Environmental Assessment
Determinations and Compliance Findings for HUD-assisted Projects
24 CFR Part 58

Project Information

Project ID: PR-RGRW-04112

Project Name: MC FARM, LLC

Responsible Entity: Puerto Rico Department of Housing

Grant Recipient (if different than Responsible Entity): Same as above

State/Local Identifier: Puerto Rico/Cidra, PR

Preparer: Gabriela Rodríguez

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

Consultant (if applicable): Tetra Tech, 251 Calle Recinto Sur, Ste. 202, San Juan, PR 00091

Direct Comments to: PRDOH (environmentcdbg@vivienda.pr.gov)

Project Location:

The property is a 0.27-acre site located at Villa de San Martin #13 KM 2.6 in the Municipality of Cidra, Puerto Rico (Parcel ID# 275-040-277-10-000). The coordinates of the project site are 18.1741241, -66.1267237.

Past use of land is unknown. The proposed project will be situated on a residential lot proposed to be used for agricultural purposes.

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

The intent use of funds includes the purchase and installation of a new Farm in the City Controlled Environment Vertical Harvest Module at coordinates 18.1741241, - 66.1267237. The applicant proposes the purchase and installation of a 20-foot (ft) x 8 ft metal greenhouse module to be installed on a 10 ft x 44 ft wood frame filled with gravel. Due to the dimensions of the proposed Module at least 6 pillars at an approximate depth of 3 ft are required. Minimal ground disturbance is required for the installation of the proposed module. The module is going to be used for seeding and cropping of vegetables such as Boston lettuce, kale, basil and spinach.

The applicant proposes the location of the harvesting module behind the existing residence structure. The facilities are connected to local power and water utility services. Water service will be extended approximately 15 ft through a ½ inch (") PVC aboveground pipe from an existing faucet water pipe located in the existing concrete steps leading to the backyard patio. Power service connection will be extended from the breaker panel box located at the garage, currently used as storage room, through an approximately 35 ft aboveground electrical conduit. While the applicant plans to pay for this activity themselves and no HUD funds would be utilized for this portion of work, the potential impacts from this action are included in the analyses below and it is contained within the delimited Area of Potential Effect (APE). this APE has been extended to allow for utility connections and is constrained to the north, east, west, and south by the parcel boundary. The APE for the proposed project is approximately 0.27 acres.

The project site will require clearing, grading, and vegetation removal. However, proposal does not contemplate cutting, pruning or transplanting of trees.

Site photos are included in **Appendix A**. A site map (Figure 1) is included in **Appendix B**.

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

The Re-Grow Puerto Rico Urban-Rural Agriculture Program (RGRW) will increase agricultural capacity while promoting and increasing food security island wide. This Program will enhance and expand agricultural production related to economic revitalization and sustainable development activities. The purpose of this project is to increase the productivity of the farm. This agricultural project associated with the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module is keeping with the overall objectives of the Economic Development Program.

Existing Conditions and Trends [24 CFR 58.40(a)]:

The land proposed for the installation of the Farm in the City Controlled Environment Vertical Harvest Module is used for residential purposes. Therefore, there is change in land use associated with the project. Some ground disturbance will be required.

Structure of this Environmental Review Report (ERR).

This ERR discusses the Funding Information immediately below. The environmental impacts of the proposed action are discussed in the Compliance with 24 CFR 58.5 and 58.6 Laws and Authorities checklist and Environmental Factors checklist. The listing of Additional Studies Performed, and Sources, Agencies and Persons Consulted follows the checklists. The discussions of Public Outreach, Cumulative Impacts, Alternatives, and Summary of Findings and Conclusions are presented at the end of the ERR, before the listing of Mitigation Measures and Determination signatures. The appendices contain detailed information.

Appendix A – Site Inspection

Appendix B – Maps
Appendix C – Additional Documentation
Appendix D – Endangered Species
Appendix E – SHPO Consultation

Funding Information

Grant Number	HUD Program	Funding Amount
B-17-DM-72-0001, B-18-DP-72-0001, B-19-DP-78-0002, B-18-DE-72-0001	Community Development Block Grant – Disaster Recovery (CDBG-DR) CDBG-DR, Re-Grow Puerto Rico Urban-Rural Agricultural Program	$11,938,162,230

Estimated Total HUD Funded Amount: $100,000.00

Estimated Total Project Cost (HUD and non-HUD funds) [24 CFR 58.32(d)]**:** $100,000.00

Compliance with 24 CFR 58.5 and 58.6 Laws and Authorities

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

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 58.6		
Airport Hazards 24 CFR Part 51 Subpart D	Yes ☐ No ☒	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The nearest civil airport, Fernando Luis Ribas Dominicci, is approximately 103,210 feet from the proposed site. The nearest military airport, Luis Muñoz Marín International Airport, is approximately 102,583 feet from the proposed site. The project site is not within 15,000 feet of a military airport or 2,500 feet of a civilian

		airport. The project is in compliance with Airport Hazards requirements. Refer to Figure 2 in **Appendix B.**
Coastal Barrier Resources Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	Yes ☐ No ☒	Puerto Rico has various Coastal Barrier Resources Systems (CBRS). The project is in Central Region of Puerto Rico. The distance to the nearest CBRS unit is 79,092 feet. Therefore, this project has no potential to impact a CBRS Unit and is in compliance with the Coastal Barrier Resources Act. Refer to Figure 3 in **Appendix B**.
Flood Insurance Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]	Yes ☐ No ☒	The Project site is located in Zone X, area of minimal flood hazard, as per Floodplain Insurance Map 72000C1195H, effective date April 19,2005. This project is in compliance with Floodplain Insurance requirements. (See Figures 4 and 5 in **Appendix B**.)

STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 58.5		
Clean Air Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Yes ☐ No ☒	The Project site is not located in a county or air quality management district that is non-attainment status for any criteria pollutants. The Municipio of Cidra is not listed in the EPA Green Book "Puerto Rico Nonattainment/Maintenance Status for Each County by Year for all Criteria Pollutants". The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. Project would have no impact on air quality. The project is in compliance with Clean Air Act. Refer to EPA listing in **Appendix C**.
Coastal Zone Management Coastal Zone Management Act, sections 307(c) & (d)	Yes ☐ No ☒	The project is located 73,737 feet from the nearest Coastal Zone Management area and does not affect a Coastal Zone as defined in the PR Coastal Zone Management Plan. The project is in compliance with the Coastal Zone Management Act. See Figure 7 in **Appendix B**.
Contamination and Toxic Substances	Yes ☐ No ☒	A site visit conducted on December 15, 2023, no debris or rubbish or visible signs vegetative stress, contamination, or toxic substances were identified at the project site. The project consists

24 CFR Part 58.5(i)(2)		of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. Site contamination was evaluated through online data searches to determine if toxic sites are located within 3,000-feet of the proposed project. There are no sites of environmental concern identified within 3,000 feet of the project site.Refer to Figures 8 and 9 in **Appendix B** and the Site inspection report and photos in **Appendix A**. The project is in compliance with Contamination and Toxic Substances.
Endangered Species Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402	Yes ☒ No ☐	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The proposed location of project is an area that has been used for residential purposes. According to EPA NEPAssist Enviromapper, the nearest critical or proposed critical habitat is 29, 201 feet to the southeast of the project location. The Official Species List from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website lists the Puerto Rican Boa and the Puerto Rican plain pigeon as being able to be found in the area, but there are no critical habitats for them at this location. A site-specific review of endangered species was conducted in accordance with the Fish and Wildlife Act (47 Stat. 401, as amended: 16 U.S.C. 661 et seq.) (See **Appendix D**). The proposed project will have No Effect on Puerto Rican boa. Based on the nature of the project, scope of work, information available, and a careful analysis of the Project Site, and IPaC species list, it was determined that there would be No Effect for the listed species. The project is Not Likely to Adversely Affect (NLAA) the Puerto Rican plain pigeon, provided conservation measures are implemented as part

		of the project. An informal consultation was made to USFWS on October 13, 2023. USFWS concurred with a finding of **Not Likely to Adversely Affect the Puerto Rican plain pigeon** on October 27, 2023. If a Puerto Rican Boa is encountered, work will cease until it moves off the site or, failing that, the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Rangers will be notified for safe capture and relocation of the animal, in accordance with the USFWS Puerto Rican Boa Conservation Measures. If a Puerto Rican plain pigeon is found within any of the working or construction areas, activities should stop at that area and information recorded. Designated personnel shall immediately contact the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Rangers for additional directions (PRDNER phone #s: ((787) 724-5700, (787) 230-5550, (787) 771-1124). Refer to Figures 10 and 11 in **Appendix B** and the Endangered Species Package in **Appendix D**. This project is in compliance with the Endangered Species Act.
Explosive and Flammable Hazards 24 CFR Part 51 Subpart C	Yes ☐ No ☒	The project does not include development, construction, or rehabilitation that will increase residential density. The project is in compliance with Explosive and Flammable Hazard requirements. Refer to site visit report in **Appendix A**.
Farmlands Protection Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	Yes ☐ No ☒	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The project site is designated as farmland of statewide importance. The project does not include any activities that could potentially convert agricultural land to nonagricultural use. Although the project includes new construction, the project is exempt form

		review under the Farmland Protection Policy Act (FFPA) as the project is limited to construction of on-farm structures needed for farm operations. No further review is required. This project is in compliance with the Farmland Protection Policy Act. Refer to Figure 12 in **Appendix B.**
Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55	Yes ☐ No ☒	The Project site is not located in a 100-year floodplain per Floodplain Insurance Map 72000C1195H, effective date April 19,2005. The project site is not located in an Advisory Base Flood Elevation (ABFE) special flood hazard area. PFIRMs in Puerto Rico were only developed for certain sections of the municipalities of Carolina, Canovanas, Loiza, San Juan and Trujillo Alto. The proposed project is located in the municipality of Cidra; therefore, PFIRM information was not available for the area and therefore not considered in the review. This project is in compliance with Executive Order 11988. See Figures 4, 5, and 6 in **Appendix B**.
Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800	Yes ☐ No ☒	The site was evaluated on January 16, 2024, by an SOI Qualified Architect/Architectural Historian. Additionally, the site was evaluated on January 18, 2024, by an SOI Qualified Archaeologist. SHPO concurred with a finding of **No Historic Properties Affected** within the project's Area of Potential on Effects on February 29, 2024. Refer to Figure 13 in **Appendix B** and the Section 106 Consultation Package in **Appendix E.** This project is in compliance with Historic Preservation requirements.
Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	Yes ☐ No ☒	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. HUD's noise regulations protect residential properties from excessive noise exposure. HUD noise regulations do not apply as the project does not include new construction for residential use or rehabilitation of an existing residential property.

		The proposed project is in compliance with Noise Abatement and Control.
Sole Source Aquifers Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149	Yes ☐ No ☒	There are no EPA sole source aquifers in Puerto Rico. The nearest Sole Source Aquifer is 5,470,965 feet to the northwest of the project site. The project is in compliance with Sole Source Aquifer requirements. Refer to Figure 17 in **Appendix B**.
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	Yes ☐ No ☒	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The south coast is 77,108 feet southeast of the property. The closest fresh-water bodies include an unnamed creek 72 ft south and the Río Bayamón 213 ft west of property boundaries. Both are identified as riverine wetlands in the NWI map. Module proposed location is at an estimated distance of 145 ft of the unnamed creek. Standard construction BMPs would be used to control erosion and runoff during construction. An undisturbed natural buffer equal or greater than 100 feet, supplemented by standard construction BMPs, and erosion and sediment controls will be kept at all times during ground disturbance activities. APE will be clearly delimitated prior to the initiation of the construction activities. With these mitigations the construction of the Farm in the City Module would not impact the wetlands and includes no activities that would require further evaluation under this section. The project is in compliance with Executive Order 11990. Refer to Figure 16 in **Appendix B**.
Wild and Scenic Rivers Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	Yes ☐ No ☒	This project is not within proximity of a National Wild and Scenic River (WSR). The distance to the nearest WSR is approximately 121,741 feet. The project is in compliance with the Wild and Scenic Rivers Act. Refer to Figure 14 in **Appendix B**.

ENVIRONMENTAL JUSTICE		
Environmental Justice Executive Order 12898	Yes ☐ No ☒	No adverse environmental impacts were identified in any other compliance review portion of this project that may disproportionately be high for low-income and/or minority communities. Therefore, this topic complies with Executive Order 12898.

Environmental Assessment Factors [24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27] Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features, and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable, and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. **All conditions, attenuation or mitigation measures have been clearly identified.**

Impact Codes: Use an impact code from the following list to make the determination of impact for each factor.

(1) Minor beneficial impact

(2) No impact anticipated

(3) Minor Adverse Impact – May require mitigation

(4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement

Environmental Assessment Factor	Impact Code	Impact Evaluation
LAND DEVELOPMENT		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The proposed project is located on a private farm. The project site is zoned as "Terrenos Urbanizables (U-R)". The proposed agricultural use of land is in compliant with the land permitted uses.

Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The proposed project is located in a flat terrain, proposed to be used for agricultural purposes. Soils in the proposed project area are classified as Humatas clay, 40 to 60 percent slopes (HtF), and Humatas clay, 20 to 40 percent slopes (HtE), surrounded by farmland with secondary forest vegetation cover to the south, 415 meters above mean sea level. Projects larger than 1 acre must comply with the CWA and develop a SWPPP with the NPDES. The proposed project area is approximately 0.27 acres. The project site will require clearing, grading, and vegetation removal. However, proposal does not contemplate cutting, pruning or transplanting of trees. The project site area is rated "low to moderate" for landslide susceptibility (see Figure 15 in **Appendix B**). There will be little to no additional runoff associated with the project.
Hazards and Nuisances including Site Safety and Noise	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. During implementation of the project, construction activities may result in temporary elevation of ambient noise levels in immediate areas around active construction areas. The only nearby receptors are the residents of the residence and adjoining neighbors. Proposed location of the Module is in the backyard of a private property. There is no access to the project area by the public.
Environmental Assessment Factor	Impact Code	Impact Evaluation
SOCIOECONOMIC		
Employment and Income Patterns	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. Temporary employment of workers related to construction activities would result, but no new permanent jobs would be created as a result of this project. These workers are expected to come from the local region. However, since the project will include an economic

		component, it may aid in restoring some employment opportunities and increase income. The proposed project would not negatively impact employment or income patterns.
Demographic Character Changes, Displacement	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The proposed project would not result in demographic character changes or displacement. Given the nature of the project area, no relocations or demolition of residential structures or businesses would occur as part of this project.
Environmental Justice	2	In the area (one mile radius) in which project will occur. 99% are people of color compared to PR average of 96% 68% are low income compared to PR average of 70% 2% are unemployed compared to PR average of 15% The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. This project will result in restoration and increase in income and potential employment opportunities in the local area. The impacts would be beneficial. See EJScreen Report in **Appendix C**

Environmental Assessment Factor	Impact Code	Impact Evaluation
COMMUNITY FACILITIES AND SERVICES		
Educational and Cultural Facilities	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The project would not result in any change to regional or local area educational and cultural facilities or increase demand for them.
Commercial Facilities	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The agricultural activity of the project property will improve. Other commercial facilities would not be impacted by the proposed project.
Health Care and Social Services	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. Health care and social services facilities would not be impacted by the

		proposed project. The project would not increase demand for health care and social services facilities.
Solid Waste Disposal / Recycling	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. Waste vegetation from clearing activities will either be composted on site or at regional composting centers. Soil from grading would be recycled on the farm as fill. Left over construction materials that could be reused on the farm (e.g., piping, structural materials, others) would be stored for later use. The remaining construction solid waste materials would be collected for transport to the local landfill. The amount of impact of solid waste resulting from the construction of the proposed project would be minor. During operations, the products and by-products would be agricultural, which waste would be biodegradable. Other waste components related to the operation of the proposed project includes recyclable materials such as plastics and cardboard. Recyclables will be set aside and dispose according to the local recycling management plan. The remaining municipal solid waste would be collected for the transport to the local landfill.
Wastewater / Sanitary Sewers	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The proposed project would not include any bathrooms, wastewater, or sewage facilities. Current farm conditions would remain unchanged.
Water Supply	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. Applicant has access to a water supply from the local utility. Water will be supplied to the new Module from the existing connection available at an existing faucet water pipe located in the existing concrete steps leading to the backyard extended approximately 15 ft through a ½ inch (") PVC aboveground. The proposed project will increase the current water demand of the area. The proposed project will have minor impact on water usage.
Public Safety – Police, Fire and Emergency Medical	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The proposed project would not create any new demand for emergency or health services.

Parks, Open Space and Recreation	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The proposed project would not create or destroy any new parks, open space, or recreational activities. It also would not increase use of those facilities.
Transportation and Accessibility	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The proposed project would not involve the creation of new roads nor any increase in long-term traffic on existing roads. There would be some minor use of the existing road during construction. All residents and businesses would retain access to their properties during and after the project.

Environmental Assessment Factor	Impact Code	Impact Evaluation
NATURAL FEATURES		
Unique Natural Features, Water Resources	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The proposed project will be situated on land used for residential purposes. The Module proposed location is at an estimated distance of 145 ft to the north of the unnamed creek and the Río Bayamón is 213 ft west of property boundary. Natural vegetation buffer zone of equal or greater than 100 ft will be maintained, at all times. No cortex removal, ground disturbances, earth movement, or constructions activities are contemplated nearby a unique natural features or water resources.
Vegetation, Wildlife	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The proposed project will occur on residential land proposed to be used for agricultural purposes. All vegetative exceedance material resultant from the clearing activities will be disposed as per the Municipal vegetative material management and diversion plan. No vegetative material will be stored or left at site. Proposal does not contemplate cutting, pruning or transplanting of trees. The proposed project will have minimal impact on vegetation and no impact on wildlife.

Environmental Assessment Factor	Impact Code	Impact Evaluation
CLIMATE AND ENERGY		
Climate Change Impacts	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. There would be no changes to the site configuration or structure that would specifically address the possibility and uncertainty of rising sea levels or the possibility of increases in rainfall intensity. This is a small agricultural project with no measurable impact on climate change factors.
Energy Efficiency/Energy Consumption	2	The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. Power service connection will be extended from the breaker panel box located at the applicant residence garage, currently used as storage room, through an approximately 35 ft aboveground electrical conduit. The proposed project will increase the current energy demand of the area. The proposed project will have minor impact on energy usage.

Additional Studies Performed: None required.

Field Inspection (Date and completed by)**:**

Site inspection was conducted on December 15, 2023 by Antonio A. Martínez.

List of Sources, Agencies and Persons Consulted [40 CFR 1508.9(b)]:

Puerto Rico State Historic Preservation Office

FAA, National Plan for Integrated Airport Systems:

www.faa.gov/airports/planning_capacity/npias/reports/NPIAS-Report-2017-2021-Appendix-B-Part6.pdf

John H. Chafee Coastal Barrier Resources System, Puerto Rico map. www.fws.gov/CBRA/Maps/Locator/PR.pdf

National Wild and Scenic Rivers System: www.rivers.gov/puerto-rico.php

Puerto Rico Community Development Block Grant Disaster Recovery Action Plan, July 2018. www.cdbg-dr.pr.gov/en/action-plan/

Programmatic Agreement among the Federal Emergency Management Agency, the Puerto Rico State Historic Preservation Office and the Central Office for Recovery,

Reconstruction and Resilience – amended to include the Puerto Rico Department of Housing.

US Environmental Protection Agency, National Ambient Air Quality Standards, Nonattainment Areas for Criteria Pollutants (Green Book): www3.epa.gov/airquality/greenbook/anayo_pr.html

US EPA, Environmental Topics, Air Topics: www.epa.gov/environmental-topics/air-topics

US Fish and Wildlife Service, Environmental Conservation Online System: https://ecos.fws.gov/ecp/report/species-listings-by-state?stateAbbrev=PR&stateName=Puerto%20Rico&statusCategory=Listed

Federal Emergency Management Agency, Flood Mapping Service: https://msc.fema.gov/portal/home (compilation of numerous maps)

US Fish and Wildlife Service, National Wetlands Inventory:

www.fws.gov/wetlands/data/mapper.html (compilation of numerous maps)

Puerto Rico Coastal Zone Management Program Plan, September 2009.

US EPA, Sole Source Aquifers. Esri HERE, Garmin, NOAA, USGS, EPA.

US Geological Survey, Data Release of May Showing Concentration of Landslides Caused by Hurricane Maria,

www.sciencebase.gov/catalog/item/59de6459e4b05fe04ccd39d8

List of Permits Obtained:

None

Public Outreach [24 CFR 58.43]**:**

The local community has been very proactive in the recovery process. Puerto Rico Department of Agriculture has worked closely with the agricultural community. The project will include a FONSI / NOI-RROF in compliance with NEPA regulations for HUD.

Cumulative Impact Analysis [24 CFR 58.32]**:**

In accordance with 24 CFR 58.32 (Aggregation), there are no cumulative impacts associated with the proposed project. The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. The possibles cumulative impacts associated to the proposed project are related to the increase in energy and water demand needed to operate the proposed Module. Power and water demand increase is minor and would only impact the existing site water supply.

Alternatives [24 CFR 58.40(e); 40 CFR 1508.9]

The RGRW Program's goal is to increase agricultural capacity while promoting and increasing food security island-wide. This Program seeks to enhance and expand agricultural production related to economic revitalization and sustainable development activities. Alternative locations off and on property may represent an impact to undisturbed and/or uneven ground, sloped terrain or within forested areas, which could require heavier clearing and grading activities. Any alternative that would involve an off-property location might require the purchase of land, the need for storage area, the movement of products, equipment, infrastructure, water and power utility connections, among others, representing an additional cost. An off-property alternative will not enhance and expand agricultural production or allow for the economic development for this applicant. Given the above-mentioned possible impacts of an alternative location, an off-property alternative was not selected.

No Action Alternative [24 CFR 58.40(e)]:

The project consists of the purchase and installation of a Farm in the City Controlled Environment Vertical Harvest Module. Under the No Action Alternative, the applicant would not receive federal funding for the proposed action, which would inhibit the economic growth opportunity that the applicant would not otherwise have under the PRDOH Re-Grow Puerto Rico program. As a result, these owners may not be able to experience the growth needed to recover and expand their agriculture activities. A provision of the grant allows for economic development for businesses. The No-Action alternative would not allow for the economic development for this applicant.

Summary of Findings and Conclusions:

The proposed activity has been found to not have any adverse effects on the environment nor is there the requirement for further consultation with federal agencies associated with the topics evaluated above. There are no environmental review topics addressed above that result in the need for additional formal compliance steps with federal agencies or the requirement for mitigations other than those listed below. There may be additional approvals or permits from local agencies. For example, permits may be required from PRDNER for any water or other utility connections and the Office of Permit Management (OGPe) is responsible for granting permits, licenses, certifications, consultations, construction, and any other procedure necessary for business development and land use in Puerto Rico. The appropriate and necessary permits should be obtained by the applicant and/or contractor, from the appropriate Department or concerned agency, prior to construction activities.

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

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development

agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

The environmental review topics addressed in this environmental review include all formal compliance steps with federal agencies and mitigations (listed in table below) needed for compliance with 24 CFR 58.

Any permits or approvals that have been issued during the preparation of this environmental review have been included in the evaluation of impacts and mitigations. Any special permit conditions or requirements associated with these permits are listed in the Mitigation Measures and Conditions table below.

Law, Authority, or Factor	Mitigation Measure
Wetlands Protection	Standard construction BMPs would be used to control erosion and runoff during construction. An undisturbed natural buffer equal or greater than 100 feet, supplemented by standard construction BMPs, and erosion and sediment controls will be kept at all times during ground disturbance activities. APE will be clearly delimitated prior to the initiation of the construction activities.
Endangered Species	Implement Puerto Rican Boa conservation measures prior to and during construction to avoid or minimize impacts to this species. If a Puerto Rican Boa is found in the project activity site, work shall cease until the Boa moves off on its own. If the Boa does not move off, the Construction Manager shall contact the Puerto Rico Department of Natural and Environmental Resources and ask for them to relocate the Boa. PRDNER phone #s: ((787) 724-5700, (787) 230-5550, (787) 771-1124. Implement Puerto Rican plain pigeon conservation measures prior to and during construction to avoid or minimize impacts to this species. If a Puerto Rican plain pigeon is found within any of the working or construction areas, activities should stop at that area and information recorded. Designated personnel shall immediately contact the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Rangers for additional directions (PRDNER phone #s: ((787) 724-5700, (787) 230-5550, (787) 771-1124).
Permits or Agency Approvals Required	
Permit or Approval	Permit Conditions
Ground disturbance	Projects whose earthworks are more than 40 m^3 must submit an Incidental Permit. The permit must be submitted via the Single Business Portal to the OGPe to be evaluated and physicalized by the Water Quality Division of the PRDNER.

	Any necessary permits should be obtained by the applicant and/or contractor prior to construction activities.
Clearing activities	Activities involving the excavation or movement of any component of the terrestrial cortex material that exceeds five hundred (500) cubic meters and up to a maximum of five thousand (5,000) cubic meters require the submittal and approval of a Simple Terrestrial Cortex Removal Permit. Applications are submitted via the Single Business Portal of the OGPe to be evaluated and physicalized by terrestrial Cortex Extraction Permit Division of the PRDNER.
Utility Connections- Water supply	The project does not involve new connections to the local utility services provider. Facilities have local water utility services connections. However, the applicant is responsible for any permits or actions to ensure legalization of utility connections (if needed) prior to construction activities.
Utility Connections- LUMA/PRASA	The project does not involve new utility connections to the local services provider. Facilities have local utility services connections. However, the applicant is responsible for any permits or actions to ensure legalization of utility connections (if needed) prior to construction activities.

Determination:

☒ **Finding of No Significant Impact** [24 CFR 58.40(g)(1); 40 CFR 1508.27]

The project will not result in a significant impact on the quality of the human environment.

☐ **Finding of Significant Impact** [24 CFR 58.40(g)(2); 40 CFR 1508.27]

The project may significantly affect the quality of the human environment.

Preparer Signature: _____ Date: 5/28/2024

Name/Title/Organization: Gabriela Rodríguez, Senior Environmental Scientist, Tetra Tech Inc.

Certifying Officer Signature: _____ Date: 6/4/2024

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

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

APPENDIX A

Site Inspection and Photos

GOVERNMENT OF PUERTO RICO
DEPARTMENT OF HOUSING

RE-GROW PR URBAN AND RURAL AGRICULTURE PROGRAM

Environmental Field Observation - Puerto Rico Department of Housing

APPLICANT INFORMATION	
Application ID	PR-RGRW-04112
Applicant Name	MC FARM, LLC
Property Address	Villa de San Martin #13 KM 2.6
Parcel ID	275-040-277-10
Coordinates	18.1741241, -66.1267237
Inspector Name	Antonio A. Martinez
Inspection Date	12/15/2023
Building Type	vacant
Number of Units	0
Number of Stories	0
Year Built; Data Source	----; Historian

ENVIRONMENTAL OBSERVATIONS (attach photos and notes, as necessary, for any YES answers)

OBSERVATION ITEMS	YES	NO	COMMENTS
A. Is the **structure in use**?	☐	☑	
B. is **structure a greenhouse?**	☐	☑	
C. Is **Electricity connected**?	☑	☐	Power meter column located in front elevation
D. Is **water connected?** (Utilities or Well)	☑	☐	Water meter located in front elevation
1. Are there signs of **poor housekeeping** on site? (mounds of rubble, garbage, storm debris, solid waste, petroleum products, paint, pesticides, cleaning fluids, vehicle batteries, abandoned vehicles, pits, pools, ponds of hazardous substances, etc.)	☐	☑	
2. Are there any **55-gallon drums** visible on site? If yes, are they leaking?	☐	☑	
3. Are there any (or signs of any) **underground storage tanks** on the property?	☐	☑	
4. Are there signs of **ASTs** on the parcel or adjacent parcel? If yes, list approximate size and contents, if known.	☑	☐	2 x 17.5 pounds 1 x 100 pounds Propane gas
5. Is there any **stained soil or pavement** on the parcel?	☐	☑	
6. Is a water **drainage system** in use?	☐	☑	
7. Is a warehouse in use for storage of **Fertilizer or Pesticides**?	☐	☑	
8. Are there any **groundwater monitoring wells** on the site or adjacent parcel?	☐	☑	
9. Is there evidence of a **faulty septic system**?	☐	☑	
10. Is there **distressed vegetation** on the parcel?	☐	☑	
11. Is there any visible indication of **MOLD**?	☐	☑	

12. Is there any visible evidence of **asbestos, chipping, flaking or peeling paint, or hazardous materials** present in or on the structure?	☐	☑	
13. Are any **additional site hazards** observed?	☐	☑	
14. Is there any **permanent standing water**, such as a pond or stream, located on the site (do not include ponding from recent rain / weather events)?	☑	☐	Creek located approximately 50 feet from rear elevation property boundary fence
15. Does the subject property have **water frontage**?	☐	☑	
16. Is there any indication of the presence of **Wetlands**?	☐	☑	
17. Are there any obvious signs of **animals or birds nesting** on or near the site?	☐	☑	
18. Is the applicant aware of any **significant historical event or persons** associated with the structure, or of it being located in a historic district/area?	☐	☑	
19. Is a **historic marker** present?	☐	☑	

Additional Notes:

Case: PR-RGRW-04112
Project Name: MC FARM, LLC
Coordinates: 18.1741241, -66.1267237

Is the field graded? For what purpose the field was graded? Month, Year: None

Scope of Work: The proposed project includes the purchase and installation of a new greenhouse module.

Land current in use for: Residential

Past Land use was: Unknown

Where the applicant plans to do the ground disturbances for the scopes of work, add the coordinates, descriptions and approximately the measurements:

Scope of work 1: Purchase and installation of a Greenhouse Module
Coordinates: 18.1741241, -66.1267237
Applicant proposes the purchase and installation of a 20' x 8' metal greenhouse module installed on a 10' x 44' wood frame filled with gravel with no ground disturbance. Greenhouse module to be used for seeding and cropping of vegetables such as Boston lettuce, kale, basil and spinach.

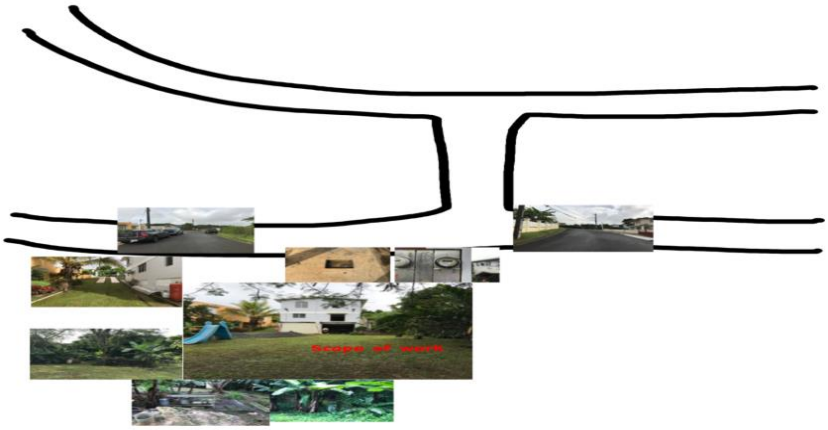
Any new water connection or power connection?

Power and water services connected. Water service will be extended approximately 15 feet through a 1/2" pvc pipe going overground and connected to rear elevation faucet piping (source) located in concrete steps to patio. Power service connection will be extended from rear elevation breaker panel box located in left side garage (use as storage room) through a conduit going overground approximately 30 to 40 feet in length and connected to greenhouse module.

If the scope of work included tools, machinery or farms products, Where the applicant will be storing them?

N/A

Site Sketch



Front of Structure

Photo Direction: North

Facing Away From Front

Photo Direction: South

Side #1 of Structure

Photo Direction: Northeast

Facing Away From Side #1

Photo Direction: Southwest

Back of Structure

Photo Direction: South

Facing Away From Back

Photo Direction: North

Side #2 of Structure

Photo Direction: Southwest

Facing Away From Side #2

Photo Direction: Northeast

Streetscape #1

Photo Direction: East

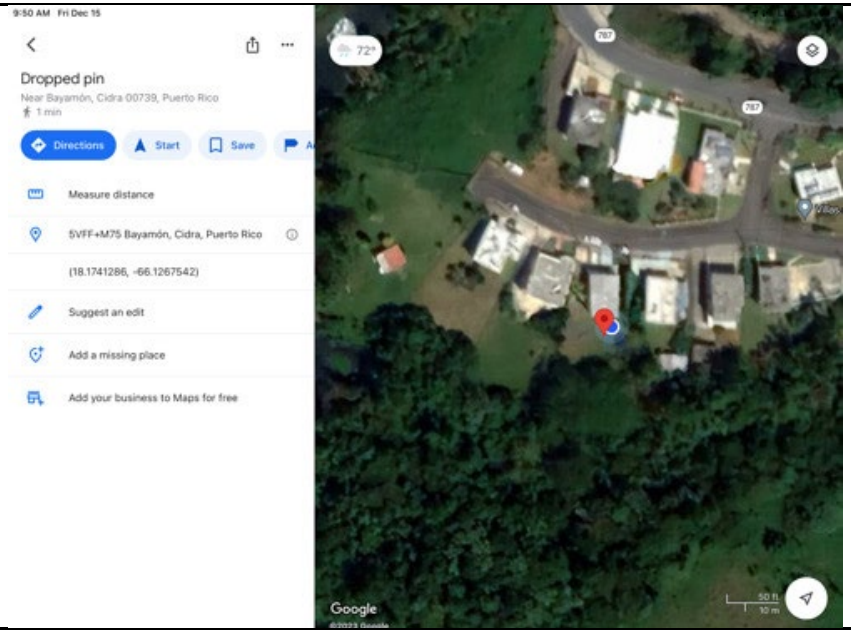
Streetscape #2

Photo Direction: West

Address
Photo Direction: Southeast

Outbuildings
Photo Description: Main structure
Photo Direction: Southwest

Structural Details
Photo Description: Architectural details
Photo Direction: North



Structural Details
Photo Description: Architectural details
Photo Direction: South

Structural Details

Photo Description: Architectural details

Photo Direction: Southwest

Structural Details

Photo Description: Architectural details

Photo Direction: Southeast

Structural Details

Photo Description: Architectural details

Photo Direction: East

Structural Details

Photo Description: Architectural details

Photo Direction: East

Structural Details

Photo Description: Architectural details

Photo Direction: Southeast

Structural Details

Photo Description: Architectural details

Photo Direction: Southwest

Structural Details

Photo Description: Architectural details

Photo Direction: Northwest

Structural Details

Photo Description: Architectural details

Photo Direction: Northeast

Structural Details

Photo Description: Architectural details

Photo Direction: North

Structural Details

Photo Description: Architectural details

Photo Direction: Southeast

Structural Details

Photo Description: Architectural details

Photo Direction: South

Structural Details

Photo Description: Architectural details

Photo Direction: Northeast

Structural Details

Photo Description: Architectural details

Photo Direction: Northwest

Structural Details

Photo Description: Architectural details

Photo Direction: North

Structural Details

Photo Description: Architectural details

Photo Direction: West

Structural Details

Photo Description: Architectural details

Photo Direction: South

Structural Details
Photo Description: Architectural details
Photo Direction: South

Structural Details
Photo Description: Architectural details
Photo Direction: South

Electricity Connected
Photo Description: Power meter
Photo Direction: South

Water Connected
Photo Description: Water meter
Photo Direction: West

Aboveground Storage Tanks
Photo Description: Propane tanks
Photo Direction: East

TETRA TECH

Photo Log - PR-RGRW-04112

Standing Water
Photo Description: Creek
Photo Direction: South

Scope Of Work
Photo Description: Scope of work 1 Installation of a new greenhouse module
Photo Direction: South

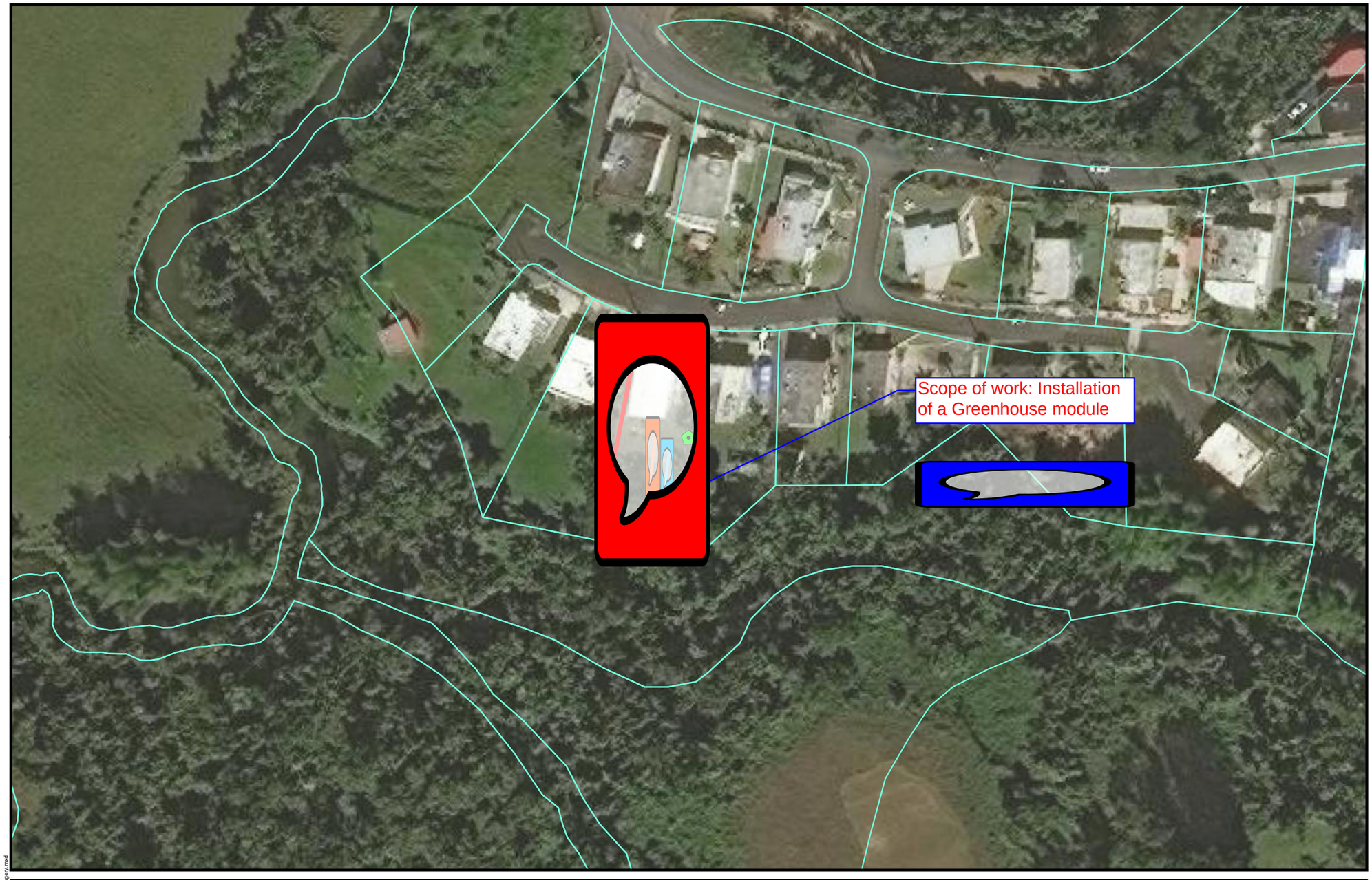

Scope Of Work
Photo Description: Scope of work 1 Installation of a new greenhouse module
Photo Direction: Southwest


Scope Of Work
Photo Description: Scope of Work 1 Installation of a new greenhouse module
Photo Direction: North

Scope Of Work
Photo Description: Scope of work 1 Installation of a new greenhouse module
Photo Direction: Southeast

APPENDIX B

Maps



Legend

- Project Parcel
- Parcels
- Area of Potential Effect
- Power connection
- Water connection

PUERTO RICO

N

0 80 160

Feet

TETRA TECH

Source: CRIM
https://catastro.crimpr.net/cdprpc/

Author: TG	Date: 2/29/2024

File Path: Z:\data\USPR\Tmd\2PR-LLOC_Regnow_Secondary_Imagery.mxd

Figure 1: PROJECT LOCATION

APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

Legend

- Project Parcel
- Civilian Runway Protection Zones
- Military Accident Potential Zones
- Airport Runways
- Civilian Airport 2,500 Feet Buffer
- Military Airport 15,000 Feet Buffer

Distance to Nearest Airport in Feet: 102,583

Distance to Nearest Civilian Airport in Feet: 103,210

Distance to Nearest Military Airport in Feet: 102,583

PUERTO RICO

TETRA TECH

Source: USDOT
https://www.faa.gov

Author: TG | Date: 2/14/2024

Figure 2: AIRPORT ZONES
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin #13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

N

0 10,000 20,000

Feet

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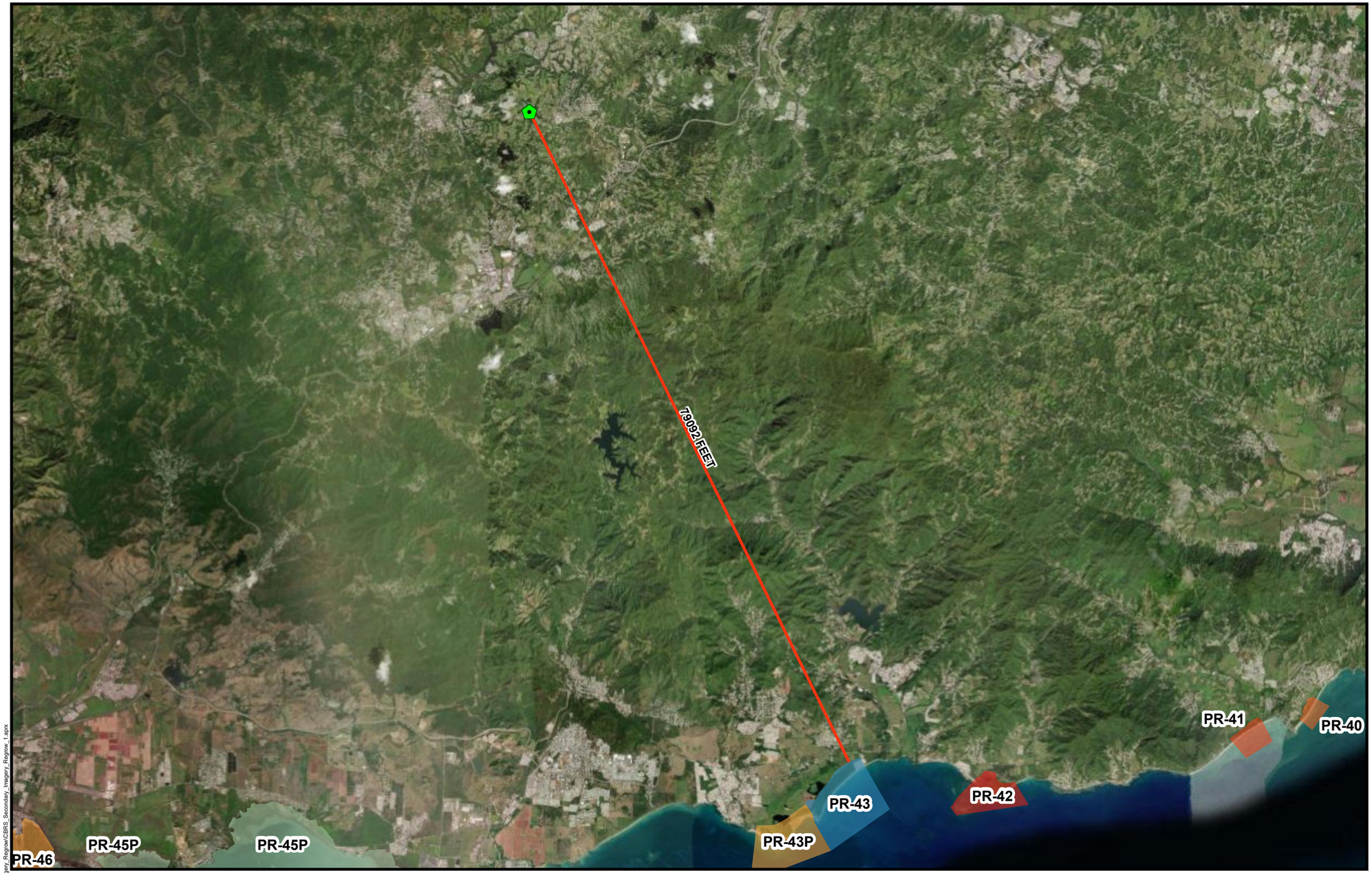

Legend

Project Parcel

Coastal Barrier Resources System Boundary

Unit

- PR-40
- PR-41
- PR-42
- PR-43
- PR-43P
- PR-45P
- PR-46

Distance to Nearest Coastal Barrier Resources System:
79092 Feet

PUERTO RICO

TETRA TECH

Source: U. S. Fish & Wildlife Service
https://www.fws.gov

Author: TG	Date: 10/17/2023

Figure 3: COASTAL BARRIERS IMPROVEMENT ACT
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development:MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

N

0 10,000 20,000

Feet

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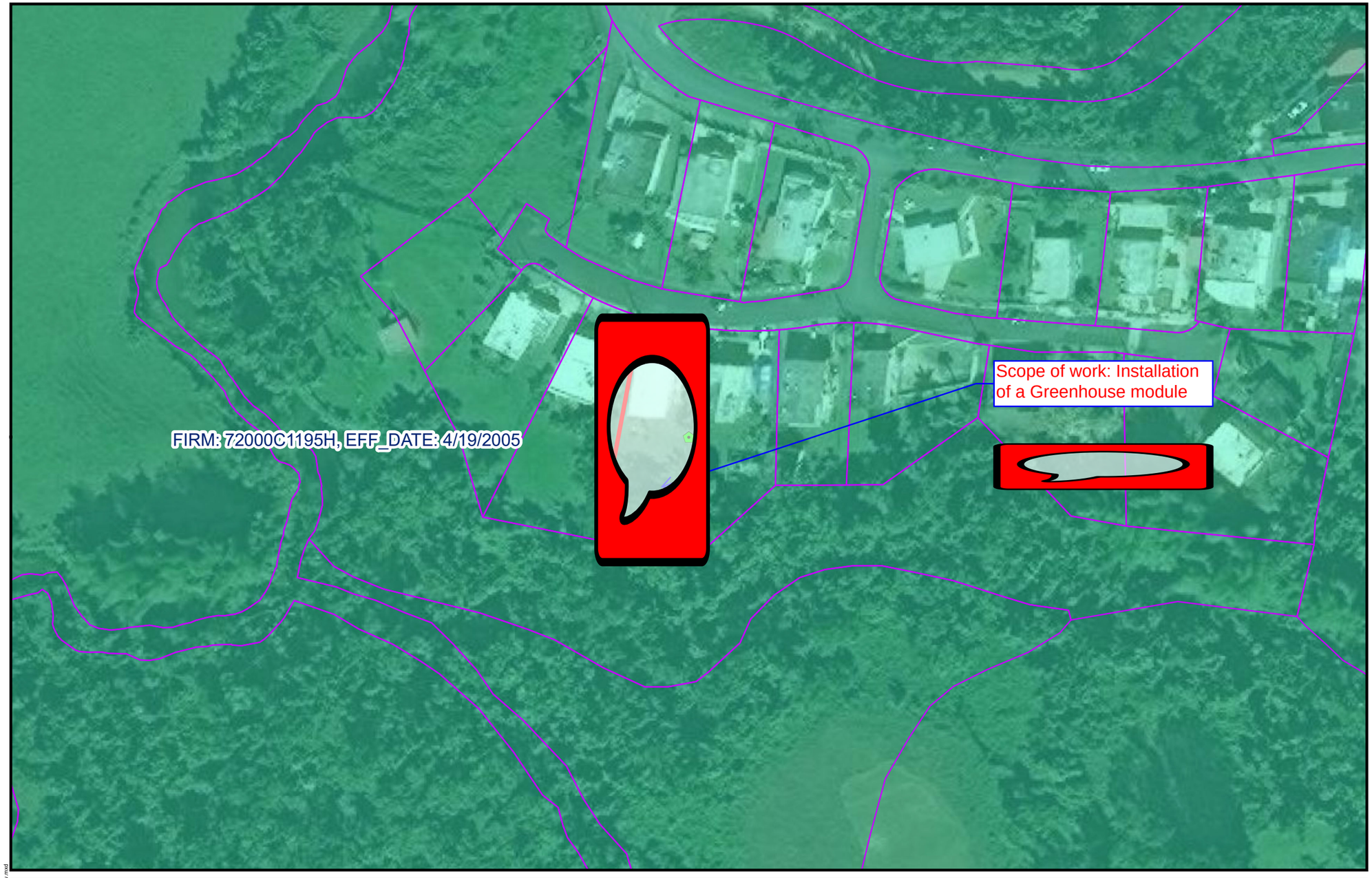


Legend

- Project Parcel
- Parcels
- FIRM Panels
- Floodway
- 100 Yr Floodzone
- 500 Yr Floodzone
- Area Of Minimal Flood Hazard
- Unmapped for Floodplain
- Area of Potential Effect

PUERTO RICO

TETRA TECH

Source: FEMA
https://msc.fema.gov

Author: TG	Date: 2/29/2024

File Path: Z:\data\LISPR\Task2\FLDZ_Secondary_Imagery_Regrow.mxd

Figure 4: FLOODPLAIN MANAGEMENT
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

N

0 80 160

Feet

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- SPECIAL FLOOD HAZARD AREAS
  - Without Base Flood Elevation (BFE) Zone A, V, A99
  - With BFE or Depth Zone AE, AO, AH, VE, AR
  - Regulatory Floodway
- OTHER AREAS OF FLOOD HAZARD
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
  - Future Conditions 1% Annual Chance Flood Hazard Zone X
  - Area with Reduced Flood Risk due to Levee. See Notes. Zone X
  - Area with Flood Risk due to Levee Zone D
- OTHER AREAS
  - NO SCREEN Area of Minimal Flood Hazard Zone X
  - Effective LOMRs
  - Area of Undetermined Flood Hazard Zone D
- GENERAL STRUCTURES
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
- OTHER FEATURES
  - 20.2 Cross Sections with 1% Annual Chance
  - 17.5 Water Surface Elevation
  - Coastal Transect
  - Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - Profile Baseline
  - Hydrographic Feature
- MAP PANELS
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

PUERTO RICO

TETRA TECH

Source: FEMA
https://www.msc.fema.gov

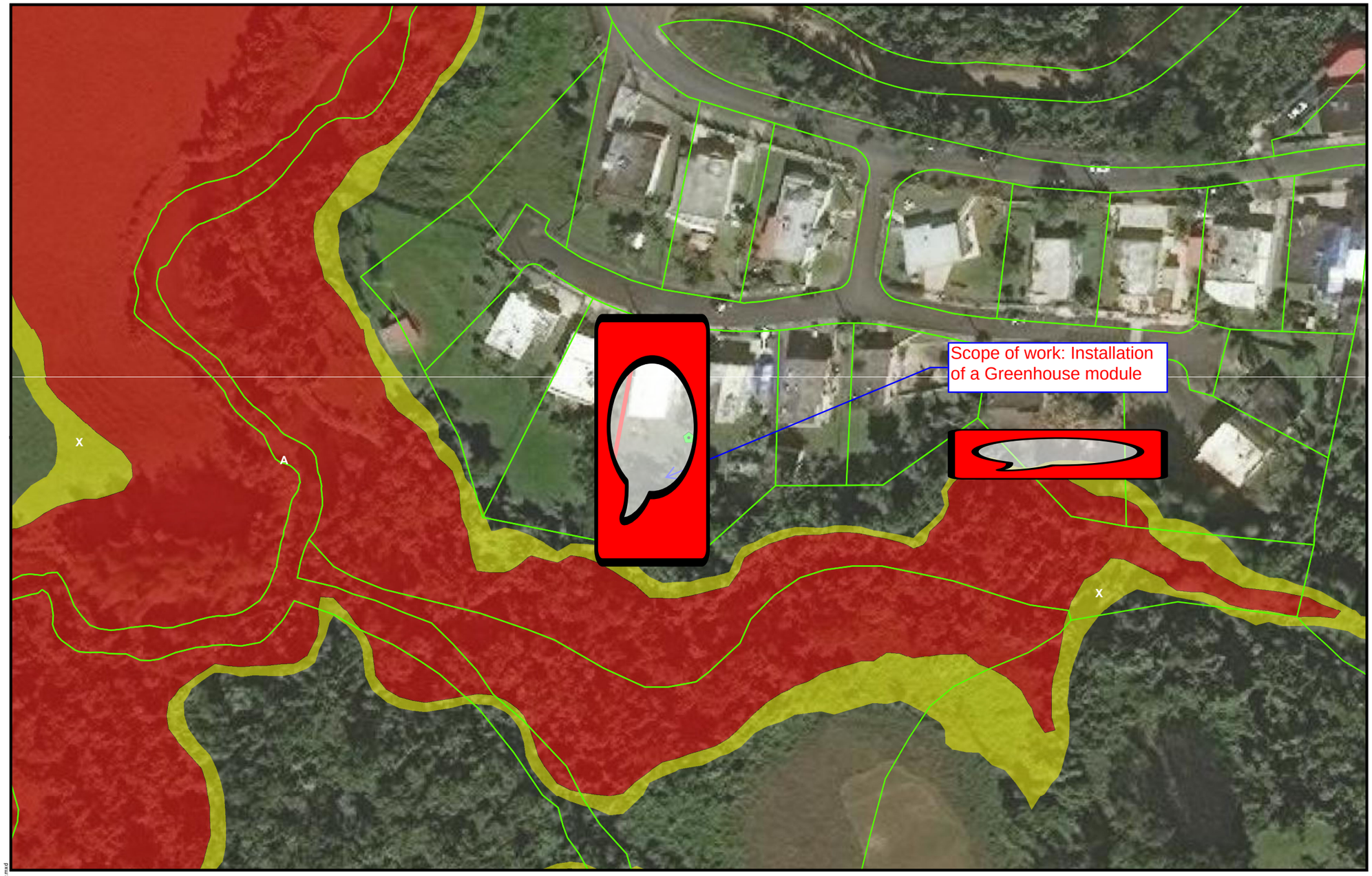
Author: TG | Date: 5/31/2023

FIGURE 5: NATIONAL FLOOD HAZARD LAYER FIRMETTE

N

0 140 280

Feet



Legend

- Project Parcel
- Parcels

PuertoRico_ABFE_1PCT

Advisory Base Flood Elevation (zoom in to make visible)

Flood Hazard Boundary (zoom in to make visible)

Limit of Moderate Wave Action (LIMWA)

Flood Hazard Extent

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

Zone/BFE Boundary

Flood Hazard Area (zoom in to make visible)

Flood Hazard Zone

- A
- AO
- AE
- Coastal A Zone
- VE
- X 0.2% Annual Chance Flood
- A-Floodway
- AE-Floodway
- Coastal A Zone and Floodway

Area of Potential Effect

PUERTO RICO

TETRA TECH

Source: FEMA
https://gis.fema.gov

Author: TG	Date: 2/29/2024

Figure 6: ADVISORY BASE FLOOD ELEVATION
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

N

0 80 160

Feet

File Path: Z:\data\USPR\Tier2\ABFE_Secondary_Imagery_Regrow.mxd

Legend

Project Parcel

Coastal Zone Management Boundary

Distance to Nearest Coastal Zone:
73737 Feet

PUERTO RICO

TETRA TECH

Source: NOAA's Ocean Service
https://data.noaa.gov

Author: TG	Date: 10/17/2023

Figure 7: COASTAL ZONE MANAGEMENT
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC
Parcel Coordinates: 18.1741241, -66.1267237

N

0 10,000 20,000

Feet

File Path: Z:\data\USPR\Tier2\Regrow\aprx\CSTLZN_Secondary_Imagery_Regrow\CSTLZN_Secondary_Imagery_Regrow.aprx

Legend

- Project Parcel
- RCRA
- Toxic Release Inventory Site
- Superfund Site
- Brownfield Sites
- 3000 Ft Buffer TRI
- 3000 Ft Buffer Superfund
- 3000 Ft Buffer RCRA
- 3000 Ft Buffer Brownfield

PUERTO RICO

TETRA TECH

Source: E.P.A.
https://www.epa.gov/frs/geospatial-data-download-service

Author: JB/AK	Date: 11/27/2023

Figure 8: TOXIC CHEMICALS AND GASES, HAZARDOUS MATERIALS, CONTAMINATION, AND RADIOACTIVE SUBSTANCES
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

N

0 1,000 2,000

Feet

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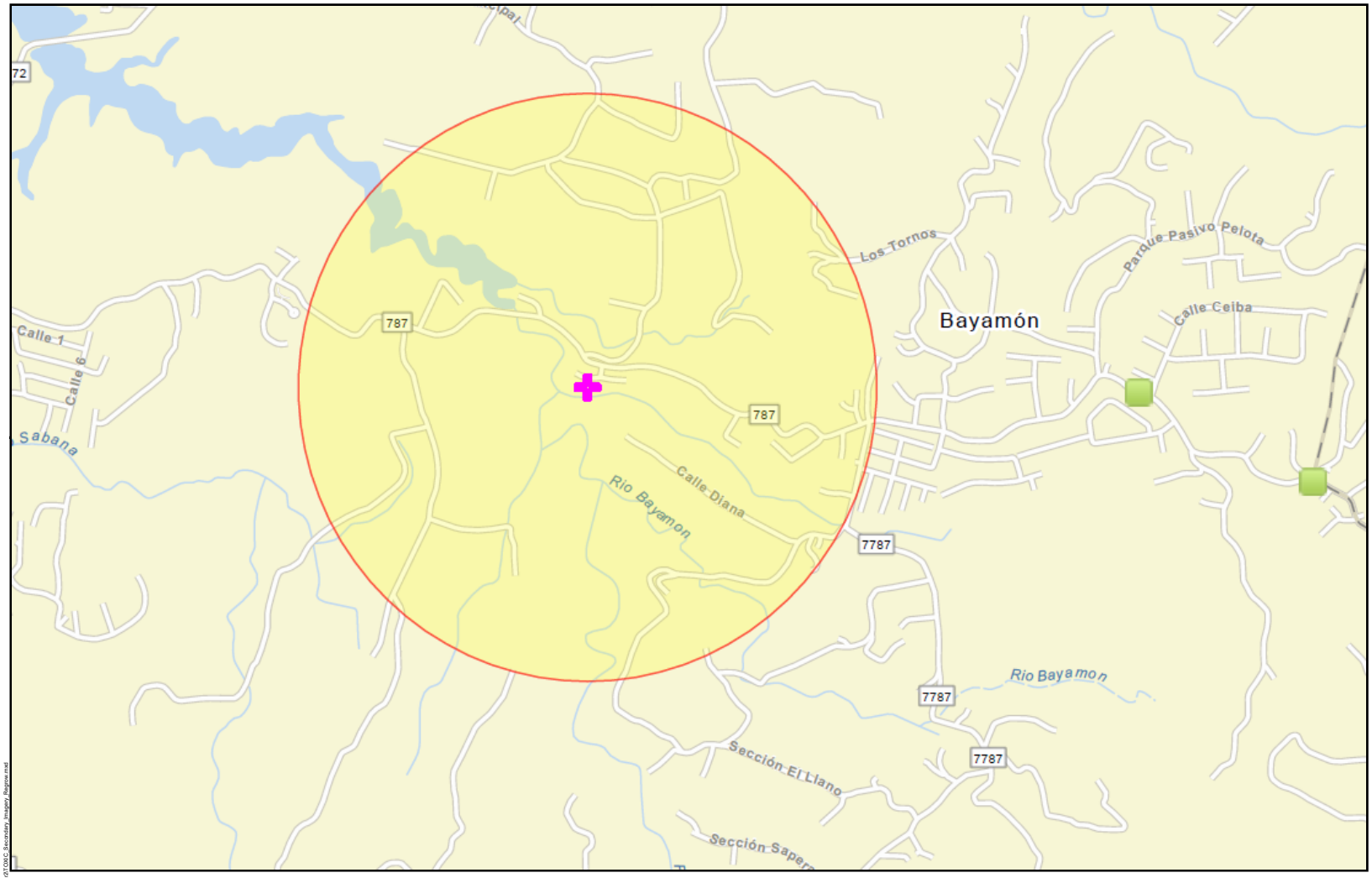


PUERTO RICO

TETRA TECH

Source: E.P.A.
https://www.epa.gov/frs/geospatial-data-download-service

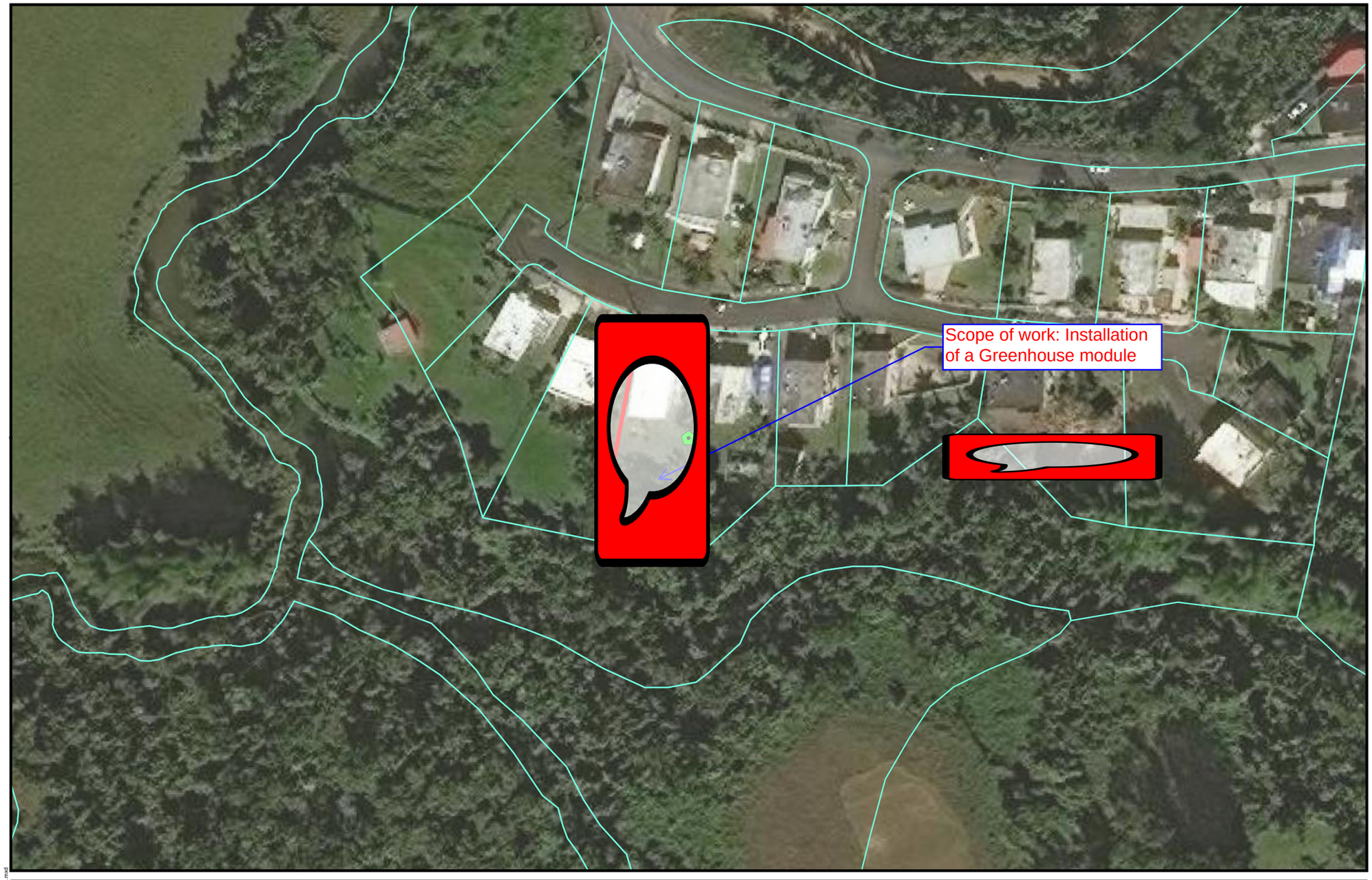
Author: JB/AK | Date: 5/18/2023

Figure 9: NEPA Assist Map

N

0 1,500 3,000

Feet



Legend

- Project Parcel
- Parcels
- Area of Potential Effect
- Area of Critical Habitat

PUERTO RICO

N

0 80 160

Feet

TETRA TECH

Source: U.S. FISH & WILDLIFE SERVICE
https://ecos.fws.gov

Author: TG	Date: 3/12/2024

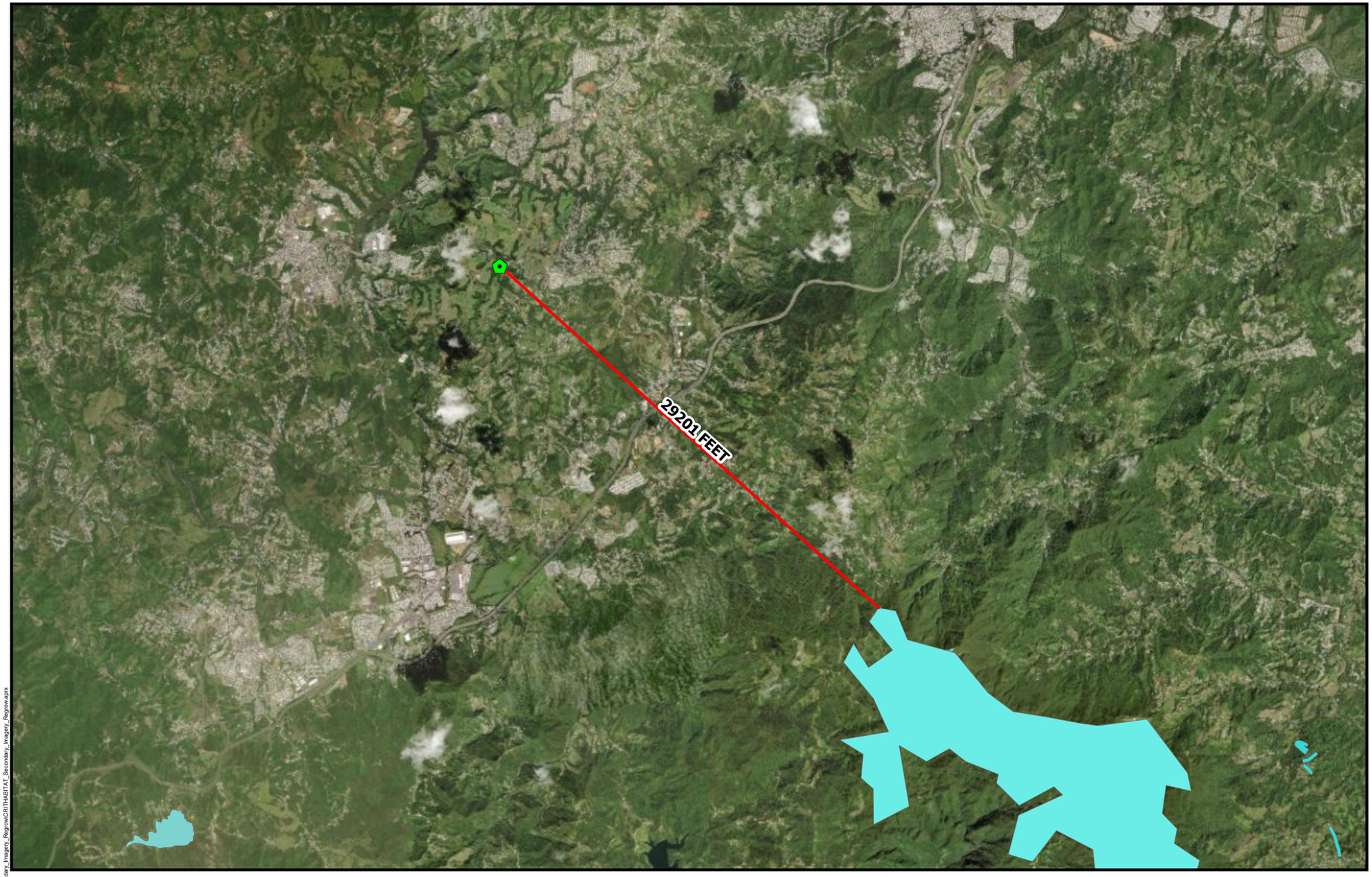
File Path: Z:\data\USPR\Tmp\ESA_Secondary_Imagery_Regrow.mxd

Figure 10: ENDANGERED SPECIES ACT
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237



Legend

Project Parcel

Common Name

- Elfin-woods warbler
- Golden coqui
- Guajon
- No common name

Distance to Nearest Critical Habitat:
29201 Feet

PUERTO RICO

TETRA TECH

Source: U.S. FISH & WILDLIFE SERVICE
https://ecos.fws.gov

Author: TG	Date: 11/3/2023

Figure 11: CRITICAL HABITATS
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

N

0 6,000 12,000

Feet

File Path: Z:\data\USPRITad2\Regrow\arcx\CRITHABITAT_Secondary_Imagery_Regrow\CRITHABITAT_Secondary_Imagery_Regrow.aprx

Scope of work: Installation of a Greenhouse module

Legend

Project Parcel

Farm Class

- All areas are prime farmland
- Farmland of statewide importance
- Farmland of statewide importance, if irrigated
- Prime farmland if drained
- Prime farmland if irrigated
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Prime farmland if protected from flooding or not frequently flooded during the growing season

Area of Potential Effect

PUERTO RICO

N

0 80 160

Feet

TETRA TECH

Source: USDA
https://websoilsurvey.sc.egov.usda.gov

Author: TG	Date: 2/29/2024

File Path: Z:\data\USPR\Tmd\GIS\FARM_Secondary_Imagery_Reprow.mxd

Figure 12: FARMLAND PROTECTION

APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

Legend

- Project Parcel
- Historic ICP Sites
- Cultural Resource Building Point
- Cultural Resource District Point
- Cultural Resource Site Point
- Cultural Resource Structure Point
- Historic Comunidades
- Traditional Urban Centers
- Cultural Resource Building Polygon
- Cultural Resource District Polygon
- Cultural Resource Site Polygon
- Cultural Resource Structure Polygon
- 1 Mile Property Buffer

PUERTO RICO

TETRA TECH

Source: National Park Service
https://www.nps.gov/

Author: TG	Date: 11/3/2023

Figure 13: HISTORIC PRESERVATION
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

N

0 1,000 2,000

Feet

File Path: Z:\data\US\PR\Tier2\Regrow\aprx\HIST_Secondary_Imagery_Regrow\HIST_Secondary_Imagery_Regrow_1.aprx

Legend

Project Parcel

Wild and Scenic Rivers

Distance to Nearest Wild and Scenic River: 121741 Feet

PUERTO RICO

TETRA TECH

Source: U. S. Forest Service
https://www.fs.usda.gov

Author: TG	Date: 10/23/2023

Figure 14: WILD AND SCENIC RIVERS ACT
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

N

0 10,000 20,000

Feet

File Path: Z:\data\USPR\Tier2\Regrow\aprx\WSR_Secondary_Imagery_Regrow\WSR_Secondary_Imagery_Regrow_1.aprx

Legend

- Project Parcel
- Parcels

Landslide Susceptibility

- Extremely High
- Very High
- High
- Moderate
- Low

- Area of Potential Effect

PUERTO RICO

N

0 80 160

Feet

TETRA TECH

Source: PRDOH
https://usgs.maps.arcgis.com
/apps/webappviewer/index.html?id=10506ecc7f15491daee17647f19248ee

Author: TG	Date: 2/29/2024

Figure 15: SLOPE AND EROSION

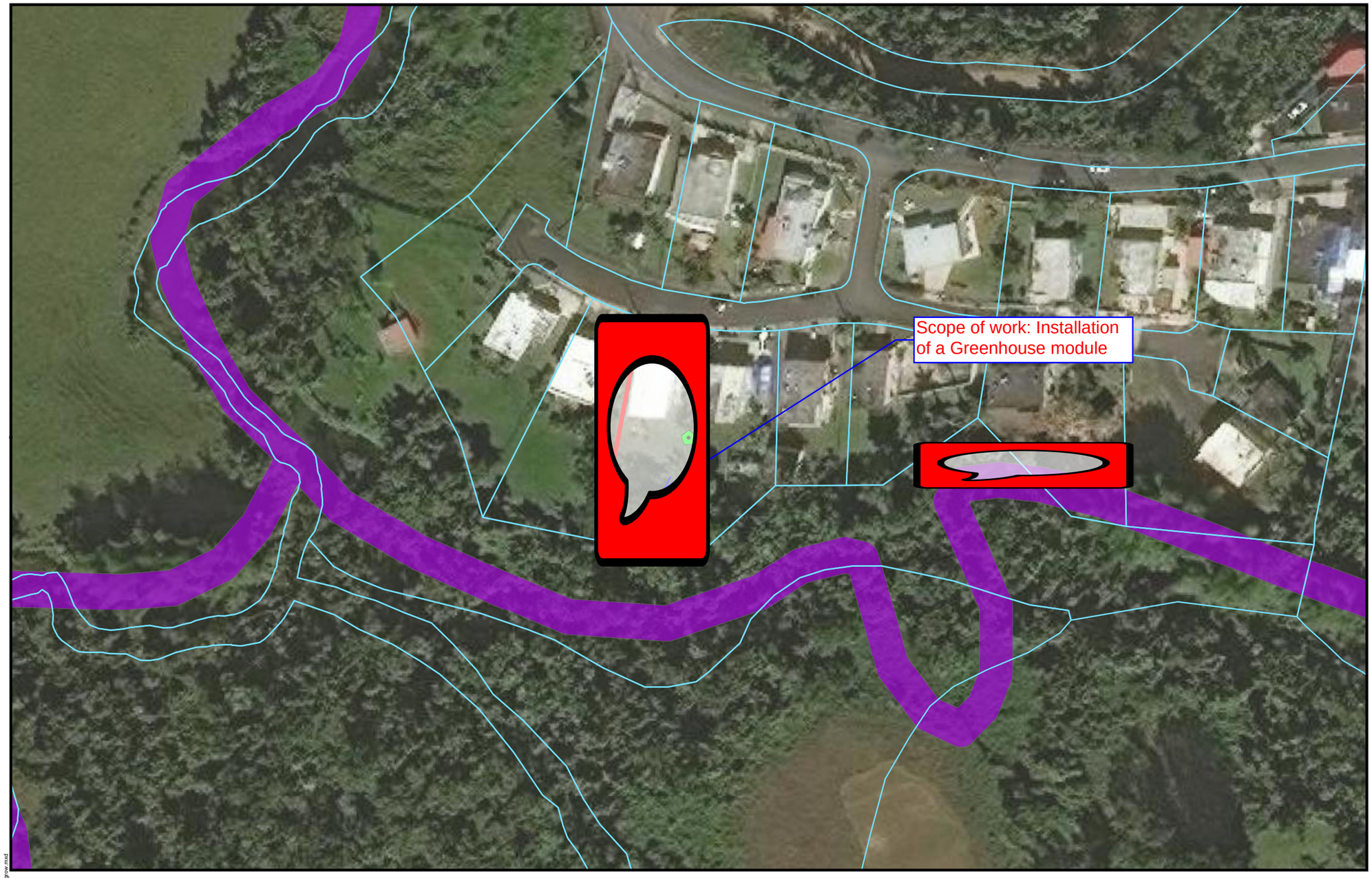
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

File Path: Z:\data\USPR\Tier2\LSLIDE_Secondary_Imagery\2_Rgrow.mxd



Legend

- Project Parcel
- Parcels

WETLAND TYPE

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

Area of Potential Effect

PUERTO RICO

TETRA TECH

Source: U. S. Fish & Wildlife Service
https://www.fws.gov

Author: TG	Date: 3/13/2024

File Path: Z:\data\USPR\Tmd2\WETLND_Secondary_Imagery_Regrow.mxd

Figure 16: WETLANDS
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin 13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC

Parcel Coordinates: 18.1741241, -66.1267237

N

0 80 160

Feet

Legend

Project Parcel

Sole Source Aquifer

Biscayne Aquifer SSA

Biscayne Aquifer SSA Streamflow and Recharge Source Zones

Distance to Nearest Aquifer:
5,470,965 FT

PUERTO RICO

TETRA TECH

Source: USGS
https://catalog.data.gov/dataset/epa-sole-source-aquifers

Author: TG	Date: 2/21/2024

Figure 17: SOLE SOURCE AQUIFERS
APPLICANT ID: PR-RGRW-04112

ADDRESS: Villa de San Martin #13 KM 2.6, Cidra, PR 00739

Name of Development: MC FARM, LLC Parcel

Coordinates: 18.1741241, -66.1267237

N

0 484,570 969,140

Feet

File Path: Z:\data\USPR\Tier2\Regrow\apxA\AQUIFER_Secondary_Imagery_Regrow\AQUIFER_Secondary_Imagery_Regrow_1.aprx

APPENDIX C

Additional

Information

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

Data is current as of February 29, 2024

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

* The 1997 Primary Annual PM-2.5 NAAQS (level of 15 μg/m^3) is revoked in attainment and maintenance areas for that NAAQS. For additional information see the PM-2.5 NAAQS SIP Requirements Final Rule, effective October 24, 2016. (81 FR 58009)

Change the State:
PUERTO RICO GO

Important Notes

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

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/ Part County	Population (2010)	State/ County FIPS Codes
PUERTO RICO								
Arecibo Municipio	Lead (2008)	Arecibo, PR	11 12 13 14 15 16 17 18 19 20 21 22 23 24	/ /		Part	32,185	72/013
Bayamon Municipio	Sulfur Dioxide (2010)	San Juan, PR	18 19 20 21 22 23 24	/ /		Part	22,921	72/021
Catano Municipio	Sulfur Dioxide (2010)	San Juan, PR	18 19 20 21 22 23 24	/ /		Whole	28,140	72/033
Guaynabo Municipio	PM-10 (1987)	Mun. of Guaynabo, PR	92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09	02/11/2010	Moderate	Part	90,470	72/061
Guaynabo Municipio	Sulfur Dioxide (2010)	San Juan, PR	18 19 20 21 22 23 24	/ /		Part	23,802	72/061
Salinas Municipio	Sulfur Dioxide (2010)	Guayama-Salinas, PR	18 19 20 21 22 23 24	/ /		Part	23,401	72/123
San Juan Municipio	Sulfur Dioxide (2010)	San Juan, PR	18 19 20 21 22 23 24	/ /		Part	147,963	72/127
Toa Baja Municipio	Sulfur Dioxide (2010)	San Juan, PR	18 19 20 21 22 23 24	/ /		Part	52,441	72/137

Important Notes

EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Cidra Municipio, PR

1 mile Ring around the Area
Population: 4,335
Area in square miles: 3.26

A3 Landscape

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	1%
Spanish	99%
Total Non-English	99%

COMMUNITY INFORMATION

- Low income: 68 percent
- People of color: 99 percent
- Less than high school education: 22 percent
- Limited English households: 78 percent
- Unemployment: 2 percent
- Persons with disabilities: 31 percent
- Male: 49 percent
- Female: 51 percent
- N/A — Average life expectancy
- $15,295 — Per capita income
- Number of households: 1,442
- Owner occupied: 64 percent

BREAKDOWN BY RACE

- White: 1%
- Black: 1%
- American Indian: 0%
- Asian: 0%
- Hawaiian/Pacific Islander: 0%
- Other race: 0%
- Two or more races: 0%
- Hispanic: 98%

BREAKDOWN BY AGE

From Ages 1 to 4	7%
From Ages 1 to 18	25%
From Ages 18 and up	75%
From Ages 65 and up	16%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	100%
Speak Other Indo-European Languages	0%
Speak Asian-Pacific Island Languages	0%
Speak Other Languages	0%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017 -2021. Life expectancy data comes from the Centers for Disease Control.

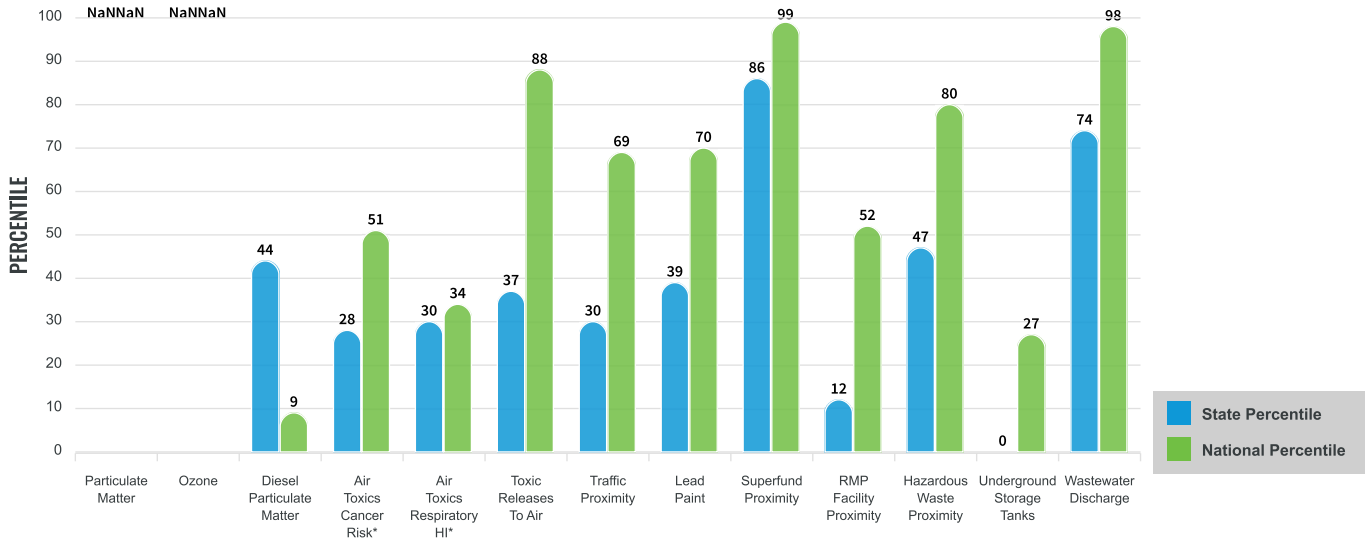
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

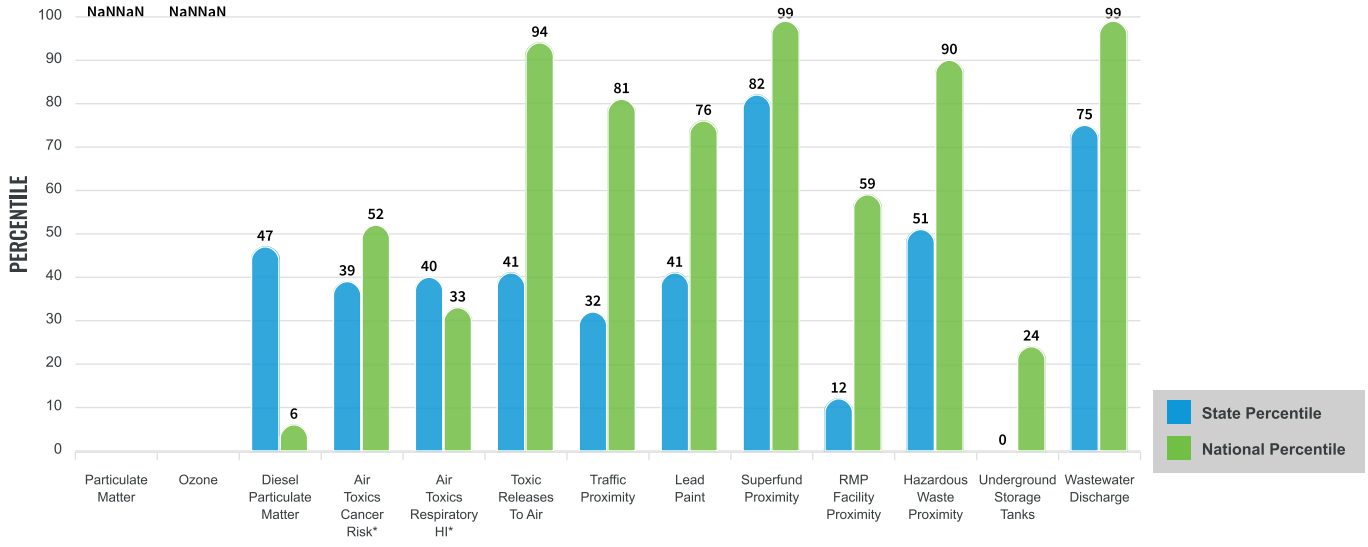
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 1 mile Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter ($\mu g/m^3$)	N/A	N/A	N/A	8.08	N/A
Ozone (ppb)	N/A	N/A	N/A	61.6	N/A
Diesel Particulate Matter ($\mu g/m^3$)	0.0333	0.0667	44	0.261	2
Air Toxics Cancer Risk* (lifetime risk per million)	19	20	0	25	1
Air Toxics Respiratory HI*	0.19	0.19	0	0.31	1
Toxic Releases to Air	550	4,300	34	4,600	48
Traffic Proximity (daily traffic count/distance to road)	30	180	31	210	30
Lead Paint (% Pre-1960 Housing)	0.084	0.16	47	0.3	32
Superfund Proximity (site count/km distance)	0.3	0.15	91	0.13	91
RMP Facility Proximity (facility count/km distance)	0.065	0.47	12	0.43	16
Hazardous Waste Proximity (facility count/km distance)	0.33	0.76	47	1.9	44
Underground Storage Tanks (count/km^2)	0.066	1.7	0	3.9	26
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.12	2.3	74	22	83
SOCIOECONOMIC INDICATORS					
Demographic Index	84%	83%	35	35%	97
Supplemental Demographic Index	43%	43%	41	14%	99
People of Color	99%	96%	23	39%	96
Low Income	68%	70%	36	31%	93
Unemployment Rate	2%	15%	19	6%	37
Limited English Speaking Households	78%	67%	69	5%	99
Less Than High School Education	22%	21%	53	12%	83
Under Age 5	7%	4%	83	6%	66
Over Age 64	16%	22%	28	17%	54
Low Life Expectancy	N/A	N/A%	N/A	20%	N/A

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund 0
Hazardous Waste, Treatment, Storage, and Disposal Facilities 0
Water Dischargers 0
Air Pollution 0
Brownfields 0
Toxic Release Inventory 0

Other community features within defined area:

Schools 1
Hospitals 0
Places of Worship 0

Other environmental data:

Air Non-attainment ..... No
Impaired Waters ..... Yes

Selected location contains American Indian Reservation Lands* ..... No
Selected location contains a "Justice40 (CEJST)" disadvantaged community ..... Yes
Selected location contains an EPA IRA disadvantaged community ..... Yes

Report for 1 mile Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	N/A	N/A	N/A	20%	N/A
Heart Disease	N/A	N/A	N/A	6.1	N/A
Asthma	N/A	N/A	N/A	10	N/A
Cancer	N/A	N/A	N/A	6.1	N/A
Persons with Disabilities	31.5%	21.6%	90	13.4%	98

CLIMATE INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	N/A	N/A	N/A	12%	N/A
Wildfire Risk	N/A	N/A	N/A	14%	N/A

CRITICAL SERVICE GAPS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	32%	32%	55	14%	90
Lack of Health Insurance	8%	7%	65	9%	55
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	No	N/A	N/A	N/A	N/A
Food Desert	No	N/A	N/A	N/A	N/A

Report for 1 mile Ring around the Area

APPENDIX D

Endangered Species

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Caribbean Ecological Services Field Office
Bayamón | Mayagüez | Maricao | Rio Grande | St Croix
P.O. Box 491
Boquerón, Puerto Rico 00622

In Reply Refer to:
FWS/R4/CESFO/72041-Gen

Submitted Via Electronic Mail (jcperez@vivienda.pr.gov)

Juan Carlos Pérez-Bofill, PE, MEng.
Director – Disaster Recovery CDBG-DR Program
Puerto Rico Department of Housing
P.O. Box 21365
San Juan, P.R 00928-1365

Re: CDBG-DR PR-RGRW-04112 MC Farm, LLC, Cidra, Puerto Rico

Dear Mr. Pérez-Bofill

Thank you for your letter dated October 13, 2023, requesting comments on the above referenced project. As per your request, our comments are provided under the Endangered Species Act (Act) (87 Stat. 884, as amended; 16 United States Code 1531 et seq.), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The Puerto Rico Department of Housing (PRDOH) on behalf of MC Farm, LLC (the Applicant) is proposing the installation of a farm in the city module in the backyard of the applicant's property. There will be ground disturbance in order to level the ground for the module to rest on top of a gravel pad and water and electric lines will be installed above ground connected to existing water and electric connections. The project will be located at Villa de San Martín #13, Km. 2.6 (18°10'27.1"N 66°07'36.4"W) in the municipality of Cidra, Puerto Rico.

Using the Information for Planning and Consultation (IPaC) system the proponent has determined that the proposed project lies within the range of Puerto Rican boa (*Epicrates inornatus* now known as *Chilabothrus inornatus*) and Puerto Rican plain pigeon (*Columba inornate wetmorei*).

The Caribbean Determination Key (DKey) in the U.S. Fish and Wildlife Service's (the Service) online IPaC application was used (project code: 2023-0127078) to evaluate the potential impacts to federally listed species for this project. Based on the answers provided, a consistency letter was obtained for the Puerto Rican boa which determined that the proposed actions for this project would have no effect (NE) on this specie. As for the Puerto Rican plain pigeon a consultation is required.

Based on the nature of the project, scope of work, information available, and analysis of the IPaC lists together with field direct observations of the area where the project will be developed, the proponent has determined that the proposed project may affect, but is not likely to adversely affect the Puerto Rican plain pigeon since there will be minimal ground disturbance around the area.

We have reviewed the information provided in your letter and our files, and concur with your determination that the proposed project may affect, but is not likely to adversely affect the Puerto Rican plain pigeon. Also, the Service acknowledge receipt of the NE DKey consistency letter for the Puerto Rican boa.

In view of this, we believe that requirements of section 7 of the Endangered Species Act (Act) have been satisfied. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner that was not previously considered; (2) this action is subsequently modified in a manner not previously considered in this assessment; or, (3) a new species is listed, or critical habitat determined that may be affected by the identified action.

Thank you for the opportunity to comment on this project. If you have any questions or require additional information, please contact us via email at caribbean_es@fws.gov or by phone at (786) 244-0081.

Sincerely yours,

Edwin E. Muñiz
Field Supervisor

drr

October 13, 2023

Edwin E Muñiz
Field Supervisor
U.S. Fish and Wildlife Service
PO Box 491
Boquerón, PR 00622
Email: caribbean_es@fws.gov; edwin_muniz@fws.gov

Re: Puerto Rico Department of Housing Re-Grow PR-RGRW-04112 Project – MC Farm, LLC – Endangered Species Evaluation

Dear Mr. Muñiz:

Horne, on behalf of the Puerto Rican Department of Housing (PRDOH), is requesting an informal consultation under Section 7 (a)(2) of the Endangered Species Act (Act) (87 Stat. 884, as amended; 16 United States Code 1531 et seq.), and in accordance with the Fish and Wildlife Coordination Act (47 Stat. 401, as amended; 16 U.S.C. 661 et seq.) for the proposed project PR-RGRW-04112, located at Villa de San Martin #13, Km. 2.6, Cidra, PR 00739. The project coordinates are latitude 18.174126, and longitude -66.126761. A map of the project location can be found in Appendix A, Figure 1.

The proposed project in question, PR-RGRW-04112, is requesting funding under the Re-Grow PR Urban-Rural Agriculture Program (Re-Grow). The goal of the Re-Grow Program is to build agricultural capacity and focus on promoting and increasing food security island-wide and enhancing and expanding agricultural production related to economic revitalization and sustainable development activities. The scope of work consists of a new Farm in the City module to be installed in the applicant's backyard. There will be ground disturbance to level the ground for the module to rest on top of a gravel pad. Water and electric lines will be installed above ground and connected to existing water and electric connections.

Using the Information for Planning and Consultation (IPaC) system, we have determined that the proposed project lies within the range of the following federally listed species and critical habitats:

Name of the species	Threatened/Endangered/Candidate
Puerto Rican boa (*Chilabothrus inornatus*)	Endangered
Puerto Rican Plain Pigeon (Columba inornata wetmorei)	Endangered

Critical Habitat
There are no critical habitats at this location.

Based on the nature of the project, scope of work, information available, and a careful analysis of the existing habitat, we have made the following effects determinations:

Name of the species	Effect Determination	Conservation Measures that will be implemented
Puerto Rican boa (*Chilabothrus inornatus*)	No effect (NE)	N/A
Puerto Rican Plain Pigeon (Columba inornata wetmorei)	May affect, but not likely to adversely affect (NLAA)	Nationwide Standard Conservation Measures
Critical Habitat		
There are no critical habitats at this location.		

In order to complete the informal consultation process, we are requesting your concurrence for the NLAA determinations included in this letter. Attached to this letter, we are including the documents used to reach our effect determinations for the listed species. If more information is required, please contact Steve Swick at steve.swick@horne.com.

EXECUTIVE SUMMARY:

Existing Habitat Conditions at Project Area:
The project area is located on Villa de San Martin #13 Km. 2.6. Cidra, PR 00739. The project coordinates are latitude 18.174126 and longitude -66.126761. According to the U.S. Geological Survey National Land Cover Database (NLCD) (Appendix A, Figure 3), the project area consists of Developed, Low Intensity. A map of the endangered species can be found in Appendix A, Figure 4.

Species Effects Analysis:

A Species List of Caribbean Ecological Services can be found in Appendix B.

Puerto Rican boa (*Chilabothrus inornatus*)

The Puerto Rican boa is the largest snake found in Puerto Rico. An endemic species, it can grow up to seven feet (approx. 2 meters) in length, although some people claim to have seen even larger specimens. Their coloring varies; it can be light or dark brown, gray, or even black. They also have a blackish, spotted, or barred pattern along their dorsal areas, and their ventral area is blackish. The boa is not venomous and does not attack human beings. This boa is timid and, upon detecting human presence nearby, its first and natural reaction is to escape. Nearly half of Puerto Rico, 46.3%, is considered a potential habitat for the Puerto Rican boa. Of all this potential habitat, only 9% is

protected. Although this species has been reported throughout every ecosystem in Puerto Rico. The Endangered Species Act of 1973, as amended, prohibits the killing, harassing, trapping, purchasing, or selling of any species, as well as parts and products derived from the species. Based on the nature of the project and the project scope, the Caribbean DKey, dated September 11, 2023, in the U.S. Fish and Wildlife Service's online IPaC application was used to evaluate the potential impacts to federally listed species from this project. Based on the answers inputted into the DKey, it was determined that the proposed action will have a **"No Effect"** determination on the Puerto Rican Boa.

Puerto Rican Plain Pigeon (Columban inornata wetmorei)

The Puerto Rican plain pigeon is a bird similarly sized to the common dove. The plain pigeon is a generalist species that can thrive in different habitats, but usually behaves as a border species, nesting, foraging, and sleeping in trees along the sides of roads, rivers, and creeks. The species can also be observed in secondary forests (forests that have re-grown after the primary vegetation was impacted by a major disturbance) or moving across agricultural and urban developments in its search for food or resting areas. A wide variety of plants provide food for this bird species. For example, the royal palm (*Roystonea borinquena*), day-blooming jasmine (*Cestrum diurnum*), camasey (*Miconia sp.*), péndula (*Petitia dominguensis*) and princess vine (*Cissus sycyiodes*). The plain pigeon ingests water accumulated in bromeliad's leaves and the flowers of the African tulip tree (*Spathodea campanulata*). Historically, plain pigeons were abundant in Puerto Rico. The plain pigeon was included in the Endangered Species list in 1970. The U.S. Fish and Wildlife Service, the Department of Natural and Environmental Resources (PRDNER). The Endangered Species Act of 1973, amended, prohibits the killing, harassing, trapping, purchasing, or selling of any species, as well as parts and products derived from the species.

In accordance with the findings of the 5-Year Review: Summary and Evaluation for the year 2019 (Appendix C), it concurs that the Puerto Rican Plain Pigeon (*Columba inornata wetmorei*) remains under threat due to habitat modification and various manmade factors. Notably, the habitat of this endangered subspecies, particularly within the municipalities of Cidra and Cayey, is of particular concern. Based, on the proposed project which primarily centers around the installation of water and electrical lines to pre-existing connections to establish a new farm and a minimal ground disturbance around the area, could disrupt the habitat associated with the Puerto Rican Plain Pigeon (*Columba inornata wetmorei*).

Therefore, based on the determinations of the U.S. Fish and Wildlife Service guidelines a negligible or small effect is appropriate to determine and the proposed project is anticipated to **"May affect, but not likely to adversely affect"** the Puerto Rican Plain Pigeon (*Columba inornata wetmorei*).

In order to complete the informal consultation process, we are requesting your concurrence for the NE and NLAA determination included in this letter. Attached to this letter, we are including documents used to reach our effect determinations for the listed

species. For any questions or clarifications, please do not hesitate to contact us at the information below.

Thank you in advance for your consideration of this issue.

Cordially,

Juan Carlos Pérez Bofill, PE, MEng.
Director – Disaster Recovery, CDBG-DR Program
environmentcdbg@vivienda.pr.gov | 787.274.2527 ext. 4320

Attachments:

Appendix A:

- Figure 1 – Location Site Map
- Figure 2 – Topographic Map
- Figure 3 – Land Cover Map
- Figure 4 – Endangered Species Map
- Figure 5 – Consistency Letter

Appendix B: Species List Caribbean Ecological Services

Appendix C: 5-Year Review: Summary and Evaluation for the year 2019

C: Angel G. López-Guzmán, MSEM
Deputy Director
Permits and Environmental Compliance Division

Literature Cited:

Maps: Data basin. Maps | Data Basin. (n.d.). https://databasin.org/maps/new/#datasets=e95aa06e05624f3087559eca884db034

2023a. Information for Planning and Consultation System (IPaC). Available at: http://ecos.fws.gov/ipac/. Accessed September 2023.

U.S. Fish and Wildlife Service. (n.d.). Fact Sheets. Caribbean Endangered and Threatened Animals. Sea Grant Puerto Rico

U.S. Fish and Wildlife Service (USFWS). 2019. *Columba inornata wetmorei* 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Southeast Region. Boquerón, Puerto Rico.

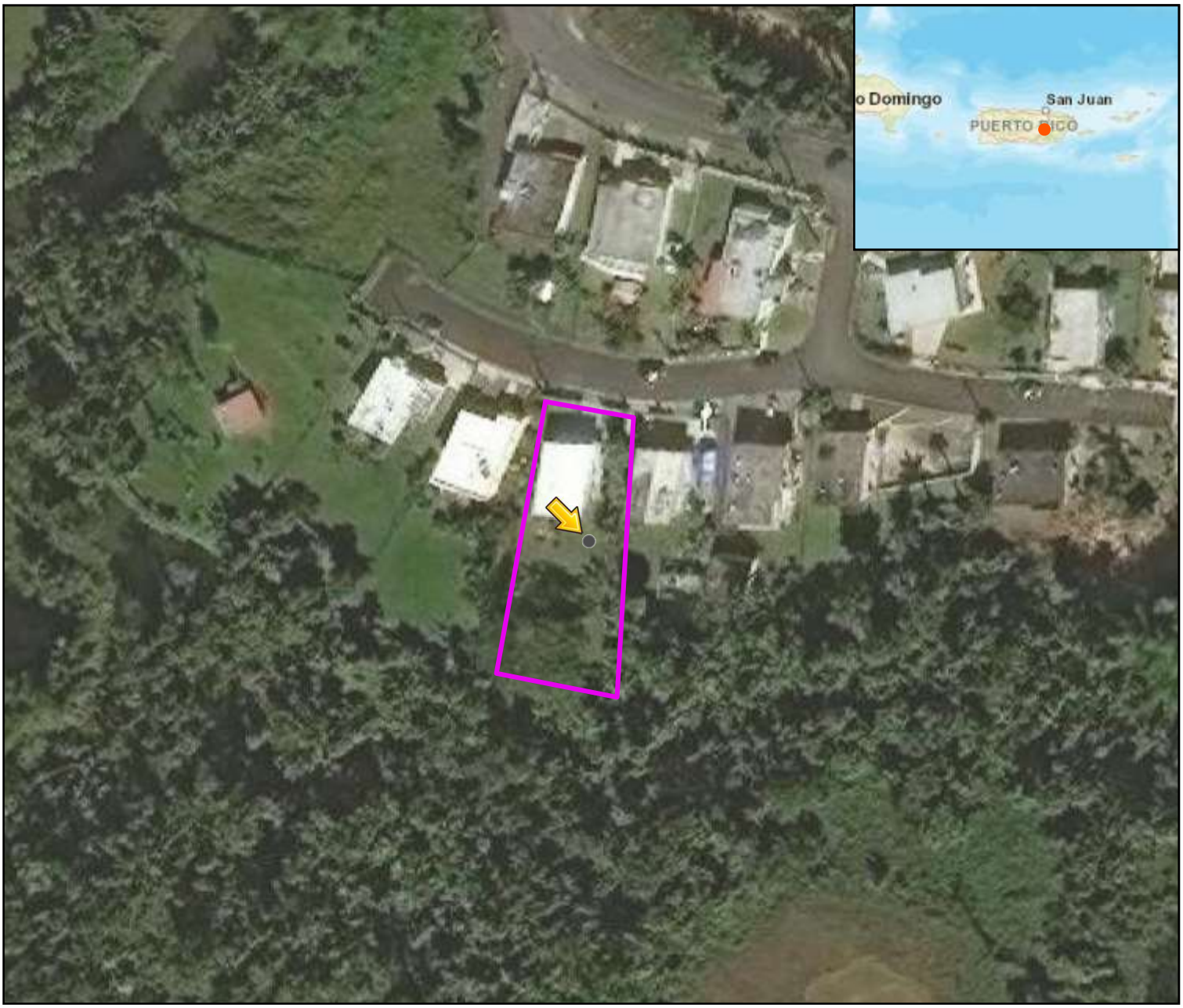
Appendix A
Maps

Figure 1
Location Site Map

DEPARTAMENTO DE LA VIVIENDA

MC FARM, LLC
Villa de San Martin #13 KM 2.6
CIDRA, PR 00739
18.174126, -66.126761

PR-RGRW-04112 Location



Legend

0 0.01 0.02 0.04 mi

N
W E
S

9/6/2023 9:27 AM

Figure 2
Topographic Map

USGS - Topographic Base

Puerto Rico Department of Housing

Latitude: 18.174126°N
Longitude: 66.126763°W

Application ID#: PR-RGRW-04112
Address: Villa de San Martin #13 KM 2.6 CIDRA, PR 00739

1:20,000
1 inch equals 1,667 feet
0 500 1,000Feet

Applicant Structure
Applicant Parcel
Parcels

Sources: Esri Imagery Basemap service.

Figure 3
Land Cover Map

PR-RGRW-04112 Land Cover

Legend

National Land Cover Database, land cover - Puerto Rico

- Barren Land
- Cultivated Crops
- Developed, High Intensity
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, Open Space
- Emergent Herbaceuous Wetlands
- Evergreen Forest
- Hay/Pasture
- Herbaceuous
- Open Water
- Shrub/Scrub
- Woody Wetlands

New Drawing 3

Datasets

National Land Cover Database, land cover - Puerto Rico
https://databasin.org/datasets/e95aa06e05624f3087559eca884db034/

Credits: USGS National Land Cover Database 2001
Layers: • layer1

MC FARM, LLC
Villa de San Martin #13 KM 2.6
CIDRA, PR 00739
18.174126, -66.126761

Figure 4
Endangered Species Map

MC FARM, LLC
Villa de San Martin #13 KM 2.6
CIDRA, PR 00739
18.174126, -66.126761

PR-RGRW-04112 Endangered Species

Legend

USFWS Critical Habitat - Polygon Features - Final (agency service)

0 2.75 5.5 11 mi

N W E S

Endangered Species Habitat

U.S. Fish and Wildlife Service

9/6/2023 9:33 AM

Figure 5
Consistency Letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Caribbean Ecological Services Field Office
Post Office Box 491
Boqueron, PR 00622-0491
Phone: (787) 834-1600 Fax: (787) 851-7440
Email Address: CARIBBEAN_ES@FWS.GOV

In Reply Refer To:
Project code: 2023-0127078
Project Name: PR-RGRW-04112

September 11, 2023

Subject: Consistency letter for the project named 'PR-RGRW-04112' for specified threatened and endangered species, that may occur in your proposed project location, pursuant to the IPaC determination key titled Caribbean Determination Key (DKey).

Dear Applicant:

Thank you for using the assisted evaluation keys in IPaC. This letter is provided pursuant to the Service's authority under the Endangered Species Act of 1973, as amended (ESA) (87 Stat. 884; 16 U.S.C. 1531et seq.). On September 11, 2023, Yerinet Robles Bonilla used the Caribbean DKey; dated February 08, 2023, in the U.S. Fish and Wildlife Service's online IPaC application to evaluate potential impacts to federally listed species, from a project named 'PR-RGRW-04112'. The project is located in Cidra County, Puerto Rico (shown below).

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@18.1741849,-66.12678854912103,14z

The following description was provided for the project 'PR-RGRW-04112':

> The proposed project in question, 04112, is requesting funding under the Re-Grow PR Urban-Rural Agriculture Program (Re-Grow). The goal of the Re-Grow is to build agricultural capacity and focus on promoting and increasing food security island-wide and enhancing and expanding agricultural production related to economic revitalization and sustainable development activities. The proposed project consists of the participant, where they have selected a new farm in the city module to be installed in the applicant's backyard. There will be ground disturbance in order to level the ground for the module to rest on top of a gravel pad. Water and electric lines will be installed above ground and connected to existing water and electric connections.

Based on your answers and the assistance of the Service's Caribbean DKey, you determined the proposed Action will have "No Effect" on the following species:

Species	Listing Status	Determination
Puerto Rican Boa (*Chilabothrus inornatus*)	Endangered	No effect

Thank you for informing the Service of your "No Effect" determination(s) for this project. No further consultation/coordination for this project is required for these species. However, be aware that reinitiation of consultation may be necessary if later modifications are made to the project so that it no longer meets the criteria or outcome described above, or if new information reveals effects of the action that could affect listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed.

This letter serves as documentation of your consideration of the federally listed species as required under section 7 of the ESA. However, effects to the other federally listed species or critical habitat as listed below from the "IPaC print-out for the project" (see below) should be considered as part of your ESA review for the project.

The Service will notify you within 30 calendar days if we determine that this proposed Action does not meet the criteria for a "No Effect" (NE) determination for Federally listed species in the Caribbean. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NE concurrence provided here. This verification period allows the Caribbean Ecological Services Field Office to apply local knowledge to evaluate the Action, as we may identify a small subset of actions having unanticipated impacts. In such instances, the Caribbean Ecological Services Field Office may request additional information to verify the effects determination reached through the DKey.

Note: Projects located within the range of the Puerto Rican boa or the Virgin Islands tree boa might encounter these species during project activities. **This letter does not provide take to handle or move these species**. If relocation of the species is needed, please contact either the Puerto Rico Department of Natural Resources (DNER) at 787-724-5700, 787-230-5550, or 787-771-1124 for projects in Puerto Rico, or the Virgin Islands Department of Planning and Natural Resources, Division of Fish and Wildlife (DFW) at 340-775-6762 for projects in the Virgin Islands. Otherwise, contact the Caribbean Ecological Services Field Office (caribbean_es@fws.gov) to determine whether the consultation needs to be reinitiated.

In addition to the species listed above, the following species and/or critical habitats may also occur in your project area and **are not** covered by this conclusion. Effects to the other federally listed species or critical habitat as listed below should be considered as part of your ESA review for the project.

- Puerto Rican Plain Pigeon *Columba inornata wetmorei* Endangered

If the proposed project is located within species range where a DKey has not been developed for those species, please follow the established guidance for initiating section 7 consultation Caribbean Ecological Services Field Office.

We appreciate your interest in protecting endangered species and their habitats. It is the Service’s mission to work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of our people. If you have any questions or require additional information, please contact our office at Caribbean_es@fws.gov.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

PR-RGRW-04112

2. Description

The following description was provided for the project 'PR-RGRW-04112':

> The proposed project in question, 04112, is requesting funding under the Re-Grow PR Urban-Rural Agriculture Program (Re-Grow). The goal of the Re-Grow is to build agricultural capacity and focus on promoting and increasing food security island-wide and enhancing and expanding agricultural production related to economic revitalization and sustainable development activities. The proposed project consists of the participant, where they have selected a new farm in the city module to be installed in the applicant's backyard. There will be ground disturbance in order to level the ground for the module to rest on top of a gravel pad. Water and electric lines will be installed above ground and connected to existing water and electric connections.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@18.1741849,-66.12678854912103,14z

QUALIFICATION INTERVIEW

1. Is the proposed project an EPA Multi-Sector General Permit (MSGP) renewal for an existing project? (MSGP Fact Sheet)

   No

2. Is the proposed project within an urban developed area? (i.e., cities, downtowns, etc.)

   Yes

3. [Hidden Semantic] Does the proposed project intersect the Puerto Rican boa area of influence?

   Automatically answered
   Yes

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Yerinet Robles Bonilla
Address: Calle Rigel FN4 Urb Irlanda Heights
City: Bayamon
State: PR
Zip: 00956
Email yrobles@ecorecpr.com
Phone: 7879233721

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Department of Housing and Urban Development

Appendix B

Species List Caribbean Ecological Services

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Caribbean Ecological Services Field Office
Post Office Box 491
Boqueron, PR 00622-0491
Phone: (787) 834-1600 Fax: (787) 851-7440
Email Address: CARIBBEAN_ES@FWS.GOV

In Reply Refer To:
Project Code: 2023-0127078
Project Name: PR-RGRW-04112

September 11, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

THE FOLLOWING SPECIES LIST IS NOT A SECTION 7 CONSULTATION. PLEASE CONTACT OUR OFFICE TO COMPLETE THE CONSULTATION PROCESS

The purpose of the Endangered Species Act (Act) is to provide a means whereby threatened, and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect those species and/or their designated critical habitat.

Federal agencies are required to "request of the Secretary of Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action". The enclosed species list provides information to assist with the U.S. Fish and Wildlife Service (Service) consultation process under section 7 of the Act. However, **the enclosed species list does not complete the required consultation process.** The species list identifies threatened, endangered, proposed and candidate species, as well as proposed and designated critical habitats, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. A discussion between the Federal agency and the Service should include what types of listed species may occur in the proposed action area and what effect the proposed action may have on those species. This process initiates informal consultation.

Once a species list is obtained for the proposed project, an effect determination for endangered and threatened species should be made. The applicant could make an effect determination by using available keys on IPaC for specific species. For species with no determination keys, the applicant should request concurrence from the Service by sending a project package

to caribbean_es@fws.gov. To obtain guidance for completing this process and the minimum requirements for project packages, please visit:

https://www.fws.gov/sites/default/files/documents/consultation-under-section-7-of-the-endangered-species-act-with-the-caribbean-ecological%20Services-field-office-template-letter.pdf

When a federal agency, after discussions with the Service, determines that the proposed action is not likely to adversely affect any listed species, or adversely modify any designated critical habitat, and the Service concurs, the informal consultation is complete, and the proposed project moves ahead. If the proposed action is suspected to affect a listed species or modify designated critical habitat, the Federal agency may then prepare a Biological Assessment (B.A.) to assist in its determination of the project's effects on species and their habitat. However, a B.A. is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a B.A. where the agency provides the Service with an evaluation on the likely effects of the action to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a B.A. are described at 50 CFR 402.12.

If a federal agency determines, based on its B.A. or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to further consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation process. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species.

This list is provided pursuant to Section 7 of the Endangered Species Act and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action". Please use this list to determine whether your project requires consultation and to make your effects determination. For more guidance, use the Guideline for Consultation under Section 7 of the Endangered Species Act with the Caribbean Ecological Services Field Office by clicking here.

This species list is provided by:

Caribbean Ecological Services Field Office
caribbean_es@fws.gov
Post Office Box 491
Boqueron, PR 00622-0491
(786) 244-0081

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Caribbean Ecological Services Field Office
Post Office Box 491
Boqueron, PR 00622-0491
(787) 834-1600

PROJECT SUMMARY

Project Code: 2023-0127078
Project Name: PR-RGRW-04112
Project Type: New Constr - Below Ground
Project Description: The proposed project in question, 04112, is requesting funding under the Re-Grow PR Urban-Rural Agriculture Program (Re-Grow). The goal of the Re-Grow is to build agricultural capacity and focus on promoting and increasing food security island-wide and enhancing and expanding agricultural production related to economic revitalization and sustainable development activities. The proposed project consists of the participant, where they have selected a new farm in the city module to be installed in the applicant's backyard. There will be ground disturbance in order to level the ground for the module to rest on top of a gravel pad. Water and electric lines will be installed above ground and connected to existing water and electric connections.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@18.1741849,-66.12678854912103,14z

Counties: Cidra County, Puerto Rico

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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

BIRDS

NAME	STATUS
Puerto Rican Plain Pigeon *Columba inornata wetmorei* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7955	Endangered

REPTILES

NAME	STATUS
Puerto Rican Boa *Chilabothrus inornatus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6628 General project design guidelines: https://ipac.ecosphere.fws.gov/project/Y5OGPTJCYVDK5FOPOPQO3ZKHAI/documents/generated/6941.pdf	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

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

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

THERE ARE NO FWS MIGRATORY BIRDS OF CONCERN WITHIN THE VICINITY OF YOUR PROJECT AREA.

MIGRATORY BIRDS FAQ

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

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

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

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

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as

occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

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

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

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

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

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

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

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can

implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

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

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

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

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

WETLANDS

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Yerinet Robles Bonilla
Address: Calle Rigel FN4 Urb Irlanda Heights
City: Bayamon
State: PR
Zip: 00956
Email yrobles@ecorecpr.com
Phone: 7879233721

Appendix C:
5-Year Review: Summary and Evaluation for the year 2019

Puerto Rican plain pigeon or paloma sabanera
(*Patagioenas inornata wetmorei = Columba inornata wetmorei*)

5-Year Review:
Summary and Evaluation

November 2011

U.S. Fish and Wildlife Service
Southeast Region
Caribbean Ecological Services
Boquerón, Puerto Rico

TABLE OF CONTENTS

5-YEAR REVIEW
Puerto Rican Plain Pigeon or paloma sabanera
(*Patagioenas inornata wetmorei*)

I. GENERAL INFORMATION

A. Methodology used to complete the review

On September 12, 2005, the Service published a notice in the *Federal Register* (70 FR 53807-53808) announcing the 5-year review of the Puerto Rican plain pigeon (plain pigeon; *Patagioenas inornata wetmorei*, previously known as *Columba inornata wetmorei*) and requesting new information concerning the biology and status of the species. A 60-day comment period was opened. No information on the plain pigeon was received from the public. No part of the review was contracted to an outside party. The review was also sent to three peer reviewers (Appendix A).

This 5-year review was prepared by a Service biologist and includes information that the Service has gathered since the plain pigeon was listed on October 13, 1970 (35 FR 16047-16048). The review is based on available information from our species' file, including distribution and status reports, captive breeding reports, and the best available information on the species' biology and ecology. Sources of information included the Recovery Plan, peer-reviewed literature, unpublished field observations and reports by Commonwealth and Service biologists, and communications from other qualified biologists and experts.

**Please see Addendum 1 (pages 25-30) for updated information on the Puerto Rican plain pigeon that we have gained while conducting our new five-year review initiated in 2016 (81 FR 56692). Our new signature page is included on page 23. What precedes this new information (pp. 1-24) is the first five-year review announced in September 12, 2005 (70 FR 53807-53808) and completed and signed in 2011.*

B. Reviewers

Lead Region: Nikki Lamp, Southeast Regional Office, Atlanta, Georgia. (404) 679-7118

Lead Field Office: Dr. José A. Cruz-Burgos, Caribbean Ecological Services Field Office, Boquerón, Puerto Rico. (787) 851-7297 x208

C. Background

1. FR Notice citation announcing initiation of this review: September 12, 2005; 70 FR 53807-53808

2. Species Status: (2011 Recovery Data Call) Stable. The plain pigeon population declined after 1998 and is currently at low numbers (Rivera-Milán 2011, p. 5). In 2010, the estimated density and population size of the species was 0.02 individuals/hectare (ind/ha) and 5,809 individuals, respectively (Rivera-Milán 2011, p. 1). During April-

June 2011, the predicted density is 0.02 ind/ha, and predicted population size is 6,749 individuals (Rivera-Milán 2011, p. 1). However, the species continues to be threatened with extinction since it has not reached desirable density and abundance levels. Furthermore, stochasticity may drive population fluctuations at low numbers, which can be exacerbated in the face of climate change, habitat loss and other threatening factors. Overutilization for commercial or recreational purposes and inadequacy of existing regulatory mechanisms are not considered threats to the species. Habitat modification or destruction, disease or predation, and other natural or manmade factors continue to be threats to the species. Moreover, reproductive capacity, survival rate, and resource use and availability may all be very important, but data are lacking to elucidate the mechanisms driving the population dynamics of plain pigeons.

3. Recovery Achieved: 1 (0-25%) of species recovery objectives achieved. The following recovery tasks in the Recovery Plan have been completed: Task 22 (Establish captive reproducing flock of Puerto Rican plain pigeons), Task 2422 (Experimental release of captive-bred plain pigeons on limited scale), and Task 2423 (Monitor experimental release success through visual and telemetric methods). Tasks 11214 and 11312 (Education program) and Task 3 (Monitor population levels and range), are on-going.

4. Listing History

Original Listing:
FR notice: 35 (109) FR 16047-16048
Date listed: October 13, 1970
Entity listed: Subspecies
Classification: Endangered

Revised Listing: None

5. Associated rulemakings: None

6. Review History: The Puerto Rican Plain Pigeon Recovery Plan, approved and signed on October 14, 1982 (USFWS 1982) is the most recent published comprehensive analysis of the species' status and was used as the reference point document for this 5-year review. The species' status has also been reviewed annually since 2000 through our Recovery Data Call.

7. Species' Recovery Priority Number at start of review: 3c. The plain pigeon is recognized as a subspecies with a high degree of threat and high recovery potential. The "c" indicates conflict with development activities.

8. Recovery Plan or Outline:
Name of plan: Puerto Rican Plain Pigeon Recovery Plan
Date issued: October 14, 1982

II. REVIEW ANALYSIS

A. Application of the 1996 Distinct Population Segment (DPS) policy

1. Is the species under review listed as a DPS? No.

2. Is there relevant information that would lead you to consider listing this species as a DPS in accordance with 1996 policy? No.

B. Recovery Criteria

1. Does the species have a final, approved recovery plan containing objective, measurable criteria? No. The plain pigeon has an approved recovery plan establishing delisting as the recovery goal; however, it does not include objective and measurable delisting criteria.

2. Adequacy of recovery criteria

a. Do the recovery criteria reflect the best available (most up-to-date) information on the biology of the species and its habitat? No.

b. Are all of the 5 listing factors that are relevant to the species addressed in the recovery criteria (and there is no new information to consider regarding existing or new threat)? No. The plan did not include a 5-listing factor analysis.

3. List the recovery criteria as they appear in the recovery plan, and discuss how each criterion has or has not been met, citing information. For threats-related recovery criteria, please note which of the 5 listing factors are addressed by that criterion. If any of the 5-listing factors are not relevant to this species, please note that here.

The approved recovery plan established that the plain pigeon could be considered for delisting when the following objectives are accomplished:

a. Achieve a minimum of two, distinct, wild plain pigeon populations, each consisting of at least 250 nesting pairs (5-year average).

b. Secure most of the existing plain pigeon habitat of the Cidra-Cayey population.
c. Commit the Río Abajo Commonwealth Forest or its equivalent as a reintroduction and management site for a second, disjoint population of plain pigeons.

These objectives have not been met because efforts have not been initiated to establish two distinct populations of the plain pigeon; the existing plain pigeon habitat in Cidra and Cayey has not been secured; and steps have not been initiated to commit the Río Abajo Commonwealth Forest, or its equivalent, as a reintroduction and management site for a second plain pigeon population.

C. Updated Information and Current Species Status

1. Biology and Habitat

a. Is there relevant new information regarding the species' abundance, population trends (*e.g.* increasing, decreasing, stable), demographic features (*e.g.* age structure, sex ratio, family size, birth rate, age at mortality, mortality rate, etc.), or demographic trends? Yes.

The Puerto Rican plain pigeon was considered almost extinct in the 1930s (Danforth 1931, p. 68), but in 1963 a small population of 52 individuals was found in Cidra. Under the Endangered Species Conservation Act of 1969, the species was listed as endangered throughout its range in 1970 and then received increased Federal protection with the passage of the Endangered Species Act (Act), as amended, in 1973. Until recently, information regarding the status of the plain pigeon population was incomplete. Pérez-Rivera (1977a, p. 77) stated that the plain pigeon population in east-central Puerto Rico was less than 200 individuals. Other estimates reflect that a population increase occurred between the 1970s and 1990s (Rivera-Milán et al. 2003a, p. 45). However, no census (detection probability $P = 1$) or count ($P < 1$) existed to estimate density and abundance of plain pigeons until distance sampling surveys started in 1986 (Rivera-Milán et al. 2003a, p. 45).

Plain pigeon density and abundance estimates were calculated from 1986-2010 based on point-transect distance sampling data collected during each of those years. This data shows that the species increased from low numbers in the 1980s until the late 1990s, although a population decline was observed in 1990 following the passage of hurricane Hugo in 1989 (Table 1). Then, an overall population increase was observed between 1991 and 1998, when hurricane Georges struck Puerto Rico (Table 1). The plain pigeon population showed signs of recovery after this hurricane, but declined again after 2001 and has not recovered to pre-hurricane densities, although an increase in population density has been observed from 2008-2010 (Table 1).

Table 1. Puerto Rican plain pigeon density and abundance estimates based on point-transect distance sampling data collected in Puerto Rico during 1986-2010 (Rivera-Milán, unpubl. manuscript).

Year	D	D SE	D CV	N Predicted Habitat	N SE	Surveyed Area (ha)	N Surveyed Area	N SE
1986	0.007	0.002	0.251	2,055	516	22,321	150	38
1987	0.015	0.003	0.212	4,724	1,001	22,321	344	73
1988	0.016	0.004	0.225	4,908	1,104	22,321	357	80
1989	0.014	0.003	0.251	4,264	1,070	22,321	310	78
1990	0.005	0.002	0.372	1,534	571	22,321	112	42
1991	0.013	0.004	0.351	3,834	1,346	22,321	279	98
1992	0.023	0.009	0.373	7,055	2,632	22,321	513	191
1993	0.024	0.009	0.372	7,209	2,682	22,321	525	195
1994	0.046	0.016	0.341	14,111	4,812	22,321	1,027	350
1995	0.041	0.012	0.303	12,577	3,811	22,321	915	277
1996	0.081	0.024	0.299	24,847	7,429	22,321	1,808	541
1997	0.075	0.027	0.360	23,007	8,289	22,321	1,674	603
1998	0.102	0.032	0.314	31,289	9,816	33,148	3,381	1,061
1999	0.037	0.019	0.514	11,350	5,828	33,148	1,226	630
2000	0.041	0.015	0.366	12,577	4,601	45,799	1,878	687
2001	0.058	0.018	0.310	17,792	5,522	62,829	3,644	1,131
2002	0.040	0.014	0.350	12,270	4,295	63,924	2,557	895
2003	0.033	0.012	0.364	10,123	3,681	70,553	2,328	847
2004	0.018	0.008	0.444	5,522	2,454	71,527	1,287	572
2005	0.016	0.006	0.375	4,908	1,841	73,411	1,175	440
2006	0.018	0.008	0.442	5,522	2,442	73,411	1,321	584
2007	0.019	0.009	0.463	5,828	2,696	69,215	1,315	608
2008	0.032	0.012	0.384	9,816	3,770	60,093	1,923	739
2009	0.036	0.006	0.167	11,043	1,841	83,629	3,011	502
2010	0.031	0.003	0.107	9,509	1,018	53,827	1,669	179

Notes:
1. D = density, N Predicted Habitat = population estimate in plain pigeon predicted habitat (PR GAP Project), N Surveyed Area = population estimate within surveyed area.

Notes: (continued)
2. Extrapolation of estimated density beyond the surveyed area is justified given that there is no difference in detection and abundance at on-road and off-road points. This argument based on 1,375 on-road and off-road points surveyed in March-July 1998-2010 (PRDNER Project W-16; Rivera-Milán et al., unpubl. data).

3. Not accounting for false absence due to imperfect detection, habitat covers at least 306,755 ha (Gould et al. 2008, PR GAP project).

4. Maps of probability of occurrence and abundance accounting for imperfect detection can be prepared using hierarchical distance sampling, count-removal sampling, and repeated-count sampling (Rivera-Milán et al., unpubl. data).

5. Based on a Bayesian state-space model of population dynamics, predicted density is 0.023 (95% credible interval = 0.013, 0.044) for 2011-2015 (Rivera-Milán et al., unpubl. manuscript).

Based on the Bayesian state-space model for the population dynamics of game and nongame species, Rivera-Milán (unpubl. data), predicted an average plain pigeon density of 0.023 individuals/ha for 2011-2015. This density extrapolated to the 306,755 ha of the predicted plain pigeon habitat on the Island (Gould et al. 2008, p. 91, PR GAP Project), results in a predicted average abundance of 7,055 (3,988 to 13,498) individuals (Rivera-Milán, unpubl. data). Rivera Milán (pers. comm., 2011) indicates that the plain pigeon population never fully recovered from the impact of Hurricane Georges and the loss of habitat in east-central Puerto Rico. However, the species seems to be moving to montane forests surrounding farms in the karst region (e.g., in the municipalities of Corozal, Morovis, Ciales, and Florida) possibly due a rapid and largely unmitigated development occurring in similar habitats in Aguas Buenas, Caguas, Cidra, Comerio and other municipalities within their traditional range of distribution (Rivera-Milán 2011, p. 1).

Based on the distance sampling data collected during 1986-2010, the plain pigeon should reach carrying capacity at a density of 0.05 ind/ha in the 306,755 ha of the predicted habitat for the species on the Island (Rivera-Milán, unpubl. manuscript). The maximum intrinsic growth rate of the species is 0.31, which indicates that the plain pigeon population may increase rapidly under favorable conditions (Rivera-Milán, unpubl. manuscript).

The plain pigeon appears to nest year-round, since nests have been found in January, February, March through August, and November (Pérez-Rivera 1978, p. 95). However, a peak of nest density usually occurs between the second week of April and second week

of June, with flocking behavior becoming conspicuous in July-August (Rivera-Milán 2001, p. 335, Rivera-Milán et al. 2003b, p. 471-476).

Plain pigeon nesting success oscillated between 15 and 70%, with an average of 42%, between 1975 and 1995 in the municipality of Cidra (Pérez-Rivera and Ruiz-Lebrón, unpubl. data). During 1997 and 1998, 102 and 166 nests were found, respectively, along road PR 172 between the municipalities of Cidra and Comerio (PRDNER 2000, p. 6). Nest success in 1997 and 1998 was 48% and 47%, respectively (PRDNER 2000, p.7). Nest abundance and density were also estimated from data gathered during 1997 and 1998 along strip transects located in forested areas near a school and at Finca Longo, also at road PR 172. The total area covered by these strip transects was 8 ha. Nest density in strip transects was estimated at 13.56 nests/ha during 1997 and 40.26 nests/ ha during 1998 (PRDNER 2000, p. 6).

Between 1986 and 1999, 377 plain pigeon nests were monitored in east-central Puerto Rico (i.e., Aguas Buenas, Caguas, Cayey, Cidra and Comerio) and an average of 0.5 fledglings were produced per nesting pair (Rivera-Milán et al. 2003b, p 473). The overall nest survival was 40% during the nesting period, 63% during the incubation period, and 66% during the nestling period (Rivera-Milán et al. 2003b, p. 473). Based on this finding, Rivera-Milán et al. (2003b, p. 376) suggested that protection from hunting and poaching, as well as recovery of second-growth forest between the 1970s and 1990s, caused an increase in survival rate, which in turn resulted in an increase of the nesting population, and the number of hatching-year individuals reaching sexual maturity and reproducing successfully. Moreover, Rivera-Milán (2001, p. 340) found that food abundance was the most important predictor of changes in the nest density of columbids, including the plain pigeon.

A number of plain pigeon releases have been conducted by the PRDNER and telemetry data has been collected for captive-reared and wild plain pigeons (PRDNER 2005, p. 6). In these releases, the body mass of captive-reared plain pigeons (n = 28) decreased from 334.6 g to 316.9 g at the time of release (PRDNER 2005, p. 25), which probably lowered their 90-day survival rate ($\varphi = 0.50$; Rivera-Milán 2011, p. 3). In comparison, wild plain pigeons (n = 19, body mass = 339.1 g) had a 90-day survival rate of 0.80 (Rivera-Milán 2011, p. 3). However, these survival rate estimates are imprecise and most likely biased low due to small sample sizes (Rivera-Milán, 2011, p. 3).

b. Is there relevant new information regarding the species' genetics, genetic variation, or trends in genetic variation (*e.g.*, loss of genetic variation, genetic drift, inbreeding, etc.)? Yes.

Miyamoto et al. (1994, p. 911) studied the genetic variation among 20 surviving founders (9 males and 11 females) of the plain pigeon captive breeding program held at the University of Puerto Rico, Humacao Campus. The purpose of the study was to relate

variability of founders to the captive-bred descendants and the population of plain pigeons from the municipality of Cidra. The variation was quantified for nuclear DNA by DNA fingerprinting and for mitochondrial DNA (mtDNA) by sequencing of its control region.

The results of this study suggested a similar level of nuclear DNA variation for the 20 founders (Miyamoto et al. 1994, p. 912). The results of the DNA fingerprinting and the mtDNA polymorphism were considered uncoupled, as expected for a random mating population (Miyamoto et al. 1994, p. 912). In conclusion, both sets of DNA data indicated that the 20 founders of the recovery program were characterized by low levels of genetic variability (Miyamoto et al. 1994, p. 914). As these 20 birds were initially sampled randomly from the Cidra population, the same conclusion would apply to the remaining wild flock in Puerto Rico, which endured a severe bottleneck between 1926 and 1958 (Miyamoto et al. 1994, p. 914). An alternative explanation for the low levels of variation found is that the DNA regions studied evolved at unusually slow rates, but this possibility is unlikely since the pattern was exhibited by both nuclear and mtDNA genomes (Miyamoto et al. 1994, p. 914).

c. Is there relevant new information regarding taxonomic classification or changes in nomenclature? Yes.

On the basis of studies by Johnson and Clayton (2000) and Johnson et al. (2001) of nuclear and mtDNA and reviews of morphological (Ridgway 1916), serological (Cumley and Irwin 1944), and behavioral (Johnston 1962) characters, New World pigeons formerly included in the genus *Columba* were placed in the genus *Patagioenas* Reichenbach, 1853 (Banks et al. 2003, p. 69 and 73). Therefore, while listed as *Columba inornata wetmorei*, taxonomic research has revealed that the Puerto Rican plain pigeon be recognized as *Patagioenas inornata wetmorei*. This taxonomic change has been accepted by the scientific community (Integrated Taxonomic Information System 2011).

Three subspecies of the plain pigeon were described in 1915 from very small samples, and the diagnostic color differences among them were rather minor (Banks 1986, p. 629). Further examination of samples found in the National Museum of Natural History (USNM) revealed that the quality of the material available in 1915 was poor and suggested that the supposed distinctive characters were not consistent (Banks 1986, p. 629) Banks (1986, p.630) concluded that *Columba inornata* (now *Patagioenas inornata*) should be considered a monotypic species, as previous taxonomic distinction of separate insular populations was based on samples that were inadequate in size to show the extent of intrapopulation variation in color.

The Puerto Rican plain pigeon is a large bird about the size and shape of a domestic pigeon (*Columba livia*), but with an overall grayish-brown coloration washed with a tinge of maroon color. It is one of three subspecies of plain pigeon recognized in the West

Indies: *P. inornata inornata* from Cuba, Isle of Youth (Isle of Pines), and Hispaniola; *P. inornata exigua* from Jamaica; and *P. inornata wetmorei* from Puerto Rico (Bowdish 1903, p. 23; Wetmore 1927, p. 392-394; Danforth 1929, p. 365; Del Hoyo et al. 1996, p. 127-128). However, Banks (1986, p. 631) indicated that the Puerto Rican plain pigeon population cannot be separated from other populations at the subspecies level. Banks (1986, p. 631) did not find specific indication that the specimen of plain pigeon taken in Puerto Rico in 1962 was identified by Alexander Wetmore as the Puerto Rican plain pigeon. Thus, the identification of such bird as the subspecies *wetmorei* cannot be accepted as evidence that the Puerto Rican population continued to exist, unreported by ornithologists from 1926 until 1958 (Banks 1986, p. 631). Banks (1986, p. 631) indicated that the specimen matched individuals from Hispaniola and Cuba taken in the 1920s. Later on, Pérez-Rivera (1990, p. 21) indicated that the data presented by Banks (1986) did not support his own hypotheses because the conclusions were drawn from small samples and Banks neither conducted cytogenetic nor behavioral studies. Pérez-Rivera (1990, p. 22) presented both morphometric and behavioral information that, according to him, suggested particular differences between plain pigeons from Hispaniola and Puerto Rico. Therefore, the Puerto Rican plain pigeon is still recognized as one of three subspecies of plain pigeon.

d. Is there relevant new information regarding the species' spatial distribution, trends in spatial distribution (*e.g.*, increasingly fragmented, increased numbers of corridors, etc.), or historic range (*e.g.*, corrections to the historical range, change in distribution of the species within its historic range, etc.)? Yes.

From the rediscovery of the plain pigeon in 1963 until the late 1980s, the only confirmed populations of Puerto Rican plain pigeons occurred in the municipality of Cidra, and parts of the surrounding municipalities of Aguas Buenas, Aibonito, Caguas, Cayey, and Comerío in east-central Puerto Rico (Pérez-Rivera and Collazo-Algarín 1976a, p. 52; Ruiz-Lebrón 1994, p. 6). However, additional sightings of the species have been recorded in other municipalities; such as Aguadilla, Cabo Rojo, Camuy, Guayama, Luquillo, Mayagüez, Corozal, Morovis, Orocovis, Ponce, Utuado, Vega Alta, and Vieques (Pérez-Rivera and Collazo-Algarín 1976a, p. 53; PRDNER 1999, p. 3; Rivera-Milán 2011, p. 3).

e. Is there relevant new information addressing habitat or ecosystem conditions (*e.g.*, amount, distribution, and suitability of the habitat or ecosystem)? Yes.

Plain pigeons are habitat generalists that behave as an edge species, nesting, foraging, and roosting in trees at or near roads (Rivera-Milán et al. 2003a, p. 49). It also may be found in areas of continuous secondary growth forest (e.g., gallery forests) or flying through farmlands and urban areas when traveling to feeding or roosting sites (Ruiz-Lebrón et al. 1995, p. 6; Rivera-Milán et al. 2003a, p. 48-49). Plain pigeons also frequent dairy farms and croplands where they supplement their diet with grass seeds and grains leftover from

farming activities (Pérez-Rivera and Collazo-Algarín 1976a, p. 54). For breeding and roosting, the species seems to prefer areas of secondary mature forest, usually in close proximity to creeks or rivers. In fact, sites selected for nesting are always characterized by the presence of dense vegetation and proximity to water (Pérez-Rivera 1978, p. 90). These vegetation associations are common in the lower montane regions of Puerto Rico. Nests are constructed on the branches that radiate from a node of a bamboo (*Bambusa vulgaris*) stem, or in a cradle of vines which intertwine with the outer branches of the nest tree, or a crotch in a branch (Pérez-Rivera 1978, p. 91). The plain pigeon has not been observed nesting outside east-central Puerto Rico (Pérez-Rivera and Collazo-Algarín 1976a, p. 53-54; Rivera-Milán 2001, p. 339).

The massive deforestation in Puerto Rico during the early part of the twentieth century probably caused the decline of the plain pigeon. Extensive clearing of forests began early in the nineteenth century (Capó 1925, p. 48), and by 1828 about one-third of the island was cleared for agriculture (USFWS 1982). However, second-growth forests recovered as agriculture and pastureland were abandoned (Rivera-Milán et al. 2003b, p. 471). Indeed, forest recovery exceeded development between 1977 and 1989, but the contrary occurred between 1989 and 1995 (Ramos-González 2001, p. 103). Habitat destruction in the form of road construction, recreational activities, and land clearing, associated with agricultural, residential, and tourism development, has been identified as the primary factor threatening the Puerto Rican plain pigeon (Pérez-Rivera 1990, p. 24; Rivera-Milán 1996, p. 100 and 105; Rivera-Milán et al. 2003b, p 467 and 477; Pérez-Rivera and Ruiz-Lebrón, unpubl. data). Therefore, the population status of plain pigeons depends primarily on the conservation and management of remaining forests and abandoned pasturelands (Rivera-Milán 2011, p. 4). Moreover, as detections of plain pigeons are increasing in the northern limestone and karst-belt region, it would not be surprising to find the species nesting outside their traditional range of distribution (Rivera-Milán 2011, p. 4).

f. Is there any other relevant information on the species? Yes.

After being considered extinct in the late 1940s, a small population of plain pigeons was found in 1963 in the municipality of Cidra. In 1982, an aviary was built at the University of Puerto Rico, Humacao Campus, and under a cooperative agreement between the University of Puerto Rico, Humacao Campus, PRDNER, and USFWS, in 1983 the first plain pigeon was brought to the aviary to begin a captive breeding program. The purpose of the captive breeding program was to produce enough plain pigeons to establish an additional sustainable flock outside the species' main range in east-central Puerto Rico.

In 1984, nine chicks were captured from wild nests and brought to the aviary. One of these did not survive. The first plain pigeon squab was produced in the aviary at the end of 1984 from an egg that was artificially incubated, and the squab was hand-raised. In 1988, captive plain pigeons successfully raised the first squab on their own. Some of the

captive-raised pigeons were released into the wild, whereas plain pigeons that were not considered suitable for release remained in the aviary. The first group of plain pigeons was released in 1993 in the Cidra area, after a period of acclimation in a flight cage at the release site. Thirty-one birds were released between 1993 and 1995 in the same area; five individuals were returned to the aviary because they lost weight or were too tame, two were illegally hunted, five were preyed upon presumably by red-tailed hawks (*Buteo jamaicensis*), and four moved outside of telemetry range (Ruiz-Lebrón et al. 1995, p. 5 and 7). Further plain pigeon releases were not conducted in Cidra because of the potential harmful interaction between pigeons and humans due to the close proximity of release sites to urban areas.

2. Five Factor Analysis

(a) Present or threatened destruction, modification, or curtailment of its habitat or range

The massive deforestation in Puerto Rico in the early part of the twentieth century probably caused the decline of the plain pigeon. Extensive clearing of forests began early in the nineteenth century (Capó 1925, p. 48), and by 1828 about one-third of the island had been cleared for agriculture (USFWS 1982). Forest cover reached a low of about 6% in the late 1940s, but increased to about 32 to 42% of the island's area by 1990 (Helmer 2004, p. 30). The economic shift away from agriculture resulted in agricultural lands reverting to forests, but urban expansion and land development have since led to the loss of agricultural and forest land and their associated wildlife (Helmer 2004, p. 30).
The recent rapid development (urbanization and industrialization) of Cidra (Pérez-Rivera 1978, p. 96) and the surrounding municipalities within the last 15 years is the most serious threat to the species' survival. These habitat modification processes have caused the fragmentation of remaining potential habitat for the plain pigeon, and apparently have been the cause of movement of plain pigeons outside their traditional range (Pérez-Rivera 1990, p. 24; Rivera-Milán 1996, p. 100 and 105; PRDNER 2000, p. 17; Rivera-Milán et al. 2003b, p 467 and 477). Forest recovery in Cidra exceeded urban development between 1977 and 1989, but the contrary was evident between 1989 and 1995 (Ramos-González 2001, p. 103). Valuable roosting and nesting habitat of plain pigeons may presently be at a minimum level, and further alteration and increasing proximity of human activity to this habitat may further reduce available plain pigeon habitat and intensify human-pigeon interactions (Pérez-Rivera 1990, p. 24). Plain pigeons are not widely distributed, and unmitigated development is causing major land cover changes, which may be affecting the reproduction of plain pigeons through loss and fragmentation of second growth forests in east-central Puerto Rico (Rivera-Milán et al. 2003a, p. 47).

Demands of an increasing human population are promoting development, which in combination with catastrophic weather and other factors such as predation, may affect the reproduction of plain pigeons and cause an irreversible population decline (Rivera-Milán

et al. 2003b, p 477). Therefore, destruction, modification, or curtailment of the plain pigeon habitat or range continues to be an important factor threatening the survival and recovery of this species. The magnitude of this threat is high because the plain pigeon habitat is fragmented, and the majority of the breeding population is found on private lands, where an increased level of land development threatens to further reduce and fragment the species habitat and distribution.

(b) Overutilization for commercial, recreational, scientific or educational purposes

Collection of specimens of the plain pigeon for scientific or commercial purposes is not considered a threat to the species. There are no substantive data indicating that this factor could pose a threat to the species.

(c) Disease or predation

Potential sources of nest failure such as rats (*Rattus rattus*) and pearly-eyed thrashers (*Margarops fuscatus*) do not appear to be major problems for the plain pigeon (Pérez-Rivera, University of Puerto Rico, pers. comm., 2001). Rat predation is probably a secondary effect of human disturbance (e.g., rats may destroy the egg or chick after the adult has been flushed from the nest), at least in some cases (Pérez-Rivera, pers. comm. 2001). Red-tailed hawks prey upon adult and juvenile plain pigeons, while red-legged thrushes (*Turdus plumbeus*), pearly-eyed thrashers, night herons (*Nyctanassa violacea* and *Nycticorax nycticorax*), green herons (*Butorides virescens*), cats (*Felis domesticus*), and rats prey on eggs and young chicks (Pérez-Rivera 1978, p. 92; Ruiz-Lebrón et al. 1995, p. 6; PRDNER 1999, p. 7; PRDNER 2000, p. 19; Rivera-Milán et al. 2003b, p. 475,). Green herons also have been observed displacing plain pigeons from their nests (PRDNER 1999, p. 7). Rivera-Milán et al. (2003b, p. 476) found that predator density had a significant negative relationship with nesting success and number of fledglings produced by plain pigeons. However, because predator density was also negatively related to nest density and food abundance, they suggested that predators concentrated in secondary-growth forest fragments during periods of food scarcity and spread out more evenly across landscape when food became abundant.

Pérez-Rivera and Collazo-Algarín (1976b, p. 51) reported parasitism by the warble fly (*Philornis pici*). Fifteen out of 36 captive-raised plain pigeon nestlings (42%) examined by Pérez-Rivera and Ruiz-Lebrón were infected with *Philornis* larvae (Pérez-Rivera, pers. comm. 1999). One nestling infected with 12 warble fly larvae died apparently from the effects of these parasites. Although infestations from internal parasites, such as the trematode *Tanaisia bragai*, were documented only in captive birds (Arnizaut et. al. 1991, p. 203), such events may occur in wild plain pigeons. However, the effect of this trematode on the plain pigeon population is unknown. For instance, the intermediate host of *T. bragai* is a ground snail (*Subulina octona*) that is common throughout the range of the plain pigeon (Arnizaut et. al. 1991, p. 203). Three cases of *Chlamydia* infection were

detected in plain pigeons brought to captivity from the wild between 1995 and 1996 (Pérez-Rivera and Ruiz-Lebrón, unpubl. data), but no mortality from *Chlamydia* was reported. The severity of such infections in the wild population of plain pigeons also is unknown.

There have not been studies about how disease and predators may affect plain pigeon populations, and only circumstantial evidence has been found suggesting that the survival and recovery of the plain pigeon is threatened by disease or predation. Therefore, we believe that the magnitude of threat of this factor on the plain pigeon is moderate to high, but the immediacy of threat to the species is non-imminent.

(d) Inadequacy of existing regulatory mechanisms

Federal and Commonwealth laws protect the plain pigeon. Under the Migratory Bird Treaty Act (MBTA; 50 CFR Part 21), migratory birds, their parts, nests, or eggs may not be possessed, imported, exported, bartered, and offered for sale, purchase, or barter without a valid permit issued pursuant to the provisions of the MBTA. In 1999, the Commonwealth of Puerto Rico approved the Law No. 241 known as the "Nueva Ley de Vida Silvestre de Puerto Rico" (New Wildlife Law of Puerto Rico). The purpose of this law is to protect, conserve, and enhance both native and migratory wildlife species; declare property of Puerto Rico all wildlife species within its jurisdiction, and regulate permits, hunting activities, and exotic species, among others. In 2004, the PRDNER approved the "Reglamento para Regir el Manejo de las Especies Vulnerables y en Peligro de Extinción en el Estado Libre Asociado de Puerto Rico" (Regulation 6766 to regulate the management of threatened and endangered species in Puerto Rico). This regulation includes the list of all species designated as threatened and endangered by the Commonwealth of Puerto Rico and the Endangered Species Act of 1973, as amended. Thus, the Puerto Rican plain pigeon is included as an endangered species in Regulation 6766.

Based on the presence of Federal and Commonwealth laws and regulations protecting the plain pigeon, and the absence of evidence supporting lack of enforcement of regulations to protect this species, we believe that inadequacy of existing regulatory mechanisms should not be considered a threat to the Puerto Rican plain pigeon.

(e) Other natural or manmade factors affecting its continued existence.

Severe storms and hurricanes are potential threats to the plain pigeon population. Hurricanes may destroy nesting areas and strip trees of the fruits and seeds upon which plain pigeons feed, potentially causing starvation of adult and young pigeons (Pérez-Rivera 1990, p., 24; PRDNER 2000, p. 22; Rivera-Milán et al. 2003b, p. 477). Plain pigeons, however, have shown resilience through successful reproduction in response to forest regeneration and increased food availability after a hurricane (Rivera-Milán et al.

2003a, p. 48). For example, after the category 3 hurricane Georges in September 1998, density estimates remained depressed during February-October 1999, and rebounded in 2000-2001 (Rivera-Milán et al. 2003a, p. 48). However, opportunistic observations of foraging plain pigeons suggest that short-term survival after a hurricane depends on their capacity to disperse and find food (Rivera-Milán et al. 2003b, p. 477). Hurricanes may also act as agents of dispersion, since plain pigeons may move away from the storm or be carried by it to previously unoccupied areas. For example, less than a week after hurricane Georges hit Puerto Rico, plain pigeons were reported from Mayagüez, Aguadilla, and Cabo Rojo (PRDNER 1999, p.3; J. Saliva, USFWS, pers. observ., 1998) were they had not been observed for many years. However, plain pigeons have not been recently observed in these municipalities.

Pérez-Rivera (1977b, p. 39) suggested that dispersal of plain pigeons from the historic known nesting areas in Cidra may be partially the result of competition for nest-sites with the scaly-naped pigeon (*Patagioenas squamosa*). Although the scaly-naped pigeon has been thought to occupy a different niche than the plain pigeon due to its larger size (PRDNER 2000, p. 21), both species have similar diets, and nest in similar vegetation associations, at similar heights, and in similar places (Pérez-Rivera 1978, p. 89). Areas previously used for nesting by plain pigeons in 1976 were used by scaly-naped pigeons in 1977, but no plain pigeons were observed nesting in that same area in 1977 (Pérez-Rivera 1978, p. 95).

However, distance sampling data collected during 1986-2010 indicate that densities of both species are positively correlated (Rivera-Milán, unpubl. manuscript). A negative occupancy and abundance correlation would indicate interspecific competition; hence the occupancy and abundance of scaly-naped pigeons would increase, causing a decline and restricting the number of sites occupied by plain pigeons (Rivera-Milán 2011, p. 4). Instead, plain pigeon occupancy at counting points and nest transects is mainly explained by food abundance and not by the occupancy or abundance of scaly-naped pigeons (Rivera-Milán 2001, p. 340; Rivera-Milán et al. 2003b, p. 473). More complex co-occurrence models also indicate that nesting scaly-naped pigeons did not influence the colonization or extinction rates of nesting plain pigeons in second-growth forest patches (Rivera-Milán, unpubl. manuscript). Therefore, based on long-term independent data sets, Rivera-Milán (2011, p. 5) believes that competition with scaly-naped pigeons is not an important threat and does not play an important role in plain pigeon population limitation and regulation. A more parsimonious explanation would be that both species respond to similar or covarying resources in the environment (Rivera-Milán 2001, p.340).

Unintentional killing of plain pigeons may occur while legally hunting other columbid species. The plain pigeon is similar in size and shape to the legally hunted scaly-naped pigeon, thus plain pigeons could be mistakenly shot. Wetmore (1916, p. 55) stated that, because sportsmen were familiar with the plain pigeon, the species was no doubt shot in the early 1900s. Wetmore (1938, p. 52) reported plain pigeon bones collected by Dr.

Froelich G. Rainey from an extensive midden deposit in the municipality of Ponce; which may suggest that this species was hunted and consumed regularly. The plain pigeon displays exceptional tameness around humans, and besides being unwary, it flocks seasonally for roosting and feeding and sometimes nests in loose colonies (i.e., nesting pairs not necessarily close to one another) close to urban areas (Ruiz-Lebrón, Environmental Consultant, pers. comm., 2001). These behaviors may increase the ease of poaching the species. Plain pigeons have been observed eating livestock feed (Pérez-Rivera and Collazo-Algarín 1976a, p.54; Wiley, unpubl. data). Feeding of plain pigeons on crops, as reported by Cidra residents, may have also led to hunting of pigeons because they may have been perceived as competitors, pests (i.e., damaging crops), or easy targets attracted to feeding on crop fields. Records of poaching or unintentional killing of plain pigeons, however, are scant (Wetmore 1916, p. 300-303; Pérez-Rivera et al. 1994, p.7; PRDNER 2000, p. 18).

The plain pigeon population is interspersed between towns and urban areas, and nesting has been reported in the backyards of houses (PRDNER 1999, unpubl. report). During investigations in Cidra between December 1973 and September 1975, Wiley (unpubl. report) found that nest failures were primarily due to human-caused disturbances. The majority of "undetermined causes" of nest failures (31 percent of the total) were possibly related to human disturbances as well (Wiley, unpubl. report). Disturbances to breeding birds by people moving through and around nesting areas, harassing nesting birds, and stealing squabs from nests accounted for most of the failures during 1974 and 1975 (Pérez-Rivera and Collazo-Algarín 1976b, p. 53). However, human-induced disturbance was of secondary importance to habitat loss during 1986-1999 (Rivera-Milán et al. 2003b, p. 445).

Stochastic and deterministic factors such as hurricanes may decimate the existing population of plain pigeons, particularly because the frequency of these atmospheric events is expected to increase with climate change (Rivera-Milán 2011, p. 5). However, because there is no evidence indicating that unintentional killing or poaching of plain pigeons and human-induced disturbances are frequently occurring, we believe that as a whole, the magnitude of threat from other natural or manmade factors is low, and the immediacy of threat to the plain pigeon is non-imminent.

D. Synthesis

The Puerto Rican plain pigeon is one of three subspecies of plain pigeon recognized in the West Indies. It is a large pigeon about the size and shape of a domestic pigeon, but with an overall grayish-brown coloration washed with a tinge of maroon color. Although the plain pigeon seems to prefer areas of primary or secondary forest, sometimes in close proximity to a creek or river for breeding and roosting, it also uses areas of disturbed vegetation, croplands, along roads, and urban areas for feeding, roosting, or breeding. The plain pigeon was federally listed as an endangered species on October 13, 1970

because it was thought to be extinct or near extinction. After being considered extinct in the late 1940s, a small population was found in 1963 in the municipality of Cidra, prompting the capture of some individuals in an effort to establish a captive breeding program to produce plain pigeons for later release into the wild. Observations since 1989 indicate that the plain pigeon had increased its range into the east-central region of Puerto Rico, including the municipalities of Cidra, Cayey, Caguas, Comerío, Aibonito, Aguas Buenas, Gurabo, and San Lorenzo. The captive propagation program was discontinued in the late 1990s, since population estimates suggested an increase from the 1970s to the late 1990s. However, it seems that the plain pigeon population has not fully recovered from the impact of Hurricane Georges, although a density increase has been observed since 2008.

Primary factors threatening the plain pigeon include: habitat destruction or modification in the form of construction of roads (e.g., expansion or maintenance of roads, development of new roads and trails); land clearing associated with agricultural, residential, and tourism development (e.g., construction of new homes and commercial establishments); predation by birds, cats, and rats; internal and external parasites and pathogens; natural events such as hurricanes; and human-induced disturbances (e.g., poaching, unintentional killing, people moving through and around nesting areas, harassment of nesting birds, stealing of squabs).

Recovery criteria for the plain pigeon have not been met because efforts have not been initiated to establish two distinct populations of the plain pigeon; the existing plain pigeon habitat in Cidra and Cayey has not been secured and it no longer appears to hold the bulk of the plain pigeon population; and steps have not been initiated to commit the Río Abajo Commonwealth Forest, or its equivalent, as a reintroduction and management site for a second plain pigeon population.

The plain pigeon population density declined after 1998, particularly between 2004-2007 (Table 1). Although an increase is evident since 2008, threats have not been reduced or removed. Furthermore, stochasticity may drive population fluctuations at low numbers, which can be exacerbated in the face of climate change, habitat loss and other threatening factors. Overutilization for commercial or recreational purposes and inadequacy of existing regulatory mechanisms are not considered threats to the species. However, habitat modification or destruction, disease or predation, and other natural or manmade factors continue to be threats to the species. Reproductive capacity, survival rate, and resource use and availability may all be important, but data are lacking to elucidate the mechanisms driving the population dynamics of plain pigeons (Rivera-Milán 2011, p. 6). Therefore, this species continues to meet the definition of endangered.

III. RESULTS

A. Recommended Classification:

__X__ No change is needed.

IV. RECOMMENDATIONS FOR FUTURE ACTIONS

1. Revise the Recovery Plan for the Puerto Rican Plain Pigeon.

2. Roost surveys conducted after the listing of the plain pigeon were poorly standardized and variable, making population trend monitoring unreliable. Point and line transect surveys serve as tools to estimate the plain pigeon population density. Therefore, the existing surveillance monitoring program should continue and be refined for management purposes (Rivera-Milán 2011, p. 6). In addition, a well-designed method to census the roosting sites should be implemented to complement the existing line transect surveys.

3. Groups of free ranging plain pigeons as well as fledglings should be fitted with radio transmitters and unique color leg band combinations to determine population movement patterns, habitat use, distribution, dispersal, and survival.

4. Incorporate GIS and remote sensing technologies to refine occupancy and abundance maps, and to identify potential areas to conduct management experiments, including habitat restoration efforts and experimental releases of plain pigeon flocks (cohorts) to increase the chances of survival and nesting outside the traditional center of abundance in east-central Puerto Rico (Rivera-Milán 2011, p. 6).

5. Incorporate existing private landowners programs (e.g., cooperative agreements, conservation plans, conservation easements, habitat mitigation banks, and economic incentives) to promote restoration, management, and conservation of private lands to help on the recovery of the plain pigeon.

6. Determine the effect of known predators (particularly red-tailed hawks), inter-specific competition with the scaly-naped pigeon, and parasites on the plain pigeon to develop management strategies to control possible adverse effects of these potential threats.

7. Contacts should be established with the media (television, radio, and newspaper) to assist in the preparation and dissemination of information on plain pigeon conservation issues. Traditional methods to disseminate information such as mass mailings and newspaper display ads should be explored as possible tools at key junctures to implement outreach plans.

8. Revise the current listing to reflect the taxonomic name change.

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U.S. FISH AND WILDLIFE SERVICE

Puerto Rican plain pigeon or paloma sabanera (*Patagioenas inornata wetmorei*)

5-YEAR REVIEW

Current Classification Endangered

Recommendation resulting from the 5-Year Review

_X_ No change is needed

Review Conducted By Drs. Jorge E. Saliva and José A. Cruz-Burgos, Caribbean Ecological Services Field Office

FIELD OFFICE APPROVAL:

Edwin E. Muñiz, Lead Field Supervisor, U.S. Fish and Wildlife Service

Approve _____ Date Nov 8, 2011

REGIONAL OFFICE APPROVAL:

Cynthia Dohner, Lead Regional Director, Fish and Wildlife Service

Approve _____ Date 11/22/11

FY 2019 APPROVAL*

Lead Field Supervisor, U.S. Fish and Wildlife Service

Approved  Date 5/14/2019

In 2014, Southeast Region Field Supervisors have been delegated authority to approve 5-year reviews that do not recommend a status change.
Field Supervisor signature on this document reflects:
1.___ We have no new information received, no new public comments, and the original five factor analysis remains an accurate reflection of the species current status.
2. X We have obtained a small amount of new information that we have summarized in Addendum 1, received no new public comments, and the original five factor analysis remains an accurate reflection of species current status.

Appendix A

Summary of peer review for the 5-year review of the Puerto Rican Plain Pigeon or paloma sabanera (*Patagioenas inornata wetmorei*)

Marelisa T. Rivera, CESFO Assistant Field Supervisor, reviewed this 5-year review internally and provided editorial and technical comments that were included in the document. Dr. Frank A. Rivera-Milán, Office of International Affairs, USFWS, also reviewed this document and provided comments. Most comments and recommendations provided by Dr. Rivera-Milán were incorporated into the document and cited accordingly. The reference for his review comments was included in the Literature Cited section of the 5-year review and is available in the file of the Puerto Rican Plain Pigeon.

Additionally, we sent this 5-year review to three outside peer reviewers (see below) via electronic mail. Reviewers were selected based on their qualifications and knowledge of the species. We indicated our interest in all comments the reviewers may have about the plain pigeon, particularly any new additional information on the status and current threats to the species. We did not receive any comments from these peer reviewers.

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U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of Puerto Rican plain pigeon or Paloma sabanera
(*Columba* (*Patagioenas*) *inornata wetmorei*)

Addendum 1. Summary of new information obtained since the 2011 Five Year Review

The following information updates the referenced sections of the 2011-5-year status review for this species (Service 2011). Sections of the 2011-5-year review with no new information are not included in this addendum.

C. Update information

1. Biology and Habitat

a) Is there relevant new information regarding the species' abundance, population trends (e.g. increasing, decreasing, stable), demographic features (e.g. age structure, sex ratio, family size, birth rate, age at mortality, mortality rate, etc.), or demographic trends? Yes

Between 2011 and 2015, the Puerto Rico Department of Natural and Environmental Resources (PRDNER) conducted monitoring efforts to determine the status of several columbid species in Puerto Rico, including the Puerto Rican plain pigeon (PLPI; PRDNER, 2012, 2013, 2014, and 2015). The Puerto Rican plain pigeon (PLPI) shows a clumped spatial distribution, with most individuals occurring in east-central Puerto Rico at high densities, and some individuals scattered across the Island at low densities (Figure 1; PRDNER 2012; F. Rivera-Milán, Service, 2018a, pers. comm.). Thus, for this species PRDNER focused their survey efforts on east-central where their survey region covers 110,000 hectares (ha) (271,816 acres (ac)) (F. Rivera-Milán, Service, 2018a, pers. comm.).

Based on the distribution of the PLPI, we requested Dr. Frank Rivera-Milán (biologist with the U.S. Fish and Wildlife Service, Division of Migratory Birds), who has historically analyzed the columbid survey data collected by PRDNER, to provide the abundance estimate he calculated for the PLPI in east-central Puerto Rico between 2011and 2018 (Table 1).

The PLPI density and population size fluctuated between 0.051 individuals/hectare (ind/ha) (5,578 individuals) in 2011, and 0.039 ind/ha (4,257 individuals) in 2017 (Table 1). A survey conducted during April-June 2018, after Hurricane María, showed that the PLPI density and population size declined to 0.006 ind/ha and 660 individuals, respectively. This decline represents more than 85 percent reduction of the species in the east-central region of Puerto Rico (Rivera-Milán, Service, 2018b, pers. comm.). According to Rivera-Milán (Service, 2018b, pers. comm.), this is the lowest abundance estimate since monitoring of the species began in 1986. The east-central region was surveyed again in August 2018, and according to this data and that of April-June 2018, little reproduction occurred after the hurricane, and, therefore, the population probably continued declining (Rivera-Milán, Service, 2018b, pers. comm.).

The PLPI abundance has fluctuated historically, decreasing after hurricanes Hugo in 1989 and Georges in 1998 (PRDNER 2014; Rivera-Milán *et al.* 2016). Members of the family Columbidae share life-history characteristics (e.g., hatch-year maturity of females, multiple brooding, extended nesting), which allow for rapid population changes or short-term fluctuations, resulting from succesful reproduction in years with abundant resources (Rivera-Milán, Service, 2018a, pers. comm.). Short-term PLPI survival after a hurricane apparently depends on the species' capacity to disperse and find food (Rivera-Milán *et al.* 2003). For example, after hurricane María, 10 PLPI individuals were observed in a private property at the municipality of San German in southwest Puerto Rico (A. J. Martínez, PRDNER, 2018, pers. comm.). Unfortunately, no additional information is available about these birds. However, catastrophic events like Hurricane María may affect the abundance and availability of resources, hence, negatively affect the species life-history characteristics.

Vilella and Weitzel (2018) conducted a rapid assessment of geographic distribution and habitat conditions of the PLPI after Hurricane María in five municipalities of east-central Puerto Rico (i.e., Aibonito, Aguas Buenas, Cayey, Cidra, and Comerío). These researchers indicated that before Hurricane María, PRDNER's data on PLPI presence along survey routes averaged 50 individuals or more. However, surveys conducted during their rapid assessment suggest the PLPI detections were reduced by more than 50 percent (i.e., 15-17 individuals) in those municipalities (Vilella and Weitzel 2018). However, Rivera-Milán (Service, 2018b, pers. comm.) warned that this rapid assessment is inadequate to assess PLPI population state before/after the hurricane because count data needs to be adjusted for changes in detection probability to avoid confounding detection and abundance. Despite this statistical concern, the findings from Vilella and Weitzel (2018) suggest Hurricane María did have a negative impact on the PLPI.

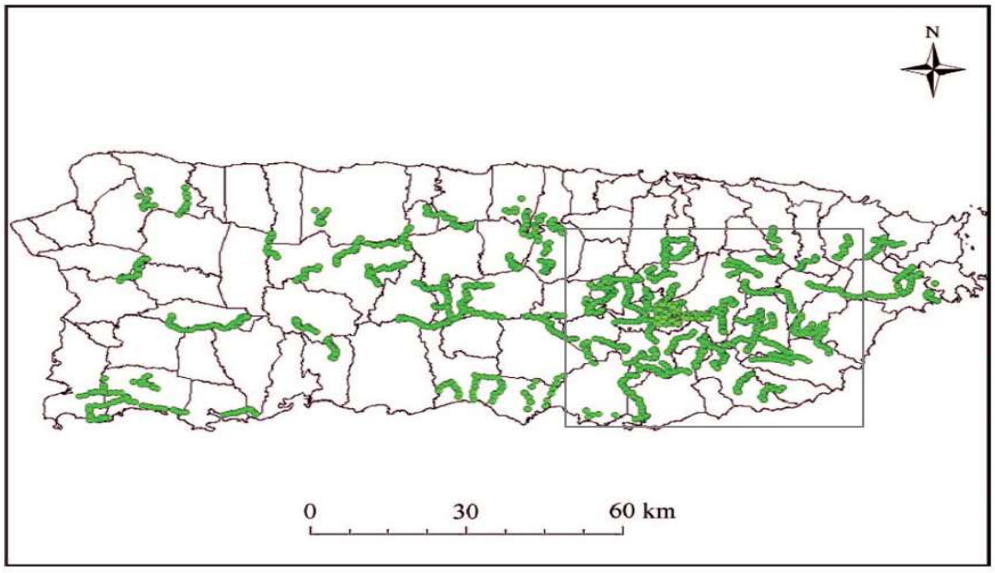

Figure 1. Map of Puerto Rico showing columbid survey stations. Area within the square depicts the PLPI center of abundance in east-central Puerto Rico (PRDNER 2012, Rivera-Milán *et al*. 2016).

Table 1. PLPI density and abundance estimates based on point-transect distance sampling data collected by PRDNER in east-central Puerto Rico during 2011-2018 (Rivera-Milán, Service, 2018a and 2018b, pers. comm.).

Year	D	SE[1]	CV	N	SE[2]
2011	0.051	0.020	0.395	5,578	2,203
2012	0.039	0.015	0.384	4,257	1,633
2013	0.026	0.013	0.496	2,849	1,412
2014	0.044	0.017	0.396	4,836	1,915
2015	0.035	0.015	0.420	3,896	1,636
2016	0.037	0.016	0.423	4,081	1,726
2017	0.039	0.017	0.428	4,257	1,822
2018	0.006	0.003	-	660	290

Notes: D = density, SE[1] = standard error density, CV= coefficient of variation, N = population estimate in east-central Puerto Rico and SE[2] = standard error population estimate.

2. Threat Factor Analyses

In the 2011 5-year status review, the PLPI was considered threatened by destruction, modification, or curtailment of its habitat or range (Factor A); disease and predation (Factor C); and by other natural or manmade factors affecting its continued existence (Factor E). Currently, we believe that these threats continue to apply.

During the past 5 years, we have reviewed several transportation and small development projects throughout the PLPI range with potential impacts to the species' habitat. We provided technical assistance and worked with Federal partners on ESA Section 7 consultations to avoid and minimize impacts to this species and its habitat. Besides the protections provided by the Act, the PLPI and its habitat are protected through Commonwealth Law No. 241 and Regulation 6766, whose protections extend to both public and private lands. These laws and regulations provide regulatory mechanisms for habitat protection and mitigation throughout established project evaluation processes. These mechanisms provide a regulatory framework for the implementation of conservation recommendations that could reduce the impacts of urban development on the species and its habitat.

However, as we stated in the 2011 5-year status review, the PLPI is not widely distributed, and unmitigated development have caused land cover changes that could have affected the reproduction of the species through loss and fragmentation of second growth forests in east-central Puerto Rico (Rivera-Milán *et al.* 2003). Although the forest cover on the Island has increased during the past decades, reaching 54.8 percent in 2014 (Marcano-Vega 2017), the PLPI appears to have been affected by previous deforestation and habitat fragmentation. In fact, a recent study found that between 2000-2010, while human population declined around protected areas in Puerto Rico, the number of houses continued to increase (Catro-Prieto *et al.* 2017). This finding highlights that despite the

existence of regulatory mechanisms habitat modification through small-scale development continues to pose a threat to the PLPI habitat. Furthermore, the impacts from Hurricane María exacerbated the human-induced habitat modification by causing extensive damage on the cover forest of Puerto Rico (Feng *et al.* 2018, Hu and Smith 2018). An initial impact estimate indicated that Hurricane María may have cause mortality and severe damage to 23-31 million trees across the Island (Feng *et al.* 2018).

According to Rivera-Milán (Service, 2018b, pers. comm.), in addition to habitat loss and modification, other main conservation threats to the PLPI include illegal hunting, and nest depredation by rats (*Rattus rattus*) and other nest predators like the pearly-eyed thrasher (*Margarops fuscatus*). Nest predation appears to be more important than predation of adults and juveniles by raptors like the red-tailed hawk (*Buteo jamaicensis*) (Rivera-Milán, Service, 2018b, pers. comm.).

Regarding illegal hunting, although also identified during the 2011 5-year status review as a threat, data are lacking to estimate how many PLPIs are illegally hunted each year. Rivera-Milán *et al*. (2016) used abundance estimates to: 1) fit Bayesian state-space model, 2) estimate posterior distributions for population and harvest management parameters, and 3) predict abundance in 2025 as a function of potential illegal hunting in 2015-2024. Using these results, Rivera-Milán *et al*. (2016) stated that PLPI populations recovered quickly after the hurricanes in 1989 and 1998, but decreased sharply at the same time that legally hunting of others columbid species increased between 2008 and 2014, thus, suggesting possible illegal hunting of the PLPI during the columbid hunting season. Moreover, Rivera-Milán *et al*. (2016) suggested that an increase in illegal hunting of the PLPI might be responsible for some of its abundance decline during 2008-2014, and projected that population sustainability of this species might be affected by illegal hunting in 2015-2025. Therefore, these authors recommended the collection of illegal hunting data, and the control of illegal hunting as a management priority. We agree that illegal hunting data is necessary to better address this potential threat to the species, and in fact, control of illegal hunting should be considered a management priority if the data evidence it is a limiting factor for the species.

As showed above, hurricanes are still considered a threat to the PLPI. Short-term PLPI survival after a hurricane apparently depends on the species' capacity to disperse and find food (Rivera-Milán *et al.* 2003). In fact, Rivera-Milán (2011) indicated that the PLPI population never fully recovered from the impact of Hurricane Georges, and the loss of habitat in east-central Puerto Rico. Available information suggests little PLPI reproduction after Hurricane María, probably resulting in a continued population decline after the hurricane (Rivera-Milán, 2018b, pers. comm.).

Recently, two major hurricanes (i.e., Irma and María) struck Puerto Rico, severely affecting forested vegetation throughout east-central Puerto Rico. Hurricane María moved across the island of Puerto Rico from southeast to northwest with sustained winds of 155 miles/hour (250 kilometer/hour) (Vilella and Weitzel 2018). The eyewall of Hurricane María moved through the center of the region occupied by the PLPI in east-central Puerto Rico (Vilella and Weitzel 2018).

Vilella and Weitzel (2018) conducted an overall assessment of the impacts from Hurricane María centered on the main distribution of the PLPI (Aguas Buenas, Aibonito, Cayey, Cidra, and Comerío). They used pre and post-hurricane Landsat 8 imagery of the Island and utilized a spectral mixture analysis to quantify a change in the non-photosynthetic vegetation to evaluate the deforestation severity in those five municipalities. The results indicated that the five municipalities had areas of forested land that sustained greater than a 90% increase in dead vegetation after Hurricane María (Vilella and Weitzel 2018). Overall, the municipalities of Cayey and Aguas Buenas suffered the most impact on vegetation, with 7,520.94 and 6,441.75 ha (18,585 ac and 15,916 ac) of deforestation caused by hurricane disturbance, respectively (Vilella and Weitzel 2018). However, the vegetation was not evenly damaged across the whole region. According to Vilella and Weitzel (2018), the northeastern and southeastern sections of the study area encompassed the largest area with most severe deforestation.

Available information suggests little PLPI reproduction after Hurricane María probably resulting in a continued population decline after the hurricane (Rivera-Milán, Service, 2018b, pers. comm.). Such reduced reproduction was likely due to the vast deforestation caused by the hurricane in addition to the direct mortality of PLPI individuals from the hurricane winds and rain.

According to Rivera-Milán (Service, 2018a, pers. comm.), Hurricane María occurred at a moment in which the PLPI population was at low numbers, and a decline similar or larger to the one that occurred after Hurricane Georges would be difficult to compensate for because of other additive mortality factors (e.g., habitat loss or degradation, predation, human-induced threats). As a columbid species, the PLPI can increase rapidly from one year to another, however, it would need favorable foraging and nesting conditions (F. Rivera-Milán, Service, 2018a, pers. comm.), which most certainly are not currently present due to the effects of Hurricane María on its habitat. As a result, the species can decline sharply, making it vulnerable to extinction (F. Rivera-Milán, Service, 2018a, pers. comm.).

Synthesis

Since 2011, the PLPI population in east-central Puerto Rico was estimated between 5,578 individuals in 2011 and 4,257 individuals in 2017, with a notable decline to 660 individuals in 2018 after Hurricane María.

As part of this review, we assessed the five factor analysis, and continue to believe the main factors threatening the PLPI include: Factor A (destruction, modification, and curtailment of habitat or range), Factor C (disease or predation), and Factor E (other natural or manmade factors affecting its continued existence). Although the species and its habitat are currently protected by regulatory mechanisms, the PLPI continues to be threatened by transportation and other small development projects with potential impacts on the species' habitat. However, in future development projects these possible effects may be ameliorated by conservation recommendations and habitat mitigation efforts that could be implemented as part of the project evaluation processes established by the Commonwealth of Puerto Rico. In addition, the PLPI is

currently threatened by nest predation by predators like rats, pearly-eyed thrashers, and red-tailed hawks. Natural events such as hurricanes and human-induced threats like possible illegal hunting, certainly contribute to abundance fluctuations of the species. Moreover, although threats due to inadequacy of regulatory mechanisms can be further reduced, law enforcement and outreach efforts are needed to explain to private landowners, hunters, and the general public the importance to protect the species and its habitat. PLPI population declines have been documented after past hurricanes. Recently, Hurricane María hit Puerto Rico causing severe deforestation within the main range of the PLPI in east-central Puerto Rico. Post-hurricane data on the abundance and distribution of the PLPI showed a decline in the species population.

A relationship between the PLPI population decline and an increase of legal hunting of columbids between 2008 and 2014 was been suggested by Rivera-Milán *et al.* (2016). These authors developed a model suggesting that an increase of illegal hunting may be partially responsible for the PLPI abundance decline. However, the collection of illegal hunting data is vital to certainly determine its effect on the species and for future the management and recovery of this species.

Based on the most recent available information, we continue to believe the PLPI remains as an endangered species under ESA.

Recommendations for future actions

The following are recommendations additional to those included in the 2011-5 year status review to help the recovery of the PLPI.

- Continue population monitoring and update modeling to assess population state post-Hurricane María.

- Determine species dispersion, and daily and seasonal movements. We recommend using satellite telemetry.

- Continue working with private land-owners on the implementation of conservation measures that result in restoration and protection of habitat for the species.

- Conduct management actions to enhance reproductive success, which is a key demographic parameter for pigeons due to life-history traits (e.g. multiple brooding and extended nesting).

- Continue nest predator control at nesting sites in east-central Puerto Rico.

- Conduct a study to gather data on illegal hunting in Puerto Rico to determine its effects on the PLPI and minimize illegal hunting through hunter education and law enforcement in east-central Puerto Rico.

- Work with State partners and universities to gather potential data on illegal hunting and work to improve education to the local community about this unique listed species.

- Generate density gradient map and update GAP map, correcting count data for detection probability.

- Conduct a structured decision making workshop to determine management options, including captive breeding for the species.

- Relate post-hurricane PLPI survey data to the model developed by Vilella and Weitzel (2018) to determine the effect of the habitat impacted by the hurricane on the species.

- Estimate juvenile and adult survival to help develop management strategies for the species.

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Summary of Peer Review

Peer review method

The Service chose the outside peer reviewers based on their qualifications and knowledge of the species. We indicated our interest in all comments the reviewers may have about the PLPI, specifically in any additional information on the status and current threats to the species. The deadline for submission of peer review comments was October 31, 2018. Comments were received from two independent peer reviewers during the comment period.

List of Peer Reviewers

Alexis J. Martínez, Department of Natural and Environmental Resources, Bureau of Fisheries and Wildlife, San Juan, Puerto Rico. Email: ajmartinez@drna.pr.gov

Frank F. Rivera-Milán, U.S. Fish and Wildlife Service, Division of Migratory Bird Management. Laurel, MD. Email: frank_rivera@fws.gov

Francisco J. Vilella, U.S. Geological Survey, Biological Resources. Mississippi Cooperative Fish and Wildlife Research Unit. Email: fvilella@usgs.gov

Summary of Peer Review Comments

We received comments from two of the three peer reviewers solicited. Both provided editorial comments and suggestions for clarification throughout the draft document. We incorporated most of the comments and recommendations provided directly into this addendum.

In addition, Dr. Frank F. Rivera-Milán provided a research article titled "Sustainability assessment of Plain Pigeons and White-crowned Pigeons illegally hunted in Puerto Rico") that we reviewed and included to the species file.

Peer review comments

1) Dr. Francisco J. Vilella expressed that the information on PLPI population estimates may present a false sense of security and perhaps, an inaccurate perspective on the species' true status. He indicated that the abundance estimate of thousands of PLPI presented in this document cannot be reconciled with any other sources of information available for the species, which albeit less statistically rigorous, would point to the same conclusion.

Dr. Vilella further indicated that the estimates presented in this document suggest the species should be considered as recovered given that these estimates exceed the population goal presented in the PLPI Recovery Plan by an order of magnitude. He indicated that this is likely not a problem with the approach used, but with the interpretation, particularly when deriving PLPI population estimates. Dr. Villella emphasized that he has no problem with the methods and approach used by Dr. Rivera-Milán to derive density (D), only with the PLPI abundance estimates (N).

Response to Peer Review Comments

1) The PLPI population estimate provided by Dr. Rivera-Milán is the best available information on the status of the species currently available to the Service. Dr. Rivera-Milán designed the survey method employed by PRDNER for all columbid species in Puerto Rico, including the PLPI, and he is the only researcher that has statistically analyzed such data. Although it is true that those numbers do not compare to other information sources, the numbers in those other sources has not been collected with the same method nor has been statistically analyzed the same way. Therefore, we believe they are not comparable.

The numbers of PLPI abundance estimated by Dr. Rivera-Milán take into account the size of the surveyed area (i.e., 110,000 ha in east-central Puerto Rico), which might represent some limitations as not all the habitat within east-central Puerto Rico is suitable and occupied by the PLPI. In fact, there is evidence the PLPI occurs in particular areas in the municipalities within this area. Therefore, estimating an abundance considering all habitats equally occupied might result in a high abundance of the species.

APPENDIX E

Section 106 Consultation

GOVERNMENT OF PUERTO RICO
STATE HISTORIC PRESERVATION OFFICE
Executive Director I Carlos A. Rubio-Cancela I carubio@prshpo.pr.gov

February 29, 2024

Lauren Bair Poche
HORNE
10000 Perkins Rowe, Suite 610, Bldg G
Baton Rouge, LA 70810

SHPO-CF-02-21-24-15 SECTION 106 NHPA EFFECT DETERMINATION SUBMITTAL, PR-RGRW-04112 – MC FARM, LLC – VILLA DE SAN MARTIN #13, KM 2.6, CIDRA, PUERTO RICO

Dear Ms. Poche,

Our Office has received and reviewed the above referenced project in accordance with 54 U.S.C. 306108 (commonly known as Section 106 of the *National Historic Preservation Act*) and 36 CFR Part 800*: Protection of Historic Properties*.

Our records support your finding of **no historic properties affected** for this undertaking.

Please note that should you discover other historic properties at any point during project implementation, you should notify the SHPO immediately. If you have any questions regarding our comments, please do not hesitate to contact our Office.

Sincerely,

Carlos A. Rubio-Cancela
State Historic Preservation Officer

CARC/GMO/MB

February 22, 2024

Carlos A. Rubio Cancela
State Historic Preservation Officer
Puerto Rico State Historic Preservation Office
Cuartel de Ballajá (Tercer Piso)
San Juan, PR 00902-3935

Puerto Rico Disaster Recovery, CDBG-DR Re-Grow PR Urban-Rural Agricultural (Re-Grow PR) Program

Section 106 NHPA Effect Determination Submittal: PR-RGRW-04112 – MC FARM, LLC – Villa de San Martin #13 KM 2.6, Cidra, Puerto Rico – *No Historic Properties Affected*

Dear Architect Rubio Cancela,

In accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, HORNE is providing information for your review and requesting your concurrence regarding the above-referenced projects on behalf of the Puerto Rico Department of Housing (PRDOH). On February 9, 2018, an allocation of Community Development Block Grant - Disaster Recovery (CDBG-DR) funds was approved by the United States Department of Housing and Urban Development (HUD) under the Federal Register Volume 83, No. 28, 83 FR 5844, to assist the Commonwealth of Puerto Rico in meeting unmet needs in the wake of Hurricanes Irma and Maria. On August 14, 2018, an additional $8.22 billion recovery allocation was allocated to Puerto Rico under the Federal Register Volume 83, No. 157, 83 FR 40314. With these funding allocations, the Puerto Rico Department of Housing (Housing) aims to lead a comprehensive and transparent recovery for the benefit of Puerto Rico residents.

On behalf of PRDOH and the subrecipient, the Puerto Rico Department of Agriculture, HORNE is submitting documentation for activities proposed by MC FARM, LLC located at Villa de San Martin #13 KM 2.6, in the municipality of Cidra. The undertaking for this project includes the purchase and installation of a new Farm in the City Controlled Environment Vertical Harvest Module. The applicant proposes the purchase and installation of the 20-foot (ft) x 8 ft metal greenhouse module to be installed on a 10 ft x 44 ft wood frame filled with gravel. Minimal ground disturbance is required for the installation of the proposed module. The applicant proposes the location of the harvesting module behind the existing residence structure. The facilities are connected to local power and water utility services. Water service will be extended approximately 15 ft through a ½ inch (") PVC aboveground pipe from an existing faucet water pipe located in the existing concrete steps leading to the backyard patio. Power

service connection will be extended from the breaker panel box located at the garage, currently used as storage room, through an approximately 35 ft aboveground electrical conduit.

Based on the submitted documentation, the Program requests a concurrence that a finding of no historic properties affected is appropriate for this proposed project.

Please contact me by email at lauren.poche@horne.com or phone at 225-405-7676 with any questions or concerns.

Kindest regards,

Lauren Bair Poche, M.A.
Architectural Historian, EHP Senior Manager
LBP/JLE

Attachments

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM **REGROW PUERTO RICO PROGRAM** **Section 106 NHPA Effect Determination**	
Subrecipient: MC FARM, LLC	
Case ID: PR-RGRW-04112	**City:** Cidra

Project Location: Villa de San Martin #13 KM 2.6, Cidra, PR, 00739-0000	
Project Coordinates: 18.1741241, -66.1267237	
TPID (Número de Catastro)**:** 275-040-277-10-000	
Type of Undertaking: ☐ Substantial Repair ☒ New Construction	
Construction Date (AH est.): c1985	**Property Size** (acres)**:** 0.27

SOI-Qualified Architect/Architectural Historian: Maria F. Lopez Schmid
Date Reviewed: 1/16/2024
SOI-Qualified Archaeologist: Steven J. Sarich, MS, RPA
Date Reviewed: 1/18/24

In compliance with Section 106 of the National Historic Preservation Act (NHPA), the Program is responsible for identifying historic properties listed in the NRHP and any properties not listed that would be considered eligible for listing that are located within the geographic area of potential effects (APE) of the proposed project and assessing the potential effects of its undertakings on these historic properties.

Project Description (Undertaking)

The Scope of work (SOW) for this project includes the purchase and installation of a new Farm in the City Controlled Environment Vertical Harvest Module at coordinates 18.1741241, -66.1267237. The applicant proposes the purchase and installation of a 20-foot (ft) x 8 ft metal greenhouse module to be installed on a 10 ft x 44 ft wood frame filled with gravel. Minimal ground disturbance is required for the installation of the proposed module. The module is going to be used for seeding and cropping of vegetables such as Boston lettuce, kale, basil and spinach. Past use of land is unknown and currently is used for residential purposes.

The applicant proposes the location of the harvesting module behind the existing residence structure. The facilities are connected to local power and water utility services. Water service will be extended approximately 15 ft through a ½ inch (") PVC aboveground pipe from an existing faucet water pipe located in the existing concrete steps leading to the backyard patio. Power service connection will be extended from the breaker panel box located at the garage, currently used as storage room, through an approximately 35 ft aboveground electrical conduit. While the applicant plans to pay for this activity themselves and no HUD funds would be utilized for this portion of work, the potential impacts from this action are included in the analyses below and it is contained within the delimited Area of Potential Effect (APE). The field has not been graded.

Area of Potential Effects

As defined in 36 CFR §800.16(d), the area of potential effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. Based on this definition and the nature and scope of the Undertaking, the Program has determined that the direct APE for this project is located at 18.1741241, -66.1267237 within the project parcel; this APE has been extended to allow for utility connections and is constrained to the north, east, west, and south by the parcel boundary. The visual APE is the viewshed of the proposed project.

Identification of Historic Properties - Archaeology

Existing information on previously identified historic properties has been reviewed to determine if any such properties are located within the APE of this undertaking. The review of this existing information by a Program contracted Historic Preservation Specialist meeting the Secretary of the Interior's Professional Qualification Standards (36 CFR Part 61) shows that the project area has no previously identified archaeological sites within a 0.25-mile radius of the APE. One previous archaeological investigation was conducted 0.05 miles (275 feet) north of the APE and north of PR-787 for a large-scale property development project. The Phase 1A survey was conducted in 1998 by Basora Rodríguez & Asociados, Ingenieros Consultores (ICP/CAT-CD-98-08-01). The surveying archaeologists did not identify any historic properties or other cultural resources. A subsequent Phase 1B survey was recommended, however no data regarding this survey is available.

The landscape topography and soils are important when determining the probability of an archaeological site being found and the potential for site preservation in a given location. Two soil units, both part of the Humatas series, are mapped within the 0.25-mile radius of the APE with steep to very steep slopes (40 percent to 60 percent) and steep slopes (20 percent to 40 percent). The soil units include Humatas clay, 40 to 60 percent slopes (HtF), and Humatas clay, 20 to 40 percent slopes (HtE) [see soils map]. These soils are potentially very deep and formed in residuum of weathered igneous rock. These soils are described as very strongly acidic, which can impact the preservation of certain classes of artifacts and archaeological features. Given the steep slopes in the area, strong acidity of the soil, and shallow and surficial ground disturbances from prior landscape modification and current residential land use, the potential for *in situ* archaeological sites is considered low.

Identification of Historic Properties - Architecture

Existing information on previously identified historic properties has been reviewed to determine if any such properties are located within the APE of this undertaking. The review of this existing information, by a Program contracted Historic Preservation Specialist meeting the Secretary of the Interior's Professional Qualification Standards (36 CFR Part 61), shows that the

project area is **not** within the boundaries of a National Register of Historic Places (NRHP)-eligible or listed Traditional Urban Center or Historic District. Additionally, there are **no** NRHP-listed historic properties within the quarter mile buffer zone from the APE.

The proposed project is located in a rural, residential area with mature vegetation to the south of the property. The property lies south of Route PR-787 in Cidra, in a residential subdivision Villas de San Martín. Route PR-787 runs east to west and reaches the town of Cidra west of the property. A circa 1985 building that is the applicant's house, is located immediately north of the APE geocoordinates. The house, shown below, appears on a 1994 aerial image, but not on a 1977 aerial image.

Figures 1 & 2. Detail of 1994 aerial image and of 2023 Google Maps aerial image indicating the location of the building on the property.

This building (shown below) is a two-story single-family reinforced concrete house with a front-gable concrete roof. The house has a slab on grade foundation and concrete walls. The front porch is on the second level above the garage and the roof is supported by a concrete column in the left corner. The porch is enclosed by metal railings in front and a left side metal and glass door accesses a concrete staircase with metal railings. The garage is on the left side first level, is supported by a concrete wall, and enclosed by a metal and glass roll-up door. The façade contains a metal and glass door on the right side first level and a metal and glass casement window on the second level. The rear elevation contains two metal garage roll-up doors on the first level and metal and glass jalousie windows above.

Figures 3 & 4. Images of the applicant's house on the property: façade, view to the southeast and rear elevation, view to the north.

This house is modern and it **does not** meet the requirements to be eligible for listing on the National Register of Historic Places.

Determination

The following historic properties have been identified within the APE:

- Direct Effect:
  - N/A
- Indirect Effect:
  - N/A

Based on the results of our historic property identification efforts, the Program has determined that project actions will not affect the historic properties that compose the Area of Potential Effect. The SOI-qualified environmental professionals found no previously identified historic properties or previous archaeological surveys within a 0.25-mile radius of the APE. Given the possibility of steep slopes, strong acidity of the soil, and shallow and surficial ground disturbances from current residential land use, the potential for *in situ* archaeological sites is considered low. There are no NRHP-listed historic properties within the quarter mile buffer zone from the APE. The house adjacent to the APE is modern, and it does not meet the requirements to be eligible for listing on the National Register of Historic Places. Therefore, no historic properties will be affected by the proposed project activities.

PUERTO RICO 2017 DISASTER RECOVERY, CDBG-DR PROGRAM REGROW PUERTO RICO PROGRAM Section 106 NHPA Effect Determination	
Subrecipient: MC FARM, LLC	
Case ID: PR-RGRW-04112	**City:** Cidra

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):

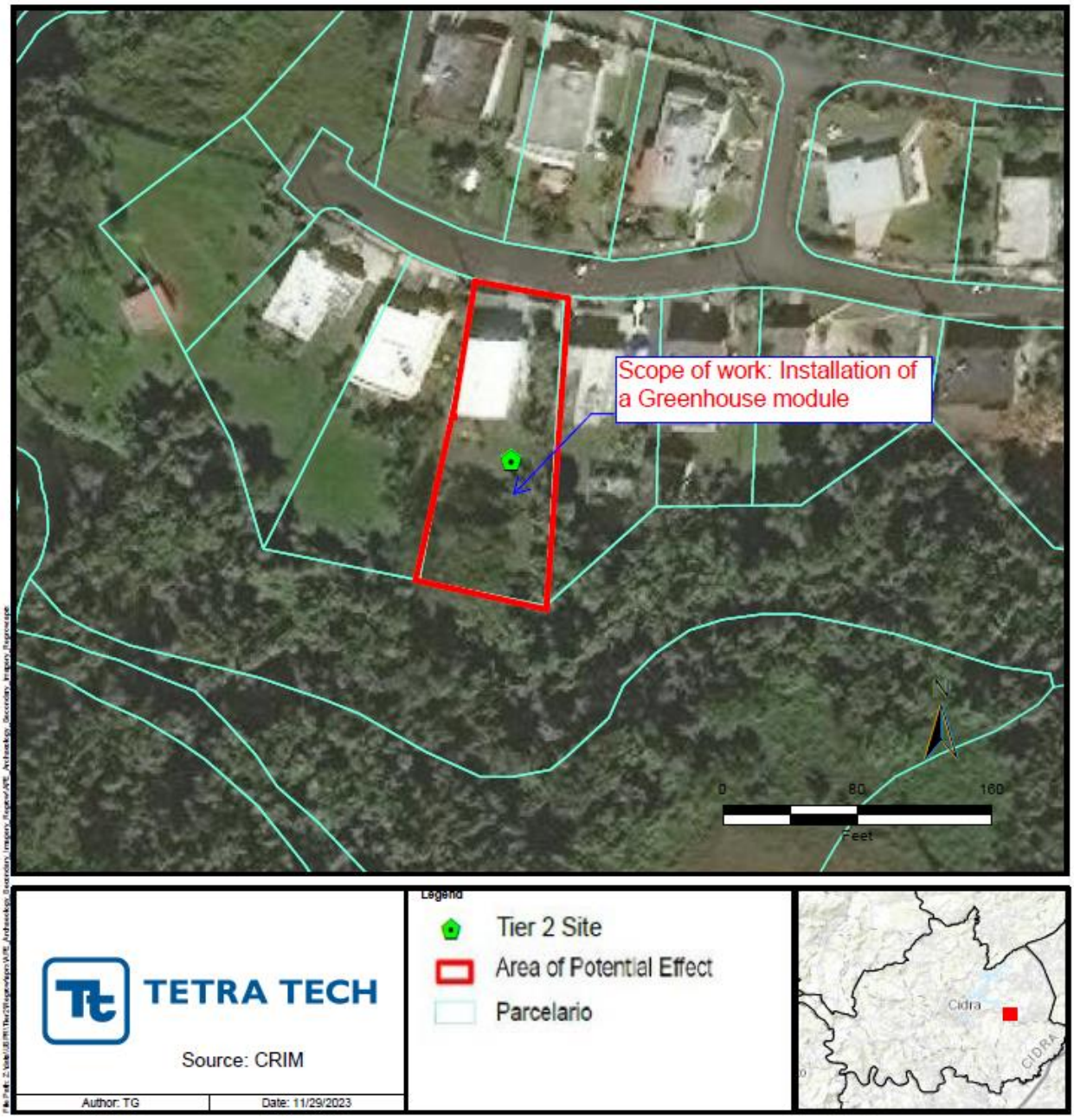
☒ No Historic Properties Affected
☐ No Adverse Effect
Condition (if applicable):

☐ Adverse Effect
Proposed Resolution (if appliable):

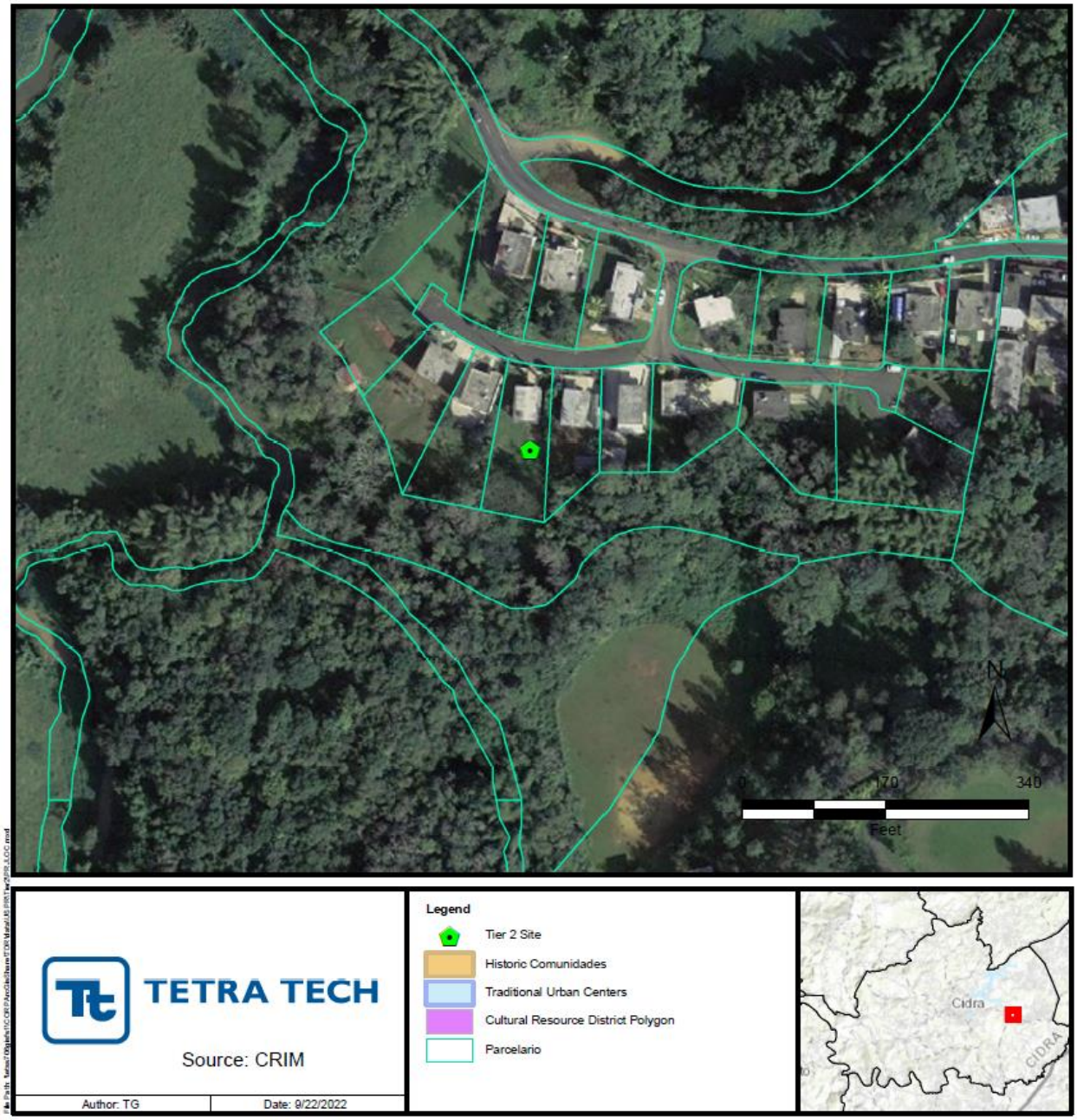
This Section is to be Completed by SHPO Staff Only

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:

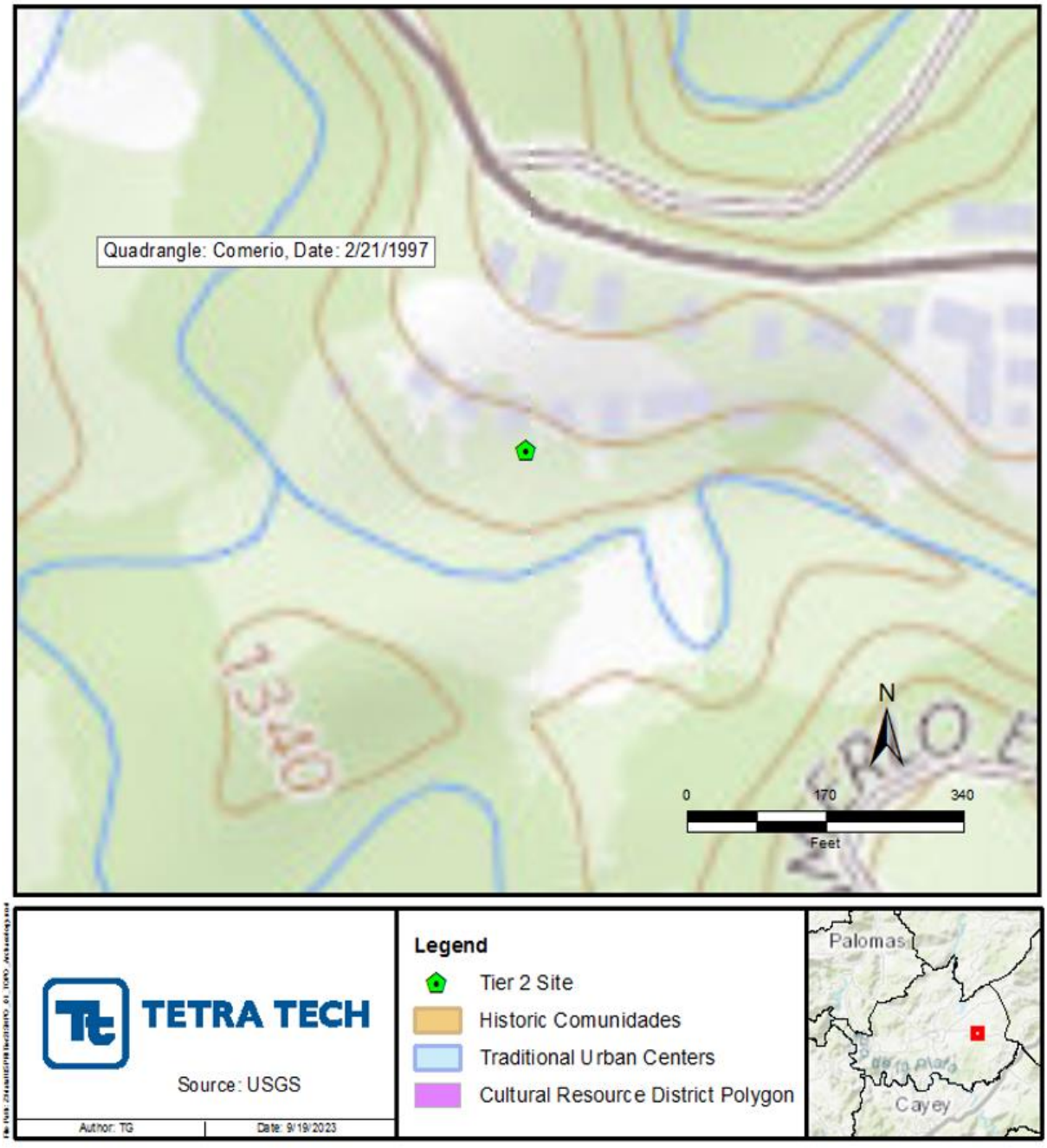
Project (Parcel) Location – Area of Potential Effect Map (Aerial)



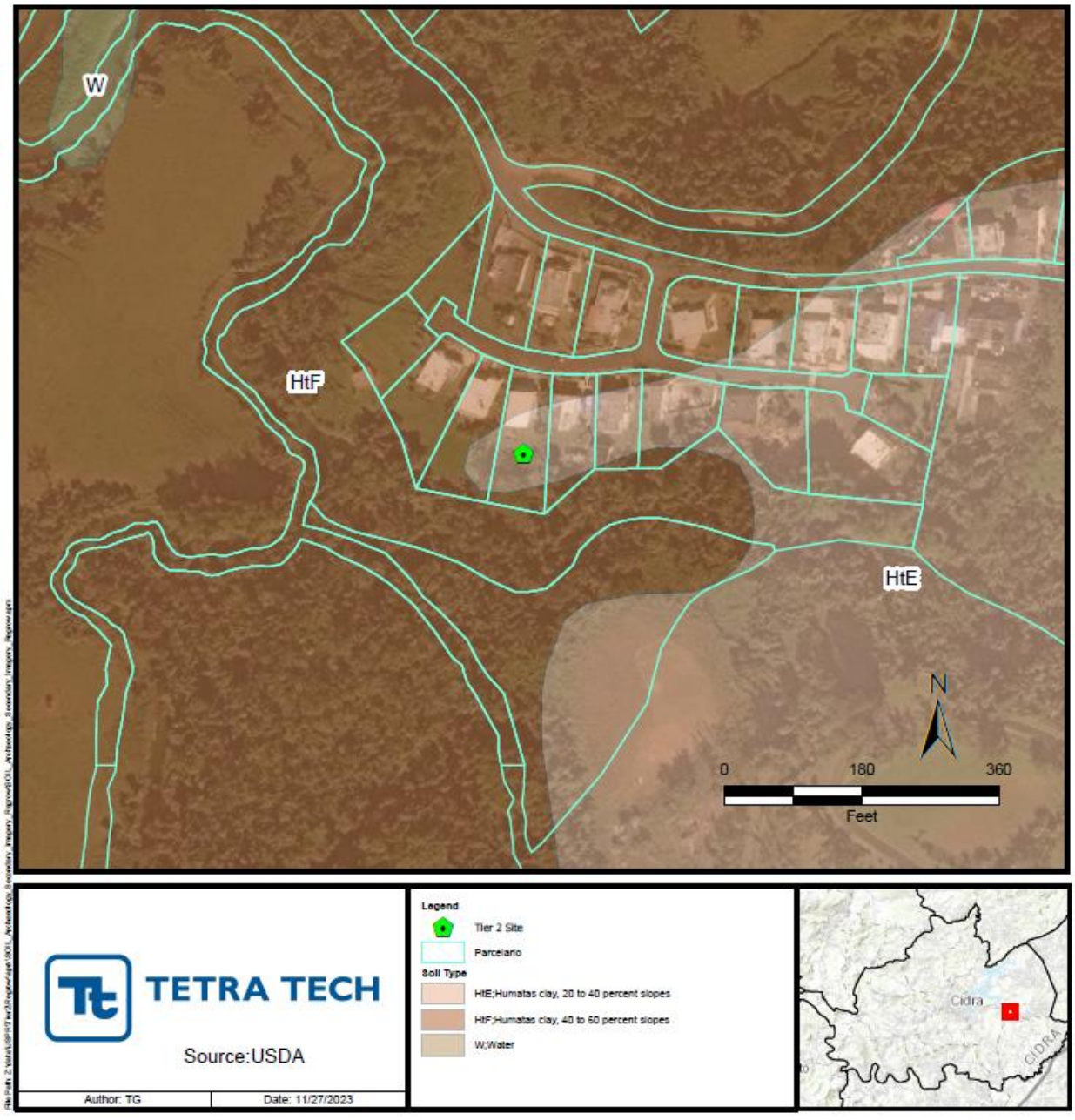
Project (Parcel) Location - Aerial Map



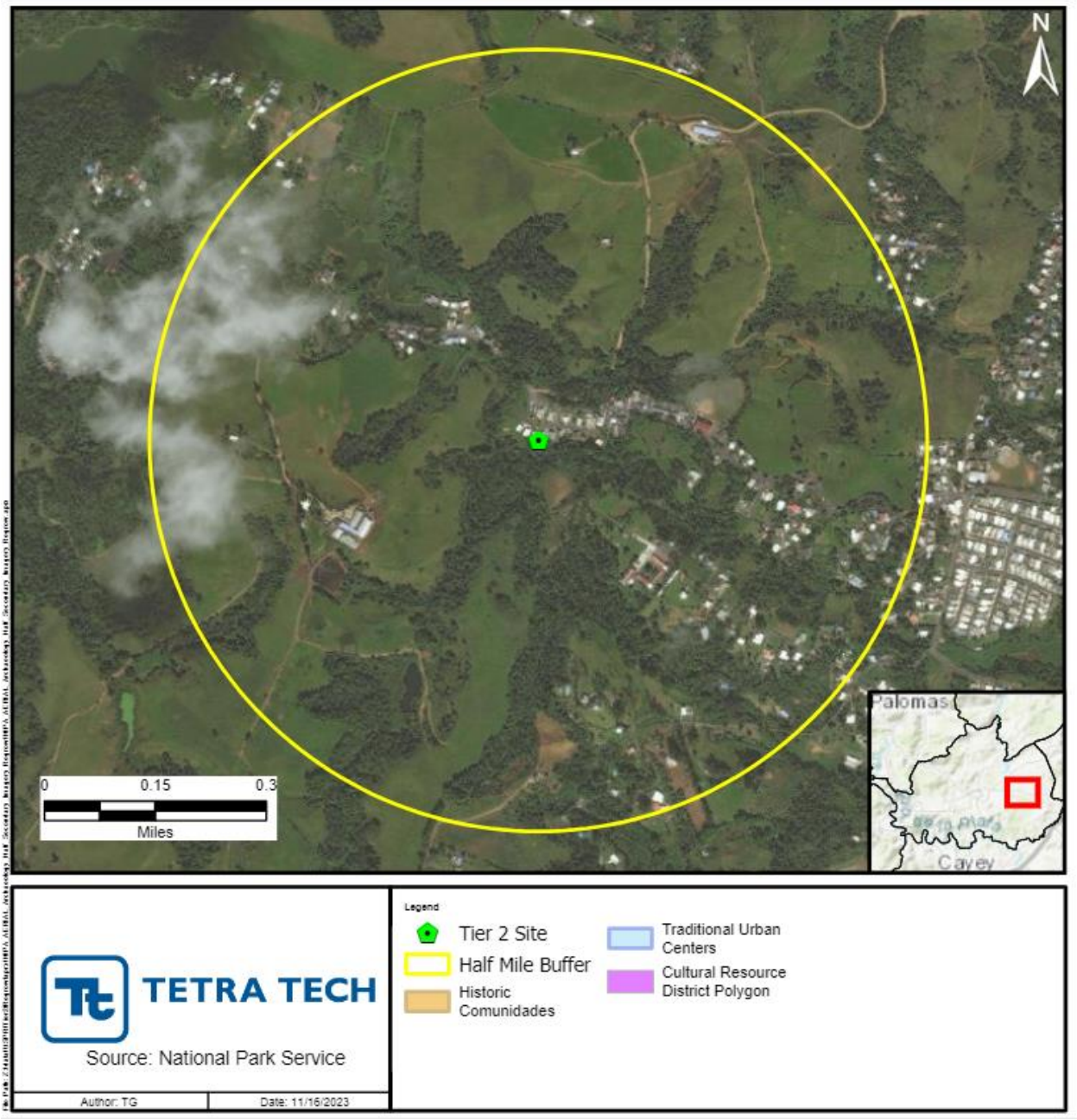
Project (Parcel) Location - USGS Topographic Map



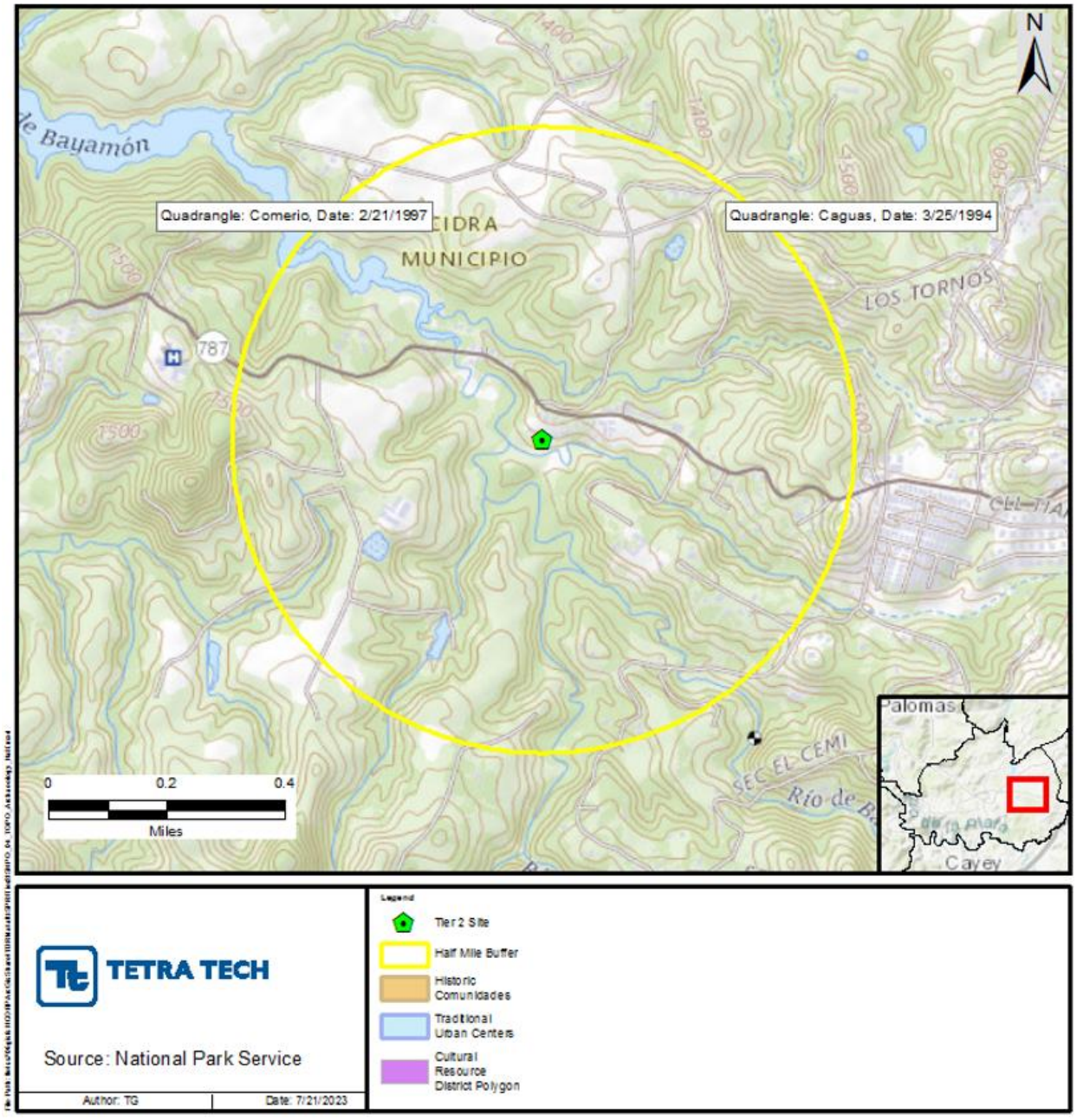
Project (Parcel) Location – Soils Map



Project (Parcel) Location with Previous Investigations - Aerial Map



Project (Parcel) Location with Previously Recorded Cultural Resources
USGS Topographic Map



Photograph Key

Photo #: 1 **Date:** 12/15/2023	**Description (include direction):** Scope of work: Installation of Greenhouse Module, view to the southwest.

Photo #: 2 **Date:** 12/15/2023	**Description (include direction):** Scope of work: Installation of Greenhouse Module, view to the northeast.

Photo #: 3 **Date:** 12/15/2023	**Description (include direction):** Scope of work: Installation of Greenhouse Module, view to the north.

Photo #: 4 **Date:** 12/15/2023	**Description (include direction):** Scope of work: Installation of Greenhouse Module (water and electricity connections), view to the north.

October 20, 2022

Arch. Carlos A. Rubio Cancela
Executive Director
State Historic Preservation Officer
Cuartel de Ballajá Bldg.
San Juan, Puerto Rico

Re: Authorization to Submit Documents

Dear Arch. Rubio Cancela:

The U.S. Department of Housing (HUD) approved the allocations of Community Development Block Grant (CDBG-DR) funds on February 9, 2018. It also approved the allocation of Community Development Block Grant Mitigation (CDBG-MIT) funds on January 27, 2020. The purpose of these allocations is to address unsatisfied needs as a result of Hurricanes Irma and Maria in September 2017; and to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses.

To comply with the environmental requirements established by HUD, the Department of Housing of Puerto Rico (PRDOH) contracted Horne Federal LLC to provide environmental registry review services, among others, that will support the objectives of the agenda for both CDBG-DR and CDBG -MIT Programs.

In line to expedite the processes, Horne Federal LLC, is authorized to submit to the State Historic Preservation Officer, documentation of projects related to both the CDBG-DR and CDBG-MIT on behalf of PRDOH.

Cordially,

Juan C. Pérez Bofill, P.E. M.Eng
Director of Disaster Recovery
CDBG DR-MIT