00	03/21/23 18:44	108-90-7	
Chloroethane	ND	ug/kg	5.3	1.3	1	03/21/23 12:00	03/21/23 18:44	75-00-3	
Chloroform	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	67-66-3	
Chloromethane	ND	ug/kg	5.3	1.3	1	03/21/23 12:00	03/21/23 18:44	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.3	1.9	1	03/21/23 12:00	03/21/23 18:44	96-12-8	
Dibromochloromethane	ND	ug/kg	5.3	1.7	1	03/21/23 12:00	03/21/23 18:44	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.3	1.7	1	03/21/23 12:00	03/21/23 18:44	106-93-4	
Dichlorodifluoromethane	ND	ug/kg	5.3	1.6	1	03/21/23 12:00	03/21/23 18:44	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.3	1.6	1	03/21/23 12:00	03/21/23 18:44	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.3	1.6	1	03/21/23 12:00	03/21/23 18:44	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.3	1.3	1	03/21/23 12:00	03/21/23 18:44	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.3	1.6	1	03/21/23 12:00	03/21/23 18:44	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.3	1.6	1	03/21/23 12:00	03/21/23 18:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.3	1.7	1	03/21/23 12:00	03/21/23 18:44	10061-02-6	
Ethylbenzene	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	100-41-4	
2-Hexanone	ND	ug/kg	10.6	2.3	1	03/21/23 12:00	03/21/23 18:44	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	98-82-8	
Methyl acetate	ND	ug/kg	10.6	2.2	1	03/21/23 12:00	03/21/23 18:44	79-20-9	
Methylene Chloride	ND	ug/kg	5.3	4.9	1	03/21/23 12:00	03/21/23 18:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	10.6	2.0	1	03/21/23 12:00	03/21/23 18:44	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	1634-04-4	
Styrene	ND	ug/kg	5.3	1.7	1	03/21/23 12:00	03/21/23 18:44	100-42-5	

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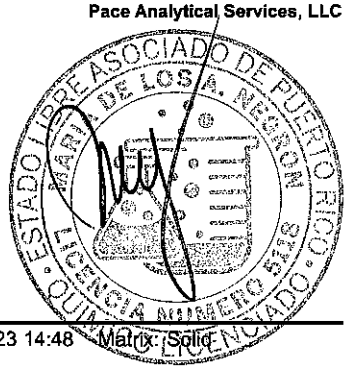

ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: S-4 (6-8') **Lab ID: 20272227007** Collected: 03/15/23 10:45 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.3	2.0	1	03/21/23 12:00	03/21/23 18:44	79-34-5	
Tetrachloroethene	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	127-18-4	
Toluene	ND	ug/kg	5.3	2.2	1	03/21/23 12:00	03/21/23 18:44	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	5.3	1.3	1	03/21/23 12:00	03/21/23 18:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.3	1.6	1	03/21/23 12:00	03/21/23 18:44	79-00-5	
Trichloroethene	ND	ug/kg	5.3	1.5	1	03/21/23 12:00	03/21/23 18:44	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.3	1.3	1	03/21/23 12:00	03/21/23 18:44	75-69-4	
Vinyl chloride	ND	ug/kg	2.1	1.2	1	03/21/23 12:00	03/21/23 18:44	75-01-4	
m&p-Xylene	ND	ug/kg	10.6	3.4	1	03/21/23 12:00	03/21/23 18:44	179601-23-1	
o-Xylene	ND	ug/kg	5.3	1.7	1	03/21/23 12:00	03/21/23 18:44	95-47-6	
Surrogates									
Toluene-d8 (S)	98	%.	75-125		1	03/21/23 12:00	03/21/23 18:44	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	64-139		1	03/21/23 12:00	03/21/23 18:44	460-00-4	
Dibromofluoromethane (S)	95	%.	66-143		1	03/21/23 12:00	03/21/23 18:44	1868-53-7	

Sample: S-5 (10-12') **Lab ID: 20272227008** Collected: 03/15/23 11:15 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
Acetone	ND	ug/kg	11.0	4.9	1	03/21/23 12:00	03/21/23 19:02	67-64-1	R1
Benzene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 19:02	71-43-2	R1
Bromodichloromethane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 19:02	75-27-4	R1
Bromoform	ND	ug/kg	5.5	1.8	1	03/21/23 12:00	03/21/23 19:02	75-25-2	R1
Bromomethane	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 19:02	74-83-9	
2-Butanone (MEK)	ND	ug/kg	11.0	3.2	1	03/21/23 12:00	03/21/23 19:02	78-93-3	R1
Carbon disulfide	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 19:02	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.5	1.2	1	03/21/23 12:00	03/21/23 19:02	56-23-5	
Chlorobenzene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 19:02	108-90-7	M1,R1
Chloroethane	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 19:02	75-00-3	
Chloroform	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 19:02	67-66-3	R1
Chloromethane	ND	ug/kg	5.5	1.3	1	03/21/23 12:00	03/21/23 19:02	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.5	2.0	1	03/21/23 12:00	03/21/23 19:02	96-12-8	R1
Dibromochloromethane	ND	ug/kg	5.5	1.8	1	03/21/23 12:00	03/21/23 19:02	124-48-1	M1,R1
1,2-Dibromoethane (EDB)	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 19:02	106-93-4	M1,R1
Dichlorodifluoromethane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 19:02	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 19:02	75-34-3	R1
1,2-Dichloroethane	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 19:02	107-06-2	R1
1,1-Dichloroethene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 19:02	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 19:02	156-59-2	R1
trans-1,2-Dichloroethene	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 19:02	156-60-5	

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ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: S-5 (10-12') **Lab ID: 20272227008** Collected: 03/15/23 11:15 Received: 03/15/23 14:48 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - New Orleans								
1,2-Dichloropropane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 19:02	78-87-5	M1,R1
cis-1,3-Dichloropropene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 19:02	10061-01-5	R1
trans-1,3-Dichloropropene	ND	ug/kg	5.5	1.8	1	03/21/23 12:00	03/21/23 19:02	10061-02-6	R1
Ethylbenzene	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 19:02	100-41-4	R1
2-Hexanone	ND	ug/kg	11.0	2.4	1	03/21/23 12:00	03/21/23 19:02	591-78-6	R1
Isopropylbenzene (Cumene)	ND	ug/kg	5.5	1.5	1	03/21/23 12:00	03/21/23 19:02	98-82-8	R1
Methyl acetate	ND	ug/kg	11.0	2.3	1	03/21/23 12:00	03/21/23 19:02	79-20-9	R1
Methylene Chloride	ND	ug/kg	5.5	5.1	1	03/21/23 12:00	03/21/23 19:02	75-09-2	R1
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	11.0	2.1	1	03/21/23 12:00	03/21/23 19:02	108-10-1	R1
Methyl-tert-butyl ether	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 19:02	1634-04-4	R1
Styrene	ND	ug/kg	5.5	1.8	1	03/21/23 12:00	03/21/23 19:02	100-42-5	R1
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.5	2.1	1	03/21/23 12:00	03/21/23 19:02	79-34-5	R1
Tetrachloroethene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 19:02	127-18-4	R1
Toluene	ND	ug/kg	5.5	2.3	1	03/21/23 12:00	03/21/23 19:02	108-88-3	R1
1,1,1-Trichloroethane	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 19:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 19:02	79-00-5	R1
Trichloroethene	ND	ug/kg	5.5	1.6	1	03/21/23 12:00	03/21/23 19:02	79-01-6	R1
Trichlorofluoromethane	ND	ug/kg	5.5	1.4	1	03/21/23 12:00	03/21/23 19:02	75-69-4	
Vinyl chloride	ND	ug/kg	2.2	1.2	1	03/21/23 12:00	03/21/23 19:02	75-01-4	
m&p-Xylene	ND	ug/kg	11.0	3.6	1	03/21/23 12:00	03/21/23 19:02	179601-23-1	R1
o-Xylene	ND	ug/kg	5.5	1.7	1	03/21/23 12:00	03/21/23 19:02	95-47-6	R1
Surrogates									
Toluene-d8 (S)	96	%.	75-125		1	03/21/23 12:00	03/21/23 19:02	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	64-139		1	03/21/23 12:00	03/21/23 19:02	460-00-4	
Dibromofluoromethane (S)	98	%.	66-143		1	03/21/23 12:00	03/21/23 19:02	1868-53-7	

Sample: FB 031523 **Lab ID: 20272227009** Collected: 03/15/23 11:40 Received: 03/15/23 14:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 5030B/8260 Pace Analytical Services - New Orleans								
Acetone	**9.3**	ug/L	4.0	2.0	1		03/23/23 15:47	67-64-1	
Benzene	ND	ug/L	0.50	0.16	1		03/23/23 15:47	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	0.12	1		03/23/23 15:47	75-27-4	
Bromoform	ND	ug/L	1.0	0.58	1		03/23/23 15:47	75-25-2	
Bromomethane	ND	ug/L	0.50	0.25	1		03/23/23 15:47	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	0.50	1		03/23/23 15:47	78-93-3	
Carbon disulfide	ND	ug/L	1.0	0.38	1		03/23/23 15:47	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	0.078	1		03/23/23 15:47	56-23-5	
Chlorobenzene	ND	ug/L	0.50	0.14	1		03/23/23 15:47	108-90-7	
Chloroethane	ND	ug/L	0.50	0.47	1		03/23/23 15:47	75-00-3	
Chloroform	ND	ug/L	0.50	0.18	1		03/23/23 15:47	67-66-3	

REPORT OF LABORATORY ANALYSIS

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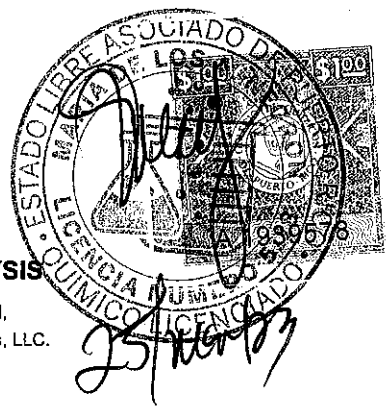
ANALYTICAL RESULTS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Sample: FB 031523 **Lab ID: 20272227009** Collected: 03/15/23 11:40 Received: 03/15/23 14:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 5030B/8260 Pace Analytical Services - New Orleans								
Chloromethane	ND	ug/L	0.50	0.17	1		03/23/23 15:47	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	0.20	0.10	1		03/23/23 15:47	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	0.12	1		03/23/23 15:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.14	1		03/23/23 15:47	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	0.23	1		03/23/23 15:47	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	0.21	1		03/23/23 15:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	0.35	1		03/23/23 15:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	0.21	1		03/23/23 15:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.35	1		03/23/23 15:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.22	1		03/23/23 15:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	0.15	1		03/23/23 15:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.18	1		03/23/23 15:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.26	1		03/23/23 15:47	10061-02-6	
Ethylbenzene	ND	ug/L	0.50	0.17	1		03/23/23 15:47	100-41-4	
2-Hexanone	ND	ug/L	1.0	0.37	1		03/23/23 15:47	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	0.13	1		03/23/23 15:47	98-82-8	
Methyl acetate	ND	ug/L	2.0	1.3	1		03/23/23 15:47	79-20-9	
Methylene Chloride	ND	ug/L	0.50	0.50	1		03/23/23 15:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	0.64	1		03/23/23 15:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	0.16	1		03/23/23 15:47	1634-04-4	
Styrene	ND	ug/L	1.0	0.14	1		03/23/23 15:47	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.24	1		03/23/23 15:47	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	0.14	1		03/23/23 15:47	127-18-4	
Toluene	ND	ug/L	0.50	0.17	1		03/23/23 15:47	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.17	1		03/23/23 15:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.27	1		03/23/23 15:47	79-00-5	
Trichloroethene	ND	ug/L	0.50	0.21	1		03/23/23 15:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.58	1		03/23/23 15:47	75-69-4	
Vinyl chloride	ND	ug/L	0.50	0.16	1		03/23/23 15:47	75-01-4	
m&p-Xylene	ND	ug/L	2.0	0.24	1		03/23/23 15:47	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.15	1		03/23/23 15:47	95-47-6	
Surrogates									
Dibromofluoromethane (S)	98	%.	72-126		1		03/23/23 15:47	1868-53-7	
4-Bromofluorobenzene (S)	100	%.	68-124		1		03/23/23 15:47	460-00-4	
Toluene-d8 (S)	100	%.	79-119		1		03/23/23 15:47	2037-26-5	



REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

QC Batch: 281622 Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV 5035 Low Level
Laboratory: Pace Analytical Services - New Orleans
Associated Lab Samples: 20272227003, 20272227004, 20272227005, 20272227006, 20272227007, 20272227008

METHOD BLANK: 1348979 Matrix: Solid
Associated Lab Samples: 20272227003, 20272227004, 20272227005, 20272227006, 20272227007, 20272227008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	5.0	1.2	03/21/23 15:45	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	1.9	03/21/23 15:45	
1,1,2-Trichloroethane	ug/kg	ND	5.0	1.5	03/21/23 15:45	
1,1-Dichloroethane	ug/kg	ND	5.0	1.5	03/21/23 15:45	
1,1-Dichloroethene	ug/kg	ND	5.0	1.4	03/21/23 15:45	
1,2-Dibromo-3-chloropropane	ug/kg	ND	5.0	1.8	03/21/23 15:45	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	1.6	03/21/23 15:45	
1,2-Dichloroethane	ug/kg	ND	5.0	1.5	03/21/23 15:45	
1,2-Dichloropropane	ug/kg	ND	5.0	1.5	03/21/23 15:45	
2-Butanone (MEK)	ug/kg	ND	10.0	2.9	03/21/23 15:45	
2-Hexanone	ug/kg	ND	10.0	2.2	03/21/23 15:45	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	10.0	1.9	03/21/23 15:45	
Acetone	ug/kg	ND	10.0	4.4	03/21/23 15:45	
Benzene	ug/kg	ND	5.0	1.4	03/21/23 15:45	
Bromodichloromethane	ug/kg	ND	5.0	1.5	03/21/23 15:45	
Bromoform	ug/kg	ND	5.0	1.6	03/21/23 15:45	
Bromomethane	ug/kg	ND	5.0	1.4	03/21/23 15:45	
Carbon disulfide	ug/kg	ND	5.0	1.5	03/21/23 15:45	
Carbon tetrachloride	ug/kg	ND	5.0	1.1	03/21/23 15:45	
Chlorobenzene	ug/kg	ND	5.0	1.5	03/21/23 15:45	
Chloroethane	ug/kg	ND	5.0	1.2	03/21/23 15:45	
Chloroform	ug/kg	ND	5.0	1.4	03/21/23 15:45	
Chloromethane	ug/kg	ND	5.0	1.2	03/21/23 15:45	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	1.4	03/21/23 15:45	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	1.5	03/21/23 15:45	
Dibromochloromethane	ug/kg	ND	5.0	1.6	03/21/23 15:45	
Dichlorodifluoromethane	ug/kg	ND	5.0	1.5	03/21/23 15:45	
Ethylbenzene	ug/kg	ND	5.0	1.4	03/21/23 15:45	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	1.4	03/21/23 15:45	
m&p-Xylene	ug/kg	ND	10.0	3.2	03/21/23 15:45	
Methyl acetate	ug/kg	ND	10.0	2.0	03/21/23 15:45	
Methyl-tert-butyl ether	ug/kg	ND	5.0	1.4	03/21/23 15:45	
Methylene Chloride	ug/kg	ND	5.0	4.6	03/21/23 15:45	
o-Xylene	ug/kg	ND	5.0	1.6	03/21/23 15:45	
Styrene	ug/kg	ND	5.0	1.6	03/21/23 15:45	
Tetrachloroethene	ug/kg	ND	5.0	1.4	03/21/23 15:45	
Toluene	ug/kg	ND	5.0	2.1	03/21/23 15:45	
trans-1,2-Dichloroethene	ug/kg	ND	5.0	1.3	03/21/23 15:45	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	1.6	03/21/23 15:45	
Trichloroethene	ug/kg	ND	5.0	1.4	03/21/23 15:45	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

METHOD BLANK: 1348979 Matrix: Solid
Associated Lab Samples: 20272227003, 20272227004, 20272227005, 20272227006, 20272227007, 20272227008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichlorofluoromethane	ug/kg	ND	5.0	1.2	03/21/23 15:45	
Vinyl chloride	ug/kg	ND	2.0	1.1	03/21/23 15:45	
4-Bromofluorobenzene (S)	%.	97	64-139		03/21/23 15:45	
Dibromofluoromethane (S)	%.	97	66-143		03/21/23 15:45	
Toluene-d8 (S)	%.	97	75-125		03/21/23 15:45	

LABORATORY CONTROL SAMPLE: 1348980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	50	46.3	93	76-126	
1,1,2,2-Tetrachloroethane	ug/kg	50	53.0	106	65-129	
1,1,2-Trichloroethane	ug/kg	50	47.1	94	75-121	
1,1-Dichloroethane	ug/kg	50	44.9	90	71-127	
1,1-Dichloroethene	ug/kg	50	41.0	82	63-130	
1,2-Dibromo-3-chloropropane	ug/kg	50	59.4	119	59-131	
1,2-Dibromoethane (EDB)	ug/kg	50	50.9	102	75-125	
1,2-Dichloroethane	ug/kg	50	46.7	93	65-131	
1,2-Dichloropropane	ug/kg	50	47.2	94	72-125	
2-Butanone (MEK)	ug/kg	50	52.5	105	34-170	
2-Hexanone	ug/kg	50	54.8	110	52-147	
4-Methyl-2-pentanone (MIBK)	ug/kg	50	52.0	104	58-141	
Acetone	ug/kg	50	52.9	106	16-192	
Benzene	ug/kg	50	45.4	91	74-132	
Bromodichloromethane	ug/kg	50	48.8	98	73-117	
Bromoform	ug/kg	50	52.3	105	58-132	
Bromomethane	ug/kg	50	42.4	85	47-157	
Carbon disulfide	ug/kg	50	46.5	93	52-145	
Carbon tetrachloride	ug/kg	50	45.9	92	68-129	
Chlorobenzene	ug/kg	50	47.2	94	79-121	
Chloroethane	ug/kg	50	45.6	91	34-160	
Chloroform	ug/kg	50	46.9	94	70-120	
Chloromethane	ug/kg	50	45.0	90	44-142	
cis-1,2-Dichloroethene	ug/kg	50	44.4	89	71-124	
cis-1,3-Dichloropropene	ug/kg	50	49.0	98	77-121	
Dibromochloromethane	ug/kg	50	49.4	99	67-122	
Dichlorodifluoromethane	ug/kg	50	41.8	84	28-148	
Ethylbenzene	ug/kg	50	48.8	98	79-116	
Isopropylbenzene (Cumene)	ug/kg	50	47.9	96	77-126	
m&p-Xylene	ug/kg	100	94.6	95	78-119	
Methyl acetate	ug/kg	50	46.5	93	47-155	
Methyl-tert-butyl ether	ug/kg	50	47.2	94	58-135	
Methylene Chloride	ug/kg	50	46.7	93	49-145	
o-Xylene	ug/kg	50	47.9	96	77-121	
Styrene	ug/kg	50	48.9	98	81-123	

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QUALITY CONTROL DATA

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

LABORATORY CONTROL SAMPLE: 1348980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	50	47.7	95	62-138	
Toluene	ug/kg	50	47.9	96	79-120	
trans-1,2-Dichloroethene	ug/kg	50	45.1	90	68-125	
trans-1,3-Dichloropropene	ug/kg	50	49.6	99	77-121	
Trichloroethene	ug/kg	50	43.7	87	77-117	
Trichlorofluoromethane	ug/kg	50	47.4	95	45-164	
Vinyl chloride	ug/kg	50	44.7	89	48-130	
4-Bromofluorobenzene (S)	%.			102	64-139	
Dibromofluoromethane (S)	%.			93	66-143	
Toluene-d8 (S)	%.			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1348981 1348982

Parameter	Units	20272227008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/kg	ND	48.2	46.6	36.6	43.9	76	94	73-141	18	20	
1,1,2,2-Tetrachloroethane	ug/kg	ND	48.2	46.6	26.7	38.3	55	82	48-148	36	20	R1
1,1,2-Trichloroethane	ug/kg	ND	48.2	46.6	27.8	38.5	58	83	46-154	32	20	R1
1,1-Dichloroethane	ug/kg	ND	48.2	46.6	32.6	40.4	68	87	63-145	22	20	R1
1,1-Dichloroethene	ug/kg	ND	48.2	46.6	33.4	40.3	69	87	28-176	19	20	
1,2-Dibromo-3-chloropropane	ug/kg	ND	48.2	46.6	29.1	36.6	61	79	40-152	23	20	R1
1,2-Dibromoethane (EDB)	ug/kg	ND	48.2	46.6	28.7	40.4	59	87	69-134	34	20	M1,R1
1,2-Dichloroethane	ug/kg	ND	48.2	46.6	28.0	38.3	58	82	51-147	31	20	R1
1,2-Dichloropropane	ug/kg	ND	48.2	46.6	30.3	41.0	63	88	64-140	30	20	M1,R1
2-Butanone (MEK)	ug/kg	ND	48.2	46.6	29.6	39.7	61	85	10-200	29	20	R1
2-Hexanone	ug/kg	ND	48.2	46.6	31.0	45.0	64	97	40-157	37	20	R1
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	48.2	46.6	25.6	35.5	53	76	36-165	32	20	R1
Acetone	ug/kg	ND	48.2	46.6	36.7	48.6	76	104	10-200	28	20	R1
Benzene	ug/kg	ND	48.2	46.6	30.9	39.1	64	84	29-186	24	20	R1
Bromodichloromethane	ug/kg	ND	48.2	46.6	31.0	42.5	64	91	58-139	31	20	R1
Bromoform	ug/kg	ND	48.2	46.6	28.7	40.2	60	86	57-135	34	20	R1
Bromomethane	ug/kg	ND	48.2	46.6	32.5	31.3	67	67	42-168	4	20	
Carbon disulfide	ug/kg	ND	48.2	46.6	30.0	34.1	62	73	44-170	13	20	
Carbon tetrachloride	ug/kg	ND	48.2	46.6	39.0	46.2	81	99	45-162	17	20	
Chlorobenzene	ug/kg	ND	48.2	46.6	31.7	42.9	66	92	71-135	30	20	M1,R1
Chloroethane	ug/kg	ND	48.2	46.6	40.6	38.3	84	82	32-175	6	20	
Chloroform	ug/kg	ND	48.2	46.6	30.9	40.3	64	87	61-136	26	20	R1
Chloromethane	ug/kg	ND	48.2	46.6	32.9	31.9	68	69	38-154	3	20	
cis-1,2-Dichloroethene	ug/kg	ND	48.2	46.6	30.2	39.1	63	84	44-160	26	20	R1
cis-1,3-Dichloropropene	ug/kg	ND	48.2	46.6	29.3	40.6	61	87	47-153	32	20	R1
Dibromochloromethane	ug/kg	ND	48.2	46.6	27.9	40.0	58	86	64-130	35	20	M1,R1
Dichlorodifluoromethane	ug/kg	ND	48.2	46.6	24.9	23.5	52	50	22-160	6	20	
Ethylbenzene	ug/kg	ND	48.2	46.6	35.4	45.5	74	98	51-153	25	20	R1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1348981 1348982

Parameter	Units	20272227008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Isopropylbenzene (Cumene)	ug/kg	ND	48.2	46.6	37.3	47.2	77	101	68-145	23	20	R1
m&p-Xylene	ug/kg	ND	96.3	93.1	71.4	90.9	74	98	30-173	24	20	R1
Methyl acetate	ug/kg	ND	48.2	46.6	27.2	33.6	56	72	20-173	21	20	R1
Methyl-tert-butyl ether	ug/kg	ND	48.2	46.6	26.0	35.9	54	77	36-160	32	20	R1
Methylene Chloride	ug/kg	ND	48.2	46.6	27.9	36.5	58	78	56-140	27	20	R1
o-Xylene	ug/kg	ND	48.2	46.6	34.0	44.7	71	96	10-197	27	20	R1
Styrene	ug/kg	ND	48.2	46.6	30.3	40.5	63	87	37-163	29	20	R1
Tetrachloroethene	ug/kg	ND	48.2	46.6	42.6	54.6	88	117	18-193	25	20	R1
Toluene	ug/kg	ND	48.2	46.6	33.5	42.9	70	92	33-175	25	20	R1
trans-1,2-Dichloroethene	ug/kg	ND	48.2	46.6	34.3	41.6	71	89	63-140	19	20	
trans-1,3-Dichloropropene	ug/kg	ND	48.2	46.6	26.9	39.2	56	84	47-153	37	20	R1
Trichloroethene	ug/kg	ND	48.2	46.6	34.0	42.0	71	90	24-181	21	20	R1
Trichlorofluoromethane	ug/kg	ND	48.2	46.6	43.8	40.7	91	88	37-182	7	20	
Vinyl chloride	ug/kg	ND	48.2	46.6	38.2	36.3	79	78	19-169	5	20	
4-Bromofluorobenzene (S)	%.						97	99	64-139			
Dibromofluoromethane (S)	%.						94	92	66-143			
Toluene-d8 (S)	%.						97	95	75-125			

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QUALITY CONTROL DATA

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

QC Batch: 281860
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Low Level
Laboratory: Pace Analytical Services - New Orleans
Associated Lab Samples: 20272227001, 20272227002, 20272227009

METHOD BLANK: 1350301 Matrix: Water
Associated Lab Samples: 20272227001, 20272227002, 20272227009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	0.17	03/23/23 13:34	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	0.24	03/23/23 13:34	
1,1,2-Trichloroethane	ug/L	ND	0.50	0.27	03/23/23 13:34	
1,1-Dichloroethane	ug/L	ND	0.50	0.21	03/23/23 13:34	
1,1-Dichloroethene	ug/L	ND	0.50	0.21	03/23/23 13:34	
1,2-Dibromo-3-chloropropane	ug/L	ND	0.20	0.10	03/23/23 13:34	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	0.14	03/23/23 13:34	
1,2-Dichloroethane	ug/L	ND	0.50	0.35	03/23/23 13:34	
1,2-Dichloropropane	ug/L	ND	0.50	0.15	03/23/23 13:34	
2-Butanone (MEK)	ug/L	ND	2.0	0.50	03/23/23 13:34	
2-Hexanone	ug/L	ND	1.0	0.37	03/23/23 13:34	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	0.64	03/23/23 13:34	
Acetone	ug/L	ND	4.0	2.0	03/23/23 13:34	
Benzene	ug/L	ND	0.50	0.16	03/23/23 13:34	
Bromodichloromethane	ug/L	ND	0.50	0.12	03/23/23 13:34	
Bromoform	ug/L	ND	1.0	0.58	03/23/23 13:34	
Bromomethane	ug/L	ND	0.50	0.25	03/23/23 13:34	
Carbon disulfide	ug/L	ND	1.0	0.38	03/23/23 13:34	
Carbon tetrachloride	ug/L	ND	0.50	0.078	03/23/23 13:34	
Chlorobenzene	ug/L	ND	0.50	0.14	03/23/23 13:34	
Chloroethane	ug/L	ND	0.50	0.47	03/23/23 13:34	
Chloroform	ug/L	ND	0.50	0.18	03/23/23 13:34	
Chloromethane	ug/L	ND	0.50	0.17	03/23/23 13:34	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.35	03/23/23 13:34	
cis-1,3-Dichloropropene	ug/L	ND	0.50	0.18	03/23/23 13:34	
Dibromochloromethane	ug/L	ND	0.50	0.12	03/23/23 13:34	
Dichlorodifluoromethane	ug/L	ND	1.0	0.23	03/23/23 13:34	
Ethylbenzene	ug/L	ND	0.50	0.17	03/23/23 13:34	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	0.13	03/23/23 13:34	
m&p-Xylene	ug/L	ND	2.0	0.24	03/23/23 13:34	
Methyl acetate	ug/L	ND	2.0	1.3	03/23/23 13:34	
Methyl-tert-butyl ether	ug/L	ND	0.50	0.16	03/23/23 13:34	
Methylene Chloride	ug/L	ND	0.50	0.50	03/23/23 13:34	
o-Xylene	ug/L	ND	1.0	0.15	03/23/23 13:34	
Styrene	ug/L	ND	1.0	0.14	03/23/23 13:34	
Tetrachloroethene	ug/L	ND	0.50	0.14	03/23/23 13:34	
Toluene	ug/L	ND	0.50	0.17	03/23/23 13:34	
trans-1,2-Dichloroethene	ug/L	ND	0.50	0.22	03/23/23 13:34	
trans-1,3-Dichloropropene	ug/L	ND	0.50	0.26	03/23/23 13:34	
Trichloroethene	ug/L	ND	0.50	0.21	03/23/23 13:34	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

METHOD BLANK: 1350301 Matrix: Water
Associated Lab Samples: 20272227001, 20272227002, 20272227009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichlorofluoromethane	ug/L	ND	1.0	0.58	03/23/23 13:34	
Vinyl chloride	ug/L	ND	0.50	0.16	03/23/23 13:34	
4-Bromofluorobenzene (S)	%.	98	68-124		03/23/23 13:34	
Dibromofluoromethane (S)	%.	95	72-126		03/23/23 13:34	
Toluene-d8 (S)	%.	99	79-119		03/23/23 13:34	

LABORATORY CONTROL SAMPLE: 1350302

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	47.6	95	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	49.6	99	15-179	
1,1,2-Trichloroethane	ug/L	50	49.6	99	58-144	
1,1-Dichloroethane	ug/L	50	45.9	92	63-129	
1,1-Dichloroethene	ug/L	50	52.6	105	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	49.7	99	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	46.8	94	52-161	
1,2-Dichloroethane	ug/L	50	48.0	96	57-148	
1,2-Dichloropropane	ug/L	50	47.3	95	66-128	
2-Butanone (MEK)	ug/L	50	50.5	101	32-183	
2-Hexanone	ug/L	50	45.3	91	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	46.6	93	26-171	
Acetone	ug/L	50	49.5	99	22-165	
Benzene	ug/L	50	46.4	93	62-131	
Bromodichloromethane	ug/L	50	51.0	102	69-132	
Bromoform	ug/L	50	47.2	94	35-166	
Bromomethane	ug/L	50	46.0	92	34-158	
Carbon disulfide	ug/L	50	53.8	108	31-128	
Carbon tetrachloride	ug/L	50	51.7	103	54-144	
Chlorobenzene	ug/L	50	47.4	95	70-127	
Chloroethane	ug/L	50	52.4	105	17-195	
Chloroform	ug/L	50	47.9	96	73-134	
Chloromethane	ug/L	50	49.6	99	17-153	
cis-1,2-Dichloroethene	ug/L	50	48.0	96	68-129	
cis-1,3-Dichloropropene	ug/L	50	49.5	99	72-138	
Dibromochloromethane	ug/L	50	46.7	93	49-146	
Dichlorodifluoromethane	ug/L	50	39.0	78	10-179	
Ethylbenzene	ug/L	50	48.6	97	66-126	
Isopropylbenzene (Cumene)	ug/L	50	47.7	95	51-138	
m&p-Xylene	ug/L	100	95.3	95	65-129	
Methyl acetate	ug/L	50	54.4	109	20-142	
Methyl-tert-butyl ether	ug/L	50	49.5	99	37-166	
Methylene Chloride	ug/L	50	47.4	95	46-168	
o-Xylene	ug/L	50	47.0	94	65-124	
Styrene	ug/L	50	45.3	91	72-133	

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QUALITY CONTROL DATA

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

LABORATORY CONTROL SAMPLE: 1350302

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	50	47.5	95	46-157	
Toluene	ug/L	50	49.4	99	69-126	
trans-1,2-Dichloroethene	ug/L	50	47.3	95	60-129	
trans-1,3-Dichloropropene	ug/L	50	46.8	94	59-149	
Trichloroethene	ug/L	50	47.5	95	67-132	
Trichlorofluoromethane	ug/L	50	51.0	102	39-171	
Vinyl chloride	ug/L	50	48.0	96	27-149	
4-Bromofluorobenzene (S)	%.			98	68-124	
Dibromofluoromethane (S)	%.			97	72-126	
Toluene-d8 (S)	%.			100	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1350303 1350304

Parameter	Units	20272276002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	50	50	49.6	48.2	99	96	54-137	3	20	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	51.1	50.7	102	101	15-187	1	20	
1,1,2-Trichloroethane	ug/L	ND	50	50	50.5	50.4	101	101	59-148	0	20	
1,1-Dichloroethane	ug/L	ND	50	50	48.7	47.5	97	95	59-133	2	20	
1,1-Dichloroethene	ug/L	ND	50	50	56.4	55.0	113	110	44-146	3	20	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	51.3	50.1	103	100	23-166	2	20	
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	48.3	47.2	97	94	55-166	2	20	
1,2-Dichloroethane	ug/L	ND	50	50	49.1	48.1	98	96	56-154	2	20	
1,2-Dichloropropane	ug/L	ND	50	50	50.2	48.1	100	96	62-135	4	20	
2-Butanone (MEK)	ug/L	ND	50	50	46.6	46.5	93	93	20-205	0	20	
2-Hexanone	ug/L	ND	50	50	46.7	44.8	93	90	25-189	4	20	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	46.5	47.2	93	94	23-184	2	20	
Acetone	ug/L	ND	50	50	48.2	55.0	89	102	11-217	13	20	
Benzene	ug/L	ND	50	50	49.2	47.5	98	95	52-141	3	20	
Bromodichloromethane	ug/L	ND	50	50	53.0	52.5	106	105	70-134	1	20	
Bromoform	ug/L	ND	50	50	48.5	46.8	97	94	37-171	3	20	
Bromomethane	ug/L	ND	50	50	52.4	49.8	105	100	34-155	5	20	
Carbon disulfide	ug/L	0.0012 mg/L	50	50	62.3	58.0	122	114	28-130	7	20	
Carbon tetrachloride	ug/L	ND	50	50	54.4	52.9	109	106	48-146	3	20	
Chlorobenzene	ug/L	ND	50	50	50.9	48.2	102	96	67-129	6	20	
Chloroethane	ug/L	ND	50	50	56.7	55.2	113	110	12-192	3	20	
Chloroform	ug/L	ND	50	50	48.1	47.9	96	96	66-143	0	20	
Chloromethane	ug/L	ND	50	50	54.8	53.7	110	107	14-155	2	20	
cis-1,2-Dichloroethene	ug/L	ND	50	50	50.0	47.8	100	96	56-141	5	20	
cis-1,3-Dichloropropene	ug/L	ND	50	50	52.8	50.9	106	102	70-139	4	20	
Dibromochloromethane	ug/L	ND	50	50	48.1	45.8	96	92	50-150	5	20	
Dichlorodifluoromethane	ug/L	ND	50	50	42.6	40.6	85	81	10-173	5	20	
Ethylbenzene	ug/L	ND	50	50	51.7	50.6	103	101	57-135	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1350303 1350304

Parameter	Units	20272276002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Isopropylbenzene (Cumene)	ug/L	ND	50	50	50.2	48.4	100	97	40-146	4	20	
m&p-Xylene	ug/L	ND	100	100	104	102	103	100	56-136	2	20	
Methyl acetate	ug/L	ND	50	50	50.9	50.9	102	102	10-142	0	20	
Methyl-tert-butyl ether	ug/L	ND	50	50	48.8	48.9	98	98	35-176	0	20	
Methylene Chloride	ug/L	ND	50	50	48.6	47.8	97	96	45-166	2	20	
o-Xylene	ug/L	ND	50	50	51.3	49.2	101	97	57-133	4	20	
Styrene	ug/L	ND	50	50	47.2	45.8	94	92	58-144	3	20	
Tetrachloroethene	ug/L	ND	50	50	49.8	48.9	100	98	48-143	2	20	
Toluene	ug/L	ND	50	50	52.9	51.0	106	102	59-136	4	20	
trans-1,2-Dichloroethene	ug/L	ND	50	50	50.4	49.7	101	99	57-132	1	20	
trans-1,3-Dichloropropene	ug/L	ND	50	50	49.1	46.5	98	93	59-154	5	20	
Trichloroethene	ug/L	ND	50	50	51.9	49.8	104	100	58-140	4	20	
Trichlorofluoromethane	ug/L	ND	50	50	56.2	54.7	112	109	24-175	3	20	
Vinyl chloride	ug/L	ND	50	50	54.4	52.6	109	105	21-150	3	20	
4-Bromofluorobenzene (S)	%.						97	98	68-124			
Dibromofluoromethane (S)	%.						94	96	72-126			
Toluene-d8 (S)	%.						100	102	79-119			

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PHASE II COND. VISTA AL NORTE
Pace Project No.: 20272227

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
20272227003	**S-1 (10-12')**	EPA 5035/5030B	281622	EPA 8260	281637
20272227004	**S-A**	EPA 5035/5030B	281622	EPA 8260	281637
20272227005	**S-2 (4-6')**	EPA 5035/5030B	281622	EPA 8260	281637
20272227006	**S-3 (4-6')**	EPA 5035/5030B	281622	EPA 8260	281637
20272227007	**S-4 (6-8')**	EPA 5035/5030B	281622	EPA 8260	281637
20272227008	**S-5 (10-12')**	EPA 5035/5030B	281622	EPA 8260	281637
20272227001	**TB 031523**	EPA 5030B/8260	281860		
20272227002	**EB 031523**	EPA 5030B/8260	281860		
20272227009	**FB 031523**	EPA 5030B/8260	281860		

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WO# : 20272227

20272227

Pace Analytical

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

st Pace Workorder Number or
e 20272227

AB USE ONLY

Page 29 of 3

Container Preservative Type

ject Manager:

Company: ERTEC	Billing Information:
Address: Ahut A-5 Repto Landau Rio Piedras PR	
Report To: Andrea Aguilot	Email To: ertec@ertecpr.com
Copy To: Andrea Aguilot	Site Collection Info/Address: Bayamon
Customer Project Name/Number: Phase II Cond Vista Al Norte 23-5809	State: PR / County/City: Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET
Phone: 787 242-8902 Email: ertec@ertecpr.com	Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Jose L Rivera	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature): 4-4-12	Turnaround Date Required: STD Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: ____ [ ] Hold: ____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [X] No Analysis: ____

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other ____

Analyses

Lab Profile/Line: 14052

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips:	
Sample pH Acceptable	Y N NA
pH Strips:	
Sulfide Present	Y N NA
Lead Acetate Strips:	

LAB USE ONLY:
Lab Sample # / Comments:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	VOA									
TB 031523	WT	Grab			3/15/23	0600		3	X									
EB 031523	WT	Grab			3/15/23	0820		3	X									
~~SP~~ S-1 (10'-12')	SL	Grab			3/15/23	0900		1	X									
S-A	SL	Grab			3/15/23	0910		1	X									
S-2 (4'-6')	SL	Grab			3/15/23	0955		1	X									
S-3 (4'-6')	SL	Grab			3/15/23	1020		1	X									
S-4 (6'-8')	SL	Grab			3/15/23	1045		1	X									
S-5 (10'-12')	SL	Grab			3/15/23	1115		1	X									
EB 031523	WT	Grab			3/15/23	1140		3	X									

Customer Remarks / Special Conditions / Possible Hazards: Level II

Temp @ PPR 2.1

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2815709

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: 12
Cooler 1 Temp Upon Receipt: 1.9 oC
Cooler 1 Therm Corr. Factor: ____ oC
Cooler 1 Corrected Temp: ____ oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
ERTEC	3-15-23 1448		3-15-23 1448
	3/15/23 1700		3/15/23 1700
Fedex	3/16 835	Pace Union Cortino Pace	3/16 835

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: ____ of: ____

Pace

1000 Riverbend. Blvd., Suite F
St. Rose, LA 70087

Project #: 20272227

Courier: ☐ Pace Courier ☐ Hired Courier ☑ Fed X ☐ UPS ☐ DHL ☐ USPS ☐ Customer ☐ Other

Custody Seal on Cooler/Box Present: ☑ YES ☐ NO **Custody Seals intact:** ☑ YES ☐ NO

Samples on ice: ☑ YES ☐ NO **Type of ice:** (Wet) Blue None

Date and Initials of person examining contents: 3/16/23 MA

Temp should be ≤6°C *Temp must be measured from Temperature blank when present

Cooler #1 Thermometer Used: 18 Cooler Temp °C: (Observed) 1.9 (CF) 0 (Actual) 1.9
Cooler #2 Thermometer Used: _____ Cooler Temp °C: (Observed) _____ (CF) _____ (Actual) _____
Cooler #3 Thermometer Used: _____ Cooler Temp °C: (Observed) _____ (CF) _____ (Actual) _____
Cooler #4 Thermometer Used: _____ Cooler Temp °C: (Observed) _____ (CF) _____ (Actual) _____

Tracking # 870090518839

Temperature Blank Present*?	☐Yes ☑No ☐N/A	
Chain of Custody Present:	☑Yes ☐No ☐N/A	
Chain of Custody Complete:	☑Yes ☐No ☐N/A	
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	
Sufficient Volume:	☑Yes ☐No ☐N/A	
Correct Containers Used:	☑Yes ☐No ☐N/A	
Filtered vol. Rec. for Diss. tests	☐Yes ☐No ☑N/A	
Sample Labels match COC:	☑Yes ☐No ☐N/A	
All containers received within manufacture's precautionary and/or expiration dates.	☑Yes ☐No ☐N/A	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	☐Yes ☐No ☑N/A	If No, was preservative added? ☐Yes ☐No If added record lot #.: HNO3 _____ H2SO4 _____ Date: _____ Time: _____
All containers preservation checked found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	
Trip Blank Present:	☑Yes ☐No	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Pace Analytical

Urb. Jardines de Guaynabo
Calle Mrginal Blq A-10
Guaynabo, PR 00969

Sample Condition Upon Rece

WO# : 20272227

PM: JAR1 Due Date: 03/30/23
CLIENT: 98-ERTEC

Project

Courier: ☐ Pace Courier ☐ Hired Courier ☐ Fed X ☐ UPS ☐ DHL ☐ USPS ☑ Customer ☐ Other

Custody Seal on Cooler/Box Present: [see COC] **Custody Seals Intact:** ☐Yes ☐No

Therometer Used: ☑ Therm Fisher IR 4 #9 ☐ Therm Fisher IR 6 ☐ Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC] 2.1

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 3-15-2023 PVP/Pace

Temp must be measured from Temperature blank when present

		Comments:
Temperature Blank Present"?	☑Yes ☐No ☐N/A	1
Chain of Custody Present:	☑Yes ☐No ☐N/A	2
Chain of Custody Complete:	☑Yes ☐No ☐N/A	3
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	4
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	5
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	6
Sufficient Volume:	☑Yes ☐No ☐N/A	7
Correct Containers Used:	☑Yes ☐No ☐N/A	8
Filtered vol. Rec. for Diss. tests	☐Yes ☐No ☑N/A	9
Sample Labels match COC:	☑Yes ☐No ☐N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	☑Yes ☐No ☐N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	☑Yes ☐No ☐N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	13 If No, was preserative added? ☐Yes ☐No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	14
Trip Blank Present:	☑Yes ☐No	15 8260

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

APPENDIX 4

SOP QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)

LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT (PHASE II ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER 235869

ERTEC

STANDARD OPERATING PROCEDURE
SAMPLE QA/QC

Prepared for ERTEC, P.S.C. – Environmental Consultants
PO Box 195336
San Juan, Puerto Rico 00919-5336
(787) 792-8902

Author:	Luz E. Martinez, EIT	8/26/10 Date
Technical Reviewer:	Dave Cook, PG	8/26/10 Date
Quality Assurance Officer:	Wanda Morales, PG	8/26/10 Date

CAUTION

Disclaimer: This Standard Operating Procedure has been prepared for the sole use of ERTEC, P.S.C. – Environmental Consultants and may not be specifically applicable to activities of other organizations.

ERTEC

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1.0 OBJECTIVE

The objective of the sampling QA/QC program is to ensure the reliability and integrity of all data and documentation generated as part of the sampling program. Major elements of the program are quality control sampling, sample custody and handling, and field-generated data management.

2.0 QUALITY CONTROL SAMPLES

Quality control (QC) samples must be collected to verify that sample collection and handling procedures were performed adequately and that they have not compromised the quality of the samples. There are five primary areas of concern for quality assurance (QA) in the collection of representative samples:

1. Obtaining a sample that is representative of the aquifer or zone of interest in the aquifer (groundwater) or that is representative of the unconsolidated or consolidated formation of interest (soil/rock). Verification for groundwater samples is based on the field log documenting that the field water-quality parameters stabilized during the purging of a well prior to sample collection. Verification for soil samples is based on selecting samples that are physically uniform in color, texture, grain size, odor and field screening results.
2. Ensuring that the sampling equipment (well construction materials, purging and sampling equipment such as bailers and tubing for groundwater and drilling tools, trowels, spoons, etc. for soils) are made of materials and used in a manner that will not interact with or alter the analyses of the samples.
3. Ensuring that the results generated by the sampling procedures are reproducible; therefore the sampling program should include co-located duplicate samples.
4. Preventing cross-contamination. Sampling should proceed from the locations anticipated to be the least contaminated to those expected to be the most contaminated based on the study of available information regarding the study area. Field equipment blanks should be included in all sampling programs and proper and careful decontamination of sampling equipment is required. Various types of blanks are used to check the cleanliness of field sampling equipment. These include field blanks (equipment and trip blanks). Other QA samples include spike samples and the duplicates mentioned above.
5. Samples must be properly preserved, packaged and shipped to the analytical laboratory.

2.1 Field Duplicate Samples

Duplicate samples are collected by taking separate samples as close to each other in time and space and physical characteristics as is practical. Duplicate samples are used to develop criteria for acceptable variations in the physical and chemical composition of samples that can result form sampling procedures. They give an indication of the precision of the sampling and analytical methods used.

1. For both soil and groundwater, one field duplicate sample will be collected and analyzed for every ten samples submitted to the laboratory, or one duplicate sample will be collected each day when at least 3 environmental samples are collected. Care must be taken to ensure that each sample and its duplicate can be considered as a homogeneous sample split in two. This requires that the samples be taken at the same time from the same location, and in the case of soil samples, the samples must be homogenized (mixed) carefully in a container that will not interact with or alter the analyses of the samples.

2. A field duplicate sample will be given a different sample identification from the original sample so that it is not identified in the laboratory as a duplicate sample. The field duplicate will be entered on the chain-of- custody form as if it is a separate sample.

2.2 Field Equipment Samples

1. Field Blanks Field blanks consist of deionized water, are prepared in the field, and are preserved and handled in the same manner as regular samples. The results of the field blank analyses are compared against deionized water; and therefore, should exhibit levels below detection for all parameters. Detections of various parameters in field blanks can indicate the introduction of outside contaminants during the sampling process or from sampling equipment and supplies. Procedures are:

    a. Obtain an adequate supply of distilled, deionized (DDI) water from the analytical laboratory in clean gallon containers.
    b. Expose the DDI water in the sample container by opening it during the sampling event
    c. Close the container.
    d. Handle the field blanks in the same manner as the regular samples.
    e. Properly label the field blanks with an FB prefix
    f. Collect one field blank for every 10 regular samples or one field blank each day when at least 3 samples are collected.

2. Field Equipment Blanks Field equipment blanks (equipment rinsate blanks) are used if a sampling device is used and are taken to evaluate the likelihood, amount and type of contamination that may be introduced into samples by the sampling device. Equipment blanks allow for a cross check and, in some cases, quantitative correction for imprecision that can arise by improper handling, preservation or cleaning procedures. Procedures are:

   a. For a soil sampling event, after the sampling device has been cleaned, pour DDI water over and through the equipment so that the rinsate flows directly into the sample container(s).
   b. For a ground water sampling event, fill the sampling device with DDI water and pump or drain the DDI water from the device and fill the sample container(s) in the same manner as the regular samples.
   c. Label the sample containers with an EB prefix.
   d. Collect at least one equipment blank for every 10 regular samples or one equipment blank each day when at least 3 samples are collected.
   e. The equipment blank will be analyzed for the same parameters as the regular samples collected on that day.

3. Trip Blanks Trip blanks consist of DDI water, prepared at the laboratory immediately before leaving on a sampling run. The trip blanks are placed in the shuttle that will be filled by other samples. The trip blanks are handled in the same manner as the other samples. Detections of various parameters in trip blanks can indicate introduction of outside contaminants during sample handling in the field or from containers. Procedures are:

   a. Trip blanks will be transported to the site and will accompany the regular samples collected on a given day in a given shuttle.
   b. Do not open the trip blanks during site sampling and transportation.
   c. Label the trip blank containers with a TB prefix.
   d. Handle the samples in the same manner as the regular samples.
   e. Collect one trip blank per shuttle.

   The DDI water used for field equipment blanks must be provided by the laboratory. Analytical results for this water will be submitted by the laboratory.

2.3 Matrix Spike Samples

Matrix spike samples are samples into which a known amount of material is introduced by the analytical laboratory that will produce a known concentration of a certain parameter in the analysis of that sample. The known concentration in a spike sample should provide a parameter concentration a known amount higher (generally 30% to 500%) than that parameter in the regular sample. The results of the spike sample analysis are then compared to the known concentration. Procedures are:

1. One matrix spike and one matrix spike duplicate (MS and MSD) should be prepared for each sample delivery group.
2. Label spikes in a manner that conceals their purpose.
3. Spikes should be handled in the same manner as all other samples.
4. Triple sample volumes will be collected for each aqueous MS/MSD analysis conducted for extractable organics and VOCs.
5. A double sample volume will be collected for each aqueous MS/MSD analysis conducted for inorganics.

2.4 Drilling Water

One sample of the water to be used during drilling and well installation will be analyzed for the same parameters than the environmental samples.

3.0 SAMPLE CUSTODY

1. The sampling team will be responsible for maintaining custody of samples until they are delivered to the courier for shipment to the laboratory. All samples shipped to the laboratory will be accompanied by the laboratory Chain-of-Custody Record (Attachment A). The Chain-of-Custody Record will be completed in the field; the original form will accompany the shipment and a copy will be retained in the field project file. The Chain of-Custody will include signatures of personnel who participated in collecting the samples. Each sample container and the following corresponding information for each container will be listed:

    a. Date and time of sample collection
    b. Sample identification
    c. Sample matrix
    d. Sample type (grab, composite, blank)
    e. Requested analysis
    f. Chemical preservatives and pH achieved (if applicable)
    g. Number of containers
    h. Sampler's and receiver's signatures
    i. Any special instructions required.

2. The original Chain-of-Custody Record will be placed in a plastic bag and taped to the underside of the cooler lid.
3. Samples will be placed in a clean, dry, undamaged shuttle specially prepared by ERTEC. Sufficient ice packs will be placed in each cooler to ensure that sample temperature is maintained at approximately 4 degrees C until arrival at the laboratory. The ice packs will be distributed in the cooler as indicated by the laboratory procedures. Packaging and shipment of samples will be performed in accordance with USEPA's "User's Guide to the Contract Laboratory Program" (January 1991).
4. A sample seal will be secured to the cap or lid of each sample container prior to shipment. Sample seals will not be used on sample containers for volatile organic analysis. Sample seals will include sample number identification, date of sampling, and sampler's signature.
5. To provide a means of detecting potential tampering during shipment, all shipment containers (coolers) will have numbered custody seals. At least two seals will be affixed to each shipment container in locations that would result in damage to the seals when opened. Sampling personnel will keep a record of the custody seal numbers, and the analytical laboratory will inform ERTEC of the status of the custody seals when the shipment arrives.
6. The courier service utilized for sample shipment and the number which identifies each shipment will be recorded on the Chain-of-Custody form. A receipt from the courier service or copy of the air bill that identifies each shipment will be retained in the field project file. Samples collected during a day's sampling will be sent for next day delivery to the analytical laboratory via an overnight courier.

4.0 FIELD-GENERATED DATA MANAGEMENT

1. Field data will be recorded in a bound field logbook that will contain field activity logs, water-sampling logs, field instrument calibration logs and chain of custody forms. Field activity logs will have a description of the kind of activities performed during the day, time of activities, personnel on-site, weather conditions, amount and type of samples collected, chain-of-custody identification numbers, and custody seal numbers.

2. Field procedures, measurements, and observations will be described in sufficient detail, so as to enable others to easily reconstruct the field events. Included will be physical descriptions of samples (color, odor, texture, grain size, moisture content), a site sketch showing sampling locations, well purging stabilization measurements and field analytical screening measurements

3. The project manager will maintain all project documentation in a central project file. This file will include the following:

   a. Project plans and specifications
   b. Project set-up forms
   c. Client communications
   d. Agency communications
   e. Field data and documentation
   f. Chain-of-Custody documentation
   g. Sample identification documents
   h. Sample bottle certificates
   i. Field screening results
   j. Laboratory data packages
   k. Analyte-free water data results
   l. Data review notes
   m. Report notes and calculations
   n. Draft reports
   o. Final report with maps and drawings

5.0 ANALYTICAL DATA MANAGEMENT

1. Analytical data packages received from the contract laboratory will be compared with the list of analyses requested on the Chain-of-Custody record to ensure all analyses were performed.

2. Instrument detection limits will be checked by the PM to make sure they are adequate and appropriate.

3. The date of analysis will be checked by the PM to make sure it is within required holding times.

4. The laboratory report will be checked by the PM to identify obvious problems with QA/QC samples such as parameter detections in blanks and inconsistent results between duplicates.

5. The laboratory should be contacted immediately by the PM if problems are detected to identify the causes.

6. Analytical data received from the contract laboratory (magnetic media or hardcopy) will be validated, reduced, and reported by a third party to be determined. When the party is selected, the name of the person that will be performing the data validation and his or her resume will be submitted to the Client for approval.

7. The validation report will be reviewed by the PM to identify potential problems with the analytical results. These problems should be immediately discussed with the laboratory to identify the causes.

ATTACHMENT A

TYPICAL CHAIN OF CUSTODY

CHAIN OF CUSTODY
ERTEC

PROJECT NAME:	SAMPLED BY (PRINT):
PROJECT NUMBER:	SAMPLER SIGNATURE:
LOCATION:	PROJECT MANAGER:
P.O. NUMBER:	DELIVERED TO:

Sample ID & Place Sampled	DATE	TIME	Container		Type	Matrix	Sample Source	Preservative	Analysis			Remarks
			Size	Qty								

	Name (PRINT)	Signature	Organization	Date	Time
Relinquished By:					
Accepted By:					
Relinquished By:					
Accepted By:					

KEY: TYPE: (G)rab, (C)omposite MATRIX: (W)ater, (S)oil, (A)ir, (S)ludge, (WP) wipe, (CM) Construction Material SOURCE: (V)easer, (B)ring, (W)ell, (S)urface soil, (A)ir, (SW)surface water PRESERVATIVE: (N)one

ERTEC

APPENDIX 5

FIELD FORMS

LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT (PHASE II ESA)
CONDOMINIO VISTA AL NORTE
CAMINO PIEDRAS BLANCAS, BO. PIEDRAS BLANCAS
GUAYNABO, PUERTO RICO

ERTEC PROJECT NUMBER 235869

ERTEC

REUNIÓN DE SEGURIDAD

Fecha Reunión 15/Mar/2013 Cliente SCF ARCHITECTS
Identificación Proyecto 33-5869 Nombre del Proyecto Phase II Cond. Vistas del Norte
Localización de Proyecto Drilling, Sampling Guaynabo PR
Alcance del Trabajo Drilling, Sampling

TÓPICOS DE SEGURIDAD

Plan de Seguridad Y Salud

Se discutió el Plan de Seguridad Sí (X) No ( )
Se revisaron los Análisis de Tarea Segura (ATS) Sí (X) No ( ) Se completó análisis de riesgo Sí ( ) No ( )
Se completó Permiso de trabajo Sí (X) No ( )
Se obtuvo copia de Adiestramientos de Seguridad y Salud de los participantes Sí (X) No ( )
Se identificó alguna tarea que requiera Lock-out/ Tag-out Sí ( ) No (X)
Específique (cual) _____

Identificó Peligros Químicos: ❑ Gasolina ❑ Diesel ❑ Aceite ❑ Kerosén ❑ Otros
Específique VOCs **(Verificar MSDS)**

Peligros Físicos de Utilidades Soterradas:

❑ Líneas Eléctricas Aéreas ❑ Separadores de Grasa ❑ Pozo Séptico
❑ Conductos de Desagües Soterrados ❑ Tubería Soterrada de Agua Potable
❑ Líneas Eléctricas Soterradas ❑ Tubería Soterrada de Aire Comprimido
❑ Tubería Telefónica ❑ Tubería Sanitaria ❑ Cable TV ❑ Otros

Equipo de Protección Personal:

❑ Capacete ❑ Gafas Protectoras ❑ Camisa de manga larga ❑ Botas de Seguridad ❑ Botas de Goma ❑ Protección Oídos ❑ Chaleco Reflector ❑ Equipo Especial ❑ Tyveks
❑ Guantes Nitrilo ❑ Guantes Cuero ❑ Guantes de Protección Cortaduras (Kevlar)
❑ Respiradores Mascara (half face with cartridge)

Otros:

❑ Equipo de Primeros Auxilios ❑ Extintor de Fuego ❑ Equipo de Control de Infección
❑ Protector solar ❑ Repelente de Insectos

Controles de Seguridad Tráfico:

❑ Conos ❑ Cinta seguridad ❑ Banderines ❑ Barricada Flexible (malla)
❑ Rótulos (no fume; no entrar; no celular; PPE; Reduzca Velocidad)

Procedimiento de Emergencia:

Se discutió Ruta de Desalojo Sí (X) No ( )
Puntos de Reencuentro en Proyecto (1) Calle Piedras Blancas (2) Lado Norte
Nombre Hospital más cercano Guaynabo Medical Mall Teléfono de Hospital 787 281-4093
Dirección Física de Hospital Ave. Las Cumbres #140 Guaynabo, PR
Se discutió Mapa/Ruta de Hospital Sí (X) No ( )
Teléfono de Bomberos 787 731-2330 Teléfono de Policía 787 731-2020
Teléfono de Junta de Calidad Ambiental (787) 767-8181
Nombre de Cliente (PM) o Contacto _____ Teléfono del Cliente _____

Prueba de Salud y Seguridad

1. ¿Quién está autorizado para usar la autoridad para detener labores? (Circule la contestación correcta)

   a) Oficial de Salud y Seguridad de Campo
   b)Líder de Operaciones de Campo
   c) Gerente del Proyecto
   d)Miembros del Equipo de Campo
   e) Solo a) y b)
   f)Toda las anteriores

2. ¿Cuáles son las tres tareas (pasos) de la Autoevaluación de Seguridad (SPSA, por sus siglas en inglés)?

   Evaluar ; Analizar ; Actuar

3. Quien es:

   ¿El Oficial de Salud y Seguridad de Campo para el día de hoy? José L Rivera

   ¿El Líder de Operaciones de Campo para el día de hoy? José L Rivera

   ¿El Subcontratista para el día de hoy?

4. ¿Qué Análisis de Trabajo Seguro se usará para el día de hoy?

   Barrenado con Geo Probe

5. ¿En qué lugar se encuentra el botiquín de primeros auxilios? Area Excavacion

El que suscribe participó en la reunión diaria de Salud y Seguridad y entendió todos los tópicos discutidos.

Nombre	Firma	Fecha Último Examen Alcohol & Drogas	Posición
[illegible]	[illegible]	2/23	[illegible]

Reunión conducida por: _____

José L Rivera	[signature]	PRTEC	15/Marzo/2023
Nombre (Letra de Molde)	**Firma**	**Afiliación**	**Fecha**

Revisado por:

José L Rivera	[signature]	PRTEC	15/Marzo/2023
Nombre (Letra de Molde)	**Firma**	**Afiliación**	**Fecha**

Leyenda:

Lock-out/Tag-out	=	Asegurar interruptor de energía
MSDS	=	Hoja de Datos de Material de Seguridad
First Aid Kit	=	Equipo de Primeros Auxilios
PPE	=	Equipo de Protección Personal
PM	=	Gerente de Proyecto

h/wpff/Formas de Campo –Reunión de Seguridad (Rev. Vii 12-18-13 olf)

Análisis de Trabajo Seguro - Barrenado con Barrenas Huecas o GeoProbe con Muestreo de Suelo e Instalación de Pozo de Monitoría ERTEC

El Supervisor de Campo debe revisar el plan de trabajo específico al trabajo a realizar. Además se debe realizar y documentar una reunión de seguridad al comienzo de cada día de trabajo. El procedimiento de Auto Evaluación de Seguridad (AES) debe ser usado durante cada actividad de campo. Debe considerarse cambios en las condiciones del tiempo (lluvia, relámpagos, vientos fuertes, etc.).

Fecha de Preparaci	12/19/18 Rev5
Descripción	Operación de Máquina de Barrenado con Barrenas Huecas o Barrenadora Neumática GeoProbe con Muestreo de Suelo e Instalación de Pozo de Monitoría

Equipo Preparador	**Posición/Título**	**Fecha**
Andrés Cosme	Operador de Perforación	12/19/2018
José L. Rivera	Supervisor de Campo	12/19/2018
Revisado por	**Posición/Título**	**Fecha**
Oscar Fontán	Oficial de Salud y Seguridad	12/19/2018

Equipo de Protección Personal (EPP) requerido

Casco, protección auditiva (tapaoidos), chaleco reflector, camisa manga larga, guantes de protección resistentes a cortaduras (nivel 2), guantes de Nitrilo y cuero de alta visibilidad, gafas de seguridad, botas de seguridad con punta de acero y protección en suela contra perforaciones

Equipo de seguridad adicional

Equipo de monitoría de aire (OVA y explosímetro), botiquín de primeros auxilios, equipo para el control de infecciones, repelente de insectos, protector solar, solución para lavado de ojos, conos, barricadas, cinta de precaución, banderines, letreros, extintor de incendios.

No.	Job Steps	Potential Hazards	Critical Action (s)
1	Mobilización al sitio (vehículos y maquinas de barrenado) Core safety expectation;#4 siempre seguir los procedimientos de maquinarias criticas.	1. Accidente vehícular	1. Siga los procedimientos de seguridad al conducir (mantener distancias, velocidad, luces, cinturones de seguridad, etc.) No utilice el teléfono celular mientras conduce. Realizar inspecciones completas de los vehículos antes de salir de la oficina.
		2. Fallas en el equipo y funcionamiento (maquina de barrenado y GeoProbe)	2. Realice una inspección completa de las plataformas antes de salir de la oficina. Inspeccione todas las mangueras y líneas hidráulicas, grietas, roturas, abombamientos y razgados. Documentar todas las inspecciones. Verifique los dispositivos de seguridad, tales como protectores estén en su lugar y funcionando. Pruebe el interruptor de la plataforma. Como se indica en el Plan de Salud y Seguridad, una plataforma de perforación y todos los equipos deben ser inspeccionados antes de usar para determinar si alguna pieza o parte debe ser sustituida. Busque mangueras desgastadas o válvulas que tengan el potencial de fugas. No continúe hasta que todo pase la inspección. Repita la inspección antes del inicio de los trabajos, todos los días laborables.
		3. Pérdida de equipo/ materiales desde vehículos en movimiento	2. Asegure adecuadamente todo el equipo y materiales antes de operar los vehículos y las plataformas de perforacón. No sobrecargue.
2	Ubicación de el equipo en cada punto de perforación Core safety expectation;#4 siempre seguir los procedimientos de maquinarias criticas.	1. Golpe por vehículo en movimiento	1. Ubique los conos de seguridad/ barricadas para establecer el área de trabajo. Mantengase a 15' de la batea de descontaminación. Utilice las luces de peligro del vehículo, conos reflectores visibles y chalecos reflectores. Coloque el vehículo bloqueando la zona de trabajo. Ubique el área de descontaminación y el punto de reunión contra la direccion del viento.
		2. Resbalones/ tropezones/ caídas	2. Escanear el suelo frente a la ruta a pie para los obstáculos o condiciones humedad/ traicioneras. Si hay escombros, rocas, u otros objetos en su área de trabajo inmediata, detengase y mueva antes de continuar. Tenga cuidado cuando esté parado sobre plástico mojado.
		3. Cortaduras y laceraciones/ puntos de pellizco	3. Use guantes de cuero/ Kelvar a la hora de realizar tareas que envuelva riesgos a las manos. Busque y evite colocar las manos entre objetos adyacentes, y entre los objetos y el suelo. Identifique los puntos de pellizco en el área de trabajo, herramientas y equipos. El uso de cuchoillas de hojillas abiertas ("FBOK"). Corte hacia afuera de las manos y el cuerpo. Mantener 4' retirado al personal más cercano al utilizar las herramientas de corte.
		4. Tirones de espalda	4. Utilice dos hombres para cargar y descargar camiones y para cargas de más de 50 libras. Dobla las rodillas, no la cintura. Levante haciendo la fuerza con las piernas, no la espalda. Evite movimientos de esfuerzo excesivo, movimientos de torsión y posturas incómodas. Consigua un buen agarre del objeto y levante lentamente con las piernas.
		5. Riesgos biológicos	5. Sea consciente de la posibilidad de que su área de trabajo, en particular en vegetación densa, puede ser hábitat de anidaje de riesgos biológicos. Realice una ATS exhaustivo antes de acercarse a su zona de trabajo, aún si no hay signos presentes, esten alertas a las posibilidades. Use Tyvek si hay hiedra/ roble venenosos y/o garrapatas presentes y refierase a las instrucciones específica para todos los peligros biológicos potenciales presentados en el Plan de Salud y Seguridad.
		6. Vuelco de maquinaria pesada y equipo	6. Use guantes de cuero cuando opere/ cargue/ descargue la plataforma de perforación. Cuando ubique la localización de la perforación, busque superficie del terreno desigual u obstáculos que pueden encontrar. Una vez en su lugar, use las patas estabilizadoras de la plataforma y ponga el freno de estacionamiento para ayudar a estabilizar la plataforma y evitar vuelcos en terrenos blandos o superficies irregulares. Una vez que la plataforma esté en su lugar, bloquee las ruedas o el freno de estacionamiento y baje la estabilización de las patas. Cuando la plataforma se mueve entre las ubicaciones de perforación, la trayectoria de movimiento será comunicada a todo el personal en el área. Use un observador según sea necesario. Un plan de comunicación, incluyendo el uso de señales de mano, se establecerá entre el operador y vigilante antes de cualquier movimiento de la plataforma. Mástil de la plataforma debe estar libre de toda obstrucción suspendida. Nunca mueva la plataforma si el mástil se extiende hacia arriba.

3	Operación de Barrenas Huecas o GeoProbe Core safety expectation;#4 siempre seguir los procedimientos de maquinarias criticas.	1. Partes rotativas y maquinaria	1. Complete la verificación de los primeros 8 pies "BGS" usando el barreno manual. Use su mejor juicio ante la posibilidad de líneas soterradas. Si usa el barreno de mano, y las barrenas a utilizar para completar el bareno son de un diámetro mayor, realice la verificacion en tres puntos. Mire hacia arriba para ayudar en la identificación de peligros sobre su cabeza. Cuando la plataforma de barrenado está en funcionamiento, los peatones/ observadores, aparte de el operador y el ayudante, deben estar a por lo menos 10 pies de distancia del equipo . Nadie, incluyendo el operador y el ayudante debe estar cerca de las barrenas mientras giran. Los controles deben estar al nivel de la cintura para evitar lesiones a la espalda al doblarse o estirarse. Al añadir o eliminar extensione , la plataforma debe estar quieta y todas las manos deben estar fuera del panel de control para evitar el movimiento inesperado. Todas las herramientas y el equipo deben mantenerse a una distancia segura de los barrenos giratorios. No use ropa suelta, ni joyas, ya que puede quedar atrapado en las piezas giratorias y enrredarse en el equipo de perforación. Además, siempre amarrar el cabello largo.
		2. Cortaduras y laceraciones/ puntos de pellizco	2. El martillo de la plataforma es muy poderoso y todas las manos deben estar retiradas de los equipos antes de que se activen los controles. Use guantes de cuero para protegerse contra heridas/ laceraciones con bordes afilados que pueden crearse martillar durante la manipulación de las cucharas divididas o la obtención de la cantidad de golpes.
		3. Exposición a químicos (cutánea e inhalación)	3. Use guantes de nitrilo debajo de los guantes de cuero para protegerse del contacto con posibles materiales contaminados al manipular las extensiones. Tome lecturas de vapores y explosividad. Trabajar con los niveles de explosividad apropiados. Consulte el Plan de Salud y Seguridad para los requisitos de monitoreo del aire específicos, incluyendo la calibración de los equipos antes de comenzar los trabajos. Párese contra el viento del polvo en el aire, partículas o polvo de cemento, o use una máscara antipolvo si es necesario.
		4. Ruido	4. Utilice siempre protección para los oídos cuando un equipo está en funcionamiento (> 85 dBA)
4	Descripción del suelo y muestreo	1. Cortaduras y laceraciones	1. Use siempre un guante resistente a cortaduras nivel 2 por debajo de los guantes de nitrilo para proteger las manos de cortes o laceraciones al cortar secciones de suelo y obtener muestras del suelo. No utilice cuchillas de hoja fija o abiertos ("FOBK"). Coloque la muestra de suelo en una superficie de trabajo que está a nivel de la cintura. Si esto no es posible, se arrodillese en el suelo para que la superficie de trabajo esté en un lugar adecuado.
		2. Suelo, polvo u objetos por el aire	2. Al extraer el la muestra de suelo del muestreador, tenga en cuenta que las arcillas se expanden y se crea presión cuando se comprimen. El suelo cortado puede levantarse en el aire si hay demasiada presión presente. Mantenga todo el personal alejado de la línea de fuego.
		3. Peligros químicos	3. Use siempre guantes de nitrilo para manipular material lpotencialmente impactados. Monitorear el aire continuamente usando un medidor de 4 gases. Consulte el Plan de Salud y Seguridad para los requisitos específicos del monitoreo del aire.
5	Instalación de pozo de monitoría Core safety expectation #5 siempre tener el equipo de proteccion adecuado para cada tarea.	1. Cortaduras y laceraciones/ puntos de pellizco	1. Use siempre un guante resistente a cortaduras nivel 2 para proteger las manos de cortes o laceraciones al cortar los tubos PVC durante la construcción de los pozos. Los tapones y registros de los pozos son puntos de pellizco.
		2. Peligros químicos/ inhalación	2. SIEMPRE use una mascarilla contra el polvo al mezclar el cemento Portland. Use guantes para evitar el contacto con el cemento.
		3. Tensión de espalda	3. Use técnicas adecuadas para levantar pailas de bentonita y bolsas de arena de sílica. Levantar sacos de > 50 libras entre dos personas. No sobrecargue la pala, tome su tiempo.
6	Decontaminación del equipo	1. Cortaduras y laceraciones, quemaduras	1. Use guantes de cuero sobre los guantes de nitrilo a desarmar los equipos, ayuda al agarre y evitan cortes con el equipo. Esté al tanto de las superficies calientes.
		2. Peligros de levantamiento/ tensión de espalda	2. Utilice técnicas de levantamiento adecuadas. Solicite ayuda para levantar equipo pesado. Utilice la plataforma rodante para el transporte de drones de 55 galones.
		3. Peligros químicos	3. Use siempre guantes de nitrilo con Kevlar y guantes de cuero para manipular el equipo que tiene el potencial de haber estado en contacto con contaminantes. Enjuague tres veces usando agua destilada o ionizada y Alconox para el primer enjuague y agua destilada o desionizada para segundo y tercer enjuague. Siempre limpie los materiales entre ubicaciones y en el sitio. Utilizar un traje Tyvek, careta, guantes de nitrilo y botas de goma cuando descontamine las barrenas con vapor. No transporte el equipo sin la descontaminación adecuada. Ubique la batea de descontaminación para que nadie esté a favor del viento con vapor de agua. Eliminar el agua de descontaminación en drones aprobados de 55 galones.

He leido este ATS, y entiendo los peligros y las prácticas de trabajo seguro asociados a esta tarea.

Nombre	Fecha 15/Marzo/2023
Nombre	Fecha 15/3/23
Nombre	Fecha
Nombre	Fecha

ERTEC

ERT-FF05b-13

FORMULARIO DE CALIBRACIÓN DE OVA

NOMBRE DEL PROYECTO: Phase II Land Vista al Norte

FECHA: 3/15/23 **(mm/dd/aa)**

NÚMERO DEL PROYECTO: 23-5869

NÚMERO SERIE OVA: SN-936764

HORA DE CALIBRACIÓN: 0860

PERSONA A CARGO DE CALIBRACIÓN: Jose LRivera
Nombre (letra de molde)

MODELO OVA: MiniRae 3000

GASES UTILIZADOS PARA CALIBRACIÓN

(X) ISOBUTILENO ( ) HEXANO ( ) METANO

Núm. Lote Gas Calibración / Fecha Expiración _____/_____

LECTURA DE CONFIRMACIÓN DESPUES DE CALIBRADO EL INSTRUMENTO
100 (ppm)

Leyenda:

OVA: Analizador de Vapores Orgánicos
ppm: Partes por millón

FIRMA: [signature]

Revisado por:			
Jose LRivera	[signature]	ERTEC	15/Marzo/2023
Nombre (letra de molde)	Firma	Afiliación	Fecha

ERTEC

ERT-FF06-13

FORMULARIO DE CALIBRACIÓN DEL EXPLOSÍMETRO

NOMBRE DEL PROYECTO: Phase II Cond. Vista 1 Norte

FECHA: 3/15/23 (mm/dd/aa)

NÚMERO DEL PROYECTO: 23-5969

NÚMERO SERIE EXPLOSÍMETRO: Q116-015016

HORA DE CALIBRACIÓN: 0806

PERSONA A CARGO DE CALIBRACIÓN: Jose L Rivera
Nombre (letra de molde)

MODELO: QUATTRO

GASES UTILIZADOS PARA CALIBRACION

CO ( ) CH_4 (X) O_2 ( ) H_2S (X)

Núm. Lote Gas Calibración / Fecha Expiración _____/_____

LECTURAS DE CONFIRMACIÓN DE CALIBRACIÓN

% LEL: 50

% O_2: 18.0

PPM CO: 100

PPM H_2S: 25

FIRMA: [signature]

Revisado por:			
Jose L Rivera	[signature]	ERTEC	15/March/2023
Nombre (letra de molde)	Firma	Afiliación	Fecha

Leyenda:

LEL:	Lower Exposure Limit	H_2S:	Sulfato de Hidrógeno
ppm:	parts per million		
CO:	Oxido de Carbono		
O_2:	Oxígeno		

ERTEC **AMBIENT AIR MONITORING FORM (OVA/EXPLOSIMETER)** FF-20-13

PROJECT NAME: Phase II Cond. Vista al Norte
ERTEC JOB NUMBER:
PROJECT LOCATION:

Date of Reading: 3/15/23
Instrument Number: 593-926564 / 9116 45-016
Calibration Date: 3/15/23
Calibration Time: 0800
Activity Performed: Barrenado Muestreo de suelo
PM/Staff: Andres Aguilar / Jose L Rivera
Technician: Jose L Rivera

Legend:

ppm:	Parts Per Million
LEL :	Lower Exposure Limit
O_2:	Oxygen
CO:	Carbon Monoxide
H_2S:	Hydrogen Sulfide
OVA:	Organic Vapor Analyzer

PID READINGS				EXPLOSIMETER READINGS				
Reading No.	Reading Time	Ambient Air Reading (ppm)	Working Personnel Reading (ppm) in breathing area	% LEL	% O_2	CO (ppm)	H_2S (ppm)	Comments
1	0900	0	0	0	20.9	0	0	Drilling S-1
2	1000	0	0	0	20.9	0	0	Drilling S-2
3	1100	0	0	0	20.9	0	0	Drilling S-5
4								
5								
6								
7								
8								
9								
10								
11								
12								

Reviewed by:

Jose L Rivera — Name (print letter)
[signature] — Signature
ERTEC — Affiliation
15/MAR/2023 — Date

SUBSURFACE CLEARANCE PROTOCOL CHECKLIST

Site Identification: Cond. Vista al Norte Site Location Aguadilla, PR

Project Work Summary Utility Survey en los puntos donde se realizarán los barrenos

Project Consultant/Contractor:

Person Overseeing Work

ACTIVITY	Yes	No/ NA	COMMENTS INCLUDING JUSTIFICATION IF RESPONSE IS NO OR NOT APPLICABLE
Initial Site Visit and Selecting Ground Disturbance Locations			
JSA's complete /compliant per LPS guidance. Worker's properly trained and briefed on potential site / work hazards and safety SPSA's conducted / planned for site/operation LPO's conducted / planned Morning Safety Meeting planned / completed	✓		
HASP is available and all contractors and subcontractors are familiar with it.	✓		
All applicable local, state and federal permits have been obtained.	✓		
Site access / permission has been secured.	✓		
Most recent as-built drawings and/or site plans (including UST, product and vent lines) obtained.		✓	Solar valdío
Reviewed site information to identify subsurface structures relevant to planned site activities (easements, right-of-ways, historical plot plans, fire insurance plans, tank dip charts, previous site investigations, soil surveys, boring logs, aerial photographs etc.).		✓	
Utility mark-outs have been performed by public utility company(s) Mark-outs clear / visible		✓	Solar usado, que pertenecía a una industria
Subsurface structure mark-outs performed by private mark-out company. Mark-outs clear / visible	✓		
Location of all aboveground indicators of subsurface utilities/services that may be leading to or from buildings within the planned work area has been identified.		✓	
Location of utility mark-outs by all utility companies previously contacted has been identified within required time period.		✓	
Location of all subsurface structure mark-outs by private mark-out company has been identified within required time period.		✓	

ACTIVITY	Yes	No / NA	COMMENTS INCLUDING JUSTIFICATION IF RESPONSE IS NO OR NOT APPLICABLE
Location of area lights/signs and associated subsurface lines identified.		✓	
Location of all phones and associated subsurface lines identified.		✓	
Location of all drains and associated interconnecting lines identified.			
Location of all electrical junction boxes and associated interconnecting lines identified		✓	
Location of all natural gas meters or connections and all interconnecting lines identified		✓	
Location of all other utilities/services (including fire hydrants, on/below grade electrical transformers, splice cages, sewer lines, pipeline markers, cable markers, valve box covers, clean-outs / traps, sprinkler systems, steam lines (including insulated tanks that may indicate steam lines), and cathodic protection on lines/tanks) identified		✓	
Dispenser pan inspected to determine piping materials and whether piping is rigid or flexible		✓	No fue estacion de gasolina
Location of tank field, observation wells, dispensers, vent stacks, UST fill points, and emergency shutoff switch has been identified.		✓	NO hubo tanques soterrados
Orientation, arrangement, location, sizes, of tanks, STP and extractor covers identified. Burial depth of tank determined if relevant.		✓	
Location of paving scars indicative of product lines or other subsurface structures identified.		✓	
Presence of underground pipelines associated with pumps and pump galleries, manifolds, tank fields, compressors, production wells, loading racks and equipment identified.		✓	
Presence of underground lines for instrumentation, process analyzer, and motor-operated valves are inspected/identified.		✓	
Presence and tracing of process/storm sewers identified / understood.		✓	
Location of other pertinent features that may be of relevance to work scope has been identified.		✓	
Existing remediation systems (above-ground components, well covers, new pavement/asphalt that may indicate subsurface piping, etc.) have been identified.		✓	

ACTIVITY	Yes	No / NA	COMMENTS INCLUDING JUSTIFICATION IF RESPONSE IS NO OR NOT APPLICABLE
All other pertinent surface features identified.		✓	
Clearance methods approved by PM.	✓		
Critical zones - 10 feet (3 meters) distance from edge of tank, pumps and pump galleries, manifolds, on/below grade transformers, compressors, production wells, loading racks, other process equipment, operating dispenser islands and suspected hazardous/critical utilities, product lines, and other subsurface structures (and entire area between tank field and dispensers at retail sites) have been identified. Identify critical zones in Comments section.		✓	
Ground disturbance locations reviewed by PM.	✓		
Subsurface Structure Delineation Activities			
HASP is available and all contractors and contractors are familiar with requirements.	✓		
Subsurface Clearance Protocols have been reviewed with all site personnel involved in subsurface disturbance activities.	✓		
Work area is secured. Site work permits have been obtained. Emergency shut-off switch is located. Fire extinguishers / warning signs are present. Other safety equipment as needed	✓		
Required paving or surface improvement has been removed to allow clear visibility of subsurface conditions.	✓		
If conducting borehole advancement activities: First 4 feet (1.2 meters), or deeper in areas where expected frost levels are greater than 4 feet, has been delineated utilizing most effective method (e.g. vacuum digging, probing, hand digging, etc.) Note methods used in Comments.	✓		
If conducting borehole advancement activities in critical zones (and non-critical zones if possible): Second 4 feet (total of 8 feet (2.4 meters)) has been delineated. Note methods used in Comments.	✓		
If conducting trenching/excavation activities in critical zone: First 4 feet (1.2 meters), or deeper in areas where expected frost levels are greater than 4 feet, assessed for below grade issues. Note methods used in Comments.	✓		
If subsurface structures exposed, extra precautions have been taken to ensure structural integrity.	✓		

Comments / Findings	**Actions to Close Out Items**	**Person Completing / Date**

Form Completed by: Jose L Rivera
Name

Signature [signature] PRTEC 15/Mar20/2023
Company Date