Draft Environmental Assessment

Osceola County, Buenaventura Lakes, Drainage

FEMA-HMGP-4337-0323-FL

Kissimmee, Osceola County, Florida

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U.S. Department of Homeland Security
Federal Emergency Management Agency Region IV
Atlanta, Georgia

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TABLE OF CONTENTS

APPENDICES

APPENDIX A: Scoping Checklist

APPENDIX B: Aerial Map

APPENDIX C: Ground disturbance map

APPENDIX D: Flood Insurance Rate Map (FIRM)

APPENDIX E: Wetlands Map

APPENDIX F: USFWS Consultation Letter

APPENDIX G: Species List

APPENDIX H: Construction Plans

APPENDIX I: 8-step Checklist

APPENDIX J: SFWMD ERP # 49-108182-P

APPENDIX K: Soil maps

APPENDIX L: Site Photographs

APPENDIX M: H&H study

APPENDIX N: Standard Eastern Indigo Snake Conditions

APPENDIX O: Report of Geotechnical Engineering Evaluation - Buenaventura Lakes Outfall Project, Osceola County, Florida - Prepared by Geotechnical and Environmental Consultants, Inc.

APPENDIX P: Ecological Impact Summary Report, Austin Ecological Consultants

APPENDIX Q: 2021 Caracara Survey Report, Austin Ecological Consultants

LIST OF ACRONYMS

APE	Area of Potential Effects
BFE	Base Flood Elevation
BMP	Best Management Practices
CBRS	Coastal Barrier Resources Act
CCCL	Coastal Construction Control Line
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
ERP	Environmental Resource Permit
ESA	Endangered Species Act
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDEM	Florida Division of Emergency Management
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FWC	Florida Fish and Wildlife Conservation Commission
GHG	Greenhouse Gas
HMGP	Hazard Mitigation Grant Program
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHC	National Hurricane Center
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System (NPDES)
NRHP	National Register of Historic Places

NWI	National Wetland Inventory
OEHP	Office of Environmental Planning & Historic Preservation
OSHA	Occupational Safety and Health Administration
SFWMD	South Florida Water Management District
SHPO	State Historic Preservation Office
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
USC	Unites States Code
USFWS	United States Fish and Wildlife Service
USACE	United States Army Corps of Engineers

1.0 INTRODUCTION

Hurricane Irma impacted Florida between September 4th, 2017 and October 18th, 2017, bringing strong winds, storm surge, and flooding. President Trump signed a disaster declaration (FEMA-4337-DR-FL) on September 10th, 2017 authorizing the Department of Homeland Security's Federal Emergency Management Agency (FEMA) to provide federal assistance to the designated areas of Florida. This assistance is provided pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), and Public Law (PL) 93-288, as amended.

The Buenaventura Lakes Subdivision is located within northern Osceola County, Florida. This community has a history of flooding after rain events, experiencing significant flooding during Hurricane Irma, which brought 8 inches of rain, and Hurricane Ian, which delivered between 7 and 12 inches of rain. The excess rainwater surface flows during these events exceeds the existing stormwater system capacity and residents in community and adjacent areas experience significant residential and street flooding. Most of the infrastructure for stormwater management in this area was constructed in the 1970s and 1980s and is not performing to current county standards.

Osceola County, through the Florida Division of Emergency Management (FDEM), has applied for Hazard Mitigation Grant Program (HMGP) funds from FEMA under Section 404 of the Stafford Act, 42 United States Code (USC) 5121-5207, in order to mitigate flood loss in the Buenaventura Lakes Subdivision in Kissimmee, Florida.

In accordance with the Stafford Act, regulations promulgated pursuant thereto and codified in 44 Code of Federal Regulations (CFR) Part 206 (44 CFR 206), and FDEM Mitigation Bureau Non-Federal Representative Memorandum of Agreement, dated November 14, 2017, FEMA and FDEM are required to analyze the potential environmental impacts of the Proposed Action prior to making an informed decision regarding project funding. The proposed action presented by Osceola County does not qualify for use of Department of Homeland Security Categorical Exclusion N9 for Federal Assistance for Flood Hazard Reduction Actions because the project activities affect an area greater than 25 acres. Therefore, FDEM on behalf of FEMA have prepared this Environmental Assessment (EA) in accordance with NEPA (PL 91-190, as amended), the

President's CEQ regulations[1] for implementing NEPA (40 CFR part 1500-1508, as amended in 85 Federal Register 43304-76 July 16, 2020), and regulations adopted pursuant to Department of Homeland Security Directive 23-01-001-01, Rev 01, and FEMA Directive 108-1.

2.0 PURPOSE AND NEED

The objective of FEMA'S Hazard Mitigation Grant Program (HMGP) is to reduce the loss of life and property due to future natural disasters. This is achieved by grants being provided to states and local governments to implement long-term hazard mitigation measures. The purpose of the proposed action presented in this EA is to mitigate flooding, reduce future flooding risk, and protect lives and property from future damages in the Buenaventura Lakes Subdivision.

The need for the proposed HMGP funding has risen from the devastating effects of not only tropical storms and hurricanes, but also to address the problem of flooding in the project area. Most of the community's stormwater management system is outdated and does not conform with current County or South Florida Water Management District (SFWMD) standards. Residents within the project area experience significant repetitive residential, structural, road flooding, and pond bank erosion issues throughout the system during small to large rain events. During Hurricane Irma in 2017 and more recently Hurricane Ian in 2022 the project area experienced significant street and residential flooding, with first responders encountering increased emergency response times to assist homeowners out of their flooded homes due to the lagging in the ponds' recovery times and lack of resiliency of the system.

In accordance with federal laws and FEMA regulations, the EA process for a proposed federal action must include an evaluation of alternatives and a discussion of the potential environmental impacts. This Draft EA was prepared in accordance with FEMA's regulations as required under

[1] *Consistent with E.O. 14154, CEQ has rescinded the NEPA regulations, effective April 11, 2025, and is working with Federal agencies to revise or establish their own NEPA implementing procedures. Per CEQ Guidance, while revisions are ongoing, agencies should continue to follow their existing practices and procedures implementing NEPA and can voluntary rely on the regulation in 40 CFR 1500-1508 in completing ongoing NEPA reviews (Implementation of the National Environmental Policy Act, February 19, 2025).*

NEPA. As part of this NEPA review, the requirements of other environmental laws and executive orders are addressed.

3.0 PROJECT LOCATION AND BACKGROUND

The project involves approximately 26 acres of the Buenaventura Lakes Subdivision in Kissimmee, Florida 34743 and 34744. The section of the project area on the west side of Simpson Road runs from a stormwater pond (GPS coordinates: 28.323829, -81.338957) through a residential area parallel to Turpin Lane, continuing along an existing ditch path turning eastbound about 150 feet south of Hawthorne Lane up to the west of Simpson Road. The other portion on the east side of Simpson Road runs 2,800 feet through a cattle pasture, going approximately 600 feet north towards the northwestern part of East Lake Tohopekaliga just north of Hillard Island (GPS coordinates: 28.327826, -81.325871) (See Appendix B).

The Buenaventura Lakes community encompasses a watershed area of approximately 1,700 acres in Central Osceola County, Florida. The project is located within the Kissimmee Valley consisting of seasonally flooded lowlands and grassland prairies. East Lake Tohopekliga is the closest permanent water source, as well as a source of aquatic resources. During the 1880s, extensive canal building began in the region, interconnecting lakes. The drainage canals promoted the sugar cane industry, citrus and cattle in Osceola County. In 1944 there was development in the project area starting with roads and farmlands. Between the 1980s and 1990s, there was significant growth in residential and commercial development. Currently, the land at the east side of the project area is being used as cattle pasture and suburban development to the west. The stormwater management system has a history of flooding. During major storm events, such as Hurricane Irma in 2017 and Hurricane Ian in 2022, the commercial and residential areas at the west and south side of the project area experience significant flooding losses, as the existing stormwater system presents deficiencies and is unable to perform as needed.

4.0 ALTERNATIVES

This section describes the No Action Alternative, the Preferred Action Alternative, and Alternatives That Were Considered and Dismissed. The Preferred Action Alternative consists of drainage improvements in the Buenaventura Lakes Subdivision including the construction of dual box culverts and an open ditch connection to East Lake Tohopekaliga. Per the Utilization of Streamlined Procedures for Environmental Assessments associated with Hurricanes Harvey, Irma, Maria, and Nate (Federal Register Notice FEMA-2017-0035), these are the only alternatives required for consideration in this EA. Alternatives considered and dismissed are discussed in Section 4.3.

4.1 Alternative 1: No Action Alternative

Under the No Action Alternative, the project would not be constructed using HMGP funding. If Osceola County cannot fund the project using other opportunities, then repetitive flooding would not be alleviated. Under this alternative, the current drainage system may remain the same and the area would not be further protected from future storm events. Residents within the project area would continue to experience significant repetitive residential, structural and road flooding, and pond bank erosion issues throughout the system during rain events. This would likely result in infrastructure and property damage. This may also result in increased emergency response times to residents and inaccessibility to the area due to flooding.

If no action is taken, significant flooding would continue to occur within the project area leading to increased erosion, negative impacts to water quality and habitat loss.

While the No Action Alternative will not satisfy the purpose of or need for the proposed Federal funding, this alternative was retained to provide a comparative baseline against the other alternatives, as required in the CEQ regulations (40 CFR 1502.14). The No Action Alternative reflects the status quo and serves as a benchmark against which effects of the Proposed Action can be evaluated.

4.2 Alternative 2: Drainage improvements and construction of a new positive outfall system (Preferred Alternative)

Under the Preferred Alternative, the proposed drainage improvement project would be implemented within the Buenaventura Lakes Subdivision. The proposed action shall address the deficiencies of the drainage system, allowing increased discharges by lowering peak pond stages, substantially reducing displacement, structural and road damages, and enabling residents and first responders to access the area during and after storm events. The project shall be constructed to provide protection against a 50-year storm event. The proposed action starts at the Buenaventura Lakes BVL_56 pond located approximately 200 feet south of Turpin Lane (GPS coordinates: 28.323829, -81.338957) and runs northeast to outfall at the East Lake Tohopekaliga (GPS coordinates: 28.327826, -81.325871).

The proposed action would improve the existing stormwater collection and conveyance by the construction of a new positive outfall system in the area, starting with a new 62-feet by 12-feet control structure at the BVL_56 pond from which a dual 6-feet by 8-feet segmental box culvert of approximately 1,624-feet long shall be installed. The new dual box culvert runs northeast parallel to Turpin Lane, goes under Royal Palm Drive, and continues along an existing ditch path turning eastbound about 150-feet south of Hawthorne Lane to intersect through a new junction box west of Simpson Road with an existing box culvert crossing under the street.

On the east side of Simpson Road, the system continues through a new 6-feet by 12-feet box culvert with headwall and wingwall connected to a new open ditch of approximately 2,750-linear feet, conveying the collected stormwater to outfall through a new spreader structure into the East Lake Tohopekaliga at the far east end of the project. An easement from two (2) parcels will be required to complete the proposed activities east of Simpson Road. Additionally, the project includes the installation of 18-inch to 42-inch reinforced concrete pipes (RCP); construction of inlets and drainage structures; and necessary road and existing utilities restoration and relocation.

The type of equipment that would be used to implement this project will likely include track hoes, dump trucks, compactors, and bucket loaders to facilitate the excavation, embankment, and compaction work. A crane will be needed to set the box culverts, and pumps will be utilized for dewatering activities. There will also be service trucks to maintain the equipment and provide fuel.

The proposed ground disturbing activities for this project include the following components:

Control Structure

A new concrete drainage structure will be installed on the upstream end of the dual 6'x8' box culvert from GPS coordinates (28.323850, -81.338632) to (28.324088, -81.338876). The structure will be equipped with a skimmer and an articulated concrete block will be installed immediately upstream of the structure to prevent erosion of the pond banks. Existing culverts in the vicinity of the proposed structure will be replaced in kind to accommodate the new structure. This activity is anticipated to disturb approximately 8,085 square feet, with a depth of disturbance ranging from 0 to 10 feet.

Dual 6'x8' Box Culvert

The existing open ditch through the Buena Ventura Lake neighborhood will be replaced with dual 6'x8' concrete box culverts from GPS coordinates (28.324088, -81.338876) to (28.326124 -81.334535). Any existing culverts discharging into the existing open ditch will be reconstructed to connect them to the proposed box culvert. New concrete inlet structures and culverts will be installed to collect surface runoff which currently sheet flows into the open ditch. The existing Royal Palm Drive will be open cut to allow installation of the culvert. This activity will disturb approximately 81,247 square feet, and the depth of disturbance will range from 0 to 11 feet.

Culvert Sump

The existing Simpson Road will be widened, and the existing open ditch drainage system for Simpson Road will be replaced by a closed system. A concrete sump will be installed from GPS coordinates (28.326081, -81.334234) to (28.326082, -81.333803) to accommodate the relative grades. This activity will disturb approximately 9,463 square feet, and the depth of disturbance will range from 0 to 12 feet.

Ditch

An open ditch will be excavated from (28.326082, -81.333803) to (28.326110, -81.325433) to allow runoff to be conveyed across the undeveloped land, east of Simpson Road. 10' wide

maintenance berms will be provided on both sides of the ditch. Approximately 100 feet of concrete culvert will also be installed to allow existing drainage patterns in this area to be maintained. This activity will disturb approximately 271,537 square feet, and the depth of disturbance will range from 0 to 4 feet.

6'x12' Box Culvert

An 84' of 6'x12' concrete box culvert will be constructed with upstream and downstream headwalls from GPS coordinates (28.326110, -81.325433) to (28.326288, -81.324835). The existing dirt road, located in the location of the proposed culvert, will be removed, and replaced in kind during installation of the box culvert. This activity will disturb approximately 10,149 square feet, and the depth of disturbance will range from 0 to 11 feet.

Spreader Swale

A spreader swale will be constructed with a concrete level spreader at elevation 58.25 from GPS coordinates (28.326288, -81.324835) to (28.327826, -81.325870). The swale shall be lined with an erosion control blanket, and rubble will be used to line the downstream side spreader to prevent erosion. This activity is expected to disturb approximately 91,653 square feet, and the depth of disturbance will range from 0 to 9 feet.

4.3 Alternatives Considered and Dismissed

During project planning and scoping, consideration was given to other alternatives including the construction of dual 8'x6' box culverts from the BVL_56 pond and a piped connection to East Lake Tohopekaliga, and the construction of dual 48" stormwater pipes from the BVL_56 pond to East Lake Tohopekaliga. While these actions would result in reduced flooding, these alternatives were dismissed from detailed analysis as they are cost prohibitive. The proposed action provided a more economical solution that had a positive cost benefit relationship.

4.4 Impact Evaluation

The Council on Environmental Quality (CEQ) notes: “Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial” (40 CFR 1508.8).

When possible, quantitative information is provided to establish potential impacts; otherwise, the potential qualitative impacts are evaluated based on the criteria listed in Table 4.0.1:

Table 4.0.1: Impact Significance and Context Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
None/Negligible	The resource area would not be affected and there would be no impact, OR changes or benefits would either be non-detectable or, if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, but the changes would be small and localized. Impacts or benefits would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have either localized or regional scale impacts/benefits. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse effects.
Major	Changes to the resource would be readily measurable and would have substantial consequences/benefits on a local or regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

The Scoping Checklist (Appendix A) evaluates the potential environmental direct and indirect impacts to Physical, Water, Coastal, Biological, and Socioeconomic Resources for the No Action and proposed action alternative. If the potential impact to the resource was determined to be "None/Negligible" or "Minor," the impacts to those resources are only included within the Scoping Checklist. The impacts anticipated to be "Moderate" are further discussed below. No resources are anticipated to have "Major" impacts. A summary of potential impacts of the No Action and proposed action is discussed in the table below:

Table 4.0.1: Summary of Affected Environment and Potential Impacts from Section 4 of this EA for the No Action Alternative and the Preferred Alternative

Area of Evaluation	Alternative 1: No Action	Alternative 2: Proposed Action
Physical Resources	**None/ Negligible:** No impacts to existing geology and soils, air quality, visual quality and aesthetics.	**Minor:** The Proposed Action would involve ground disturbance for the installation of stormwater pipes and swales. Ground disturbance impacts will be minor and will mostly be limited to previously disturbed areas. The proposed project affects unique farmland. However, there will be no unnecessary or irreversible conversion of prime or unique farmland. Short-term impacts to air quality may occur due to exhaust emissions from construction equipment.
Water Resources	**None/Negligible:** No impacts to the water quality, floodplain, or wetland.	**Minor:** The Proposed Action is functionally dependent upon its location within the floodplain and would reduce the flood risk to adjacent properties. The proposed action would impact wetlands through the removal of vegetation. Mitigation credits will be purchased to offset the functional loss of wetlands.
Coastal Resources	**None/Negligible:** No impacts to the coastal zones or coastal barrier resources	**None/Negligible:** The entire state of Florida is located in a coastal zone; therefore, the project area is in a coastal zone area.
Biological Resources	**None/ Negligible:**	**Moderate:**

	No impacts to wildlife and fish, vegetation, invasive species, threatened and endangered species, migratory birds, essential fish habitat, or bald and golden eagles as no work would occur within the area.	Temporary impacts to wildlife and fish would occur through habitat disruption. These actions may affect bald eagles within the area during construction. Once construction is completed, species typically found within the area are expected to return. The Proposed Action may affect but is not likely to adversely affect the federally threatened Eastern indigo snake (*Drymarchon couperi*) and Wood Stork (*Mycteria americana*), and the federally endangered Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*). The Proposed Action would remove vegetation for the construction of a new ditch.
Cultural Resources	**None/ Negligible:** No impacts to cultural resources are anticipated.	The Proposed Action received concurrence from the State Historic Preservation Office (SHPO) with the determination of No Adverse Effect to Historic Properties and no adverse impact to Archaeological Resources.
Socioeconomic Resources	**Minor:** No effect on noise levels or traffic volume in the project area. The surrounding area would continue to experience flooding.	**Minor:** Improvements to the stormwater system will provide flood protection to the adjacent residential areas, providing a beneficial impact on their current land use. Short-term noise impacts from construction equipment may occur. Increases in noise will be temporary and limited to the duration of construction. Impacts will be limited by following applicable county noise ordinances. Short-term impacts to transportation or traffic volume and routing may occur during construction.

5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

5.1 WATER RESOURCES

5.1.1 Clean Water Act

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into waters of the United States and regulating quality standards for surface waters. Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into Waters of the United States, including wetlands. Section 404 requires a permit before dredged or fill material may be discharged into Waters of the United States, unless the activity is exempt from Section 404 regulation. Section 10 of the Rivers and Harbors Act grants the United States Army Corps of Engineers permitting jurisdiction for structures or work in or affecting navigable waters of the United States. Under the National Pollutant Discharge Elimination System (NPDES), the EPA regulates both point and non-point pollutant sources, including stormwater and stormwater runoff. Activities that disturb one acre of ground or more are required to apply for an NPDES permit, through the Florida Department of Environmental Protection (FDEP) as authorized by the EPA. This Section 401 water quality certification is required when obtaining a CWA 404 Permit.

5.1.1.1 Existing Conditions

The project location is within the East Lake Tohopekaliga watershed and the area of the SSA Biscayne Aquifer. BVL_56, also referred to as Lake Ventura, and East Lake Tohopekaliga are within the project area and are considered impaired waterbodies by the EPA. Two (2) drainage ditches are directly within the area of ground disturbance this project proposes. According to the USFW National Wetlands Inventory (NWI) accessed 09/06/2024, the project area is located within or adjacent to designated wetlands (Appendix E). The National Wetlands Inventory classifies these wetlands as PUBHx (Freshwater Pond), PEM1F (Freshwater Emergent Wetland), and R5UBFx (Riverine).

5.1.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not involve any construction activities, therefore there would be no impacts to water quality or Waters of the United States. However, there would continue to be minor impacts to surface waters and water quality from continued erosion as well as increased runoff from houses and roadways during flood events. Continued flooding of the area could result in increases in sediments, debris and pollutants entering the nearby waterbodies.

Alternative 2: Drainage improvements and construction of a new positive outfall system

Construction activities associated with the Proposed Action would have the potential to impact water quality in the short-term as the construction of a new positive outfall system, modifications to current drainage ditches and other ground disturbing activities may cause temporary increases to turbidity and sedimentation. Osceola County is in the process of coordinating with and obtaining the required Section 404 permits from the United States Army Corps of Engineers (USACE) under permit application number SAJ-2024-04019. A Section 404 permit shall be obtained prior to initiating work. The project shall comply with all conditions and pre-construction notification requirements of the required permit(s), including any applicable regional conditions. The permitting requirements shall include Best Management Practices (BMPs) and other conditions, thereby minimizing the short-term impacts to wetlands and surface waters during construction activities. No long-term impacts to water quality are anticipated.

5.1.2 Floodplains

Executive Order (EO) 11988, *Floodplain Management*, as implemented in 44 CFR Part 9, requires federal agencies to "avoid to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative."

The 100-year floodplain is the area covered by water in the event of a 100-year flood, which is a flood that has a 1 percent annual chance of being equaled or exceeded in magnitude in any given year. The 500-year floodplain is the area covered by water in the event of a 500-year flood, which is a flood that has a 0.2 percent annual chance of being equaled or exceeded in magnitude in any given year. The VE zone is the coastal area subject to a velocity hazard (wave action) where the Base Flood Elevations are provided. See NFIP Flood Insurance Manual 2024, Appendix D (D3). All these zones are mapped on FEMA Flood Insurance Rate Maps (FIRMs). FEMA uses the eight-step decision-making process (Appendix I) to evaluate potential effects on and mitigate impacts to floodplains and wetlands in compliance with EO 11988 and EO 11990 Wetlands Management.

5.1.2.1 Existing Conditions

Per FEMA FIRM panel #12097C0080G, dated June 18, 2013, (Appendix D) the proposed project is located within AE, X-Shaded, and X-unshaded zones. The project includes two (2) areas of canals which channel stormwater and are adjacent to two bodies of water, East Lake Tohopekaliga and the BVL_56 pond. The Buenaventura Lakes Subdivision experiences significant residential, structural, and road flooding during rain events. During Hurricane Irma in 2017 and Hurricane Ian in 2022 the project area experienced significant flooding, with several homeowners needing to be rescued from their flooded homes.

5.1.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not involve any construction activities, therefore there would be no impact on the floodplain. However, the area would continue to experience flooding during storm events and properties adjacent to the project area would remain at risk.

Alternative 2: Drainage improvements and construction of a new positive outfall system

Under the Proposed Action, the two (2) drainage ditches within the project area would be modified and a new drainage ditch would be completed along with the installation of a new positive outfall system. The Proposed Action would not contribute to development within the floodplain and

would not affect the functions or values of the floodplain within or downstream of the project areas. This action proposes to increase the capabilities of the existing stormwater management system within the Buenaventura Lakes Subdivision.

This action would reduce erosion during future storm events and decrease the risk of property damage and utility failure. Additional effects of the Proposed Action would include reducing the risk of flooding on adjacent properties and utilities by reducing the risk of failure of the drainage system.

5.1.3 Wetlands

Executive Order (EO) 11990 Wetlands Management requires Federal agencies to avoid funding activities that directly or indirectly support occupancy, modification, or development of wetlands, whenever there are practicable alternatives. FEMA uses the eight-step decision-making process to evaluate potential effects on, and mitigate impacts to, wetlands and floodplains in compliance with EO 11990 and EO 11988.

5.1.3.1 Existing Conditions

Information about the wetlands potentially affected by the proposed project was gathered from USFWS National Wetlands Inventory (NWI) Web Map Services, accessed 09/06/2024. The project area is located within or adjacent to the following designated wetlands: PUBHx (Freshwater Pond), PEM1F (Freshwater Emergent Wetland), and R5UBFx (Riverine). The Freshwater Pond adjacent to the project area is the BVL_56 pond. The Freshwater Emergent Wetland is a wetland adjacent to the project area directly to the east associated with East Lake Tohopekaliga, and the mapped Riverine areas are drainage ditches that constitute the current flood control infrastructure within the neighborhood.

5.1.3.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not involve any construction activities, therefore there would be no impact on wetlands.

Alternative 2: Drainage improvements and construction of a new positive outfall system

An 8-step review was conducted and can be found in Appendix I. There will be minor impacts on the wetlands within the area of construction. Pre-existing open ditches used for flood control will be modified and a new open ditch will be created. Ground disturbing activities are expected to have minor effects on the adjacent pond on the west side of the proposed project area and the Freshwater Emergent Wetland to the East of the proposed project area.

The Proposed Action is anticipated to impact 1.41 acres of forested wetlands, 5.70 acres of herbaceous wetlands, and 1.28 acres of other surface waters (existing man-made drainage ditches). Per Austin Ecological Consultants, estimated functional losses associated with the Proposed Action utilizing the Uniform Mitigation Assessment Methodology (UMAM); this analysis determined the Proposed Action would result in functional loss of 0.63 forested UMAM units and 2.98 herbaceous UMAM units. Osceola County has agreed to purchase 0.62 federal forested mitigation credit and 2.98 federal herbaceous mitigation credits from the Crosby Island Marsh Mitigation Bank.

Osceola County has received an Environmental Resource Permit (ERP) from the SFWMD, permit number Environmental Resource Permit #49-108182-P issued December 22, 2023, for activities listed under Alternative 2.

5.2 BIOLOGICAL RESOURCES

5.2.1 Vegetation

5.2.1.1 Existing Conditions

Upland areas of the project include a canopy of live oak (*Quercus virginiana*), laurel oak (*Q. laurifolia*), and slash pine (*Pinus elliottii*). Mixed wetland forested areas of the project contain a canopy of live oak (Quercus virginiana), laurel oak (*Q. laurifolia*), red maple (*Acer rubrum*), loblolly bay (*Gordonia lasianthus*), and slash pine (*Pinus elliottii*). While vegetated non-forested Wetland portions of the project area typically include Bahia grass, dog fennel (*Eupatorium capillifolium*), Asiatic coinwort (*Centella asiatica*), water pennywort (*Hydrocotyl spp*.), frog fruit (*Phyla nodiflora*), soft rush (*Juncus effusus*) and bushy bluestem (*Andropogon glomeratus*).

The proposed project area has also been observed to contain invasive species such as camphor tree (*Cinnamomum camphora*), Brazilian pepper (*Schinus terebinthifolius*), Chinese tallow (*Sapium sebiferum*), and Lygodium species (*Lygodium sp*.).

5.2.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not involve any construction activities or vegetation removal, therefore there would be no impact to vegetation. Under the No Action Alternative, no drainage improvements will occur, and the project areas would still experience flooding. The project area could receive occasional inundation which could affect the existing vegetation, however, most plant species in the area have moisture tolerance characteristics which may limit the impacts of flooding on vegetation in the area. Future flood events in the area could also potentially result in erosion which could negatively impact or disturb the existing vegetation.

Alternative 2: Drainage improvements and construction of a new positive outfall system

The Proposed Action would involve the removal of some vegetation including trees & shrubs for the construction of a new ditch and spreader swale. This action will require the removal of approximately 1.41 acres of forested wetland and approximately 5.70 acres of herbaceous wetland. Mostly laurel oak, water oak, live oak, and invasive Brazilian pepper will be removed within the forested wetland. The herbaceous wetland areas are mostly Bahia grass with typical wet prairie species. Mitigation for these impacts will be provided at an appropriate mitigation bank to compensate for the loss of vegetation.

5.2.2 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 provides for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead Federal agencies for implementing ESA are the United States Fish and Wildlife Service (USFWS), and the U.S. National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service

(NMFS). The law requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "take" of any listed species of endangered fish or wildlife. A "take" includes the following actions: "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct."

5.2.2.1 Existing Conditions

In accordance with Section 7 of the ESA of 1973, the project was evaluated for the potential impact to federally listed threatened and endangered species that may be present in the project area identified by accessing the USFWS Information for Planning and Consultation (IPaC) database on October 23, 2024 (Appendix G). The threatened species likely to occur in the project area are the Eastern Indigo Snake (*Drymarchon couperi*), Wood Stork (*Mycteria americana*), Audobon's Crested Caracara (*Caracara plancus audubonii*). The endangered species likely to occur in the project area include the Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*).

Other federally threatened and endangered species with the potential to occur in or near the project area include the Eastern Black Rail (*Laterallus jamaicensis*), Blue-tailed Mole Skink (*Eumeces egregius lividus*), Sand Skink *(Neoseps reynoldsi*), Red-cockaded Woodpecker (Picoides borealis), Florida Panther (*Puma concolor coryi*) Lewton's Polygala (*Polygala lewtonii*), Papery Whitlow-wort (*Paronychia chartacea*), Pigeon Wings (*Clitoria fragrans*), Pygmy Fringe-tree (*Chionanthus pygmaeus*), and Sandlace (*Polygonella myriophylla*). However, the project area does not provide suitable habitat for these species.

5.2.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not involve any construction activities; therefore, there would be no impact to any listed threatened or endangered species. Continued significant flooding in the area has the potential to negatively impact some species and may contribute to habitat loss.

Alternative 2: Drainage improvements and construction of a new positive outfall system

On July 25, 2024, FEMA initiated an informal consultation with USFWS and received a response on July 30, 2024. Through this consultation, it was determined that the Proposed Action may affect but is not likely to adversely affect the federally threatened Eastern Indigo Snake *(Drymarchon couperi*) and Wood Stork (*Mycteria americana*), as well as the federally endangered Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*).

Based on the available information, the subject project site does not fall within any buffer area of known occurrences of Eastern Indigo Snakes. To avoid and minimize potential adverse effects to the Eastern Indigo Snake, the Standard protection measures for the Eastern Indigo Snake (Appendix N) will be implemented. Based on the avoidance and minimization measures, USFWS concurred with FEMA's determination that the Project may affect but is not likely to adversely affect the Eastern Indigo Snake.

Wood Storks utilize various wetland habitats for foraging and nesting. Although Wood Storks were not observed during the field review per Austin Environmental Consultants, suitable Foraging Habitat (SFH), non-forested wetlands, and ditches, occur onsite. To avoid and minimize adverse effects on 8.39 acres of wetland and associated surface waters that are suitable foraging habitat for Wood Storks, appropriate foraging habitat compensation will be provided within the service area of a USFWS-approved mitigation bank and replace foraging values matching or higher than the impacted wetlands. Based on the avoidance and minimization measures, USFWS concurred with FEMA's determination that the Project may affect but is not likely to adversely affect the Wood Stork.

Everglade Snail Kite foraging habitat consists of relatively shallow wetland vegetation, either within extensive marsh systems or in lake littoral zones. This species nests in a variety of vegetation types, usually over open water and almost always in areas with good foraging habitats nearby. The project site lies within the Consultation Area for the Everglade Snail Kite. Any disturbance to Everglade Snail Kites or their nests, including flushing perched birds, interrupting foraging, flushing adults from nest sites, interfering with feeding and protection of nestlings, and impacting vegetation that supports nests is prohibited (USFWS, 2006). Even though there are no

documented nests in the area, a site visit by a USFWS biologist confirmed a Snail Kite observed within the Project area. However, it is not anticipated that any of the work associated with this project will negatively affect or degrade Snail Kite habitat to an appreciable extent. To avoid and minimize the effects on Snail Kites, project-related activities will be stopped if Snail Kite disturbance is observed, and the Florida Ecological Services Office will be contacted to identify the proper measures to be taken. Based on the avoidance and minimization measures, the USFWS concurred with FEMA's determination that the Project may affect but is not likely to adversely affect the Snail Kite.

Under the Proposed Action Alternative, impacts to listed species are anticipated to be minimized through project conditioning. Impacts to threatened and endangered species would be minor based on the low potential for occurrence, project conditioning, and the temporary nature of the construction activities.

5.2.3 Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918 provides a program for the conservation of migratory birds that fly through lands of the United States. USFWS is the lead Federal agency that implements the MBTA. The law requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any migratory birds or result in the destruction or adverse modification of designated critical habitat of such species. The law makes it illegal for anyone to "take", possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or their parts, feathers, nests, or eggs. "Take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities".

5.2.3.1 Existing Conditions

The entire State of Florida is considered a flyway zone for migratory birds. According to USFWS IPaC accessed on October 23, 2024, fifteen (15) migratory bird species were identified as being potentially present within the project area; including the American Kestrel *(Falco sparverius*

paulus), Bachman's Sparrow (*Peucaea aestivalis*), Bald Eagle *(Haliaeetus leucocephalus*), Chimney Swift (*Chaetura pelagica*), Great Blue Heron (*Ardea herodias occidentalis*), King Rail (*Rallus elegans*), Least Tern (*Sternula antillarum antillarum*), Lesser Yellowlegs (*Tringa flavipes*), Painted Bunting (*Passerina ciris*), Pectoral Sandpiper (*Calidris melanotos*), Praire Warbler (*Setophaga discolor*), Red-Headed Woodpecker (*Melanerpes erythrocephalus*), Semipalmated Sandpiper (*Calidris pusilla*), Swallow-Tailed Kite (*Elanoides forficatus*), Worthington's Marsh Wren (*Cistothorus palustris griseus*). The IPaC lists peak breeding seasons from March to September for all species except the Bald Eagle (Appendix G). American Kestrels and Bald Eagles were observed during caracara surveying at the proposed project location conducted in 2021 (Appendix P).

5.2.3.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not involve any construction activities; therefore, there is no potential to take migratory birds. The No Action Alternative would have no effect on migratory birds.

Alternative 2: Drainage improvements and construction of a new positive outfall system

Under the Proposed Action, construction activities would occur and require the removal of trees, shrubs, and other vegetation in order to facilitate the drainage improvements.

Construction work within and near wetlands would cause temporary noise disturbance to any breeding populations of migratory birds within the area. The Proposed Action shall be conditioned to include applicable nationwide conservation measures for migratory birds to be followed to the extent practicable. Some notable conservation measures include scheduling all vegetation removal to take place outside of peak breeding seasons, providing education to contractors, and limiting construction to between dawn and dusk. Applicable conservation measures for the project to follow to the extent practicable are listed in Section 6 of this EA. Through the implementation of these conservation measures, the potential for impacts to migratory birds substantially decreases;

therefore, the Proposed Action is anticipated to have minor impacts to migratory birds and nests. If incidental takes were to occur, USFWS shall be contacted to assist in rectifying such take.

5.2.4 Bald and Golden Eagles

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald and golden eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle… [or any golden eagle], alive or dead, or any part, nest, or egg thereof". The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb". "Disturb" means "to agitate or bother a bald or golden eagle to a degree that causes, or likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior". In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

5.2.4.1 Existing Conditions

According to the Audubon Florida Eagle Watch Public Nest mapper, the nearest documented bald eagle nest, OS240, is located at GPS coordinates 28.323621, -81.338915. The 330-feet buffer includes portions of the project area near Lake Ventura. The general nesting season for Bald Eagles in Florida is from October to May. Nest OS240 is located on a cell tower within the buffer zones. This potential nest site was inspected on January 19, 2023, by Austin Ecological Consultants. The

nest was observed for 20 minutes. It appeared to be in disrepair and no raptor type species were observed visiting the nest. This nest is believed to be abandoned.

Golden Eagles inhabit tundra, grasslands, forested habitat and woodland-brushlands, south to arid deserts, which is not consistent with the habitat of the project location. Therefore, the presence of a golden eagle is unlikely to occur within the project area and no impacts are expected to occur for this species.

5.2.4.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not involve construction or modifications to existing conditions; therefore, there would be no impacts to nearby Bald Eagles or their nests.

Alternative 2: Drainage improvements and construction of a new positive outfall system.

The Proposed Action could potentially impact bald eagles within the project area during construction activities. Increased construction traffic and noise may have adverse impacts to nesting bald eagles and their young. Impacts are anticipated to be temporary and limited to the duration of construction activities. A USFWS Short-term Incidental Take Permit shall be required if any active bald eagle nests are found within the 330-foot buffer. The County shall comply with all terms and conditions prescribed by any applicable take permits.

5.3 CULTURAL RESOURCES

As a federal agency, FEMA must consider the potential effects of its actions on cultural resources prior to engaging in any project. Cultural resources are defined as prehistoric and historic sites, structures, districts, buildings, objects, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. There are several laws a federal agency must consider when working with and identifying cultural resources. For project 4337-323-R Buenaventura Lakes Drainage Improvement, FEMA has met this obligation through its Section 106 of the National Historic Preservation Act of 1966 (NHPA) consultation. Section 106 of the NHPA, as amended and

implemented by 36 CFR Part 800, outlines the required process for federal agencies to consider a project's effects to historic properties. The NHPA defines a historic property as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register". Eligibility criteria for listing a property on the National Register of Historic Places (NRHP) are found at 36 C.F.R. Part 60. While the definition of a cultural resource under NEPA can be broader, FEMA regularly uses Section 106 to meet its obligations to consider an action's effects to cultural resources. For this project, FEMA determined that it was appropriate to use its NHPA review to fulfill its NEPA obligations.

Cultural resources determined to be potentially significant under the NHPA are subject to a higher level of review and federal agencies must consider the potential effects of their projects on those resources and consider steps to avoid, minimize, or mitigate those effects. To be considered significant, a cultural resource must meet one or more of the criteria established by the National Park Service that would make that resource eligible for inclusion in the NRHP. The term "eligible for inclusion in the NRHP" includes all properties that meet the NRHP listing criteria, which are specified in the Department of Interior regulations Title 36, Part 60.4, and NRHP Bulletin 15. Properties and sites that have not been evaluated at the time of the undertaking may be considered potentially eligible for inclusion in the NRHP and, as such, are afforded the same regulatory consideration as nominated properties.

Pursuant to 36 CFR 800.4(a)(1), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. Within the APE, impacts to cultural resources are evaluated prior to the undertaking for both Standing Structures (above ground resources) and Archaeology (below ground resources).

Based on the nature and scope of the undertaking, FDEM and FEMA have determined that the APE is limited to the areas within which all construction and ground disturbing activity would be confined and the viewshed of the proposed project. No potential for indirect effects outside the viewshed of the proposed project exists.

A review of the Florida Master Site File was conducted as part of the Section 106 review processes. The review focused on the APE of each project location. The search revealed that no properties

listed in or nominated for listing in the NRHP, no National Historic Landmarks, and no archaeological sites determined eligible for inclusion in the National Register are located within the proposed project's APE.

A review of the quarter mile area around the proposed construction project indicates that there were three cultural resource assessment surveys of the area. A Cultural Resource Assessment Survey (CRAS) was conducted in 2021 as part of the project proposal. The report *Cultural Resource Assessment Survey, Buenaventura Lakes, Osceola County, Florida* (FMSF# 27421) found no archaeological resources within the project area, which has been extensively disturbed by previous land use activities. Additionally, the report notes that while the area that includes the APE was purchased in the 1880s, significant development did not occur until the mid-20th century. The adjacent neighborhood west of Simpson Road appears to consist of modern structures and nothing of historic significance was noted.

In accordance with Section 106 responsibilities and the Programmatic Agreement among the Florida SHPO, FDEM, FEMA, and participating tribes executed on September 10, 2014, and the 4th Duration Amendment, effective September 5, 2024, FEMA had initiated consultation for the Proposed Action.

5.3.1 Historic (Standing) Structures

5.3.1.1 Existing Conditions

A review of the APE through the Florida Master Site File search revealed no properties listed in or nominated for listing in the NRHP, no National Historic Landmarks and no archaeological sites determined eligible for inclusion in the National Register are located within the proposed project's APE.

5.3.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would involve no construction activities; therefore, Alternative 1 would have No Historic Properties Affected.

Alternative 2: Drainage improvements and construction of a new positive outfall system (Preferred Alternative)

In a letter dated October 10, 2023, FEMA consulted with the Florida SHPO on its determination of effect for the proposed activities under Alternative 2. In this letter, FDEM and FEMA concluded that Alternative 2 had a finding of No Historic Properties Affected in accordance with 36 CFR 800.5(b). The Florida SHPO concurred with the findings in a letter dated November 9, 2023.

5.3.2 Archaeological Resources

5.3.2.1 Existing Conditions

One (1) known archaeological site and one (1) documented cemetery within a quarter mile of the proposed project area were identified. The cemetery is the Barbee (Harvey) Cemetery (8OS1859) an active, private, family cemetery located on the far side of a residential community immediately south of the APE at .25 miles away. The known archaeological site is located 0.10 miles to the north of the eastern end of the project; the Boggy Creek site (8OS0015) is a prehistoric mound site located along a creek bank.

5.3.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not involve any construction activities; therefore, there would be no impact to archaeological resources.

Alternative 2: Drainage improvements and construction of a new positive outfall system

Neither the Barbee (Harvey) Cemetery nor the Boggy Creek archaeological site will be impacted by the proposed undertaking, and they are located well away from where the proposed work will occur. These sites are located away from where the construction crews will access the area and the drainage structure will be installed. Neither site will be impacted by the ongoing construction efforts and the increased flood control will help to eliminate erosion and the water inundation problems faced by both sites.

FEMA consulted with the Florida SHPO on its effect determinations for the proposed activities under Alternative 2 via a letter dated October 10, 2023. In this letter, FDEM and FEMA concluded that no properties listed in or considered eligible for listing in the National Register were located within the APE of this undertaking. Therefore, a determination of "No Historic Properties Affected" was reached. In order to meet this determination, FDEM and FEMA specified the following conditions for the treatment of fortuitous finds or unexpected discoveries during ground disturbing activities within the project area:

- If human remains or intact archaeological features or deposits (e.g., arrowheads, pottery, glass, metal, etc.) are uncovered, work in the vicinity of the discovery shall stop immediately and all reasonable measures to avoid or minimize harm to the finds shall be taken. The Sub-Recipient shall ensure that archaeological discoveries are secured in place, that access to the sensitive area is restricted, and that all reasonable measures are taken to avoid further disturbance of the discoveries. The Sub-Recipient's contractor shall provide immediate notice of such discoveries to the Sub-Recipient. The Sub-Recipient shall contact the Florida Division of Historic Resources and FEMA within 24 hours of the discovery. Work in the vicinity of the discovery may not resume until FEMA has completed consultation with SHPO, Tribes, and other consulting parties as necessary. In the event that unmarked human remains are encountered during permitted activities; all work shall stop immediately, and the proper authorities notified in accordance with Florida Statutes, Section 872.05.
- Any changes to the approved scope of work shall require submission to, and evaluation and approval by, the State and FEMA, prior to initiation of any work, for compliance with Section 106.

The Florida SHPO concurred with the findings in a letter dated November 9, 2023 provided the following conditions are met:

- If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are

encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The Sub-Recipient shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section at (850)-245-6333. Project activities shall not resume without verbal and/or written authorization. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately, and the proper authorities notified in accordance with Section 872.05, Florida Statutes.

FDEM and FEMA would require these conditions to be met as part of Alternative 2's implementation.

FEMA also initiated consultation with the following Tribal Historic Preservation Offices for the following federally recognized tribes on the proposed activities under Alternative 2 via a letter dated October 11, 2023: Alabama-Quassarte Tribal Town, Miccosukee Tribe of Indians of Florida, Muscogee (Creek) Nation, Poarch Band of Creek Indians, Seminole Nation of Oklahoma, and Seminole Tribe of Florida. No responses were received from the consulted tribes. As per stated in Stipulation I.E.1 and Stipulation II of the FL SHPO Programmatic Agreement executed on September 10, 2014, and the 4th Duration Amendment, effective September 5, 2024, lack of response from consulted tribes is interpreted as concurrence.

5.4 SOCIOECONOMIC RESOURCES

5.4.1 Transportation

5.4.1.1 Existing Conditions

Transportation corridors that could be potentially directly impacted by the project include sections of Turpin Lane, Royal Palm Drive, and Simpson Road. Changes to traffic volume and routing in the area could potentially affect residents of the Buenavista Lakes community, and adjacent areas, as well as other road users. The section of Simpson Road from Fortune Road to Boggy Creek Road has an average annual daily traffic (AADT) count of 32,000 vehicles per day. Royal Palm Drive

from Buenaventura Boulevard to Simpson Road has an average annual daily traffic (AADT) count of 4,700 (FDOT, 2024).

Several roadways within the Buenaventura Lakes Community experienced significant flooding during Hurricane Irma and Hurricane Ian. This flooding led to traffic disruptions and residents being unable to leave their flooded homes.

5.4.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not involve any construction activities; therefore, there would be no impact on transportation infrastructure, traffic volume and routing from construction activities. However, if no action is taken, transportation corridors will remain susceptible to flooding during rain events. Flooded roadways will continue to become impassable during flood events, thus negatively affecting transportation. These disruptions could result in residents and emergency responders being unable to access homes.

Alternative 2: Drainage improvements and construction of a new positive outfall system

Traffic volume and routing would be temporarily impacted during construction due to the increase of equipment and personnel required for construction. However, this impact to transportation will be short-term and traffic volumes would return to normal levels once construction is completed. Once the proposed project is awarded, the chosen contractor will provide a traffic control plan which will outline measures to mitigate impacts to traffic caused by project construction.

No long-term increases in traffic volume or routing changes would result from the implementation of the Proposed Action. The Proposed Action would allow for increased stormwater discharges and lower peak pond stages, which is expected to result in less roadway flooding. This will result in faster emergency response times and increased flood resiliency. Implementation of the Proposed Action would reduce the risk of flooding in the project area, reducing the likelihood of storm and flood-related road closures and detours. Residents and emergency responders would have more reliable access to homes. This would lead to an overall positive effect on transportation.

5.4.2 Noise

5.4.2.1 Existing Conditions

The Noise Control Act of 1972 (42 U.S.C. §§ 4901, et seq.) required the EPA to create a set of noise criteria. In response, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety in 1974, which explains the impact of noise on humans. Sound levels are measured in decibels (dB). A-weighted sound measures emphasize the frequency range of human hearing and are expressed in terms of A-weighted decibels (dBA). The EPA report found that keeping the maximum 24-hour day-night average sound level below 70 A-weighted decibels (dBA) would protect most people from hearing loss. EPA recommends an outdoor average sound level of 55 dBA to prevent interference with daily human activities such as sleeping, working, and recreation.

In general, animals and humans are stressed by noisy environments. The effects of noise on humans include annoyance, sleep disturbance, and health impacts. In animals, high noise can interfere with communication, reproduction, identifying food sources, and can induce fear, forcing species to abandon their habitat. The primary source of ambient noise in the project area is vehicular traffic.

Osceola County regulates noise levels through the Osceola County Ordinance #94-14. Osceola County's noise ordinance, Ordinance #94-14, defines noise as any sound which annoys or disturbs people, or which causes or tends to cause adverse psychological or physiological effects on humans. Noise disturbance is defined as any sound which is or may be potentially harmful or injurious to human health or welfare, animal life or property, or unreasonably interferes with the enjoyment of life or property, including outdoor recreation, of a reasonable person with normal sensitivities.

The ordinance also limits the sound levels that can be created, depending on the time of day. From 7 a.m. through sunset, noise shall not exceed 55 decibels (A-scale). From one (1) minute after sunset through 6:59 a.m., noise shall not exceed 45 decibels (A-scale).

Alternative 1: No Action

The No Action Alternative would not involve any construction activities. As a result, there would be no short-term impacts related to noise due to the construction of stormwater infrastructure. Therefore, the No Action Alternative would have no noise-related effects.

Alternative 2: Drainage improvements and construction of a new positive outfall system

The proposed action will involve the use of heavy construction equipment, causing a temporary increase in noise levels during construction activities in the project vicinity. Residences and other sensitive receptors would likely experience a temporary increase in noise levels. However, these increases in noise levels will be short-term and limited to the duration of construction.

Noise impacts would be minimized through compliance with local noise ordinances, as outlined in Osceola County Ordinance #94-14. Best management practices should also be adhered to, including the use of construction equipment in good working order. With the implementation of these BMPs, and compliance with the city's noise ordinance, the Proposed Action would have short-term, minor noise impacts in the project areas. The Proposed Action would not include the creation of a new permanent source of noise; therefore, the Proposed Action would have no long-term noise impacts.

6.0 CUMULATIVE IMPACTS

Per the CEQ regulations, cumulative impacts refer to the impact on the environment that "results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taken place over a period of time" (40 CFR 1508.7). In accordance with NEPA, this EA considered the combined effort of the preferred alternative and other actions occurring or proposed in the vicinity of the proposed project site.

The Buenaventura Lakes area has a history of flooding dating back to at least the 1980s with widespread flooding documented following Hurricane Irma and Hurricane Ian. These storm events

overflow existing stormwater systems and lead to road and home flooding. The proposed action is expected to reduce flood risk within the Buenaventura Lakes area through increased conveyance of stormwater. It is not expected that the project will increase development within the area but will help protect and maintain existing infrastructure.

Other actions occurring in or near the project area include the Osceola County's Simpson Road Widening and Improvement Project. This road improvement project included a portion of Simpson Road extending from Fortune Road to Myers Road and involved the expansion of the road from a two-lane roadway to a four-lane roadway with a twenty-six (26) foot median and ten (10) foot shared use paths for cyclists and pedestrians on both sides of the road. The road improvement project also included the addition of two new stormwater ponds, a closed drainage system, gravity walls, and traffic signal upgrades. The road improvement project is currently under construction. Additional information can be found on Osceola County's website at https://one.osceola.org/simpson-north. The proposed action and the ongoing Simpson Road Widening and Improvement Project have coordinated the designs.

Additional infrastructure projects have recently been completed in the vicinity of the proposed project area. These projects are expected to complement the drainage improvements under the proposed action. These include the following projects:

- Royal Palm Culvert Replacement: - Existing culverts were removed and replaced with three (3) large 60" culverts under Royal Palm Drive between Soloman Lane and Eden Lane.
- BVL Trash Skimmer: - A trash skimmer was installed across the ditch leaving Buenaventura Lakes upstream of the Outfall Project.
- Parkway Middle School Sidewalk Construction: - A new sidewalk along Buenaventura Boulevard from Simpson Road was constructed. The sidewalk is approximately one (1) mile long.

The Proposed Action is not expected to have long-term negative impacts to any of the adjacent residential, commercial, industrial, or recreational areas or to the environment in the project area, as it is intended to reduce flood risk to the infrastructure and residents in the area. However, it is anticipated the proposed action will have short-term impacts to water quality, floodplains,

wetlands, vegetation, threatened and endangered species, bald eagles, and migratory birds. In consideration of the overall impact of the proposed project in relation to impacts from past, present, and reasonably foreseeable future activities, the proposed action is not expected to have significant adverse cumulative impacts on any resources.

7.0 PERMITS AND PROJECT CONDITIONS

The Sub-Recipient (Osceola County) is responsible for compliance with all federal, state, and local laws and regulations, including obtaining all federal, state, and local approvals or permits prior to beginning construction activities and adhering to any conditions laid out in these approvals for this EA. The following list may not include all approvals or permit(s) required for the Proposed Action. Before, and no later than, submission of a project closeout package, the Sub-Recipient shall provide FDEM with a copy of all the required permit(s) from all pertinent regulatory agencies.

1. USACE 404 Permit - *To be acquired prior to construction*
2. FDEP NPDES Permit - *To be acquired prior to construction*
3. SFWMD 401 Environmental Resource Permit - *Approved on 12/22/2023*
4. Local Floodplain Permit/Letter of No Permit Required - *To be acquired prior to construction*
5. Osceola County Tree Removal Permit - *To be acquired prior to tree removal*

General Project Conditions

1. Any change to the approved scope of work shall require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
2. This review does not address all federal, state and local requirements. Acceptance of federal funding requires the Sub-Recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.
3. The Sub-Recipient (Osceola County) shall monitor ground disturbance and if any potential archeological resources are discovered, shall immediately cease construction in that area and notify the State and FEMA.

Special Conditions

1. The Sub-Recipient is responsible for coordinating with and obtaining any required Section 404 permit(s) from the United States Army Corps of Engineers (USACE) prior to initiating work. The Sub-Recipient shall comply with all conditions and pre-construction notification requirements of the required permit(s), including any applicable regional conditions. All coordination pertaining to these activities or compliance with applicable permits must be documented and maintained in the Sub-Recipient's permanent files. Copies must be forwarded to the State and FEMA as part of the permanent project file. Failure to comply with this requirement may jeopardize receipt of federal funds; verification of compliance shall be required at project closeout.
2. The Sub-Recipient must comply with the conditions of the SFWMD Environmental Resource Permit (ERP) #49-108182-P. Failure to comply with this condition may jeopardize FEMA funding; verification of compliance shall be required at project closeout.
3. The County must obtain a floodplain permit from the local floodplain administrator before work begins. Failure to comply with these conditions may jeopardize FEMA funding; verification of compliance shall be required at project closeout.
4. The proposed project must adhere to the Protected Species conditions related to the Eastern Indigo Snake. Failure to comply with these conditions may jeopardize FEMA funding; verification of compliance shall be required at project closeout.
5. The Sub-Recipient shall provide appropriate Woods Stork foraging habitat compensation within the service area of a Service-approved mitigation bank and replace foraging values matching or higher than the impacted wetlands.
6. The Sub-Recipient shall stop project-related activities if snail kite disturbance is observed, and the Florida Ecological Services Office shall be contacted to identify the proper measures to be taken.
7. The proposed project must adhere to any Protected Species conditions as listed in the required Section 404 permit(s) from the United States Army Corps of Engineers (USACE). Failure to comply with these conditions may jeopardize FEMA funding; verification of compliance shall be required at project closeout.

8. The Sub-Recipient, to the extent practicable, shall schedule all vegetation removal, trimming, and grading of vegetated areas from the months of April to September which is outside of the peak breeding season for migratory birds.
9. The Sub-Recipient shall educate contractors of relevant rules and regulations that protect wildlife. Prior to the onset of construction activities, the contractor's designated lead shall conduct a briefing with all construction staff to instruct them on the potential presence of species protected under the MBTA.
10. The Sub-Recipient shall not collect birds (live or dead) or their parts (e.g., feathers) or nests without a valid permit.
11. To the extent practicable, the Sub-Recipient shall limit construction activities to the time between dawn and dusk to avoid the illumination of adjacent habitat areas.
12. To minimize the spread of invasive species, it is recommended that construction equipment be washed prior to contact with waters and unpaved areas.
13. Removed vegetation should be disposed of properly to avoid incidentally dispersing invasive plants. Disturbed green spaces that will be revegetated shall use state and regionally native species.
14. The Sub-Recipient shall obtain a USFWS Short-Term Eagle Incidental Take Permit if any active bald eagle nests are found within the 330-foot buffer zone. The Sub-Recipient shall comply with all terms and conditions of the permit. Failure to comply with these conditions may jeopardize FEMA funding; verification of compliance shall be required at project closeout.
15. If human remains or intact archaeological features or deposits (e.g., arrowheads, pottery, glass, metal, etc.) are uncovered, work in the vicinity of the discovery shall stop immediately and all reasonable measures to avoid or minimize harm to the finds shall be taken. The Sub-Recipient will ensure that archaeological discoveries are secured in place, that access to the sensitive area is restricted, and that all reasonable measures are taken to avoid further disturbance of the discoveries. The Sub-Recipient's contractor will provide immediate notice of such discoveries to the Sub-Recipient. The Sub-Recipient shall contact the Florida Division of Historic Resources and FEMA within 24 hours of the discovery. Work in the vicinity of the discovery may not resume until FEMA has completed consultation with SHPO, Tribes, and other consulting parties as necessary. In the event that

unmarked human remains are encountered during permitted activities; all work shall stop immediately, and the proper authorities be notified in accordance with Florida Statutes, Section 872.05.

16. Any changes to the approved scope of work shall require submission to, and evaluation and approval by, the State and FEMA, prior to initiation of any work, for compliance with Section 106.
17. Unusable equipment, debris and materials shall be disposed of in an approved manner and location. In the event significant items (or evidence thereof) are discovered during implementation of the project, subrecipient shall handle, manage, and dispose of petroleum products, hazardous materials, and toxic waste following the requirements and to the satisfaction of the governing local, state, and federal agencies. Failure to comply with these conditions may jeopardize FEMA funding; verification of compliance shall be required at project closeout.
18. To minimize noise impacts, construction activities will adhere to all local noise ordinances.
19. To the greatest extent practicable, transport of materials to and from the construction area shall consider avoiding school zones.
20. To minimize risks to safety and human health, construction activities will be performed using qualified personnel trained to use the required equipment properly.
21. All construction activities will be conducted in accordance with the standards specified in the OSHA regulations.
22. For ground disturbing activity, if contaminated soil is encountered during construction, it should be treated, stored, and disposed of according to applicable federal, state, and local regulations.
23. Construction equipment will be kept in good working order, any equipment to be used over, in, or within 100 feet of water will be inspected daily for fuel and fluid leaks. Any leaks will be promptly contained and cleaned up, and the equipment will be repaired.

8.0 AGENCY COORDINATION

The following agencies were contacted during the preparation of this EA:

- U.S. Fish and Wildlife Service, Florida Ecological Services Office
- Florida Division of Historic Resources (SHPO), State Historic Preservation Office
- Osceola County
- Alabama-Quassarte Tribal Town
- Miccosukee Tribe of Indians of Florida
- Muscogee (Creek) Nation
- Poarch Band of Creek Indians
- Seminole Nation of Oklahoma
- Seminole Tribe of Florida

9.0 List of Preparers

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Dustin Ducote	FEMA	Environmental Protection Specialist
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