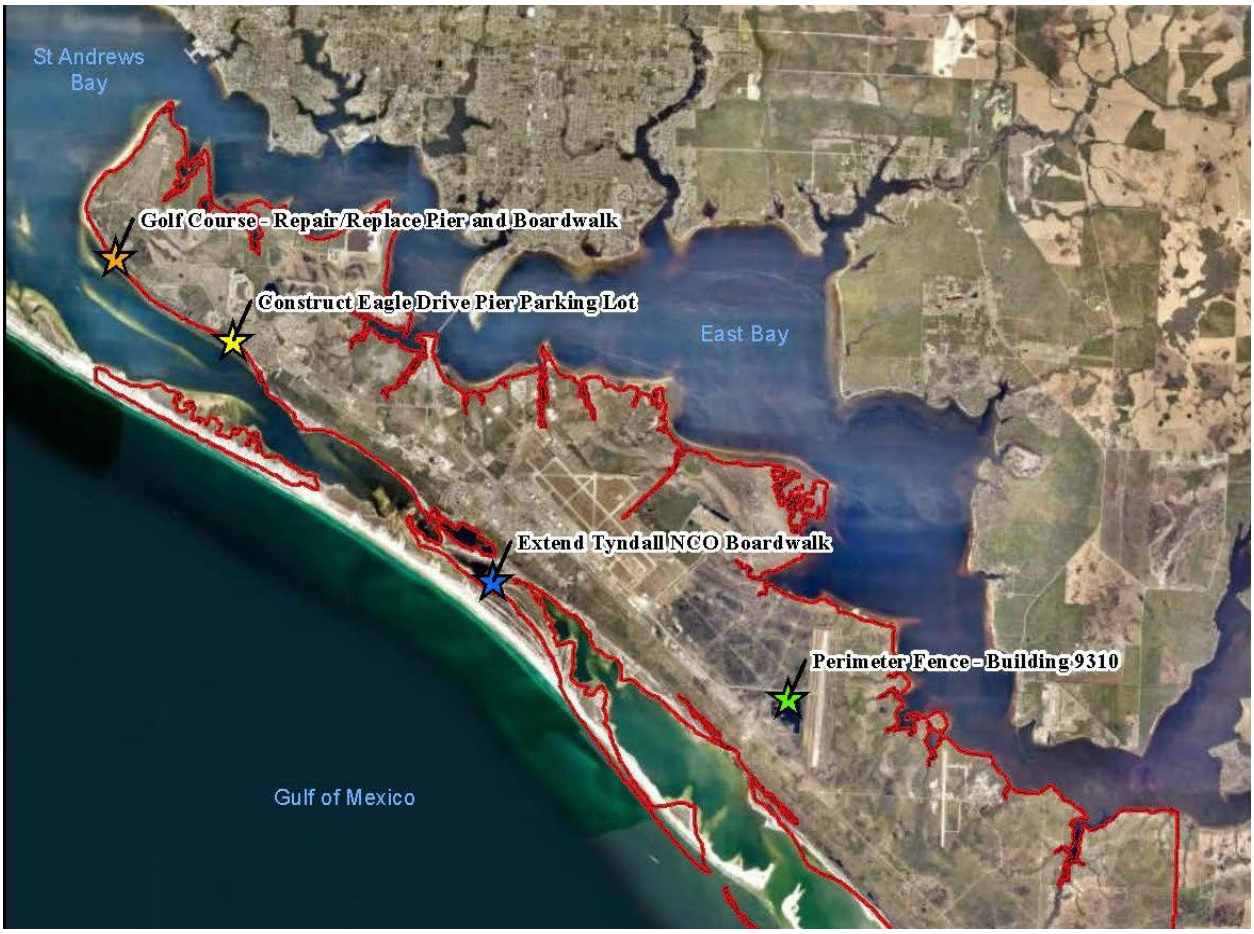
ENVIRONMENTAL ASSESSMENT FOR VARIOUS CONSTRUCTION PROJECTS TYNDALL AIR FORCE BASE, FLORIDA
Draft EA



PREPARED FOR:
Department of the Air Force

November 2023

FINDING OF NO SIGNIFICANT IMPACT/
FINDING OF NO PRACTICABLE ALTERNATIVE

Various Construction Projects,
Tyndall Air Force Base, Florida

Pursuant to the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act of 1969 (NEPA) at 40 Code of Federal Regulations (CFR) 1500–1508 and the Department of the Air Force's Environmental Impact Analysis Process Regulations at 32 CFR 989, the Air Force has prepared an Environmental Assessment (EA) to evaluate the potential impacts on the natural and human environment associated with Various Construction Projects at Tyndall Air Force Base (AFB), Florida. The EA is herewith incorporated by reference into this Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA).

Purpose and Need

The purpose of the Proposed Action is to provide facility, infrastructure, and functionality improvements to mission support, infrastructure and recreational facilities that were damaged beyond repair during Hurricane Michael in 2018. This Proposed Action is needed to repair in kind facilities (e.g., repair in existing footprint) and infrastructure at the installation, and to prevent further deterioration of these functions and capabilities that can occur over time due to obsolescence.

Proposed Action

The following four projects comprise the Proposed Action:

- Perimeter Fence, Building 9310: This project would include repair by replacing the existing security fence that runs alongside PQM Lake Loop and Camp Eagle Road. The project would include clearing and grubbing vegetation along the fence line, 10 feet on each side of fence. The length of fence would be approximately 2,400 linear feet. There would be 24 fence posts installed approximately every 10 feet and driven to a depth of 18 inches.

- Extend Tyndall Noncommissioned Officer (NCO) Boardwalk: This project would restore the landscape by backfilling the area washed out by storm activity (approximately 190 cubic yards) with a clean sand material similar to the native surficial sands and extend the boardwalk up to 600 feet to the south along the existing walking path. Once complete, the boardwalk would enhance the preservation of the natural dune environment and protect critical wildlife habitat by discouraging uncontrolled pedestrian throughfare.

- Construct Eagle Drive Pier Parking Lot: This project would involve expansion and widening of the existing access road and construction of asphalt parking area closer to the pier. The current area consists of a deteriorating gravel road and does not allow for parking to access the beach or any potential future recreational use. The proposed parking area would be 11,400 square feet of new impervious surface. The total project area would be 65,000 square feet to accommodate stormwater features, lay-down areas and design changes due to limitations to the project area. This project would be in a teardrop shape to allow for handicap parking and widening of the road by 25 feet. No utilities are anticipated.

- Repair (Replace) Pier, Golf Course: This project would include a boardwalk/pier repair and replacement within the same footprint of the existing boardwalk/pier and would be approximately 47,000 square feet. Construction staging would include one of two method options: staging at the existing parking lot; or staging/construction materials from a barge. The boardwalk or a walking path may be constructed up to 280 linear feet and be up to 5 feet wide.

The boardwalk or walking path would commence from the existing parking lot and travel down existing grade to the pier. The elevation of the boardwalk or walking path may be up to 4-feet above the ground at any location and must have ramps at transition points. The existing parking lot would remain while the existing Golf Course Pier would be demolished in a separate project. No dredging is anticipated, and no boats would dock at the pier. The use of the pier would be consistent with prior usage as a recreational fishing location and consistent with the Tyndall AFB Outdoor Recreation Component Plan and Tyndall AFB Hunting, Fishing and General Recreation Regulations.

Alternatives

Per 32 CFR 989.8(c), the Air Force may expressly eliminate alternatives from detailed analysis based on reasonable selection standards. Reasonable selection standards were applied to determine whether action alternatives considered meet the project's purpose and need and satisfy the selection standards. Alternative locations for new construction were considered but it was determined that the impacts from new construction would be greater than in-kind repairs or replacements within existing disturbance footprints. These alternate sites were found not to meet the selection criteria for avoiding natural and cultural resources. Other alternatives, such as constructing a new pier in a different location, were also considered but were found to not meet the requirements of the Facilities Sustainment, Restoration, and Modernization program, which funds the Proposed Action. This program is limited to maintenance, repair, restoration, and/or modernization activities, and as such, alternative locations with higher costs did not meet the funding constraints. No alternative actions, other than the Proposed Action, met the purpose of and need for the action or satisfied the criteria set forth in the selection standards; therefore, only the Proposed Action was carried forward for further detailed analysis in this EA.

Description of the No Action Alternative

The CEQ regulation 40 CFR §1502.14(c) requires the inclusion of a No Action Alternative in the NEPA analysis. Under the No Action Alternative, the Air Force would not repair or construct recreational facilities/infrastructure. The No Action Alternative would not meet the purpose of and need for the Proposed Action by not supporting or enhancing the morale, welfare and readiness of personnel assigned to the installation, their families, and civilian staff; however, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline for analysis.

Environmental Consequences

The Air Force has concluded that the Various Construction Projects included in the Proposed Action would not affect the following resources. These resource areas were not carried forward for detailed analysis in this EA:

Airspace: Airspace management would not be affected by the Proposed Action. No part of the action employs or influences airspace operations or air traffic management; all action elements would occur on the ground, so they would not impact either the management or use of airspace. Accordingly, airspace management and use are not carried forward for detailed analysis in this EA.

Geology: The construction of new structures and the associated dredging activities would adhere to standard methods that do not significantly impact geology, such as site clearing, grading, and

compacting. Excavation would only be conducted to the extent necessary for facility foundations and utility connections.

Utilities: The implementation of the Proposed Action would have no impact to utility demands as no utility installation or use is proposed or included in the designs.

Transportation: The Proposed Action does not entail any changes to existing roadways, such as modifications, rerouting, or closures.

Visual Resources: Visual resources would not be affected since sensitive visual resources are not located near the Proposed Action locations.

Based on the findings in this EA, no significant adverse impacts would result to the following resources. These resources areas were analyzed in detail.

Air Quality and Climate Change: Criteria pollutant emissions would temporarily increase with implementation of construction activities but would cease upon completion. These temporary emissions would be less than the initial indicator of significance. Therefore, temporary increases in these pollutant emissions would not be significant. Operational emissions would be no different than those that currently occur, so that there would be no changes to air quality resulting from the use of the pier, boardwalks, parking area or perimeter fence.

Noise: Construction activities would include land clearing, grading, and excavation; materials transport; and pavement construction. These activities would involve the use of vehicles, heavy construction equipment, and machinery and would be conducted during the daytime work hours. Construction activities would temporarily increase noise levels in the immediate vicinity of the Proposed Action areas; however, there are no noise sensitive sites close to any of the projects and because distance rapidly attenuates noise levels, all areas would experience only a minor increase in ambient noise conditions during construction hours. In addition, the duration of activity for each of the projects is expected to be short.

Biological Resources: The analysis is presented by individual project due to resource variations.

- Perimeter Fence, Building 9310: Any impacts due to disruption of wildlife corridors or fragmentation of habitat typical of fencing installation is negligible because this installation would be replacing an existing fence in kind. The construction of this project would lead to short-term insignificant adverse impacts to wildlife due to habitat disturbance and individual displacements. Regarding the operation phase, increased human presence and noise associated with the Proposed Action would cause minor disturbances to wildlife around the site. Over time, many wildlife species have and would adapt to these new conditions or relocate to other areas, resulting in a long-term, insignificant adverse impact on wildlife.

- Extend Tyndall Noncommissioned Officer (NCO) Boardwalk: Due to the project footprint remaining in an existing beach access footpath, wildlife habitat is not present within the project boundary. Wildlife utilization is expected to primarily occur within the adjacent coastal dune environment. The construction of this project would lead to short-term insignificant adverse impacts to wildlife due to indirect disturbance from increased human activity. Regarding the operation phase, increased human presence and noise associated with the Proposed Action would cause minor disturbances to wildlife around the site. Over time, many wildlife species have and would adapt to these new conditions or relocate to other areas, resulting in a long-term, insignificant adverse impact on wildlife. As a beneficial use, a boardwalk can provide

improved access for visitors to enjoy and appreciate dune ecosystems. The elevated design would decrease direct human activity and foot traffic within tertiary dune systems. Boardwalk piling structures may also encourage accretion of sand and encourage dune formation.

- Construct Eagle Drive Pier Parking Lot: The conversion of a gravel parking area to a paved surface may involve clearing vegetation and altering the natural habitat. This can result in the loss of plant and animal species that rely on the area for shelter, food, or breeding. However, the area is currently utilized for parking and is currently non-vegetated. No adverse effects to habitat or vegetation are expected.

- Repair (Replace) Pier, Golf Course: The construction of this project would lead to short-term insignificant adverse impacts to wildlife due to habitat disturbance and individual displacements. Regarding the operation phase, increased human presence and noise associated with the Proposed Action would cause minor disturbances to wildlife around the site. Over time, many wildlife species have and would adapt to these new conditions or relocate to other areas, resulting in a long-term, insignificant adverse impact on wildlife individuals and not species populations.

Water Resources: The Preferred Alternative projects have the potential to cause temporary and minor indirect effects on surface waters due to increased erosion and sedimentation during construction or demolition activities. However, by implementing BMPs specific to a required Stormwater Pollution Prevention Plan (SWPPP), these impacts would be minimized. It is estimated that the Repair (Replace) Pier, Golf Course project would impact approximately 0.75 acres of wetlands and 0.87 acres of other surface waters. It is estimated that the Perimeter Fence, Building 9310 project would impact approximately 0.61 acres of wetlands. Engineering controls to minimize the potential damage to wetland and other surface water habitats in the project areas would be implemented. The regulatory jurisdiction of wetlands and other surface waters would be determined and may be mitigated for as part of the federal/state 404 permitting processes. Throughout the design and permitting stages, efforts would be made to minimize both direct and indirect impacts on wetlands and other surface waters to the maximum extent feasible. No adverse impacts on wetlands and other surface waters are expected. During the design phase, all projects would implement design measures to avoid/minimize direct impacts to floodplains to the greatest extent practicable. The use of erosion control measures during construction would minimize erosion, sedimentation, and other potential indirect effects on floodplains. No adverse effects are expected.

Cultural Resources: The analysis is presented by individual project due to resource variations:

- Perimeter Fence, Building 9310: 8BY3169 is an historic site known as the World War II Range Estimation Course. The site has undergone testing and evaluation and due to lack of integrity, the site is recommended as not eligible for the NRHP, therefore, the Preferred Alternative project's direct and indirect effects will have no adverse effect on the property.

- Extend NCO Boardwalk: Construction of the NCO boardwalk would likely minimize pedestrian traffic in the portion of the LOD that has not been surveyed. As a result, the indirect effect of the preferred alternative is unlikely to have an adverse effect to any undocumented properties in the LOD.

- Construct Eagle Drive Pier Parking Lot: 8BY153 is a prehistoric site consisting of Middle and Late Woodland culture groups and mid-20th century military housing. The site has undergone testing and evaluation and awaiting on final report. Based on management summary, the deposits have

limited integrity and is recommended as ineligible. The Preferred Alternative will not directly impact the site but is next to site boundary. However, a monitor will be present to mitigate and avoid direct impacts while working near site boundaries. As a result, the Preferred Alternative project's direct and indirect effects will have no adverse effect on the property.

- Repair (Replace) Pier, Golf Course: 8BY2389 is a historic structure that is the remnants of the current fishing pier. 8BY2391, also a historic structure, is a military concrete pad that was used as a decorative location for military ceremonies/functions. Both sites were surveyed and evaluated as ineligible for listing due to lack of integrity. Therefore, the Preferred Alternative direct and indirect effects to repair the pier will have no adverse effect on the properties.

  Construction of the boardwalk will assist in minimizing impacts to the site by pedestrian activity and vehicular traffic. The construction of the boardwalk will impact 8BY1914 and 8BY2388. 8BY1914 is a prehistoric/historic site and is recommended as eligible for NRHP listing. 8BY2388 is a prehistoric/historic site and is recommended as potentially eligible for listing on the NRHP.

  Due to the potential for adverse effects of the project, construction of the boardwalk will not proceed until mitigation measures are consulted and agreed up on with the Florida SHPO and Native American Tribes. Recommended mitigation treatment can include monitoring and design to avoid significant impacts to sites 8BY1914 and 8BY2388. With mitigation measures to minimize impacts to these sites, the Preferred Alternative will not have a significant impact to the site's integrity.

Hazardous Materials and Waste: Construction for all Proposed Action projects would all occur in a similar fashion and using similar materials unless noted below; thus, any potential impacts to Hazardous Materials and Wastes would be consistent across all projects. During construction activities, proper handling and storage of hazardous materials must adhere to relevant environmental compliance regulations and Tyndall AFB's environmental management plans. To prevent any potential releases, measures would be implemented to ensure compliance. Hazardous materials and petroleum products, such as fuel and lubricants, would be stored using double-walled tanks or secondary containment systems. These measures aim to mitigate any potential impacts to soil or groundwater in the event of a spill. Upon completion of the projects, it is anticipated that there would be no significant alterations or notable increases in the quantities and types of hazardous materials or wastes compared to the current conditions.

Land Use Infrastructure and Utilities: The analysis is presented by individual project due to resource variations:

- Perimeter Fence, Building 9310: The fence installation under this Preferred Alternative project would not alter the current land use other than to remove vegetation from the 1.1-acre border. As a result, no significant land use impacts would occur from implementing the project.

- Extend NCO Boardwalk: The project represents no change from the existing land use beyond the extension of the NCO boardwalk, which would be a compatible use for the area and terminate prior to the permanent vegetation boundary. The NCO boardwalk would aid in protecting the natural dune environment and would also protect critical wildlife habitat by discouraging uncontrolled pedestrian access to the area. Concrete used for the construction would be similar to that which has been previously approved. The NCO boardwalk project would remain

consistent with historical land use, and the overall project would result in a net positive benefit to the local ecosystem.

- Construct Eagle Drive Pier Parking Lot: Rehabilitation of the access road and parking lot under this Preferred Alternative project would not alter the current land use and the addition of stormwater features to manage runoff from the impervious surface would ensure erosion would not result from the project. As a result, no significant land use impacts would occur from implementing the project.

- Repair (Replace) Pier, Golf Course: As part of this Preferred Action project construction of the footprint of the pier would remain the same as the former pier at 47,000 square feet. In-water work would be required to install new pylons to support the pier, but they would be placed in the same location as existing pylons. As a reconstruction project, the land use would remain consistent with historical use, and no significant land use impacts would occur.

Earth Resources: Construction for all projects associated with the Proposed Action would all occur in a similar geographical setting using similar materials; thus, any potential impacts to Earth Resources would be consistent across all projects. Approximately 3.16 acres of native and non-native soils would undergo direct disturbance as a result of site preparation and construction activities. The impacts on soils resulting from the implementation of the Proposed Action projects would be insignificant due to the relatively small construction footprint, short construction duration, and measures that would be implemented under required site-specific Stormwater Pollution Prevention Plans.

Environmental Justice and Socioeconomics: Given the absence of environmental justice communities of concern regarding race or income in the vicinity of any of the projects associated with the Proposed Action, it can be concluded that the Proposed Action does not have adverse impact to or the potential to disproportionately affect Environmental Justice communities.

Safety and Occupational Health: The Proposed Action would not pose new or unacceptable safety risks to installation personnel or activities at the installation but would enable Tyndall AFB to meet current and future mission objectives at the installation and conduct or meet mission requirements in a safe operating environment. No long-term adverse impacts on safety would be expected.

No significant adverse cumulative impacts would result from activities associated with the Various Construction Projects Proposed Action when considered with past, present, or reasonably foreseeable future projects.

Mitigation Measures and Permit Requirements

The Air Force will implement any and all applicable best management practices that are required in permits. All activities will be conducted in accordance with installation management plans, including but not limited to hazardous material, hazardous waste, spill prevention, natural resources, and cultural resources management.

The following permits and mitigations are anticipated for the Proposed Action:

- Acquire all necessary wetland and water resource permits for the Proposed Action, including, but not limited to an NPDES permit, Environmental Resource Permits for wetlands and stormwater, State 404 Program Permit, and Clean Water Act Section 401 water quality certification.

- Provide mitigation, as determined by regulatory agencies during the permitting process and to be verified during final design, for direct impacts on wetlands and other surface waters.

- To minimize the potential for adverse impacts on the West Indian manatee, all in-water construction activities would follow the 2011 Standard Manatee Conditions for In-Water Work.

- To minimize the potential for adverse impacts on the loggerhead, green, leatherback, and Kemp's ridley sea turtles, all in-water construction activities would adhere to the Sea Turtle and Smalltooth Sawfish Construction Conditions (Revised March 23, 2006).

- To minimize the potential for adverse impacts on the Gopher tortoise, the Florida Fish and Wildlife Conservation Commission Gopher Tortoise Guidelines (revised April 2023) buffer requirements would be followed if potentially occupied burrows are observed during construction.

- To minimize the potential for adverse impacts on Submerged Aquatic Vegetation (SAV), design elements of the Golf Course pier would incorporate The Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over SAV, Marsh or Mangrove Habitat, published jointly by the U.S. Army Corps of Engineers (USACE) and the NMFS.

- Provide mitigation for up to approximately 0.61 acres of wetland impact, estimated as equivalent to 0.41 functional units of mitigation credits. Compensatory mitigation would be confirmed during the required State Environmental Resources Permitting Program and State 404 Permitting Program.

- Mitigate for the loss of up to approximately 4.43 acres of 100-year floodplain by providing compensatory storage.

- Recommended mitigation treatment options to avoid or minimize direct and indirect effects of the Preferred Alternative to cultural resources may take on the form of archaeological monitoring during construction, avoidance using design, or other treatment options discussed during Section 106 consultation.

Public Review, Agency Coordination, and Government-to-Government Coordination

An Early Public Notice was published in the Panama City News Herald on 17 March 2023 announcing commencement of the EA detailing that the action would take place in a floodplain/wetland and seeking advanced public comment. No comments were received. The Air Force will make the Draft EA and Draft FONSI/FONPA available for public review and comment prior to making the decision on whether to implement the Proposed Action.

The Air Force coordinated with potentially interested federal and state agencies and Native American Tribes.

Finding of No Significant Impact

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR § 989, I conclude that the Proposed Action for Various Construction Projects would not have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, an Environmental Impact Statement is not required. This analysis fulfills the requirements of NEPA, CEQ 40 CFR §§ 1500-1508 and the Air Force EIAP regulations 32 CFR § 989. The requirements of NEPA and the CEQ's regulations have been fulfilled.

Finding of No Practicable Alternative

Executive Order (EO) 11990, *Protection of Wetland*s, directs federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with destruction and modification of wetlands and to avoid direct and indirect support of new construction in wetlands. EO 11998, *Floodplain Management*, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

The Proposed Action would result in direct and indirect impacts on wetlands and other surface waters (~2.23 acres). Wetland impacts will be reduced to the maximum extent possible through site design and implementation of environmental protection measures. Wetlands will be formally delineated, with a jurisdictional determination and compensatory mitigation, as appropriate following final design during permitting.

Given the Proposed Action's utilization of existing footpaths and damaged boardwalks at the NCO Boardwalk and Golf Course pier sites, all other potential locations would impose more significant environmental repercussions.

The designs of both the NCO boardwalk and Golf Course Boardwalk/Pier are connected to an existing access parking lot. Since there is already supporting infrastructure in place, the Proposed Action is dependent on utilizing it, leaving no other feasible alternatives. Regarding the Perimeter Fence for Building 9310, the absence of viable alternatives for placement is primarily attributed to the reliance on associated infrastructure (Building 9310).

It is estimated that the Perimeter Fence, Building 9310 project would impact approximately 0.61 acres of wetlands. Additionally, the Repair (Replace) Pier, Golf Course project is expected to impact approximately 0.75 acres of wetlands and 0.87 acres of other surface waters.

Special Flood Hazard Areas or 100-year floodplains are found within the project boundaries of the Perimeter Fence, Building 9310 project, Extend Tyndall NCO Boardwalk project, and the Repair (Replace) Pier, Golf Course project. Impact acreage would be refined during the permitting process, particularly for construction of elevated features. The construction activities have the potential to temporarily alter the natural flow patterns within the floodplain. During the design phase, the project would implement design measures to avoid/minimize direct impacts to floodplains to the greatest extent practicable. Per EO 11990, the Department of the Air Force has undertaken all actions to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the responsibilities of the Department of the Air Force (see also Section 3.4.3 of the EA).

Pursuant to Executive Order(s) 11988 and 11990, and considering all supporting information, I find there is no practicable alternative to the Proposed Action, which will impact floodplains and wetlands, as described in the attached EA. This finding fulfills both the requirements of the referenced Executive Orders and the EIAP regulation, 32 CFR § 989.14 for a Finding of No Practicable Alternative.

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ANDREW E. DEROSA, Colonel, USAF Date
Chief, Civil Engineer Division
HQ ACC/A4C, Directorate of Logistics, Engineering and Force Protection

Privacy Advisory

Letters or other written comments provided may be published in the Final Environmental Assessment (EA). As required by law, substantive comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

COVER SHEET

Responsible Agency: **325th Civil Engineer Squadron (325 CES), Tyndall Air Force Base (AFB), Florida**

Proposed Action: Various Construction Projects at Tyndall AFB, Bay County, FL

Points of Contact: 325 CES/CEIEC, 101 Mississippi Road Building 36233 Tyndall AFB, FL

Report Designation: Environmental Assessment (EA)

Abstract: Tyndall AFB has prepared this EA in accordance with the National Environmental Policy Act (42 United States Code Sections 4321-4370h), as implemented by the Council on Environmental Quality Regulations (40 Code of Federal Regulations [CFR] parts 1500-1508) and Air Force regulations for implementing the National Environmental Policy Act (32 CFR part 989).

325 CES has identified and programmed various construction projects at Tyndall AFB (i.e., Proposed Action) with a planned execution year between Fiscal Year 2024 and 2025.

The Proposed Action would include four projects: 1. In-kind replacing of the Building 9310 perimeter security fence spanning 2,400 linear feet; 2. Extending the Tyndall Noncommissioned Officer Boardwalk 600 feet to the south along an existing pathway; 3. Constructing Eagle Drive Pier Parking Lot with 11,400 square feet of new impervious surface and a total project area of 65,000 square feet; and 4. Repairing and replacing the golf course boardwalk/pier with new pylons.

The following resource areas were identified for study in this EA: air quality and climate change, noise, biological resources, cultural resources, water resources, hazardous materials and waste, land use infrastructure/utilities, earth resources, environmental justice and socioeconomics, and safety and occupational health.

Compliance with Section 508 of the Rehabilitation Act: This document is compliant with Section 508 of the Rehabilitation Act. This allows assistive technology to be used to obtain the available information from the document. Due to the nature of graphics, figures, tables, and images occurring in the document, accessibility is limited to a descriptive title for each item.

Compliance with Revised Council on Environmental Quality Regulations: This document has been verified that it does not exceed 75 pages, not including appendices, as defined in 40 CFR 1501.5(f). As defined in 40 CFR 1508.1(v) a “page” means 500 words and does not include maps, diagrams, graphs, tables, and other means of graphically displaying quantitative or geospatial information.

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Executive Summary

ES.1 Proposed Action

This executive summary provides an overview of the proposed action, which consists of four projects aimed at enhancing various facilities and infrastructure within Tyndall Airforce Base. These projects include the construction of a perimeter fence for Building 9310; extension of the Tyndall Noncommissioned Officer (NCO) Boardwalk; construction of the Eagle Drive Pier parking lot; and repair (replacement) of the Golf Course pier.

The replacement of the building 9310 perimeter fence involves replacing the existing security fence along PQM Lake Loop and Camp Eagle Road. The fence would be approximately 2,400 linear feet in length, 7 feet tall, and equipped with 3-strand barbed wire on outriggers. Vegetation within a 10-foot clearing zone on each side of the fence would be removed.

Repair of the Tyndall NCO Boardwalk aims to restore the landscape and prevent uncontrolled pedestrian access. Approximately 190 cubic yards of clean sand material will be used to backfill the area affected by storm activity as well. The extension will stretch up to 600 feet to the south along the existing walking path, terminating before reaching the permanent vegetation line. Low impact methods will be employed for constructing the wooden pile-supported boardwalk structure.

The construction of the Eagle Drive Pier parking lot involves expanding and widening the existing access road and creating an 11,400 square feet asphalt parking area closer to the pier. The teardrop-shaped parking lot will accommodate stormwater features, lay-down areas, and design changes to fit within a total project area of 65,000 square feet. The objective is to improve access to the beach and future recreational activities.

The Golf Course pier repair (replacement) project will involve repairing and replacing the existing boardwalk/pier. The new structure, spanning approximately 47,000 square feet, will be built within the same footprint as the current one. New pylons will support the pier, with depths of up to 20 feet. Construction staging would occur either from the existing parking lot or using a barge for materials. A boardwalk or walking path would be constructed up to 280 linear feet and would have ramps at transition points. The project aligns with recreational fishing plans and regulations.

Overall, these four projects aim to improve security, preserve the natural environment, enhance access to recreational areas, and maintain the functionality of existing facilities. The proposed action prioritizes sustainable construction methods and adheres to relevant regulations and plans.

ES.2 Alternatives Considered

The National Environmental Policy Act and Council on Environmental Quality regulations require the consideration of reasonable alternatives to the proposed action. The analysis presented in this Environmental Assessment, along with public and agency feedback, will guide decisions regarding the execution of the proposed action. After thorough evaluation, it is determined that no alternatives sites beyond the Proposed Action meets the purpose and need while satisfying the established selection standards:

1. Site Size Sufficiency. The site must provide a minimum contiguous size to accommodate surrounding landscaping, roadways, parking, and other supporting infrastructure and features.

2. Avoidance of sensitive natural and cultural resources. Development that affects cultural resources, sensitive species and their habitats, wetlands, and floodplains should be avoided. Open spaces that characterize the base landscape should be preserved to the maximum extent possible.
3. Land use compatibility and Accessibility. The selected site must be compatible with existing land uses and land management objectives and currently accessible locations.
4. Support Morale and Welfare. The selected site must support and increase access to recreational facilities for service members and their dependents.

Alternative sites or footprints were considered but were not pursued in this analysis due to potential additional environmental impacts.

The No Action Alternative, which involves not repairing or constructing recreational facilities/infrastructure, is considered in the analysis. While it does not meet the purpose and need of the proposed action, analyzing the No Action Alternative provides important information for establishing a comparative baseline and understanding the potential consequences of not undertaking the proposed action. The No Action Alternative serves as a benchmark for comparison during the decision-making process.

ES.3 Summary of Environmental Resources Evaluated in this Environmental Assessment

Resources carried forward for detailed analysis include the following areas: air quality and climate change, noise, biological resources, water resources, cultural resources, hazardous materials and waste, land use infrastructure, earth resources, environmental justice, and safety and occupational health. This assessment does not carry forward the following resource areas for detailed analysis because potential impacts would be non-existent or negligible: airspace management and use; geology; utilities; transportation; and visual resources.

Air Quality and Climate Change

The proposed action would result in temporary increases in criteria pollutant emissions during the construction phase. However, these emissions are considered to be below the threshold of significance, indicating no significant impact on air quality. Furthermore, the operational activities associated with the completed projects would maintain the current air quality conditions, with no additional changes expected.

Noise

The construction activities associated with the proposed action are expected to result in a temporary increase in noise levels in the immediate vicinity of the construction areas. Mitigation measures will be implemented to minimize potential disturbances to nearby residents and sensitive receptors. Once construction is completed, the noise levels are expected to return to normal or pre-construction levels.

Biological Resources

The proposed action is not expected to have significant impacts on listed floral or faunal species. The determination is that the proposed action would have a "no effect" on species without suitable habitat within the project areas and a "may affect, but not likely to adversely affect" determination for species whose habitat falls within project boundaries. Critical habitats for the Piping plover are located at a distance from the NCO Boardwalk project boundary, while critical habitats for the Choctawhatchee beach mouse and St. Andrews beach mouse are within the boundary. The presence of Gulf Sturgeon

critical habitat adjacent to the shoreline and project boundaries suggests possible in-water impacts. The Golf Course pier repair (replacement) could indirectly affect submerged aquatic vegetation by altering water flow, light penetration, and increasing turbidity.

Water Resources

The proposed action is not expected to involve the removal or release of water from surface water bodies or groundwater. The projects would impact a total of approximately 0.611 acres of wetlands and 0.01 acres of Other Surface Waters. Mitigation measures would be implemented to minimize the potential adverse effects on wetland and floodplain ecosystems. Furthermore, the state of Florida has confirmed that the proposed action is consistent with the Coastal Zone Management Plan, ensuring compliance with regulations and guidelines for sustainable development in coastal areas.

Cultural Resources

The United States Air Force has conducted a thorough evaluation of the proposed action's potential impact on archaeological or historic architectural resources. Based on this assessment, it is concluded that by employing listed minimization measures, the proposed action would not result in any significant adverse effects on these resources. Consultation under the National Historic Preservation Act has not been completed yet for this proposed action and concurrence is pending. Coordination with Tribal entities is also ongoing at this time. Additional minimization measures will be included if received as a result of consultation.

Hazardous Materials and Waste

It is expected that minimal additional hazardous materials or waste may be generated during the construction of the proposed action. To mitigate potential environmental risks, proper management and disposal protocols would be followed. Furthermore, no Environmental Restoration Program sites are identified within or adjacent to the proposed action, indicating that the projects will not interfere with ongoing environmental restoration efforts.

Land Use Infrastructure

The proposed action's emphasis on replacement and reconstruction projects ensures that all land uses would remain consistent with historical use. This approach minimizes the potential for significant land use impacts, preserving the established character and functionality of the area. The proposed action aims to improve existing infrastructure while maintaining compatibility with the surrounding environment and land uses.

Earth Resources

The proposed action would result in minimal direct disturbance to approximately 3.16 acres of native and non-native soils due to site preparation and construction activities. By implementing appropriate mitigation measures, it is possible to minimize the impacts on the soil resources and maintain their quality and functionality throughout the construction process.

Environmental Justice

The absence of environmental justice communities of concern regarding race or income in the vicinity of the proposed action supports the conclusion that the project does not have the potential to disproportionately affect these communities. This assessment contributes to ensuring fairness and equity in the planning and implementation of the proposed action.

Safety and Occupational Health

No adverse impact on safety is anticipated under the proposed action. Although short-term, minor direct impacts on contractor health and safety may occur during implementation, these risks can be mitigated through the implementation of appropriate safety measures and adherence to established regulations and best practices. The overall goal is to prioritize and maintain a safe working environment throughout the construction phase.

Draft Environmental Assessment
Various Construction Projects at Tyndall AFB

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Abbreviations and Acronyms

Acronym	Definition
325 CES	325th Civil Engineer Squadron
325 FW	325th Fighter Wing
53 WEG	53rd Weapons Evaluation Group
72 COLREGS	Convention on the International Regulations for Preventing Collisions at Sea, 1972
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFMAN	Air Force Manual
AICUZ	Air Installations Compatible Use Zone
APE	Area of Potential Effect
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CWA	Clean Water Act
DAFI	Department of the Air Force Instruction
dB	Decibel
dBA	A-weighted Decibel
DNL	Day/Night Sound Level
DoD	United States Department of Defense
DoDI	Department of Defense Instruction
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
°F	Degrees Fahrenheit
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FCMP	Florida Coastal Management Program
FEMA	Federal Emergency Management Agency
FICUN	Federal Interagency Committee on Urban Noise
FLUCFCS	Florida Land Use Cover and Forms Classification System
FONSI	Finding of No Significant Impact
FWC	Florida Fish and Wildlife Conservation Commission
GHG	Greenhouse Gas
GWP	Global Warming Potential
HAP	Hazardous Air Pollutant
INRMP	Integrated Natural Resources Management Plan
L_{max}	Maximum Sound Level
LOD	Limits of Disturbance
MRGIS	Marine Resources Geographic Information System
MSAT	Mobile Source Air Toxin
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NCO	Noncommissioned Officer
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NRHP	National Register of Historic Places
NWFWMD	Northwest Florida Water Management District
O_3	Ozone
OSHA	Occupational Safety and Health Administration
OSW	Other Surface Waters

Acronym	Definition
Pb	Lead
PFAS	polyfluoroalkyl substances
$PM_{2.5}$	particulate matter less than 2.5 micrometers in
PM_{10}	particulate matter less than ten micrometers in diameter
PSD	Prevention of Significant Deterioration
ROI	Regions of Influence
SAV	Submerged Aquatic Vegetation
SHPO	State Historic Preservation Office
SO_2	Sulfur Dioxide
SWPPP	Stormwater Pollution Prevention Program
tpy	Tons Per Year
UMAM	Uniform Mitigation Assessment Method
U.S.	United States
U.S.C.	United States Code
USAF	United States Air Force
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

1 Purpose and Need for the Proposed Action

1.1 Introduction

Tyndall Air Force Base (AFB) occupies approximately 29,276 acres in Bay County, Florida, approximately 313 miles southeast of Panama City (**Figure 1-1**). Over 30 organizations operate at Tyndall AFB including 325th Fighter Wing (325 FW), the First Air Force, the 53rd Weapons Evaluation Group (53 WEG), and the Air Force Civil Engineer Center (AFCEC).

The United States (U.S.) Air Force (USAF) prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [U.S.C.] 4321, et seq.); the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508); and the USAF Environmental Impact Analysis Process Regulations (32 CFR Part 989) and Air Force Instruction 32-1015, *Integrated Installation Planning*.

The information presented in this EA will serve as the basis for deciding whether the Proposed Action would result in a significant impact to the human environment, requiring the preparation of an Environmental Impact Statement, or whether no significant impacts would occur, in which case a Finding of No Significant Impact (FONSI) would be appropriate. The execution of the Proposed Action would involve "construction" in a wetland as defined in Executive Order (EO) 11990, *Protection of Wetlands*, or "action" in a floodplain under EO 11988, *Floodplain Management*, the action may proceed only with a finding that the action is the only practicable alternative. In this case, a Finding of No Practicable Alternative will be prepared in conjunction with the FONSI.

This EA evaluates the potential environmental impacts associated with the Proposed Action to repair, modify, and construct various projects at Tyndall AFB as shown in **Figure 1-2** and described in Section 2.1. The Proposed Action would be implemented at existing Tyndall AFB facilities in Bay County, Florida some of which were extensively damaged due to Hurricane Michael in 2018. The projects are expected to consist of new facility and infrastructure construction and renovation for recreational facility enhancements.

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide facility, infrastructure and functionality improvements necessary to provide continued mission support and recreational services for service members and their families at Tyndall AFB. The Proposed Action is needed to repair in kind facilities (e.g., repair in existing footprint) and infrastructure at the installation, and to prevent further deterioration of these functions and capabilities that can occur over time due to obsolescence.

Proposed Actions must be implemented in a manner that:

- Supports the Air Force mission requirements and quality of life of units and Airmen hosted by the installation;
- Meets all applicable U.S. Department of Defense (DoD), federal, state, and local laws and regulations, such as but not limited to the Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Clean Water Act (CWA), Clean Air Act (CAA), Resource Conservation and Recovery Act, and Migratory Bird Treaty Act. More detailed information regarding resource-specific laws and regulations is provided in the specific resource sections of this EA;

- Provides reliable infrastructure systems to support Tyndall AFB and meets current USAF requirements for functional space, consistent with Department of Air Force Manual (AFMAN) 32-1084, Standard Facility Requirements;
- Reduces the consumption of fuel, energy, water, and other resources; maximizes the use of existing facilities; and reduces the footprint of unnecessary or redundant facilities and infrastructure; and
- Supports and enhances the morale, welfare and readiness of personnel assigned to the installation, their families, and civilian staff.

Figure 1-1 Tyndall AFB Vicinity Map

Figure 1-2 Tyndall AFB Various Construction Project Locations

1.3 Decision to be Made

The Air Force will make one of the following three decisions regarding the Proposed Action:

- Select the No Action Alternative and do not implement the Proposed Action.
- Prepare a FONSI (and Finding of No Practicable Alternative if required) and implement the Proposed Action, if based on the analysis in this EA, the Proposed Action would not have a significant environmental impact.
- Initiate preparation of an Environmental Impact Statement, if based on the analysis in this EA, the Proposed Action would have a significant environmental impact.

1.4 Interagency and Intergovernmental Coordination and Consultations

1.4.1 Interagency Coordination and Consultations

Scoping is an early and open process for developing the breadth of issues to be addressed in the EA and for identifying significant concerns related to a proposed action(s). Per the requirements of Intergovernmental Cooperation Act of 1968 (42 U.S.C. 4231[a]) and EO 12372, *Intergovernmental Review of Federal Programs*, federal, state, and local agencies with jurisdiction that could be affected by the Proposed Actions were notified during the development of this EA.

Appendix A contains the list of agencies consulted during this analysis and copies of correspondence.

1.4.2 Government to Government Consultations

Consistent with the NHPA of 1966 implementing regulations (36 CFR Part 800), Department of Defense Instruction (DoDI) 4710.02, *Interactions with Federally-Recognized Tribes*, Department of the Air Force Instruction (DAFI) 90-2002, *Interactions with Federally-Recognized Tribes*, and AFMAN32-7003, *Environmental Conservation*, the Air Force is also consulting with federally recognized tribes that are historically affiliated with the geographic region being considered for the Proposed Action regarding the potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal coordination process is distinct from NEPA consultation or the intergovernmental coordination processes and requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of intergovernmental consultations. For the purposes of this EA, the Tyndall AFB point-of-contact for Native American tribes is the 325 FW Commander.

1.4.3 Other Agency Consultations

This section describes Air Force consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) under Section 7 of the ESA and the Florida State Historic Preservation Office (SHPO) under Section 106 of the NHPA.

Once complete, correspondence regarding consultations will be included in Appendix A of the Final EA.

Other state and local agencies were consulted through the Florida Department of Environmental Protection (FDEP) Office of Intergovernmental Programs State Clearinghouse Process. These agencies were also provided an opportunity to review the Draft EA (see Section 1.7 for details).

1.5 Applicable Laws and Environmental Regulations

Tyndall AFB has prepared this EA based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action, including the following:

- NEPA (42 U.S.C. 4321 et seq.)
- CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR parts 1500–1508)
- USAF regulations for implementing NEPA (32 CFR part 989)
- CAA (42 U.S.C. 7401 et seq.)
- CWA (33 U.S.C. 1251 et seq.)
- NHPA (54 U.S.C. 300101 et seq.)
- ESA (16 U.S.C. 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. 703 et seq.)
- Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d)
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*
- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*
- EO 13175, *Consultation and Coordination with Indian Tribal Governments*
- EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*
- CEQ NEPA Guidance on Consideration of Greenhouse Gas (GHG) Emissions and Climate Change

1.6 Public and Agency Review of the Environmental Assessment

Because some of the projects comprising this Proposed Action coincide with wetlands and/or floodplains, this EA is subject to the requirements and objectives of EO 11990 and EO 11988. The Air Force published early notice (i.e., at least 30 days prior to the release of the Draft EA) that the Proposed Action would occur in a floodplain/wetland in the Panama City News Herald. The comment period for public and agency input on these projects lasted for 30 days. The notice identified state and federal regulatory agencies with special expertise that had been contacted and solicited public comment on the Proposed Action and any practicable alternatives.

A Notice of Availability of the Draft EA will be published in the Panama City News Herald, announcing the availability of the EA for review. The Notice of Availability will invite the public to review and comment on the Draft EA. The Draft EA and Draft FONSI will be published digitally on the Tyndall AFB website at https://www.tyndall.af.mil/About/.

Copies of the Draft EA will also be made available for review at the following location:

Bay County Public Library
898 W 11th St.
Panama City, FL 32401

During the Draft EA public review period, written comments may be emailed to Mr. Edwin Wallace at edwin.wallace.1@us.af.mil.

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2 Proposed Action and Alternatives

2.1 Proposed Action

The following four projects comprise the Proposed Action.

1. Perimeter Fence, Building 9310: This project would include repair by replacing the existing security fence that runs alongside PQM Lake Loop and Camp Eagle Road. See **Figure 2-1**. The project would include clearing and grubbing vegetation along the fence line, 10 feet on each side of fence. All vegetation and trees greater than 8 vertical inches would be removed within the clearing zone. The fence needs to be 7 feet tall with 3-strand barbed wire on outriggers. The length of fence would be approximately 2,400 linear feet. There would be 24 fence posts installed approximately every 10 feet and driven to a depth of 18 inches.

Photo 2-1. Perimeter Fence, Building 9310

2. Extend Tyndall Noncommissioned Officer (NCO) Boardwalk: This project would restore the landscape by backfilling the area washed out by storm activity (approximately 190 cubic yards) with a clean sand material similar to the native surficial sands and extend the boardwalk up to 600 feet to the south along the existing walking path. The extension would terminate prior to reaching the permanent vegetation line. See **Figure 2-2**. Low impact methods would be used to install wooden piles and construct the boardwalk structure. Once complete, the boardwalk would enhance the preservation of the natural dune environment and protect the critical wildlife habitat by discouraging uncontrolled pedestrian throughfare. The concrete that would be used would be consistent with previously approved and currently used concrete material.

Photo 2-2. Tyndall NCO Boardwalk

3. Construct Eagle Drive Pier Parking Lot: This project would involve expansion and widening of the existing access road and construction of asphalt parking area closer to the pier. The current area consists of a deteriorating gravel road and does not allow for parking to access the beach or any potential future recreational use. The proposed parking area would be 11,400 square feet of new impervious surface. The total project area would be 65,000 square feet to accommodate stormwater features, lay-down areas and design changes due to limitations to the project area. This project would be in a teardrop shape to allow for handicap parking and widening of the road by 25 feet. No utilities are anticipated. See **Figure 2-3.**

Photo 2-3. Eagle Drive Pier Parking

4. Repair (Replace) Pier, Golf Course: This project would include a boardwalk/pier repair and replace within the same footprint of the existing boardwalk/pier and would be approximately 47,000 square feet. See **Figure 2-4**. New pylons would have to be installed to support the pier, but they would be placed in the same location as existing pylons. The depths of the pylons may be up to 20 feet. Construction staging could include two methods: 1. Staging at the existing parking lot; or 2. Staging/construction materials from a barge. The boardwalk or a walking path may be constructed up to 280 linear feet and be up to 5 feet wide. The boardwalk or walking path would commence from the existing parking lot and travel down existing grade to the pier. The elevation of the boardwalk or walking path may be up to 4-feet above the ground at any location and must have ramps at transition points. The existing parking lot would remain while the existing Golf Course Pier would be demolished in a separate project. No changes would be made to the parking lot. If utilities are needed, they would be trenched from the nearest connection point. The trench would have the maximum dimensions of 4 feet deep by 4 feet wide. Any soil disturbed during construction activities would remain on-site. Any debris within the area of work would be removed. No dredging is anticipated, and no boats would dock at the pier. The use of the pier would be consistent with prior usage as a recreational fishing location and consistent with the Tyndall AFB Outdoor Recreation Component Plan (Tyndall AFB, 2020a) and Tyndall AFB Hunting, Fishing and General Recreation Regulations (Tyndall AFB, 2020b).

Photo 2-4. Repair Pier, Golf Course

Figure 2-1 Tyndall AFB Various Construction Project Location #1 – Perimeter Fence, Building 9310

Figure 2-2 Tyndall AFB Various Construction Project Location #2 – Extend Tyndall NCO Boardwalk

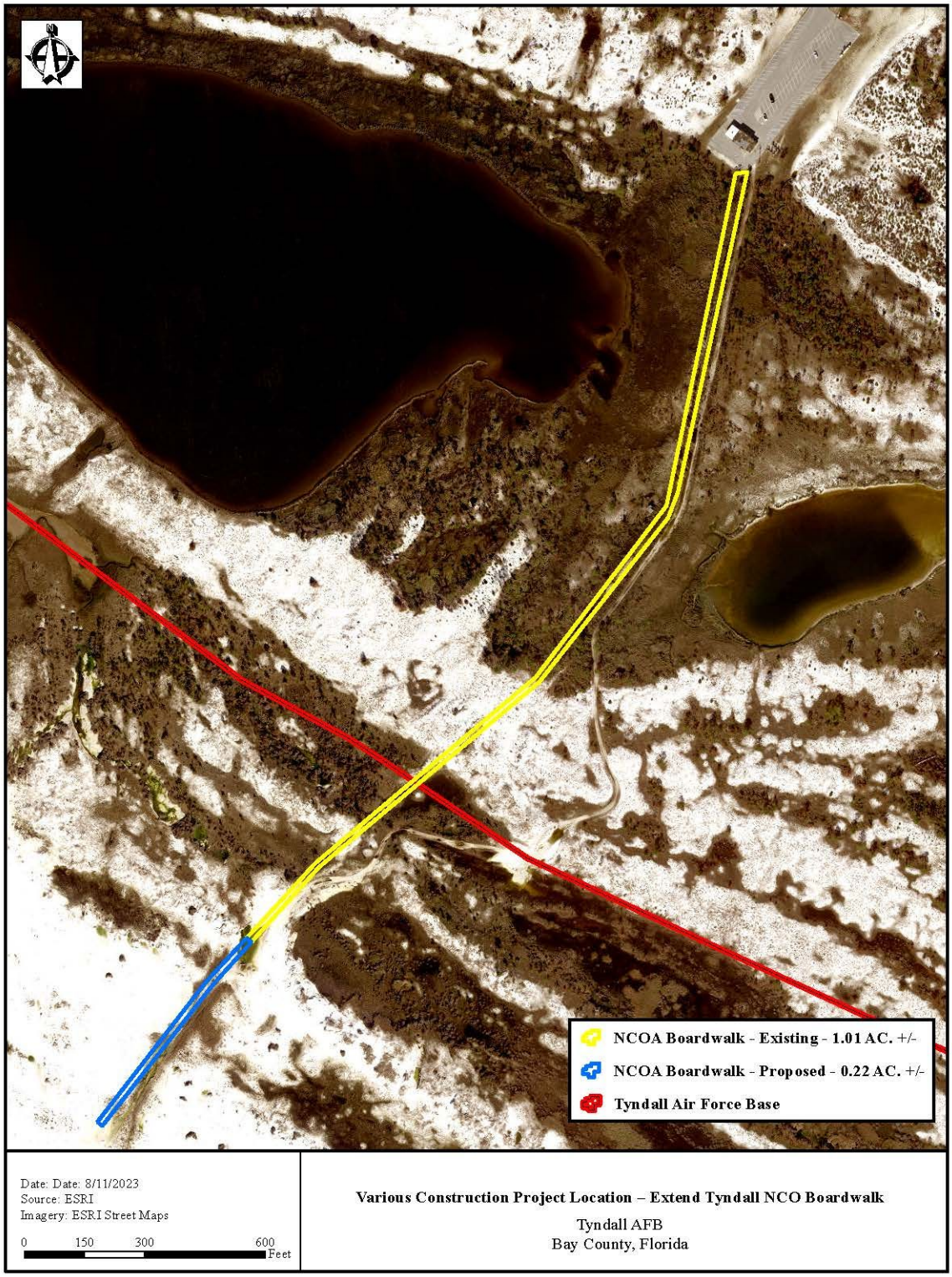
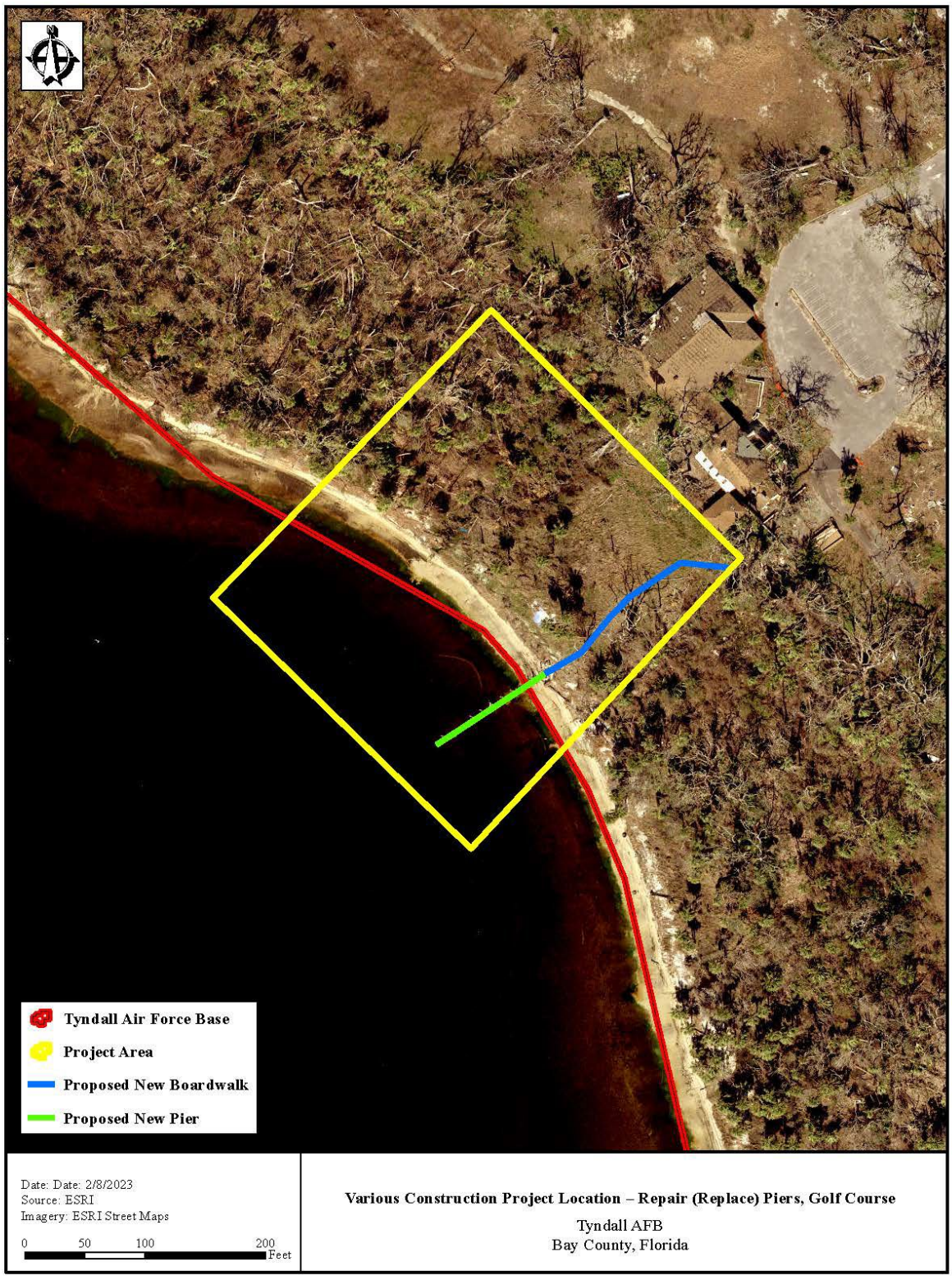


Figure 2-3 Tyndall AFB Various Construction Project Location #3 – Eagle Drive Pier Parking Lot

Figure 2-4 Tyndall AFB Various Construction Project Location #4 – Golf Course Pier Repair



2.2 Selection Standards

Under NEPA and 32 CFR Part 989, this EA is required to analyze the potential environmental impacts of reasonable alternatives to the Proposed Actions, including the No Action Alternative. Reasonable alternatives are those that meet the underlying purpose of and need for the Proposed Actions, are feasible from a technical and economic standpoint, and meet reasonable selection standards (screening criteria) that are suitable to a particular action.

Selection standards may include requirements or constraints associated with operational, technical, environmental, budgetary, and time factors. Alternatives that are determined to not be reasonable can be eliminated from detailed analysis in this EA. Additionally, EO 11988 and EO 11990 require consideration of practicable alternatives to avoid adverse effects on floodplains and wetlands, respectively. Practicable alternatives are those that are capable of being done within existing constraints and include consideration of pertinent factors including the environment, community welfare, cost, and available technology. Evaluation of multiple options in the planning process allows viable alternatives to be carried forward.

Alternatives that satisfy established selection standards are considered reasonable and retained for consideration in this EA. Alternatives that do not meet one or more of the selection standards are eliminated and not carried forward for detailed analysis in the EA. The following presents a summary of the selection standards utilized to evaluate the Proposed Actions and alternatives for this EA.

1. Site Size Sufficiency. The site must provide a minimum contiguous size to accommodate surrounding landscaping, roadways, parking, and other supporting infrastructure and features.
2. Avoidance of sensitive natural and cultural resources. Development that affects cultural resources, sensitive species and their habitats, wetlands, and floodplains should be avoided. Open spaces that characterize the base landscape should be preserved to the maximum extent possible.
3. Land use compatibility and Accessibility. The selected site must be compatible with existing land uses and land management objectives and currently accessible locations.
4. Support Morale and Welfare. The selected site must support and increase access to recreational facilities for service members and their dependents.

2.3 Alternatives Considered but Eliminated from Further Analysis

Tyndall AFB considered several additional alternatives to achieve the purpose of and need for the Proposed Action.

Alternative locations for new construction were considered but it was determined that the impacts from new construction would be greater than in-kind repairs or replacements within existing disturbance footprints. These alternate sites were found not to meet the selection criteria for avoiding natural and cultural resources. Other alternatives, such as constructing a new pier in a different location, were also considered but were found to not meet the requirements of the Facilities Sustainment, Restoration, and Modernization program, which funds the Proposed Action. This program is limited to maintenance, repair, restoration, and/or modernization activities, and as such, alternative locations with higher costs did not meet the funding constraints.

2.4 Alternatives Carried Forward for Analysis

NEPA and the CEQ regulations mandate the consideration of reasonable alternatives to the Proposed Action. "Reasonable alternatives" are those that also could be utilized to meet the purpose of and need for the Proposed Action. The NEPA process is intended to support flexible, informed decision-making; the analysis provided by this EA and feedback from the public and other agencies will inform decisions made about whether, when, and how to execute the Proposed Action. No alternative action meets the purpose of and need for the action, satisfies the criteria set forth in the selection standards, and was carried forward for further detailed analysis in this EA. The No Action Alternative provides a benchmark used to compare. Alternative sites/footprints for the pier, fence, etc. were considered but would require construction outside of current footprints and potentially additional environmental impacts that do not meet the selection standards.

2.4.1 No Action Alternative

The No Action Alternative would not repair or construct recreational facilities/infrastructure. The No Action Alternative would not meet the purpose of and need for the Proposed Action by not supporting or enhancing the morale, welfare and readiness of personnel assigned to the installation, their families, and civilian staff; however, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline for analysis.

2.4.2 Proposed Action (Preferred Alternative)

Based on the screening criteria described above, only the Proposed Action described in Section 2.1 fully achieves the purpose and need and satisfies all applicable selection standards. The Preferred Alternative would repair, construct, and operate the four projects proposed. The restorative and sustaining nature of the projects chosen would also meet the funding requirements of the Facilities Sustainment, Restoration, and Modernization Program. Construction of the project would be consistent with Miami-Dade County hurricane standard requirements, including measures to increase resiliency against future damage from hurricanes and sea level rise. Proactive steps would be taken to reduce the vulnerability of the facility, such as incorporating design features that enhance resistance to high winds and flooding. The project team would work closely with local authorities and experts to ensure that the project meets or exceeds all relevant standards and guidelines.

2.5 Scope of Environmental Analysis

This EA includes an analysis of potential environmental impacts associated with the action alternatives and the No Action Alternative. The following resource areas were identified for study in this EA: air quality and climate change, noise, cultural resources, biological resources, water resources, hazardous materials and waste, land use infrastructure, earth resources, socioeconomics, environmental justice, and safety and occupational health.

The study area, or affected environment, for each resource analyzed may differ due to how the Proposed Action interacts with or impacts the resource. For instance, the study area for biological resources may only include the construction footprint of a building whereas the noise study area would expand out to include areas adjacent to the construction site that may be impacted by noise.

Because potential impacts are considered to be nonexistent, the following resource areas were not evaluated in this EA: airspace and land use. Justification of these conclusions is detailed in Chapter 3.

2.6 Summary of Potential Environmental Consequences

The potential impacts associated with the Proposed Action and the No Action Alternative are summarized in the **Table 2-1** below. The summary is based on information discussed in detail in Chapter 3 of the EA and includes a concise definition of the issues addressed and the potential environmental impacts associated with the proposal.

Table 2-1 Summary of Environmental Consequences

Resource Area	*No Action Alternative Environmental Consequence Summary*	*Proposed Action Environmental Consequence Summary*	*Mitigation/Minimization Measures*
Air Quality and Climate Change	There would be no change in existing conditions; therefore, no new impacts to air quality would occur.	Criteria pollutant emissions would temporarily increase with implementation of construction activities but would cease upon completion. These temporary emissions would be less than the initial indicator of significance. Therefore, temporary increases in these pollutant emissions would not be significant. Operational emissions would be no different than those that currently occur, so that there would be no changes to air quality resulting from the use of the pier, boardwalks, parking area or perimeter fence.	None Proposed
Noise	There would be no change in existing conditions; therefore, no new impacts to noise would occur.	Construction activities would temporarily increase noise levels in the immediate vicinity of the Proposed Action areas.	None Proposed

Resource Area	*No Action Alternative Environmental Consequence Summary*	*Proposed Action Environmental Consequence Summary*	*Mitigation/Minimization Measures*
Biological Resources	There would be no change in existing conditions; therefore, no new impacts to biological resources would occur.	Listed Species: No significant impacts are anticipated to listed floral or faunal species. The Proposed Actions would have a "no effect" determination on species lacking suitable habitat within the individual project areas and a "may affect, but not likely to adversely affect" determination for species whose habitat fall within the project boundaries. Critical Habitat: Designated Piping plover critical habitat is located approximately 4,600 feet from the NCO Boardwalk project boundary. Both Choctawhatchee beach mouse and St. Andrews beach mouse critical habitat occur within the project boundary of the NCO boardwalk project boundary. Critical habitat for Gulf Sturgeon is present adjacent to shoreline and project boundaries. Submerged Aquatic Vegetation (SAV): The installation of the Golf Course Boardwalk/Pier can have indirect impacts on seagrass beds, as it can alter the water flow and light penetration and increase turbidity.	To minimize the potential for adverse impacts on the West Indian manatee, all in-water construction activities would follow the *2011 Standard Manatee Conditions for In-Water Work*. To minimize the potential for adverse impacts on the loggerhead, green, leatherback, and Kemp's ridley sea turtles, all in-water construction activities would adhere to the Sea Turtle and Smalltooth Sawfish Construction Conditions (Revised March 23, 2006). To minimize the potential for adverse impacts on the Gopher tortoise, the Florida Fish and Wildlife Conservation Commission Gopher Tortoise Guidelines (revised April 2023) buffer requirements would be followed if potentially occupied burrows are observed during construction. To minimize the potential for adverse impacts on SAV, design elements of the Golf Course pier would incorporate *The Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat*, published jointly by the U.S. Army Corps of Engineers (USACE) and the NMFS

Resource Area	*No Action Alternative Environmental Consequence Summary*	*Proposed Action Environmental Consequence Summary*	*Mitigation/Minimization Measures*
Water Resources	There would be no change in existing conditions; therefore, no new impacts to water resources would occur.	Groundwater*:* Construction activities would not involve the removal or release of water from surface water bodies or groundwater. Wetland/Floodplain: It is estimated that the Proposed Action projects would impact approximately 0.611 acres of wetlands and 0.01 acres of Other Surface Waters (OSW). Coastal Zone Management: The state of Florida has determined that the Proposed Action is consistent with the Coastal Zone Management Plan.	Acquire all necessary permits including, but not limited to, National Pollutant Discharge Elimination System stormwater permit(s), Environmental Resource Permit(s), CWA Section 404 Dredge and Fill Permit, Section 401 water quality certification. Provide mitigation for up to approximately 0.61 acres of wetland impact, estimated as equivalent to 0.41 functional units of mitigation credits. Mitigate for the loss of up to approximately 4.43 acres of 100-year floodplain by providing compensatory storage
Cultural Resources	There would be no change in existing conditions; therefore, no new impacts to cultural resources would occur.	The Air Force finds that no adverse effect would be incurred on archaeological or historic architectural resources through the implementation of minimization measures listed within section 3.6.4.	If prehistoric or historic artifacts are encountered at any time within the project area, all activities involving subsurface disturbance in the vicinity of the discovery would cease. A Tyndall AFB Cultural Resources Specialist would be notified. In the event that unmarked human remains are encountered during subsurface disturbance; work would stop immediately and the proper authorities would be notified within 24 hours. Golf Course Boardwalk/Pier Project: To minimize potential for adverse impacts to sites 8BY2388 and 8BY1914, the build out of the boardwalk portion of the project (connecting parking lot to new pier) would be delayed until survey and assessment of the site's eligibility can be conducted.

Resource Area	*No Action Alternative Environmental Consequence Summary*	*Proposed Action Environmental Consequence Summary*	*Mitigation/Minimization Measures*
Hazardous Materials and Waste	There would be no change in existing conditions and demolition and construction activities would not occur. The absence of demolition and construction activities would result in the absence of any hazardous, toxic, or solid taste generation; therefore, no new impacts resulting from hazardous materials and waste would occur.	Additional Hazardous materials or waste are expected to be generated during construction of the Proposed Action projects. No Environmental Restoration Program sites are within or adjacent to the Proposed Action project boundaries.	Any spills or discharges discovered during the course of demolition and construction would be reported and addressed.
Land Use Infrastructure	There would be no change in existing conditions; therefore, no new impacts to land use infrastructure would occur.	As the Proposed Action consists of replacement and reconstruction projects, all land uses would remain consistent with historical use, and no significant land use impacts would occur.	None Proposed
Earth Resources	There would be no change in existing conditions; therefore, no new impacts earth resources would occur.	Approximately 3.16 acres of native and non-native soils would undergo minimal direct disturbance as a result of site preparation and construction activities.	Obtain a Stormwater Construction Permit from the FDEP and create a site-specific Stormwater Pollution Prevention Plan (SWPPP) that outlines measures for preventing erosion and implementing effective control measures during site preparation and construction activities.
Environmental Justice and Socioeconomics	There would be no change in existing conditions. Additional recreational infrastructure would not be improved on Tyndall AFB; therefore, no new direct or indirect beneficial or adverse impacts on environmental justice communities would occur.	Given the absence of Environmental Justice communities of concern regarding race or income in the vicinity of the Proposed Action, it can be concluded that the Proposed Action does not have the potential to disproportionately affect Environmental Justice communities.	None Proposed

Resource Area	*No Action Alternative Environmental Consequence Summary*	*Proposed Action Environmental Consequence Summary*	*Mitigation/Minimization Measures*
Safety and Occupational Health	No construction or demolition would take place, thus no impacts to safety and occupational health would be experienced; therefore, no new direct or indirect beneficial or adverse impacts on safety and occupational health would occur.	No adverse impact on safety would be anticipated under the Proposed Actions. Short-term, minor direct impacts on contractor health and safety could occur from implementation of the Proposed Actions.	Occupational Safety and Health Administration Regulations would be implemented and adhered to during construction.

Legend: SAV = Submerged Aquatic Vegetation; USACE = U.S. Army Corps of Engineers; NMFS = National Marine Fisheries Service; OSW = Other Surface Waters; CWA = Clean Water Act; FDEP = Florida Department of Environmental Protection; SWPPP = Stormwater Pollution Prevention Plan

3 Affected Environment and Environmental Consequences

3.1 Scope of the Analysis

The EA encompasses an evaluation of the impacts arising from the implementation of both the Proposed Action and the No Action Alternative (Section 2.4). Through this analysis, potential effects on the natural and human environments within and around Tyndall AFB are identified and described. The impacts are disclosed within designated Regions of Influence (ROI), which are specific to the relevant resources under consideration.

3.1.1 Resources Analyzed

Temporary and short-term impacts are anticipated from construction and demolition activities associated with the Proposed Action. Base operations are expected to remain constant, and any operational impacts are negligible. Relevant to the anticipated impact duration and types, the following resource areas are brought forth for analysis: air quality and climate change, noise, biological resources, cultural resources, water resources, hazardous materials and waste, land use infrastructure/utilities, earth resources, environmental justice and socioeconomics, and safety and occupational Health.

3.1.2 Resources Eliminated From Detailed Analysis

There would be no potential impacts to the following resource areas from implementation of this proposed action, as explained below. Thus, these resource areas were not carried forward for detailed analysis in this EA.

Airspace: Airspace management would not be affected by the Proposed Action. No part of the action employs or influences airspace operations or air traffic management; all action elements would occur on the ground, so they would not impact either the management or use of airspace. Accordingly, airspace management and use are not carried forward for detailed analysis in this EA.

Geology: The implementation of the Proposed Action would not result in any adverse effects on subsurface geological formations. The construction of new structures and the associated dredging activities would adhere to standard methods that do not significantly impact the geology, such as site clearing, grading, and compacting. Excavation would only be conducted to the extent necessary for facility foundations and utility connections. Therefore, the Proposed Action would not have any significant impact on the geological conditions. Geologic and other Earth Resources are analyzed in Section 3.9.

Utilities: The implementation of the Proposed Action would have no impact to utility demands as no utility installation or use is proposed or included in the designs.

Transportation: The Proposed Action does not entail any changes to existing roadways, such as modifications, rerouting, or closures. Publicly accessible roadways and transportation systems would remain unaffected. Moreover, there would be no additional personnel assigned to the installation as a direct result of the Proposed Action. Additionally, the Proposed Action does not involve the modification or development of new public transit systems. Therefore, the transportation sector would not experience any appreciable impact due to these actions.

Visual Resources: Visual resources would not be affected since sensitive visual resources are not located near the Proposed Action locations.

3.2 Air Quality and Climate Change

3.2.1 Definition of the Resource

Under the CAA and its amendments, the U.S. Environmental Protection Agency (USEPA) identifies air pollutants that cause or contribute to the endangerment of human health and or environmental welfare and establishes air quality "criteria" that guide the establishment of air quality standards to regulate these pollutants (42 U.S.C. Sections 7408 - 7409). To date, the USEPA has established such criteria for six air pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$), particulate matter less than ten micrometers in diameter (PM_{10}), and sulfur dioxide (SO_2). As a result, the USEPA created National Ambient Air Quality Standards (NAAQS) meant to safeguard public health (i.e., primary NAAQS) and environmental welfare (i.e., secondary NAAQS).

USEPA and state/local air quality control agencies monitor and evaluate outdoor air quality for compliance with the NAAQS. Areas where monitored outdoor air concentrations are within an applicable NAAQS are considered in attainment of that NAAQS. If sufficient ambient air monitoring data are not available to make a determination, the area is instead deemed attainment/unclassifiable. Areas where monitored outdoor air concentrations exceed the NAAQS are designated by the USEPA as nonattainment areas. Nonattainment designations for some pollutants (e.g., O_3) can be further classified based on the severity of the NAAQS exceedances. Lastly, areas that have historically exceeded the NAAQS, but have since instituted controls and programs that have successfully remedied these exceedances are known as maintenance areas.

3.2.2 Regulatory Setting

As part of the CAA, the USEPA has established NAAQS for major pollutants of concern, called "criteria pollutants." These criteria pollutants include CO, SO_2, NO_2, O_3, PM_{10}, $PM_{2.5}$, and Pb. The NAAQS represent maximum levels of background pollution that are considered safe, with an adequate margin of safety to protect the public health and welfare. Based on measured ambient criteria pollutant data, the USEPA designates areas in the U.S. as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. The State of Florida has adopted the NAAQS to regulate air pollution levels. Bay County is in attainment for all criteria pollutants (USEPA, 2023).

The CAA also established a national goal of preventing degradation or impairment in federally designated Class I areas. Class I areas are defined as those areas where any appreciable degradation in air quality or associated visibility impairment is considered significant. As part of the Prevention of Significant Deterioration (PSD) Program, Congress assigned mandatory Class I status to all national parks, national wilderness areas (excluding wilderness study areas or wild and scenic rivers), and memorial parks greater than 5,000 acres. There are no Class I areas within 100 kilometers of the Tyndall AFB. Stationary sources are regulated under the PSD Program. Mobile sources, including construction equipment and on-road vehicle operations are not subject to the requirements of PSD.

In addition to criteria pollutants, the USEPA has defined 187 substances as hazardous air pollutants (HAPs). HAPs emitted from mobile sources are called Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and non-road equipment that are known or suspected to cause cancer or other serious health and environmental effects. The primary control methodologies for these pollutants for mobile sources involves reducing their content in fuel and altering the engine operating characteristics to reduce the volume of pollutant generated during combustion. MSATs would

be the primary HAPs emitted by mobile sources during construction. The equipment used during construction may vary in age and have a range of pollution reduction effectiveness. Construction equipment, however, would be operated intermittently, for the duration of construction, and would produce negligible ambient HAPs in a localized area. Therefore, MSAT emissions are not considered further in this analysis.

GHGs are also regulated under the federal CAA. The USEPA defines the following compounds as the main GHGs emitted into our atmosphere: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHGs have varying global warming potential (GWP). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of one.

EO 14008, *Tackling the Climate Crisis at Home and Abroad* (Federal Register Vol 86, No. 19, pp. 7619-7633, 2021) instructs agency heads to prepare Climate Action Plans for their agency operations. The Department of the Air Force published their Climate Action Plan in October 2022 (USAF, 2022). The plan delineates the goals and actions needed to meet the requirements of EO 14008 and EO 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability* (Federal Register Vol. 86, No. 236 pp. 70935-70943, 2021). The plan identifies the climate change priorities for the Department of the Air Force, including but not limited to:

- Ensure installation resiliency and adaptability by modernizing infrastructure and facilities;
- Seamlessly integrate climate and operational considerations throughout processes, plans and decision-making; and
- Reduce fossil fuel demand of current and future weapon systems to achieve lower GHG emissions.

On 9 January 2023, the CEQ published interim guidance to assist in analyzing GHG and climate change effects of proposed actions (CEQ, 2023). The guidance explains how agencies should apply NEPA principles and existing best practices to their climate change analysis.

The potential effects of proposed GHG emissions are by nature global and result in cumulative impacts because most individual sources of GHG emissions are not large enough to have any noticeable effect on climate change. Therefore, the impact of proposed GHG emissions to climate change is discussed in the context of cumulative impacts. The inclusion of the CEQ interim guidance in the evaluation of the Proposed Action's GHG emissions is included in in Section 4.3.1.

3.2.3 Affected Environment

In the Bay County, Florida region, the summers are long, hot and oppressive; the winters are cold and dry, and it is partly cloudy year-round. Over the course of the year, the temperature typically varies from 46 degrees Fahrenheit (°F) to 90°F and is rarely below 32°F or above 94°F. The hot season lasts for about 4.3 months, from mid-May to the end of September, with an average daily high temperature above 84°F. The hottest month is July, with an average high of 90°F and low of 76°F.

The cool season lasts for 2.8 months, from early-December to the end of February, with an average daily high temperature below 68°F. The coldest month is January, with an average low of 46°F and high of 63°F. Precipitation is more likely from June to September, and the drier season is longer, extending from September to early June (Weather Spark, 2023).

Most of Florida has warmed at least 1°F in the last century. The sea is rising about one inch every decade, and heavy rainstorms are becoming more severe. Along the Atlantic and Gulf Coasts of Florida,

the land surface is also sinking. If the oceans and atmosphere continue to warm, sea level along the Florida coast is likely to rise one to four feet in the next century. Hurricanes are also becoming more dangerous, with rapid escalations in force. Hurricane wind speeds and rainfall rates are likely to increase as the climate continues to warm. In the coming decades, rising temperatures are likely to increase storm damages, harm coral reefs, increase the frequency of unpleasantly hot days, and reduce the risk of freezing to Florida's agriculture. (USEPA, 2016).

3.2.4 Environmental Consequences

Air quality effects are changes to the environment resulting from project impacts that are reasonably foreseeable and have a reasonably close causal relationship to the action. These effects may include but are not limited to risks to populations resulting from the exposure to air pollutants, and changes in ambient concentrations and their effects on compliance with ambient air quality standards. There are no emission sources of the criteria pollutant lead associated with the Proposed Action and so it was not carried forward for analysis.

For attainment area criteria pollutants, the project air quality analysis uses the USEPA's PSD permitting threshold of 250 tons per year (tpy) as an initial indicator of the local significance of potential impacts to air quality. It is important to note that these indicators only provide a clue to the potential impacts to air quality. In the context of criteria pollutants for which the Proposed Action region is in attainment of a NAAQS, the analysis compares the annual net increase in emissions estimated for each project alternative to the 250 tpy PSD permitting threshold. The PSD permitting threshold represents the level of potential new emissions below which a new or existing minor non-listed stationary source may acceptably emit without triggering the requirement to obtain a permit. Thus, if the intensity of any net emissions increase for a project alternative is below 250 tpy in the context of an attainment criteria pollutant the indication is the air quality impacts would not be significant for that pollutant.

3.2.4.1 Preferred Alternative

The Air Conformity Applicability Model (version 5.0.18b) was used to provide emissions estimates for the proposed construction activities. Emissions estimated are provided in **Table 3-1**, below. The air quality analysis assumed all construction would occur in one year, and 2024 was selected to represent the year of activity. The Record of Air Analysis is included in **Appendix D**, along with the detail analysis report.

Table 3-1 Criteria Pollutant Emissions Estimates for Four Tyndall AFB Construction Projects (Total Annual Emissions in Tons)

Activity	*VOCs*	*CO*	*NOx*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*
Security Fence at Building 9310	0.01	0.08	0.09	0.00	0.16	0.00
Extend NCO Boardwalk	0.02	0.16	0.10	0.00	0.03	0.00
Replace Golf Course Pier and Boardwalk	0.09	0.77	0.54	0.03	0.03	0.02
Widen and Pave Eagle Drive Parking Area	0.01	0.09	0.07	0.00	0.12	0.00
Total Construction	**0.13**	**1.10**	**0.80**	**0.00**	**0.34**	**0.03**
Initial Indicator of Significance	250	250	250	250	250	250
Exceed Initial Indicator of Insignificance?	No	No	No	No	No	No

Legend: VOC = Volatile Organic Compound; CO = Carbon Monoxide; NO_x = nitrogen oxide; SO_2 = Sulfur Dioxide; PM_{10} = particulate matter less than ten micrometers in diameter; $PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Notes: [a]Individual project values may not sum to total due to rounding.

Criteria pollutant emissions would temporarily increase with implementation of construction activities but would cease upon completion. These temporary emissions would be less than the initial indicator of significance. Therefore, temporary increases in these pollutant emissions would not be significant. Operational emissions would be no different than those that currently occur, so that there would be no changes to air quality resulting from the use of the pier, boardwalks, parking area or perimeter fence.

3.2.4.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no new impacts to air quality.

3.3 Noise

3.3.1 Definition of the Resource

Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. Noise can be readily identifiable or generally nondescript. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between the source and receptor, receptor sensitivity, and time of day. Affected receptors are specific (e.g., residential areas, schools, churches, or hospitals) or broad (e.g., nature preserves or designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists. These are generally referred to as noise sensitive receptors.

Human response to noise varies, as do the metrics used to quantify it. Generally, sound can be calculated with instruments that record instantaneous sound levels in decibels (dB). An A-weighted decibel (dBA) is the unit used to characterize sound levels that can be sensed by the human ear. "A-weighted" denotes the adjustment of the frequency range to what the average human ear can sense when experiencing an audible event. The threshold of audibility is generally within the range of 10 to 25 dBA for normal hearing. The threshold of pain occurs at the upper boundary of audibility, which is normally in the region of 135 dBA (USEPA, 1981). **Table 3-2** compares common sounds and shows how they rank in terms of auditory impacts. Noise levels can become annoying at 80 dBA and very annoying at 90 dBA. To the human ear, each 10-dBA increase seems twice as loud (USEPA, 1981).

Table 3-2 Sound Levels and Human Response

Noise Level (dB)	*Common Sound*	*Effect*
10	Just audible	Negligible
30	Soft whisper (15 feet)	Very quiet
50	Light auto traffic (100 feet)	Quiet
60	Air conditioning unit (20 feet)	Intrusive
70	Noisy restaurant or freeway traffic	Telephone use difficult
80	Alarm clock (2 feet)	Annoying

Noise Level (dB)	*Common Sound*	*Effect*
90	Heavy truck (50 feet) or city traffic	Very annoying. Hearing damage (8 hours)
100	Garbage truck	Very annoying
110	Pile drivers	Strained vocal effort
120	Jet takeoff (200 feet) or auto horn (3 feet)	Maximum vocal effort
140	Carrier deck jet operation	Painfully loud

Legend: dB = Decibel

Source: (USEPA, 1981)

Sound levels vary with time. For example, the sound increases as an aircraft approaches, then falls and blends into the ambient, or background, as the aircraft recedes into the distance. Because of this variation, it is often convenient to describe a particular noise "event" by its highest or maximum sound level (L_{max}). It should be noted that L_{max} describes only one dimension of an event; it provides no information on the cumulative noise exposure generated by a sound source. In fact, two events with identical L_{max} levels may produce very different total noise exposures. One may be of very short duration, while the other may last much longer.

The average day/night sound level (DNL) serves as an alternate measure to assess the overall noise environment within a community. DNL represents the average A-weighted sound level over a 24-hour period, with a 10-dBA adjustment applied to nighttime levels (between 10:00 pm and 7:00 am). This adjustment aims to account for the heightened sensitivity of humans to noise events during nighttime. Land use compatibility and incompatibility are assessed by comparing the projected DNL at a particular site with the recommended land uses. Nighttime noise levels tend to cause more annoyance than equivalent levels during the day. It is widely accepted that people perceive nighttime noise as being 10 dBA more intrusive than daytime noise, at least in terms of its potential to generate community annoyance.

3.3.2 Regulatory Setting

In June 1980, the Federal Interagency Committee on Urban Noise (FICUN) published guidelines relating DNL to compatible land uses (FICUN, 1980). This committee was composed of representatives of DoD, the U.S. Department of Transportation (USDOT), Housing and Urban Development, USEPA, and the Veterans Affairs. Since the issuance of these guidelines, federal agencies have generally incorporated the discussion of compatibility into their comprehensive planning in analysis of noise effects. The land use compatibility guidelines that USAF uses are consistent with FICUN guidelines. In general, residential land uses are not compatible with an outdoor DNL above 65 dBA.

3.3.3 Affected Environment

An Air Installations Compatible Use Zone (AICUZ) Study was prepared in 2016 (USAF, 2016). Noise contours included data from all aircraft operations associated with the installation and represents the existing condition at Tyndall AFB. A 2020 update to include the F-35A showed no relevant changes to noise contours (USAF, 2020).

The noise environment generally includes military aircraft operations and automobile traffic. The Tyndall AFB conducts training in T-38A/B/C (Talon), F-22A (Raptor), and F-35A (Lightning II) aircraft. Vehicle use associated with installation operations consists of passenger and military vehicles and delivery and fuel

trucks. The installation works with the community to inform the City, developers, and other real estate and building entities, about its flying mission, inform them of the potential safety and noise concerns, and work to de-conflict any developments that may pose adverse impact on the community.

Other than residential land uses on the mainland north and west of Tyndall AFB, the AICUZ did not identify any additional noise sensitive sites within the noise contour, which would include religious institutions, educational facilities and health care facilities. On-base noise sensitive sites that are currently in use or will be rebuilt, include Visiting Officers Quarters, Visiting Airmen's Quarters, a chapel, transient cabins, base housing, and Tyndall Academy (pre-K through 7th grade).

3.3.4 Environmental Consequences

A noise impact would be significant if it would 1) violate applicable noise regulations, 2) cause unsafe noise conditions for nearby receptors during construction, or 3) substantially affect normal operations of noise-sensitive sites.

3.3.4.1 Preferred Alternative

Construction activities would be short-term and intermittent, resulting in negligible to minor impacts to the noise environment at Tyndall AFB. **Table 3-3** includes a list of construction equipment and the representative noise level during operation. Noise levels are given at a distance of 50 feet and 500 feet from the source. Construction noise can often be described as loud, impulsive, or annoying. To reduce impacts related to construction noise, all construction activities would be conducted during normal business hours (7:00 am to 5:00 pm) and all equipment would be outfitted with mufflers that would be in good working condition.

Table 3-3 Noise Levels of Representative Construction Equipment

Equipment	*L_{max} in dB at 50 feet*	*L_{max} in dB at 500 feet*
Air Compressor	80	60
Backhoe	80	60
Concrete Mixer Truck	85	65
Concrete Saw	90	70
Crane	85	65
Dozers	85	65
Dump Truck	84	64
Excavator	85	65
Flat Bed Truck	84	64
Front End Loader	80	60
Generator	82	62
Graders	85	65
Impact Hammer	90	70

Equipment	*L_{max} in dB at 50 feet*	*L_{max} in dB at 500 feet*
Paving Equipment	85	65
[a]Pile Driver	101	81
Roller	85	65
Welding	73	53

Legend: L_{max} = Maximum Sound Level; dB = Decibel
Notes: [a]L_{max} at 50 feet based on noise sampling at U.S. Department of Transportation (USDOT) construction sites.
Source: Construction Noise Handbook (USDOT, 2006).

Noise impacts can be summarized as follows:

- None of the base housing on Eagle Drive or nearby is inhabited as it was damaged by Hurricane Michael. There are no noise sensitive sites within 1,100 feet of the access road and parking area off of Eagle Drive. The closest receptors are base housing north of the project area. Noise would temporarily increase for this area of the installation during the weekdays from construction traffic traveling through the area. Routing this traffic to the intersection with Sabre Drive would provide access to Heritage Parkway for installation ingress/egress.
- No noise sensitive sites are located within a mile of the golf course pier and boardwalk reconstruction project. Use of a pile driver could result in close proximity noise levels (within 50 feet) that could exceed 100 dB, but these activities would be very short term (days) and the sound intermittent.
- No noise sensitive sites are located within 1,500 feet of the NCO boardwalk reconstruction project. The closest receptor area is a pool located north of Louisiana Avenue. Use of a pile driver could result in close proximity noise levels (within 50 feet) that could exceed 100 dB, but these activities would be very short term (days) and the sound intermittent.
- No noise sensitive sites are located within a mile of the perimeter fence for building 3910 reconstruction project.
- No adverse noise impacts to aquatic species would be anticipated due to the short-term nature of the construction activities for the Golf Course Pier.

For all locations included in the Proposed Action, once construction is completed, the noise environment would be consistent with existing conditions.

In summary, construction activities would include land clearing, grading, and excavation; materials transport; and pavement construction. These activities would involve the use of vehicles, heavy construction equipment, and machinery and would be conducted during the daytime work hours. Construction activities would temporarily increase noise levels in the immediate vicinity of the Proposed Action areas; however, there are no noise sensitive sites close to any of the projects and because distance rapidly attenuates noise levels, all areas would experience only a minor increase in ambient noise conditions during construction hours. In addition, the duration of activity for each of the projects is anticipated to be short.

3.3.4.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no new impacts to noise.

3.4 Biological Resources

3.4.1 Definition of the Resource

Biological resources are defined as the resource consisting of native vegetation and wildlife species. Habitat in which vegetative and wildlife species rely on in order to occupy or potentially occupy the analysis area of the Proposed Action are also included in the definition. Specific species defined under biological resources, for the purposes of this EA, will be focused on listed species, critical habitat, and submerged aquatic vegetation (SAV). Listed species are those species that are listed as threatened, endangered, candidate, or species of concern under the ESA by the USFWS and species listed under state designations by the State of Florida. The area of analysis for biological resources will consist of the limit of disturbance for each of the projects listed under the Proposed Action.

3.4.2 Regulatory Settings

The environmental regulatory setting for Bay County, Florida is primarily governed by federal, state, and local regulations. The following are key regulatory bodies that play a role in environmental regulation:

- FDEP: FDEP is the state agency responsible for protecting and managing Florida's environmental resources. They enforce state environmental regulations, issue permits, and oversee activities related to air and water quality, waste management, wetlands protection, and coastal zone management.
- Florida Fish and Wildlife Conservation Commission (FWC): FWC is responsible for managing and conserving Florida's fish and wildlife resources. They regulate activities related to hunting, fishing, boating, and wildlife conservation.
- U.S. Army Corps of Engineers (USACE): The USACE plays a role in regulating activities that involve wetlands, navigable waters, and other water-related projects under the CWA and other federal laws.
- Bay County Environmental Health: This local agency focuses on public health and environmental issues within Bay County. They may be responsible for permitting and regulating activities related to septic systems, solid waste management, and other local environmental concerns.

3.4.3 Affected Environment

The affected environment section concisely describes the existing biological resources of the action area that would be affected if the Proposed Action was implemented. This section describes only those biological resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those resources that would affect or that would be affected by the actions if they were implemented. This section, in conjunction with the description of the No Action Alternative, forms the existing conditions for determining the biological resource impacts of the Proposed Action.

The regional setting of Tyndall AFB is influenced by the broader geographical context of the Florida Panhandle. Natural community types the region is known for include:

1. Coastal Dunes: characterized by sandy soils and vegetation adapted to the challenging conditions of wind and salt spray. These dunes provide important habitat for specialized plant species and serve as a buffer against coastal erosion.
2. Salt Marshes: Salt marshes are found in the vicinity of coastal areas and estuaries, and they play a crucial role in the overall coastal ecosystem. These marshes are characterized by grasses and

other halophytic plants that can tolerate high salinity levels. They provide habitat for various species of birds, fish, and invertebrates.

3. Pine Flatwoods: Pine flatwoods are characterized by open, flat areas dominated by pine trees, particularly longleaf pine (*Pinus palustris*). These ecosystems are adapted to frequent fires and are home to various plant and animal species, including endangered and threatened species such as the red-cockaded woodpecker.
4. Hardwood Forests: The base includes areas of hardwood forests, which feature a variety of deciduous trees such as oaks, hickories, and maples.

3.4.3.1 Vegetation

The land cover on Tyndall AFB consists of a mix of different types of vegetation and land uses, including:

- Forested land: Approximately 60 percent of the base's land area is covered by forested land, including longleaf pine and oak-hickory forests. These forests provide important habitat for wildlife and help maintain the base's water and air quality.
- Wetlands: Tyndall AFB is home to several types of wetlands, including freshwater marshes, swamps, and tidal creeks. These wetlands help to absorb floodwaters, filter pollutants, and provide important habitat for a variety of plant and animal species.
- Grasslands: The base also has areas of grassland, which are managed through prescribed burns and other techniques to maintain their biodiversity and reduce the risk of wildfires.

The dominant upland natural communities within Tyndall AFB include Tree Plantations, Coastal Scrub, Coastal Uplands, Mesic Flatwoods and Wet Flatwoods, which combined, account for 58 percent of the landcover on the installation. Dominant wetland natural communities include Salt Marshes, Prairies and Bogs, Freshwater Forested Wetlands, and Marshes, accounting for 14 percent of the landcover within Tyndall AFB (USAF, 2020).

In the aftermath of Hurricane Michael in 2018, which caused significant damage to the base, the DoD launched a comprehensive rebuilding effort. As part of this effort, there have been ongoing efforts to restore the natural environment on the base, including reforestation and wetland restoration projects. The reforestation effort involves planting a variety of tree species, including longleaf pine, slash pine, and live oak. These species are native to the area and can withstand the harsh weather conditions that are common in Florida and are planted in areas where the forest canopy was completely lost or significantly damaged.

Land use types were observed utilizing Northwest Florida Water Management District (NWFWMD) ArcGIS Florida Land Use Cover and Forms Classification System (FLUCFCS) layer. Land use types present within each project boundary of the Proposed Action can be found in **Table 3-4** and **Figures 3-1** to **3-4**.

Table 3-4 Land Cover Types for Each Project Area

Project Name	*FLUCFCS Code*	*Description*	*Acreage*
Construct Golf Course Boardwalk/Pier	4340	Upland Mixed – Coniferous/Hardwood	0.34
Construct Golf Course Boardwalk/Pier	5410	Embayment opening directly into the Gulf of Mexico	0.87

Project Name	*FLUCFCS Code*	*Description*	*Acreage*
Construct Golf Course Boardwalk/Pier	6300	Wetland Forest Mixed	0.54
Construct Golf Course Boardwalk/Pier	7410	Rural land in transition without positive indicators of intended activity	0.5
Construct Eagle Drive Parking Lot	1210	Medium Density, Fixed Single-Family Units	0.09
Construct Eagle Drive Parking Lot	1810	Swimming Beach	0.01
Construct Eagle Drive Parking Lot	1900	Open Land (Urban)	0.54
Construct Eagle Drive Parking Lot	4200	Upland Hardwood Forest	0.01
Extend NCO Boardwalk	1730	Military	0.0012
Extend NCO Boardwalk	6420	Saltwater Marshes	0.74
Extend NCO Boardwalk	6460	Mixed scrub-shrub Wetland	0.02
Extend NCO Boardwalk	7100	Beaches	0.18
Extend NCO Boardwalk	7200	Sand Other Than Beaches	0.28
Perimeter Fence, Building 9310	4410	Coniferous Plantation	0.05
Perimeter Fence, Building 9310	6250	Hydric Pine Flatwood	0.59

Legend: FLUCFCS = Florida Land Use Cover and Forms Classification System
Source: NWFWMD, 2019

3.4.3.2 Fish and Wildlife

The various undeveloped habitats present on Tyndall AFB allow for a diverse presence of non-game fish and wildlife including mammals, reptiles, amphibians, fish and migratory birds. The most common representative species occurring within the installation are listed in **Table 3.5** below.

Table 3-5 Representative Fish and Wildlife Species Found on Tyndall AFB

Common Name	*Scientific Name*
Belted Kingfisher	*Megaceryle alycon*
Black Racer	*Coluber constrictor*
Cotton Mouse	*Peromyscus gossypinus*
Cotton Mouth Snake	*Agkistridon piscivorus*
Cotton Rat	*Sigmodon hispidus*
Eastern Mole	*Scalopus aquaticus*
Eastern Red Bat	*Lasiurus borealis*
Five-lined Skink	*Eumeces fasciatus*
Flycatchers	*Tyrannidae spp.*
Ghost Crab	*Ocypode quadratus*
Gray Fox	*Urocyon cinereoargenteus*

Common Name	*Scientific Name*
Red Fox	*Vulpes vulpes*
Garter Snake	*Thamnophis sirtalis*
Great Blue Heron	*Ardea herodias*
Great Horned Owl	*Bubo virginianus*
Green Anole	*Anolis carolinensis*
Blue Crab	*Callinectes sapidus*
Largemouth Bass	*Micropterus salmoides*
Least Shrew	*Cryptodus parva*
Long-nosed Killifish	*Fundulus similis*
Northern Bobwhite	*Colinus virginianus*
Opossum	*Didelphis virginiana*
Oyster	*Crassostrea virginica*
Periwinkles	*Littorina irrorata*
Red-shouldered Hawk	*Buteo lineatus*
Red-winged Blackbird	*Agelaius phoenicius*
Salt Marsh Rabbit	*Sylvilagus aquaticus*
Sheepshead Minnow	*Cyprinodon variegatus*
Six-lined Racerunner	*Cnemidophorus sexlineatus*
Slender Glass Lizard	*Ophisaurus attenuatus*
White-tailed Deer	*Odocoileus virginianus*

Source: USAF, 2020

Species that are under protection at Tyndall AFB and are not listed at the state or federal level comprise the bald eagle (*Haliaeetus leucocephalus*), protected by the Bald and Golden Eagle Protection Act; multiple species of migratory birds, protected by the Migratory Bird Treaty Act; and the Florida black bear (*Ursus americanus floridanus*), protected by the Florida Black Bear Conservation Rule.

Figure 3-1 Repair (Replace) Piers, Golf Course

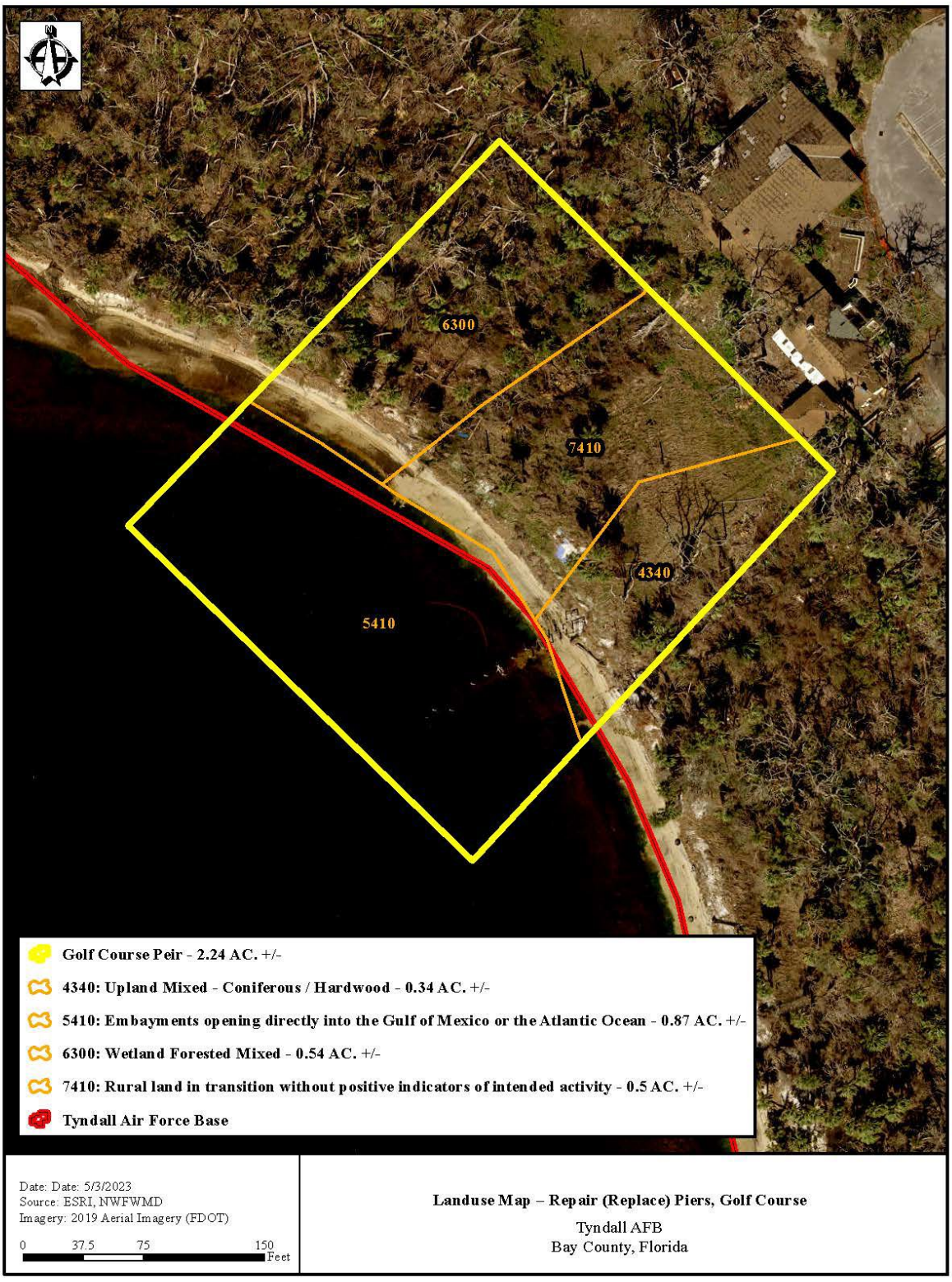


Figure 3-2 Land Use - Construct Eagle Drive Pier Parking Lot

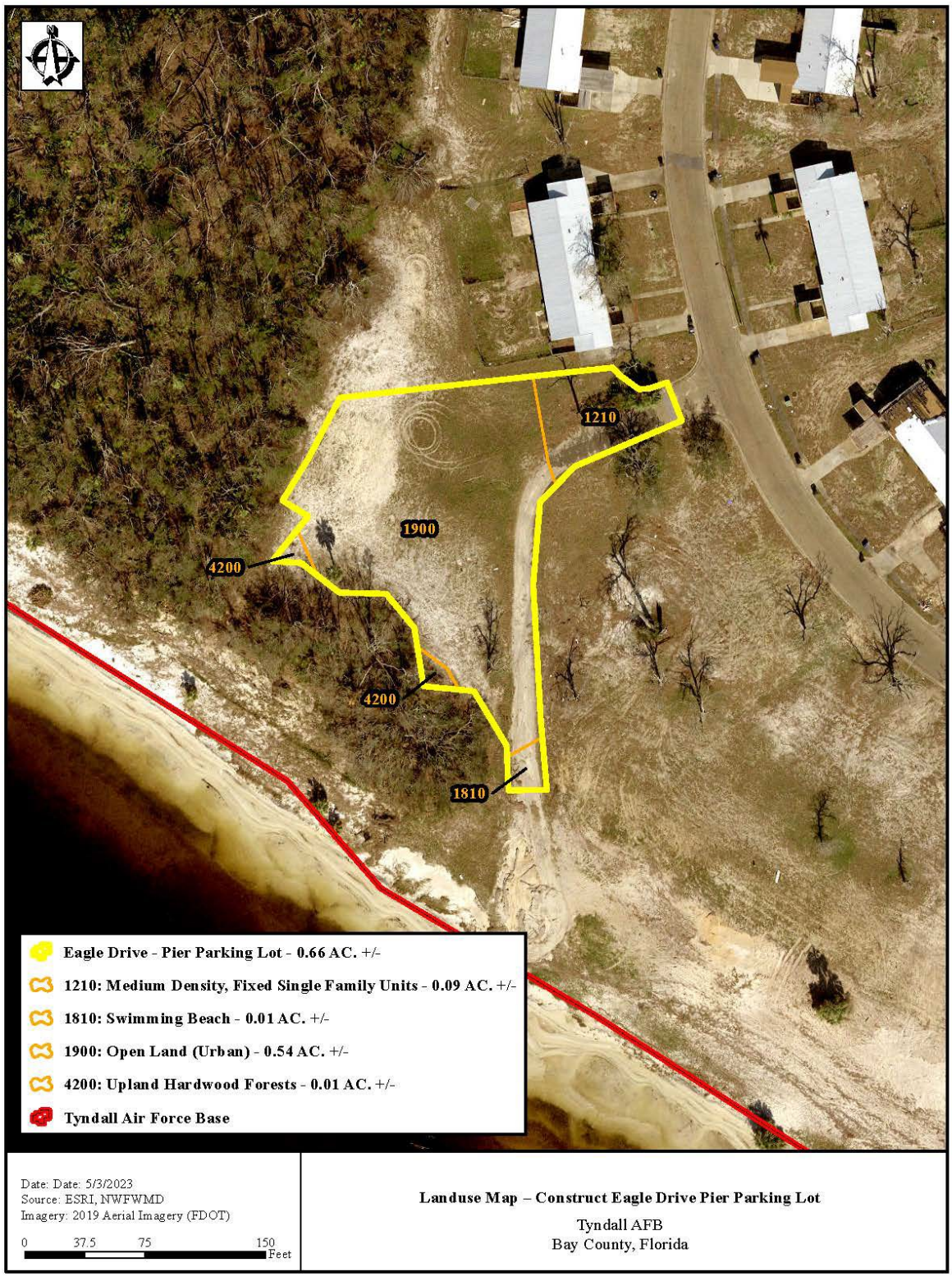


Figure 3-3 Land Use - Extend Tyndall NCO Boardwalk

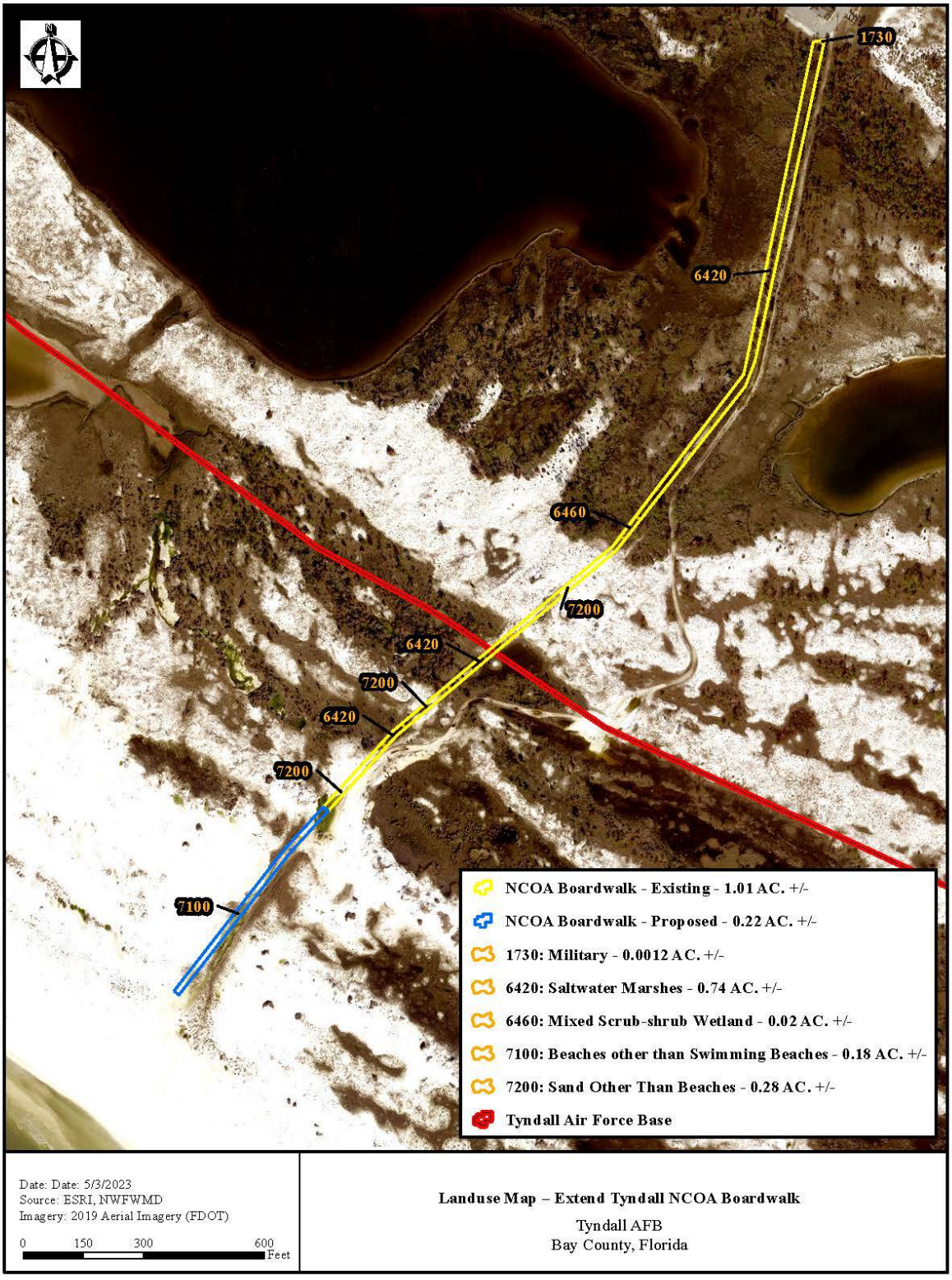
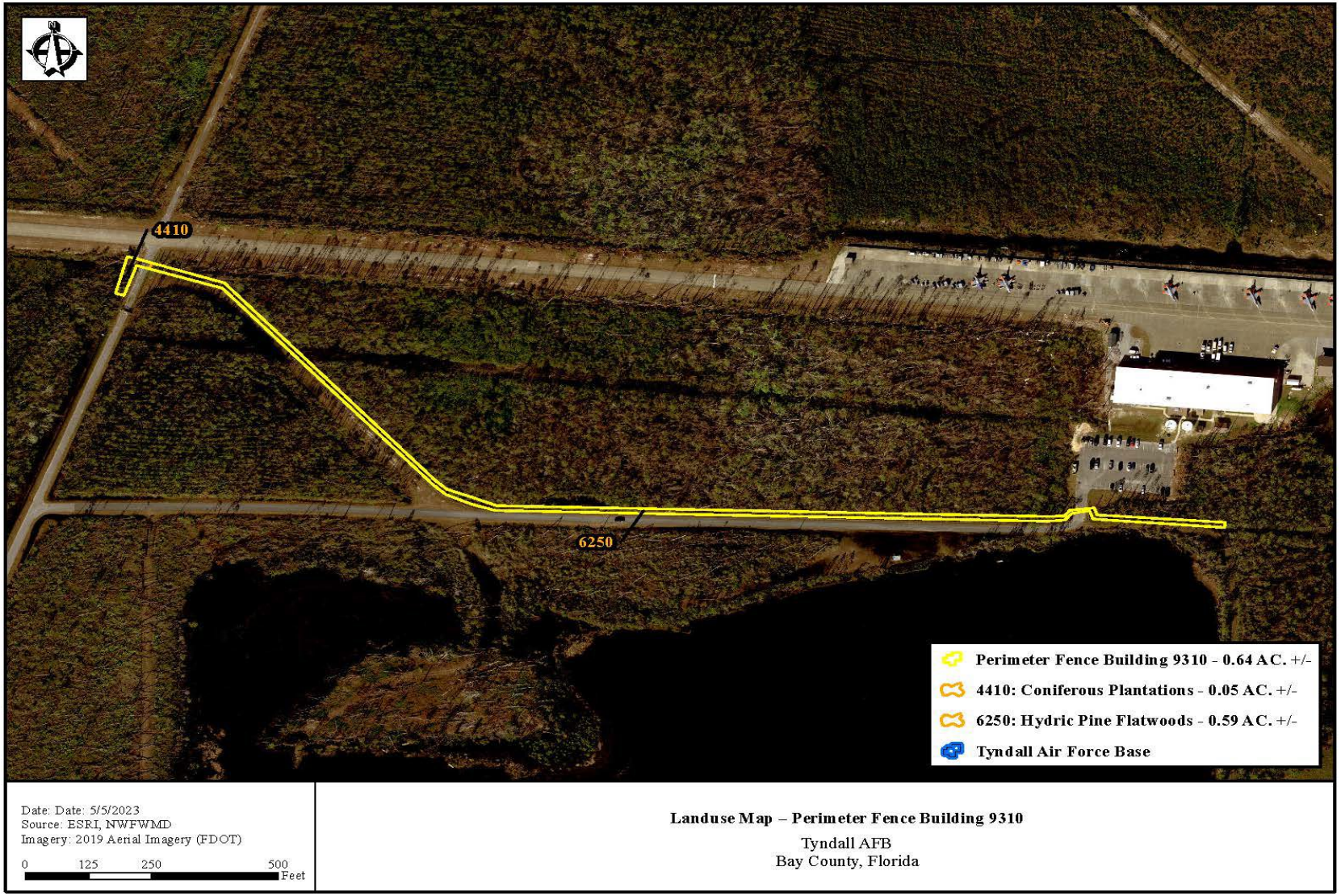


Figure 3-4 Land Use - Perimeter Fence Building 9310



3.4.3.3 Special Status Species

Special status species include species, both flora and fauna, listed as threatened or endangered under the Federal ESA, species listed by the State of Florida pursuant to Chapter 5B-40 Florida Administrative Code (F.A.C.) and Chapter 68A-27 F.A.C.

In order to identify potential federally protected species or habitats of significance to these species within the project area, an online review using the USFWS Information for Planning and Consultation system was performed on April 25, 2023. These species and their status are listed in **Table 3-6**.

Table 3-6 Federally Listed Species Associated with Proposed Action

Common Name	*Scientific Name*	*Federal Status*	*Project Location*
Mammals			
Choctawhatchee beach mouse	*Peromyscus polionotus allophrys*	E	GC, ED, NCO
St. Andrews beach mouse	*Peromyscus polionotus peninsularis*	E	GC, ED, NCO
West Indian manatee	*Trichechus manatus*	T	GC, ED, NCO
Birds			
Eastern black rail	*Laterallus jamaicensi ssp. jamaicensis*	T	GC, ED, NCO, PF
Piping plover	*Charadrius melodus*	T	NCO
Red knot	*Calidris canutus rufa*	T	ED, NCO, PF
Reptiles			
Alligator snapping turtle	*Macrochelys temminckii*	PT	GC, ED, NCO, PF
Eastern indigo snake	*Drymarchon couperi*	T	GC, ED, NCO, PF
Green sea turtle	*Chelonia mydas*	T	NCO
Kemp's Ridley sea turtle	*Lepidochelys kempii*	E	NCO
Leatherback sea turtle	*Dermochelys coriacea*	E	NCO
Loggerhead sea turtle	*Caretta caretta*	T	NCO
Fishes			
Gulf sturgeon	*Acipenser oxyrinchus desotoi*	T	GC, ED, NCO, PF
Insects			
Monarch butterfly	*Danaus plexippus*	C	PF
Flowering Plants			
Godfrey's butterwort	*Pinguicula ionantha*	T	GC, ED, NCO, PF
Telephus spurge	*Euphorbia telephioides*	T	ED, NCO
White birds-in-a-nest	*Macbridea alba*	T	ED, NCO

Legend: E=Endangered, T=Threatened, PT=Proposed Threatened, C=Candidate Species, GC=Repair (Replace) Piers, Golf Course; ED=Construct Eagle Drive Pier Parking Lot; NCO=Extend NCO Boardwalk; PF=Perimeter Fence, Building 9310
Source: USFWS, 2021

State-listed species refer to plant and animal species that are under the management and protection of the State of Florida in accordance with Chapter 5B-40 F.A.C. for plants and Chapter 68A-11 F.A.C. for animals. Biodiversity Matrix queries were performed through the Florida Natural Areas Inventory to produce a list of state protected species that occur or are likely to occur within the Proposed Action area (Florida Natural Areas Inventory, 2021). These species and their status are listed in **Table 3-7**.

Table 3-7 State Listed Species Associated with Proposed Action

Common Name	*Scientific Name*	*State Status*	*Project Location*
Mammals			
St. Andrews beach mouse	*Peromyscus polionotus peninsularis*	E	GC, ED, NCO
Choctawhatchee beach mouse	*Peromyscus polionotus allophrys*	E	ED, NCO
Birds			
Piping plover	*Charadrius melodus*	T	GC, NCO
Snowy plover	*Charadrius nivosus*	T	NCO
Little blue heron	*Egretta caerulea*	T	GC
Tricolored heron	*Egretta tricolor*	T	GC
Scott's seaside sparrow	*Ammospiza maritima peninsulae*	T	GC, ED, NCO
Reptiles			
Gopher tortoise	*Gopherus polyphemus*	T	GC, ED, NCO, PF
Insects			
Monarch butterfly	*Danaus plexippus*	C	PF
Plants			
Southern milkweed	*Asclepias viridula*	T	GC, ED, NCO, PF
Toothed savory	*Calamintha dentata*	T	PF
Curtiss' sandgrass	*Calamovilfa curtissii*	T	GC, ED
Many-flowered grass-pink	*Calopogon multiflorus*	T	PF
Godfrey's goldenaster	*Chrysopsis godfreyi*	E	GC, ED, PF
Florida waxweed	*Cuphea aspera*	E	GC, ED, NCO, PF
Telephus spurge	*Euphorbia telephioides*	E	GC, ED, NCO, PF
Pinewoods aster	*Eurybia spinulosa*	E	GC, ED, NCO, PF
Henry's spiderlilly	*Hymenocallis henryae var. henryae*	E	PF
Pineland bogbutton	*Lachnocaulon digynum*	T	PF
West's flax	*Linum westii*	E	GC, ED, NCO, PF
Gulf Coast lupine	*Lupinus westianus*	T	GC, ED, NCO, PF
White birds-in-a-nest	*Macbridea alba*	E	GC, ED, NCO, PF
Hummingbird flower	*Macranthera flammea*	E	GC, PF
Apalachicola dragon-head	*Physostegia godfreyi*	T	GC, ED, NCO, PF

Common Name	*Scientific Name*	*State Status*	*Project Location*
Godfrey's butterwort	*Pinguicula ionantha*	E	NCO, PF
Primrose-flowered butterwort	*Pinguicula primuliflora*	E	GC, ED
Yellow fringeless orchid	*Platanthera integra*	E	GC, ED, NCO, PF
Small-flowered meadowbeauty	*Rhexia parviflora*	E	GC, ED, NCO, PF
Panhandle meadowbeauty	*Rhexia salicifolia*	T	GC, ED, NCO, PF
Florida flame azalea	*Rhododendron austrinum*	E	GC
Chapman's rhododendron	*Rhododendron chapmanii*	E	NCO, PF
Nightflowering wild petunia	*Ruellia noctiflora*	E	GC, ED, NCO, PF
Florida skullcap	*Scutellaria floridana*	E	GC, ED, NCO, PF
Mock pennyroyal	*Stachydeoma graveolens*	E	PF
Giant water cowbane	*Tiedemannia filiformis ssp. greenmanii*	E	GC, NCO, PF
Quillwort yellow-eyed grass	*Xyris isoetifolia*	E	GC, ED, NCO, PF
Harper's yellow-eyed grass	*Xyris scabrifolia*	T	GC, ED, NCO, PF
Large-leaved jointweed	*Polygonella macrophylla*	T	GC, NCO, PF

Legend: GC=Repair (Replace) Piers, Golf Course; ED=Construct Eagle Drive Pier Parking Lot; NCO=Extend NCO Boardwalk; PF=Perimeter Fence, Building 9310
Source: Florida Natural Areas Inventory, 2021

3.4.3.4 Critical Habitat

Critical habitats are areas that have been identified as important for the survival of endangered or threatened species, and they are protected under various state and federal laws.

The USFWS has designated critical habitat for the Gulf sturgeon in the Apalachicola River, which runs adjacent to Tyndall AFB. The critical habitat includes areas of the river where the sturgeon spawn and rear their young. This area is referred to as Unit 11 in which the northern boundary is defined as the mean high water of the mainland shoreline and the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) demarcation lines at passes (International Maritime Organization, 1972). The southern boundary is defined as one nautical mile offshore from the northern boundary (Title 50, Part 226, 2023).

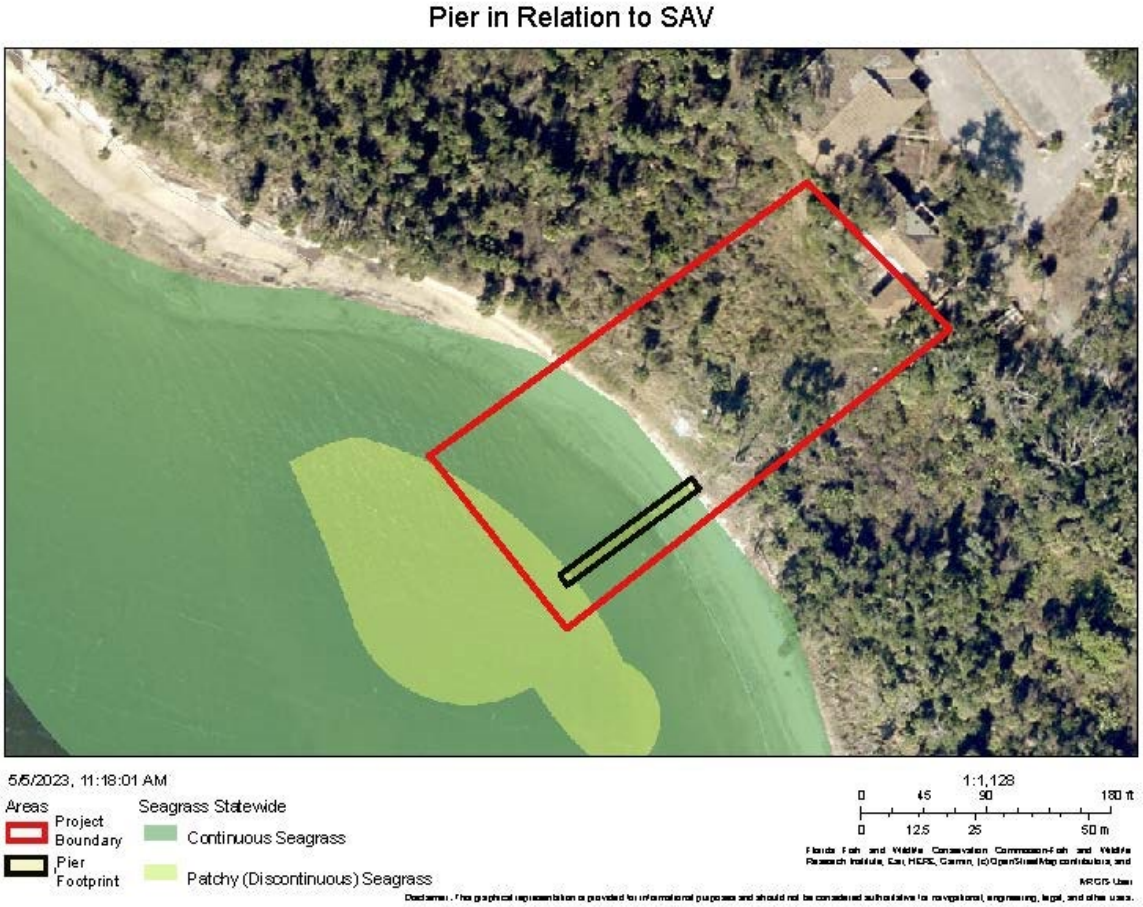
Designated Piping plover critical habitat is located approximately 4,600 feet from the NCO Boardwalk project boundary (FDEP, n.d.). Both Choctawhatchee beach mouse and St. Andrews beach mouse critical habitat occur within the project boundary of the NCO boardwalk project boundary as well (FDEP, n.d.).

3.4.3.5 Submerged Aquatic Vegetation

Seagrasses are a vital component of coastal and marine ecosystems, providing a range of important ecological, economic, and social benefits. Key benefits include providing habitat and shelter for marine life, providing carbon sequestration, and assisting in maintaining water quality by stabilizing sediment. SAV refers to a diverse group of underwater plants that are rooted in the sediment or attached to hard substrates. Types of SAV that have been previously discovered adjacent to the shoreline of Tyndall AFB include Turtle grass (*Thalassia testudinum*) and Shoal grass (*Halodule wrightii*) (USAF, 2022).

The Marine Resources Geographic Information System (MRGIS) was queried for SAV spatial data within and adjacent to the Golf Course boardwalk/pier replacement project boundary. Both continuous and discontinuous patches of SAV are observed to be present (FWC, 2021). This is depicted in **Figure 3-5**.

Figure 3-5 MRGIS SAV Data - Golf Course Pier/Boardwalk



Source: FWC, 2021

3.4.4 Environmental Consequences

The Proposed Action has the potential to cause permanent changes to the habitat that may be used by protected and listed species, affecting up to 48 species. This section includes an evaluation for each listed or proposed species and their critical habitat under the ESA that could be affected. Section 7 of the ESA requires that federal actions determined to potentially impact federally listed species be consulted with the USFWS or NMFS. Section 7 consultation for this EA is in process. Final effects determinations made as a result from this consultation will be provided in the final iteration of this document.

The following explains the levels of effect used in this evaluation.

- No Effect: No effect means there will be no consequences to listed species or critical habitat that result from the Proposed Action, including the consequences of any activities that would not occur but for the Proposed Action. (50 CFR 402.02, 2023)

- May affect, but not likely to adversely affect: all effects are either beneficial, insignificant, or discountable. Beneficial effects have concurrent positive effects without any adverse effects to the species or habitat (i.e., there cannot be "balancing," wherein the benefits of the project would be expected to outweigh the adverse effects). Insignificant effects relate to the magnitude or extent of the impact (i.e., they must be small and would not rise to the level of a take of a species). Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. (50 CFR 402.02, 2023)
- May affect and is likely to adversely affect: all adverse effects cannot be avoided. A combination of beneficial and adverse effects is still "likely to adversely affect," even if the net effect is neutral or positive. Adverse effects do not qualify as discountable simply because we are not certain they will occur. The probability of occurrence must be extremely small to achieve discount ability. Likewise, adverse effects do not meet the definition of insignificant because they are less than major. If the adverse effect can be detected in any way or if it can be meaningfully articulated in a discussion of the results, then it is not insignificant, it is likely to adversely affect. (50 CFR 402.02, 2023)

Species considered in the assessment were assigned one of three levels of probability of occurrence within the project boundaries – low, moderate, and high probabilities. Low probability of occurrence was assigned to species in which preferred habitat was nonexistent within the Proposed Action boundaries and no signs of utilization were observed historically, and therefore, assigned a "No effect" determination. Moderate probability of occurrence was assigned to species in which preferred habitat was present, but no signs of utilization were observed or documented historically through previous surveys or observations, and therefore, assigned a "May effect, but not likely to adversely effect" determination. High probability of occurrence was assigned to species in which both preferred habitat was present and signs of utilization were observed historically, and therefore, assigned a May affect, and is likely to adversely affect" determination. A summary is included in **Table 3-8**.

Table 3-8 Effects Determination for Special Status Species

Common Name	*Scientific Name*	*Federal Status*	*State Status*	*Determination*
Mammals				
Choctawhatchee Beach Mouse	*Peromyscus polionotus allophrys*	E	-	May affect, not likely to adversely affect
St. Andrews Beach Mouse	*Peromyscus polionotus peninsularis*	E	-	May affect, not likely to adversely affect
West Indian Manatee	*Trichechus manatus*	T	-	No effect
Birds				
Eastern Black Rail	*Laterallus jamaicensi ssp. jamaicensis*	T	-	No effect
Piping Plover	*Charadrius melodus*	T	-	May affect, not likely to adversely affect
Red Knot	*Calidris canutus rufa*	T	-	May affect, not likely to adversely affect
Little Blue Heron	*Egretta caerulea*	-	T	May affect, not likely to adversely affect

Common Name	***Scientific Name***	***Federal Status***	***State Status***	***Determination***
Tricolored heron	*Egretta tricolor*	-	T	May affect, not likely to adversely affect
Scott's Seaside Sparrow	*Ammospiza maritima peninsulae*	-	T	May affect, not likely to adversely affect
Reptiles				
Alligator Snapping Turtle	*Macrochelys temminckii*	PT	-	May affect, not likely to adversely affect
Eastern Indigo Snake	*Drymarchon couperi*	T	-	May affect, not likely to adversely affect
Green Sea Turtle	*Chelonia mydas*	T	-	May affect, not likely to adversely affect
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	E	-	May affect, not likely to adversely affect
Leatherback Sea Turtle	*Dermochelys coriacea*	E	-	May affect, not likely to adversely affect
Loggerhead Sea Turtle	*Caretta caretta*	T	-	May affect, not likely to adversely affect
Gopher Tortoise	*Gopherus polyphemus*	-	T	May affect, not likely to adversely affect
Fishes				
Gulf Sturgeon	*Acipenser oxyrinchus desotoi*	T	-	May affect, not likely to adversely affect
Insects				
Monarch Butterfly	*Danaus plexippus*	C	-	No effect
Flowering Plants				
Godfrey's Butterwort	*Pinguicula ionantha*	T	E	No effect
Telephus Spurge	*Euphorbia telephioides*	T	E	No effect
White Birds-in-a-nest	*Macbridea alba*	T	-	No effect
Southern milkweed	*Asclepias viridula*	-	T	May affect, not likely to adversely affect
Toothed savory	*Calamintha dentata*	-	T	May affect, not likely to adversely affect
Curtiss' sandgrass	*Calamovilfa curtissii*	-	T	May affect, not likely to adversely affect
Many-flowered grass-pink	*Calopogon multiflorus*	-	T	May affect, not likely to adversely affect
Godfrey's goldenaster	*Chrysopsis godfreyi*	-	E	May affect, not likely to adversely affect
Florida waxweed	*Cuphea aspera*	-	E	May affect, not likely to adversely affect

Common Name	***Scientific Name***	***Federal Status***	***State Status***	***Determination***
Telephus spurge	*Euphorbia telephioides*	-	E	May affect, not likely to adversely affect
Pinewoods aster	*Eurybia spinulosa*	-	E	May affect, not likely to adversely affect
Henry's spiderlilly	*Hymenocallis henryae var. henryae*	-	E	May affect, not likely to adversely affect
Pineland bogbutton	*Lachnocaulon digynum*	-	T	May affect, not likely to adversely affect
West's flax	*Linum westii*	-	E	May affect, not likely to adversely affect
Gulf Coast lupine	*Lupinus westianus*	-	T	May affect, not likely to adversely affect
White birds-in-a-nest	*Macbridea alba*	-	E	May affect, not likely to adversely affect
Hummingbird flower	*Macranthera flammea*	-	E	May affect, not likely to adversely affect
Apalachicola dragon-head	*Physostegia godfreyi*	-	T	May affect, not likely to adversely affect
Godfrey's butterwort	*Pinguicula ionantha*	-	E	May affect, not likely to adversely affect
Primrose-flowered butterwort	*Pinguicula primuliflora*	-	E	May affect, not likely to adversely affect
Yellow fringeless orchid	*Platanthera integra*	-	E	May affect, not likely to adversely affect
Small-flowered meadowbeauty	*Rhexia parviflora*	-	E	May affect, not likely to adversely affect
Panhandle meadowbeauty	*Rhexia salicifolia*	-	T	May affect, not likely to adversely affect
Florida flame azalea	*Rhododendron austrinum*	-	E	May affect, not likely to adversely affect
Chapman's rhododendron	*Rhododendron chapmanii*	-	E	May affect, not likely to adversely affect
Nightflowering wild petunia	*Ruellia noctiflora*	-	E	May affect, not likely to adversely affect
Florida skullcap	*Scutellaria floridana*	-	E	May affect, not likely to adversely affect
Mock pennyroyal	*Stachydeoma graveolens*	-	E	May affect, not likely to adversely affect
Giant water cowbane	*Tiedemannia filiformis ssp. greenmanii*	-	E	May affect, not likely to adversely affect

Common Name	*Scientific Name*	*Federal Status*	*State Status*	*Determination*
Quillwort yellow-eyed grass	*Xyris isoetifolia*	-	E	May affect, not likely to adversely affect
Harper's yellow-eyed grass	*Xyris scabrifolia*	-	T	May affect, not likely to adversely affect
Large-leaved jointweed	*Polygonella macrophylla*	-	T	May affect, not likely to adversely affect

Legend: E=Endangered, T= Threatened, C= Candidate, PT=Proposed Threatened

3.4.4.1 Preferred Alternative

3.4.4.1.1 Golf Course Boardwalk/Pier

Through the destruction of occupied habitat or potential of habitat utilization, habitat loss is considered a direct impact by transforming usable habitat to unusable disturbance. This impact is considered to be minimal as the boardwalk design is an elevated design with ground disturbance only occurring from pilings. Impacts to native vegetation would include disturbance, damage, and removal of plant materials during installation of pilings. Impacts arising from the installation of the pier is expected to be minimal as the installation is to occur in the footprint of an existing unusable pier. Construction from an on-water barge would be used to minimize construction and temporary access impacts from land.

Using the MRGIS web application, both continuous and patchy seagrass is expected to occur within the Golf Course Boardwalk/Pier project boundary (FWC, 2021).

Since the design dictates installation of new pilings in locations where existing pilings are, direct impact may be avoided. However as underwater installation occurs, potential for increased turbidity in surrounding waters exists. In order to minimize impact further, specialized equipment during installation would be employed to minimize damage to seagrass beds, such as utilizing a vibratory pile driver instead of a standard pile driver, which can cause less disturbance to the seafloor. Where viable an open-mesh grating for walkways and decking to allow light to penetrate to the vegetation below may be used. In addition, development and implementation of a Turbidity Control Monitoring Plan may be required to ensure that turbidity does not exceed 29 Nephelometric Turbidity Units, and that nearby seagrass beds would not be affected by turbidity.

Given the existing construction plans, it is potentially feasible to prevent direct impacts on SAV beds. Nevertheless, certain activities like piling installation and removal have the potential to cause elevated water turbidity in the nearby waters, thereby indirectly affecting both continuous and patchy SAV beds.

The construction of this project would lead to short-term insignificant adverse impacts to wildlife due to habitat disturbance and individual displacements.

Regarding the operation phase, increased human presence and noise associated with the Proposed Action would cause minor disturbances to wildlife around the site. Over time, many wildlife species have and would adapt to these new conditions or relocate to other areas, resulting in a long-term, insignificant adverse impact on wildlife.

3.4.4.1.2 Eagle Drive Parking Lot

The conversion of a gravel parking area to a paved surface may involve clearing vegetation and altering the natural habitat. This can result in the loss of plant and animal species that rely on the area for

shelter, food, or breeding. However, the area is currently utilized for parking and is currently non-vegetated. No adverse effects to habitat or vegetation are expected.

3.4.4.1.3 NCO Boardwalk

Dunes are fragile ecosystems that provide habitat for unique plant and animal species. The construction of a boardwalk can disrupt these habitats, leading to the loss or displacement of dune vegetation and potentially impacting the wildlife that rely on the dunes for shelter and food.

The installation process of a boardwalk may involve excavation and disturbance of the dune sediments, potentially leading to increased soil erosion. This can result in the destabilization of the dune structure and the loss of valuable sand resources.

During the construction process, trampling or compaction of dune vegetation may occur, harming the plants' roots and overall health. Damage to dune vegetation can lead to the loss of dune stabilization, increased vulnerability to erosion, and the disruption of natural plant succession processes.

Dunes play a crucial role in coastal processes such as sand accumulation, wave attenuation, and storm surge protection. The construction of a boardwalk can interrupt these natural processes by altering sediment transport patterns and obstructing the movement of wind and sand.

As a beneficial use, a boardwalk can provide improved access for visitors to enjoy and appreciate dune ecosystems. The elevated design would decrease direct human activity and foot traffic within tertiary dune systems. Boardwalk piling structures may also encourage accretion of sand and encourage dune formation.

Due to the project footprint remaining in an existing beach access footpath, wildlife habitat is not present within the project boundary. Wildlife utilization is expected to primarily occur within the adjacent coastal dune environment.

The construction of this project would lead to short-term insignificant adverse impacts to wildlife due to indirect disturbance from increased human activity.

Regarding the operation phase, increased human presence and noise associated with the Proposed Action would cause minor disturbances to wildlife around the site. Over time, many wildlife species have and would adapt to these new conditions or relocate to other areas, resulting in a long-term, insignificant adverse impact on wildlife.

3.4.4.1.4 Perimeter Fence, Building 9310

The installation of a fence can have several impacts on vegetation. Depending on the location and design of the fence, vegetation may need to be cleared or removed to make way for the fence line. This can result in the loss of existing plants and disruption of the natural vegetation community.

During fence installation, heavy machinery and construction activities can lead to soil compaction and damage to the root systems of nearby vegetation. Compacted soil can hinder water infiltration and nutrient uptake, affecting the health and vitality of plants.

Any impacts due to disruption of wildlife corridors or fragmentation of habitat is negligible because this installation would be replacing an existing fence in kind.

The construction of this project would lead to short-term insignificant adverse impacts to wildlife due to habitat disturbance and individual displacements.

Regarding the operation phase, increased human presence and noise associated with the Proposed Action would cause minor disturbances to wildlife around the site. Over time, many wildlife species have and would adapt to these new conditions or relocate to other areas, resulting in a long-term, insignificant adverse impact on wildlife.

3.4.4.1.5 No Action Alternative

Under this alternative, there would be no construction or ground-disturbing activities taking place. Consequently, there would be no direct impact, alteration, or loss of vegetation, wildlife, or habitat. Neither the Proposed Action nor the alternatives would directly benefit vegetation, animals, or habitats. As a result, the No Action Alternative would not have any direct or indirect beneficial or adverse impacts on biological resources, including federally and/or state-listed species.

3.4.4.2 Conservation Measures

The EA analysis suggests the implementation of the following conservation measures for the Proposed Actions at Tyndall AFB to reduce potential impacts on rare, threatened, or endangered species.

- To minimize the potential for adverse impacts on the West Indian manatee, all in-water construction activities would follow the *2011 Standard Manatee Conditions for In-Water Work*.
- To minimize the potential for adverse impacts on the loggerhead, green, leatherback, and Kemp's ridley sea turtles, all in-water construction activities would adhere to the Sea Turtle and Smalltooth Sawfish Construction Conditions (Revised March 23, 2006). Integrated Natural Resources Management Plan (INRMP) management practices for predator control, beach lighting, beach driving, and nest protection would also be followed.
- To minimize the potential for adverse impacts on the Gopher tortoise, the FWC Gopher Tortoise Guidelines (revised April 2023) buffer requirements would be followed if potentially occupied burrows are observed during construction.
- To minimize the potential for adverse impacts on SAV, design elements of the Golf Course pier would incorporate *The Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat*, published jointly by the USACE and NMFS.

3.5 Water Resources

3.5.1 Definition of the Resource

In the context of this EA, the water resources considered include groundwater, surface waters such as wetlands and U.S. water bodies, as well as floodplains and coastal areas. The evaluation of these resources in the EA aligns with the project boundaries associated with the Proposed Action plans, which involve construction and demolition activities.

3.5.2 Affected Environment

3.5.2.1 Surface Water

Tyndall AFB is located within the St. Andrew Bay watershed. The St. Andrew Bay Watershed covers around 740,000 acres in the central Florida panhandle, and it stands out as a unique watershed due to the absence of major rivers (NWFWMD, 2017).

The estuarine system of St. Andrew Bay encompasses an area of around 59,568 acres and consists of five bay and lagoon segments: St. Andrew Bay, East Bay, West Bay, North Bay, and Grand Lagoon. St. Andrew Bay is situated to the northwest of Tyndall AFB and northeast of East Bay. In addition, St. Andrew Sound can be found to the south of Tyndall AFB and covers an approximate area of 4,707 acres. Unlike watershed systems that feature significant rivers, the estuarine waters within the St. Andrew Bay Watershed are characterized by greater depth, clarity, and a consistently higher salinity level.

3.5.2.2 Wetlands

Wetlands are areas characterized by being regularly flooded or saturated by surface or groundwater, providing an environment suitable for vegetation adapted to saturated soil conditions. Swamps, marshes, bogs, and similar areas are commonly included in the definition of wetlands (33 CFR 328.3[b]) (USEPA, 2021; USACE, 2010).

Each Proposed Action project boundary was investigated for the presence of wetlands and other surface waters (OSW) by applying guidelines found within the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (USACE, 2010) and methodologies prescribed in Chapter 62-340,F.A.C., "Delineation of the Landward Extent of Wetlands and Surface Waters". Wetlands and OSW were classified according to the FLUCFCS and USFWS' *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et al., 1979). **Table 3-9** provides a summary of the identified wetlands and OSWs within the Proposed Action project boundaries, including their acreage and types.

Table 3-9 Summary of Identified Wetlands and OSW

Project	*Feature*	*FLUCFCS Description*	*USFWS Description*	*Acres (LOD)*
Golf Course Boardwalk/Pier (**Figure 3-6)**	Wetland	Upland Mixed – Coniferous Hardwood	Freshwater Forested Shrub Wetland	0.75
Golf Course Boardwalk/Pier **(Figure 3-6)**	OSW	Embayment to the Gulf of Mexico	Estuarine and Marine Wetland	0.87
Perimeter Fence, Building 9310 (**Figure 3-7)**	Wetland	Hydric Pine Flatwood	Freshwater Forested Shrub Wetland	0.61
			Total - Wetlands	**1.36**
			Total OSW	**0.87**

Legend: OSW = Other Surface Waters; FLUCFCS = Florida Land Use Cover and Forms Classification System; USFWS = U.S. Fish and Wildlife Service; LOD = Limits of Disturbance

Source: NDN Companies (NDN), 2023

Figure 3-6 Identified Wetlands and OSW - Golf Course Boardwalk/Pier

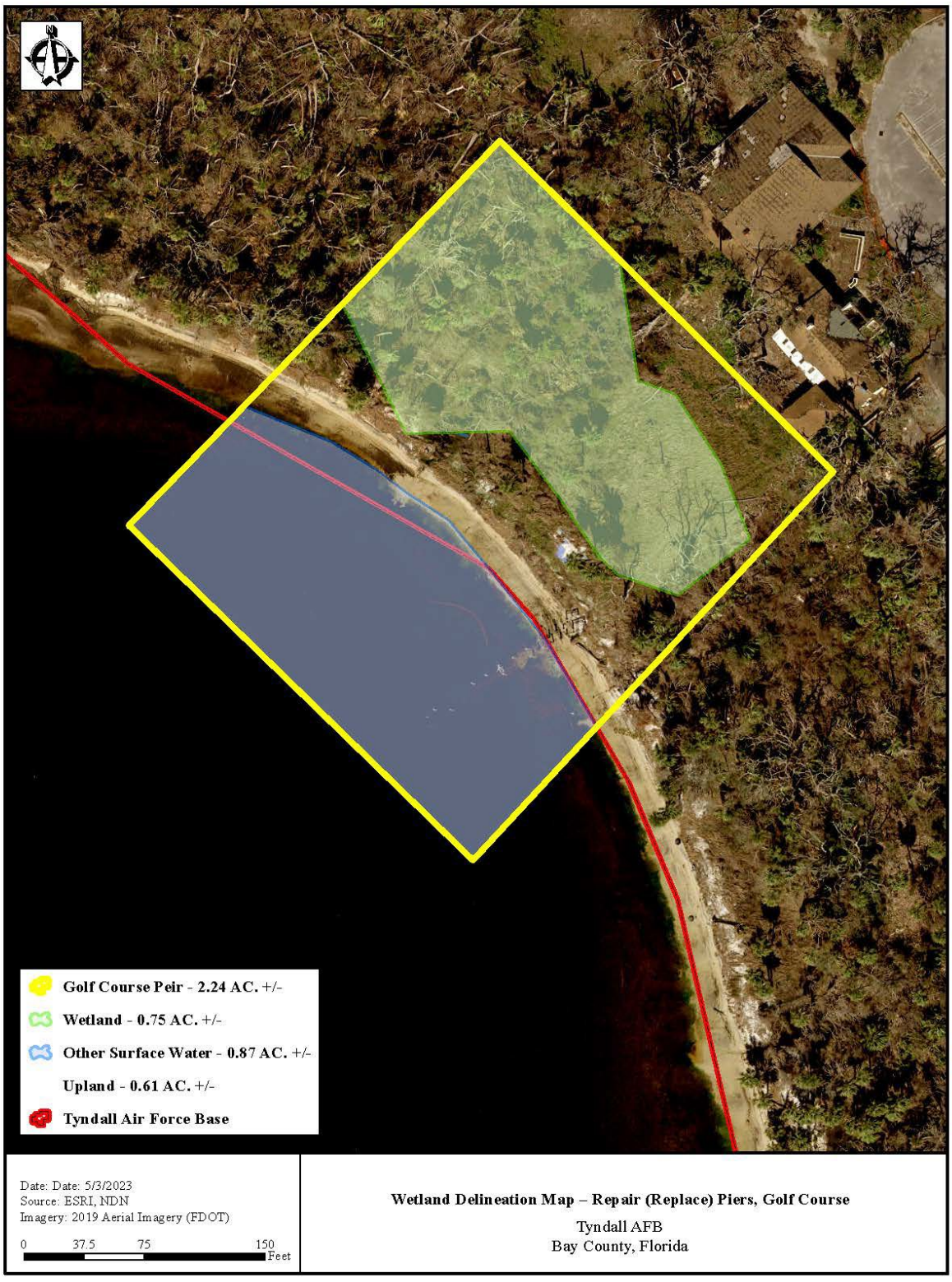
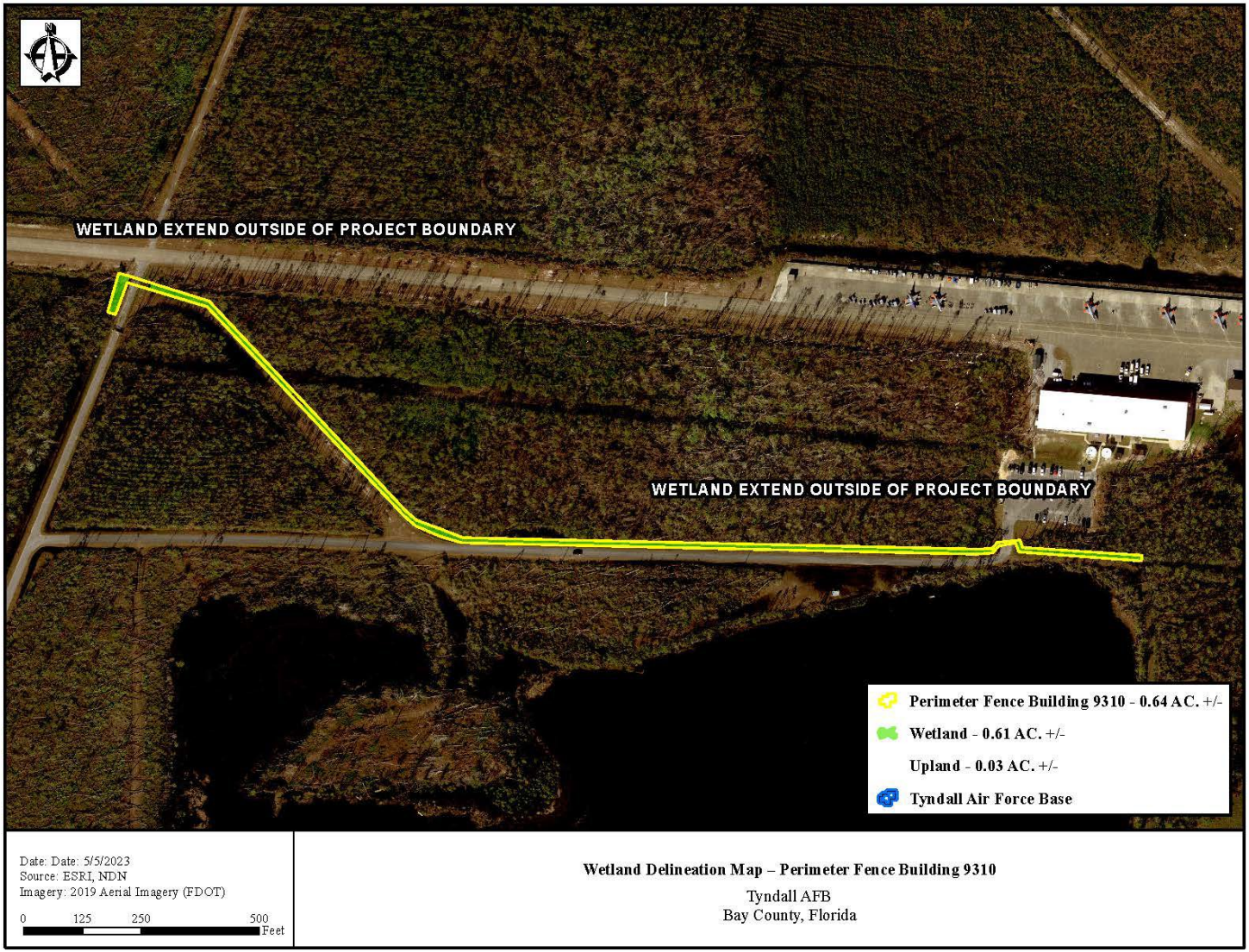


Figure 3-7 Identified Wetlands - Perimeter Fence, Building 9310



3.5.2.3 Floodplains

Floodplains are classified into Special Flood Hazard Areas by the Federal Emergency Management Agency (FEMA) according to their annual flood risk. EO 11988 mandates that federal agencies should prioritize avoiding any direct or indirect support or development within or affecting the 100-year floodplain whenever feasible alternatives exist. The 100-year floodplain is defined as an area adjacent to a water body that has a 1 percent or greater chance of inundation in any given year. Additionally, the order prohibits federal agencies from conducting, supporting, or permitting actions in floodplains unless it is the only viable option available.

EO 13690 includes the 500-year floodplain in the Federal Flood Risk Management Standard. A 500-year flood has a 0.2 percent chance of occurring in a given year. The 500-year floodplain does not exist within any of the project boundaries of the Proposed Action (FEMA, 2022).

The location and extent of 100-year floodplain areas along with any 500-year floodplain or other zones within the Proposed Action project boundaries are summarized in **Table 3-10** and **Figures 3-8 to 3-11** below.

Table 3-10 Floodplains within LOD

Project	*Zone A*	*Zone AE*	*Zone VE*	*Zone X500*	*Zone X*	*Total*
Golf Course Boardwalk/Pier (**Figure 3-8)**	--	0.83	1.4	--	--	2.23
Eagle Drive Parking (**Figure 3-9**)	--	--	--	--	0.66	0.66
NCO Boardwalk (**Figure 3-10**)	--	0.09	1.13	--	--	1.22
Perimeter Fence, Building 9310 (**Figure 3-11**)	0.01	0.31	--	--	0.32	0.64
Total Floodplain within Project Boundary	**0.01**	**1.23**	**2.53**	**0.0**	**0.98**	**4.75**

Legend: LOD = Limits of Disturbance;

Notes: Zone A and AE – one percent annual chance of flooding (100-year floodplain); Zone VE – one percent chance of flooding with additional hazards due to storm induced velocity wave action (100-year floodplain with additional hazards); Zone X500 – 0.2% annual chance of flooding (500-year floodplain); Zone X – area outside of the Special Flood Hazard Areas (low-risk flood zone)

Source: FEMA, 2022

Figure 3-8 FEMA Flood Zones - Golf Course Boardwalk/Pier

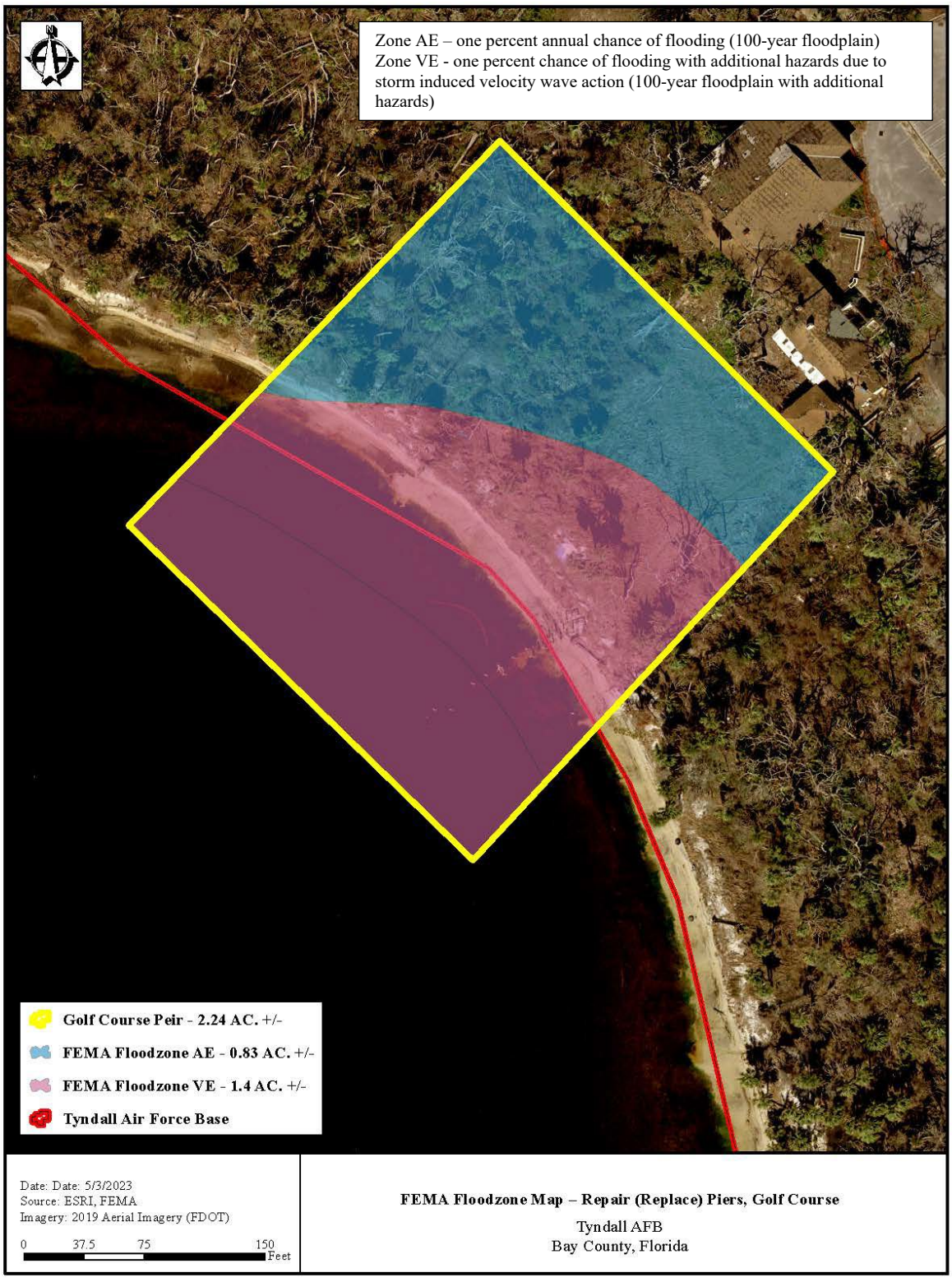


Figure 3-9 FEMA Flood Zones - Eagle Drive Parking Lot

Figure 3-10 FEMA Flood Zones - NCO Boardwalk

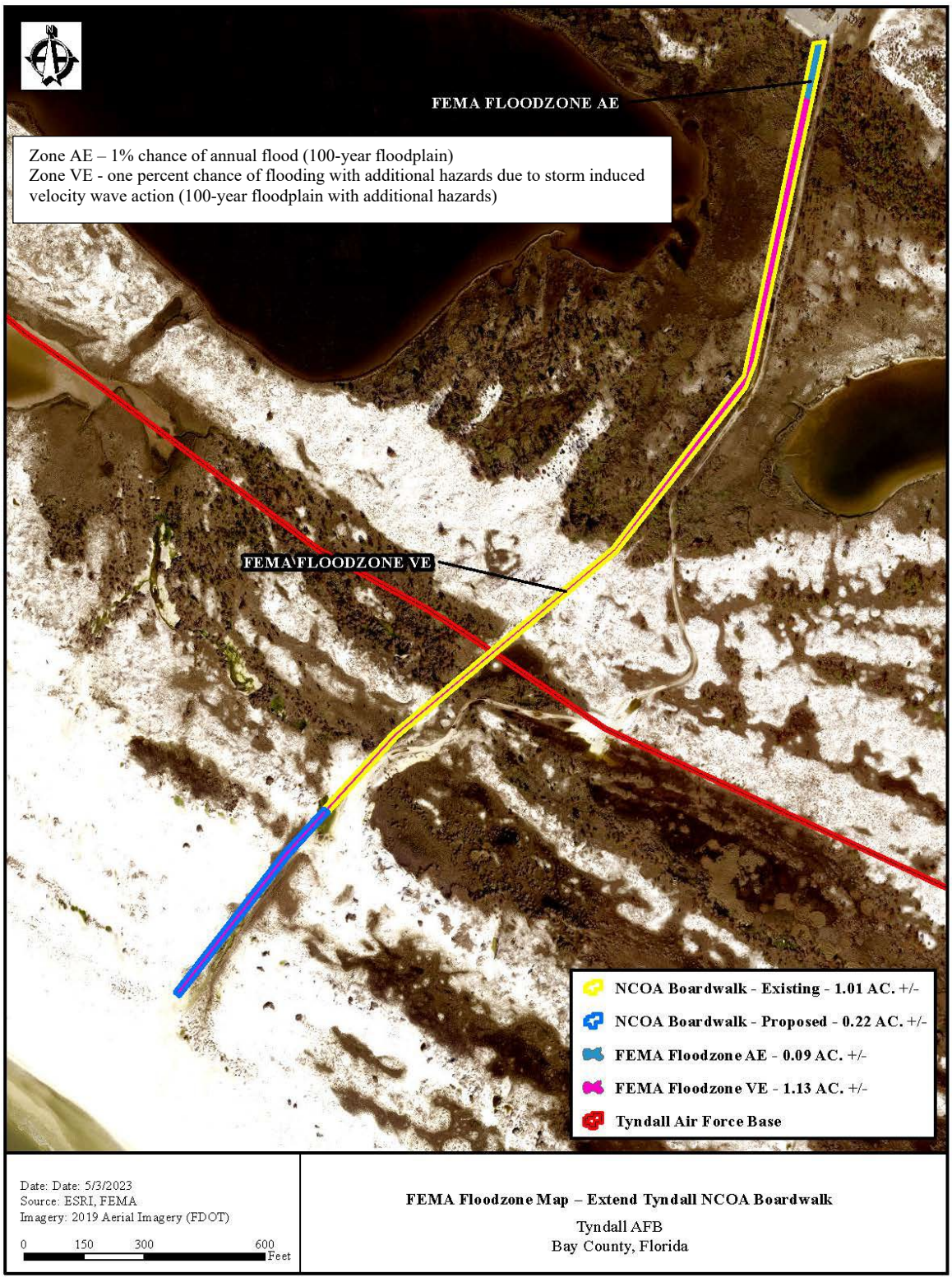
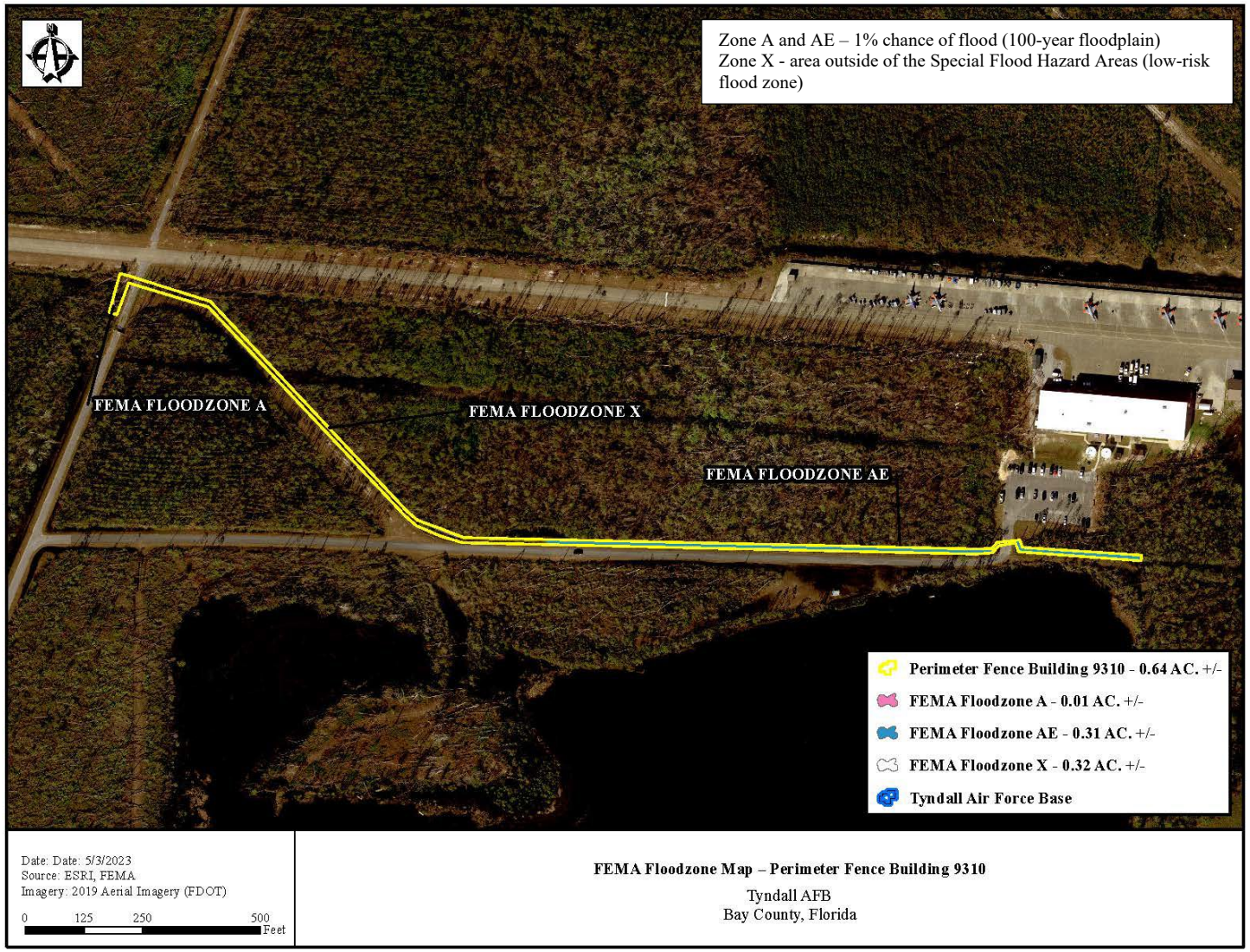


Figure 3-11 FEMA Flood Zones - Perimeter Fence, Building 9310



3.5.2.4 Groundwater

Tyndall AFB is primarily situated on the Floridan Aquifer System, which is a major regional aquifer in the southeastern U.S. This aquifer consists of several layers of porous limestone and is known for its high water-yielding capacity. The water table represents the upper boundary of the saturated zone, where groundwater is present. The depth of the water table can vary depending on factors such as rainfall patterns, water extraction, and topography.

Groundwater at Tyndall AFB generally flows from north to south, following the regional slope of the Floridan Aquifer System. The flow direction is influenced by the topography and hydraulic gradients in the area.

3.5.2.5 Coastal Zone Management

The coastal zone pertains to coastal lands and water uses that fall under the governance of the FDEP in accordance with the Federal Coastal Zone Management Act, as amended. The implementation of these regulations within Florida is carried out by the Florida Coastal Management Program (FCMP), which encompasses the state's 67 counties and territorial seas. The outer boundary of Florida's coastal zone is defined as the extent of state waters, which stretches three nautical miles from the shore along the Atlantic Ocean coast and nine nautical miles from the shore along the Gulf of Mexico coast. Since Tyndall AFB is situated within the coastal zone, as such the Proposed Action is subject to FDEP Coastal Zone Management Plan consistency review.

3.5.3 Environmental Consequences

The Proposed Action projects are planned to be constructed within the 100-year floodplain and wetland areas. The absence of viable alternatives for these projects is influenced by the following factors:

Integration

Physical Limitations: The unique attributes of the coastal environment pose difficulties in establishing beach access infrastructure. At Tyndall AFB, these limitations encompass well-established dunes and delicate ecosystems, necessitating meticulous planning to ensure the development of sustainable access points. Given the Proposed Action's utilization of existing footpaths and damaged boardwalks at the NCO Boardwalk and Golf Course pier sites, all other potential locations would impose more significant environmental repercussions.

Infrastructure Limitations: One objective of the Proposed Action is to facilitate access for installation personnel and the public to engage in recreational beach activities. The designs of both the NCO boardwalk and Golf Course Boardwalk/Pier are connected to an existing access parking lot. Since there is already supporting infrastructure in place, the Proposed Action is dependent on utilizing it, leaving no other feasible alternatives. Regarding the Perimeter Fence for Building 9310, the absence of viable alternatives for placement is primarily attributed to the reliance on associated infrastructure (Building 9310).

Site Suitability

The placement of Perimeter Fence at Building 9310 is necessitated by several factors related to safety, security, and control. These factors include:

Perimeter Protection: Needed to establish a clear boundary and secure the perimeter of Building 9310. As well as prevent unauthorized access and protect sensitive areas from intrusion.

Unauthorized Entry Prevention: To act as a physical barrier that discourages trespassing and helps maintain control over who enters and exits the premises.

Asset Protection: To safeguard assets and equipment by restricting access and minimizing the risk of unauthorized individuals compromising the security of assets contained in Building 9310.

3.5.3.1 Preferred Alternative

Groundwater

For all Proposed Action projects, construction activities would not involve the removal or release of water from surface water bodies or groundwater. If groundwater is encountered during construction, regulations outlined in Chapter 62-302.530, F.A.C. and 62-621.300, F.A.C., and Best Management Practices (BMPs) specified in the State of Florida Erosion and Sediment Control Designer and Reviewer Manual would be utilized. No effect to groundwater is expected from the Proposed Action.

Coastal Zone Management

For all Proposed Action projects, the FCMP requires the application of Section 307 of the Coastal Zone Management Act on federal land activities. This mandates that activities carried out on federal lands, which may impact coastal resources or non-federal lands, must comply to the fullest extent feasible with the enforceable policies outlined in the FCMP. In a response letter from FDEP dated May 3, 2023 (Appendix A) it is stated that the state has no objections to the Proposed Action and that it is consistent with the FCMP.

3.5.3.1.1 Golf Course Boardwalk Pier

Wetlands and Other Surface Waters

The Proposed Action project has the potential to cause temporary and minor indirect effects on surface waters due to increased erosion and sedimentation during construction or demolition activities. However, by implementing BMPs specified in the Stormwater Pollution Prevention Plan (SWPPP), these impacts would be minimized.

It is estimated that the Golf Course Boardwalk Pier project would impact approximately 0.75 acres of wetlands and 0.87 acres of OSW.

Wetlands situated within the Proposed Action areas underwent a thorough assessment using the Uniform Mitigation Assessment Method (UMAM) in accordance with Chapter 62-345, F.A.C (**Appendix C**). The UMAM methodology is a standardized procedure employed by regulatory agencies throughout Florida to evaluate the functions of wetlands and OSW. It assesses the extent to which these functions would be diminished by a proposed impact and determines the mitigation required to compensate for the loss. The UMAM considers various factors including the current state of the ecological community, hydrologic connections, uniqueness, location, utilization by fish and wildlife, time lag, and mitigation risk.

As part of the UMAM results, functional loss units are used to quantify and evaluate the potential impacts on various ecosystem functions, such as water quality improvement, flood storage, habitat provision, and nutrient cycling, among others. These units help in understanding the significance and value of wetland functions and aid in determining the appropriate mitigation measures required to offset any loss of these functions.

By assessing functional loss units, regulators and environmental professionals can better understand the potential ecological consequences of a proposed project or action on wetlands and surface waters. This information then guides decision-making regarding mitigation requirements and helps ensure that the overall ecological integrity and services of these natural systems are adequately protected and compensated for any impacts that may occur.

The functional loss for wetland impact of the Golf Course Boardwalk/Pier project are calculated at 0.0054 units **(Appendix C).**

BMPs and engineering controls to minimize the potential damage to wetland and OSW habitats in all project areas would be implemented. The regulatory jurisdiction of wetlands and OSW would be determined as part of the federal/state 404 permitting processes. Throughout the design and permitting stages, efforts would be made to minimize both direct and indirect impacts on wetlands and OSW to the maximum extent feasible.

Floodplains

Special Flood Hazard Areas or 100-year floodplains are found within the project boundaries of the Golf Course Boardwalk/Pier as stated in Section 3.5.2.3. Impact acreage would be refined during the permitting process, particularly for construction of elevated features. The construction activities have the potential to temporarily alter the natural flow patterns within the floodplain. Excavation, grading, and the installation of new structures may modify the topography and drainage characteristics, potentially affecting the flow and storage of floodwaters.

During the design phase, the project would implement design measures to avoid/minimize direct impacts to floodplains to the greatest extent practicable. The use of standard BMPs and erosion control measures during construction would minimize erosion, sedimentation and other potential indirect effects on floodplains. No adverse effects are expected.

3.5.3.1.2 Eagle Drive Parking Lot

Wetlands and Other Surface Waters

No wetland exists within the project footprint, therefore no significant impacts are expected.

Floodplains

No floodplain exists within the project footprint, therefore no significant impacts are expected.

3.5.3.1.3 NCO Boardwalk

Wetlands and Other Surface Waters

No wetland exists within the project footprint, therefore no significant impacts are expected.

Floodplains

Special Flood Hazard Areas or 100-year floodplains are found within the project boundaries of the NCO Boardwalk project as stated in Section 3.5.2.3.

Impact acreage would be refined during the permitting process, particularly for construction of elevated features. The construction activities have the potential to temporarily alter the natural flow patterns within the floodplain. During the design phase, the project would implement design measures to avoid/minimize direct impacts to floodplains to the greatest extent practicable. The use of standard BMPs and erosion control measures during construction would minimize erosion, sedimentation and other potential indirect effects on floodplains. No adverse effects are expected.

3.5.3.1.4 Perimeter Fence Building 9310

Wetlands and Other Surface Waters

Similar to the Golf Course Boardwalk/Pier project, the Perimeter Fence, Building 9310 project has the potential to cause temporary and minor indirect effects on surface waters due to increased erosion and sedimentation during construction or demolition activities. However, by implementing BMPs specified in the SWPPP, these impacts would be minimized.

It is estimated that the Perimeter Fence, Building 9310 project would impact approximately 0.61 acres of wetlands and 0.87 acres of OSW.

Wetlands situated within the Proposed Action project area underwent a thorough assessment using the UMAM in accordance with Chapter 62-345, F.A.C (Appendix C).

The functional loss as a result of wetland impact for the Perimeter Fence project is calculated at 0.407 units (Appendix C)

BMPs and engineering controls to minimize the potential damage to wetland and OSW habitats in the project area would be implemented. The regulatory jurisdiction of wetlands and OSW would be determined as part of the federal/state 404 permitting processes. Throughout the design and permitting stages, efforts would be made to minimize both direct and indirect impacts on wetlands and OSW to the maximum extent feasible.

Floodplains

Special Flood Hazard Areas or 100-year floodplains are found within the project boundaries of the Building 9310 Perimeter Fence project as stated in Section 3.5.2.3.

During the design phase, the project would implement design measures to avoid/minimize direct impacts to floodplains to the greatest extent practicable. The use of standard BMPs and erosion control measures during construction would minimize erosion, sedimentation and other potential indirect effects on floodplains. No adverse effects are expected.

3.5.3.2 No Action Alternative

Under this alternative, there would be no construction, ground disturbance, or dredging activities. As a result, there would be no direct impact or alteration to water resources. Furthermore, foot traffic would remain within an existing footpath at the Golf Course Boardwalk/Pier site. Under the No Action Alternative foot travel would not occur on an elevated boardwalk but remain in direct ground contact traversing through wetland areas. As such, the No Action Alternative would not have any direct or indirect beneficial or additional adverse impacts on water resources.

3.6 Cultural Resources

3.6.1 Definition of the Resource

Cultural resources are the material evidence of human occupation and use of the natural environment. "Cultural resources "are defined by various terms in federal laws, guidelines, and orders. However, the most relevant definition is "historic property", which is described in the implementing guidance, 36 CFR 800.16(I)1, of the NHPA (54 U.S.C. 300308) as "…*any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places*..." The term "historic property" includes artifacts, records, and remains that are related to and located within such properties. It also incorporates properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the National Register criteria.

3.6.2 Regulatory Setting

Aside from the requirements of NEPA, the described alternatives would occur within the parameters of other federal legislation and Air Force guidelines applicable to cultural resources. These include, but are not limited to, the NHPA and its implementing guidance, 36 CFR 800; the American Indian Religious Freedom Act (42 U.S.C. 1996), the Archaeological Resources Protection Act (16 U.S.C. 1B), the American Antiquities Act (16 U.S.C. 431-433), the Native Graves Protection and Repatriation Act (25 U.S.C. 32), EO 13007, DoDI 4710.02, DAFI 90-2002, and AFMAN 32-7003.

3.6.3 Affected Environment

The affected environment for cultural resources coincides with the area of potential effects (APE), as defined through consultation under the NHPA and 36 CFR 800(d). In the case of the current analysis, the ROI established for this EA corresponds to the Limits of Disturbance (LOD) for the individual Preferred Alternative, and a one-half mile buffer of these LODs would serve as the APE for the actions and alternatives.

The Tyndall AFB Cultural Resources Management Program provided data about the cultural resources and investigations located in the APE, and additional information was gathered from the Florida Division of Historic Resources' Florida Master Site File. As part of the requirements of the NHPA, the Air Force would also consult with the base's stakeholders to identify additional resources within the APE and to assess the effects of the undertaking on these properties. The cultural resources, and the investigations to identify these resources, within the APE of the Preferred Alternative projects, are described below.

3.6.3.1 Perimeter Fence, Building 9310

The APE for the construction of the perimeter fence was investigated for cultural resources by multiple organizations between 1976 and 2022 with the entire LOD surveyed for archaeological resources by Prentice Thomas and Associates (PTA) (Clark et al., 2017), Leidos (2020), and the Corps of Engineers (Nielsen, 1976). These surveys are listed in **Table 3-11**.

Table 3-11 Prior Archaeological and Architectural Surveys Performed Within Perimeter Fence, Building 9310 APE

Survey No.	*Survey Type*	*Date*	*Author*	*Company*	*Title*	*Identified Sites*
424	Archaeological	1976	Jerry Nielsen	Corps of Engineers, Mobile District	*Cultural Resources Survey of the Proposed Drone Runway and Supporting Facilities, Tyndall Air Force Base*	None
138	Both	1979	Gary D. Knudsen	Florida State University	*Partial Cultural Resource Inventory of Tyndall Air Force Base, Florida*	None
9035	Architectural	1996	Donald M. Durst and Charissa Y. Wang	Hardlines Design and Delineation	*Historic Preservation Plan for Tyndall Air Force Base*	8BY1209
1387	Archaeological	1985	Prentice M. Thomas, Jr. and L. Janice Campbell	New World Research	*Cultural Resources Investigation at Tyndall Air Force Base, Bay County, Florida*	None
17463	Architectural	2010	Marsha Prior and Jessica Forbes	Geo-Marine	*Tyndall Air Force Base, Inventory and Assessment of Cold War-Era Buildings Constructed Between 1956 and 1991, Volumes I and II*	8BY1465, B8Y1466
24677	Archaeological	2017	Ryan N. Clark, James R. Morehead, L. Janice Campbell, and Zachary Cruze	Prentice Thomas and Associates	*Archaeological Survey of TY-144, Tyndall Air Force Base, Bay County, Florida*	8BY2301, B8Y2302
23831	Archaeological	2016	Mark Martinkovic, Kathleen Ferguson, Benjamin Stewart, Scott Seibel	URS Group	*Phase I Archaeological Investigation of Survey Area TY-0123, Tyndall Air Force Base, Bay County, Florida*	None

Survey No.	Survey Type	Date	Author	Company	Title	Identified Sites
	Archaeological	2020	Leidos	Leidos	*Phase I Archaeological Survey for F-35A Wing and MQ-9 Beddowns at Tyndall AFB, Bay County, Florida.*	None
	Architectural	2022	Daniel J. O'Rourke, James Kuiper, Conner Wiktorowicz, Lynn M. Gierek, and Konnie L. Wescott	Argonne National Laboratories	*Evaluation of 24 World War II Ranges at Tyndall Air Force Base, Bay County, Florida*	8BY3169

The investigations identified one historic property, 8BY3169, within the APE. 8BY3169 is the remnants of a World War II-era training range that was recommended by Argonne National Laboratories (O'Rourke et al., 2022) as ineligible for the National Register of Historic Places (NRHP) listing in 2022.

An additional five properties are located within the APE of the preferred alternative. The resources are a mix of extant buildings used for military training, and demolished military properties recorded as archaeological sites. The standing buildings (8BY1465 and 8BY1466) are considered ineligible for NRHP listing while the demolished structures require additional work to determine their eligibility. These properties are listed in **Table 3-12**.

Table 3-12 Identified Properties Within the Perimeter Fence, Building 9310 APE

Trinomial	Type	Name	Function	Age	NRHP Tyndall	NRHP District	NRHP SHPO	Comment
8BY1209	Building	Building 8402	Warehouse	1943	Ineligible	Potentially eligible	Not evaluated	Demolished; now BY2302
8BY1465	Building	Drone Storage	Warehouse	1991	Ineligible	Ineligible	Ineligible	--
8BY1466	Building	Drone Hangar	Hangar	1978	Ineligible	Ineligible	Ineligible	--
8BY2301	Site	TY-144-G	Building ruins	20th c.	Potentially eligible	--	Potentially eligible	--
8BY2302	Site	TY-144-H	Building ruins	20th c.	Potentially eligible	--	Potentially eligible	--
8BY3169*	Site	--	Military range	Mid-20th c.	Ineligible	Ineligible	Not evaluated	--

Legend: APE = Area of Potential Effect; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Office

Notes: *Within LOD

3.6.3.2 NCO Boardwalk

The APE for the extension of the NCO boardwalk was investigated for cultural resources by multiple firms between 1979 and 2020 with the northern two-thirds of the LOD encompassed by the surveys conducted by Wood Infrastructure and Environmental Solutions (Wood; Bradley et al., 2020), Florida State University (Knudsen, 1979), and New World Research (NWR) (Thomas et al., 1985). These surveys are listed in **Table 3-13**.

Table 3-13 Prior Archaeological and Architectural Surveys Conducted Within NCO Boardwalk APE

Survey No.	*Survey Type*	*Date*	*Author*	*Company*	*Title*	*Identified Sites*
138	Both	1979	Gary D. Knudsen	Florida State University	*Partial Cultural Resource Inventory of Tyndall Air Force Base, Florida*	None
1387	Archaeological	1985	Prentice M. Thomas, Jr. and L. Janice Campbell	New World Research	*Cultural Resources Investigation at Tyndall Air Force Base, Bay County, Florida*	None
9035	Architectural	1996	Donald M. Durst and Charissa Y. Wang	Hardlines Design and Delineation	*Historic Preservation Plan for Tyndall Air Force Base*	8BY1180, 8BY1181, 8BY1184-1190, 8BY1224, 8BY1238, 8BY1242, 8BY1243
17904	Archaeological	2010	Steven RabbySmith	Brockington and Associates	*Phase I Archaeological Survey of the Site DB039 Debris Dump Tract, Tyndall Air Force Base, Bay County, Florida*	8BY1496
24705	Archaeological	2017	L. Janice Campbell, Ryan N. Clark, James R. Morehead, and Shannon Brannon	Prentice Thomas and Associates	*Archaeological Survey of TY-155, Tyndall Air Force Base, Bay County, Florida*	8BY2377
--	Archaeological	2020	Dawn Bradley, Stephen Mocas, and Bridget A. Mohr	Wood Environmental & Infrastructure Solutions	*Phase I Archaeological Survey – Survey Areas TY-162, TY-163, and TY-164, Tyndall Air Force Base, Bay County, Florida.*	None

Legend: APE = Area of Potential Effect

The investigations identified no cultural resources within the portion of the LOD that was surveyed. However, seventeen properties, including three archaeological sites, are located within the APE of the preferred alternative. The properties are primarily demolished military buildings, which were located to the north and northeast of the LOD. The three archaeological sites consist of shell middens dating from the Fort Walton and Weeden Island periods (8BY1496 and 8BY2716) and a scatter of artifacts and building debris dating from the early to mid-20th century (8BY2377). 8BY2377 is considered ineligible for NRHP listing. The Florida SHPO has not evaluated the remaining archaeological sites. All properties are listed in **Table 3-14**.

Table 3-14 Identified Properties Within the NCO Boardwalk APE

Trinomial	*Type*	*Name*	*Function*	*Age*	*NRHP Tyndall*	*NRHP District*	*NRHP SHPO*	*Comment*
8BY1180	Building	Building 1530	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1181	Building	Building 1532	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1184	Building	Building 1602	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1185	Building	Building 1604	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1186	Building	Building 1608	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1187	Building	Building 1610	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1188	Building	Building 1612	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1189	Building	Building 1613	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1190	Building	Building 1614	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1224	Building	Building 930	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1238	Building	Building 1041	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1242	Building	Building 1140	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1243	Building	Building 1142	--	1943	Ineligible	Ineligible	Not evaluated	Demolished
8BY1496	Site	Wet Dune Midden	Shell midden	Ft. Walton; Weeden Island II	Potentially eligible	--	Not evaluated	--

Trinomial	*Type*	*Name*	*Function*	*Age*	*NRHP Tyndall*	*NRHP District*	*NRHP SHPO*	*Comment*
8BY2377	Site	TY-155-C	Artifact scatter; building debris	20th c.	Ineligible	--	Ineligible	--
8BY2716	Site	--	Shell midden	Ft. Walton; Weeden Island II	Ineligible	--	Not evaluated	--

Legend: APE = Area of Potential Effect

3.6.3.3 Eagle Drive Parking Lot

The APE for the construction of a parking lot at the Eagle Drive pier was surveyed for cultural resources by multiple firms between 1979 and 2019 with the entire LOD surveyed for archaeological resources by Florida State University (Knudsen, 1979), NWR (Thomas et al., 1985), Versar (Maldonado et al., 2020) and Wood (Bradley et al., 2020). These surveys are listed in **Table 3-15**.

Table 3-15 Prior Archaeological and Architectural Surveys Conducted Within the Eagle Drive Parking Lot APE

Survey No.	*Survey Type*	*Date*	*Author*	*Company*	*Title*	*Identified Sites*
138	CRAS	1979	Gary D. Knudsen	Florida State University	*Partial Cultural Resource Inventory of Tyndall Air Force Base, Florida*	8BY153, 8BY154, 8BY888
1387	Archaeological	1985	Prentice M. Thomas, Jr. and L. Janice Campbell	New World Research	*Cultural Resources Investigation at Tyndall Air Force Base, Bay County, Florida*	None
3640	Archaeological	1993	Prentice M. Thomas, Jr., L. Janice Campbell, Joseph Meyer	Prentice Thomas and Associates	*Cultural Resources Survey of 300 Acres in the Vicinity of Felix Lake, Tyndall Air Force Base, Bay County, Florida*	8BY806
17463	Archaeological	2005	Geo-Marine	Geo-Marine	*Archaeological Survey, Mapping, and Recordation (Phase1) for Redfish Point Extension and Saddle Club Area on Tyndall AFB.*	8BY1294-1297

Survey No.	Survey Type	Date	Author	Company	Title	Identified Sites
--	Archaeological	2020	Amanda Maldonado, Laura Short, Richard Stark, Jamie Vandagriff, and Christopher Goodmaster	Versar	*Phase I Archaeological Investigations and NRHP Evaluation Recommendations for Six Survey Areas on Tyndall Air Force Base, Bay County, Florida: TY-0147, TY-0148, TY-0150, Ty-0151, TY-0152, and TY-0153*	8BY153
--	Archaeological	2020	Dawn Bradley, Stephen Mocas, and Bridget A. Mohr	Wood Environmental & Infrastructure Solutions	*Phase I Archaeological Survey – Survey Areas TY-162, TY-163, and TY-164, Tyndall Air Force Base, Bay County, Florida.*	8BY153, 8BY154, 8BY2720, 8BY2721, 8BY2723, 8BY2727

Legend: APE = Area of Potential Effect; CRAS = Cultural Resources Assessment Survey; AFB = Air Force Base; NRHP = National Register of Historic Places

One archaeological site, 8BY153, is located within the LOD. 8BY153 is a multiple component shell midden and artifact scatter dating from the Swift Creek and Weeden Island periods. The site was initially discovered in 1979 during the coastal pedestrian survey conducted by Florida State University (Knudsen, 1979). It was revisited, and its boundaries expanded by NWR (Thomas et al., 1985), Versar (Maldonado et al., 2020), and Wood (Bradley et al., 2020). The site has undergone testing and evaluation and awaiting on final report. Based on management summary, the deposits have limited integrity and the site is recommended as ineligible. All sites are listed in **Table 3-16**.

Table 3-16 Identified Properties Within the Eagle Drive Parking Lot APE

Trinomial	Type	Name	Function	Age	NRHP Tyndall	NRHP District	NRHP SHPO	Comment
8BY0888	Building	Building 2715-Family Housing	House	1935	Eligible	Ineligible	Not evaluated	Demolished
8BY1432	Building	Fire Station	Fire Station	1958	Ineligible	Ineligible	Ineligible	--
8BY0806	Isolated find	IF 1	Isolated find	Prehistoric	Ineligible		Ineligible	--
8BY0153*	Site	Capehart 2	Shell midden	Swift Creek, Weeden Island	Ineligible	--	Potentially eligible	--

Trinomial	*Type*	*Name*	*Function*	*Age*	*NRHP Tyndall*	*NRHP District*	*NRHP SHPO*	*Comment*
8BY0154	Site	--	Shell midden	Deptford, Swift Creek, Weeden Island	Potentially eligible	--	Potentially eligible	--
8BY1294	Site	Saddle Club	Habitation; artifact scatter	20th c.; Weeden Island II	Potentially eligible	--	Eligible	--
8BY1295	Site	Redfish Break	Campsite; artifact scatter	Prehistoric	Ineligible	--	Ineligible	--
8BY1297	Site	Cul-de-sac	Artifact scatter	Prehistoric	Ineligible	--	Ineligible	--
8BY2543	Site	--	Artifact scatter	Prehistoric; mid-20th c.	Ineligible	--	Not evaluated	--
8BY2720	Site	--	Artifact scatter	Mid-late 20th c.	Ineligible	--	Not evaluated	--
8BY2721	Site	--	Artifact scatter	Deptford; Weeden Island	Potentially eligible	--	Not evaluated	--
8BY2723	Site	--	Artifact scatter	Prehistoric	Ineligible	--	Not evaluated	--
8BY2727	Site	--	Artifact scatter	Mid-late 20th c.	Ineligible	--	Not evaluated	--
8BY0921	Tower	Tyndall AFB Water Tower 2892	Water tower	1943	Ineligible	Ineligible	Ineligible	--

Legend: APE = Area of Potential Effect; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Office
AFB = Air Force Base
Note: *Within LOD

An additional ten archaeological properties and three built resources are located within 0.5 mile of the LOD. These properties consist of support infrastructure associated with the now-demolished Beacon Beach Wherry Family Housing neighborhood and artifact scatters, habitation, and resource extraction loci dating from the Woodland periods and the 20th century. Out of these thirteen properties, only 8BY1294 is recorded as eligible for NRHP listing by the Florida SHPO. The resource is a Weeden Island II habitation site located 0.48 miles northwest of the LOD.

3.6.3.4 Golf Course Boardwalk/Pier

The APE for the Golf Course Boardwalk/Pier project was surveyed for cultural resources by multiple firms between 1979 and 2023 with the entire LOD surveyed for archaeological resources by Florida State University (Knudsen, 1979), NWR (Thomas et al., 1985), PTA (Campbell et al., 2016b), and The NDN Companies (NDN) (Brown, 2023). These surveys are listed in **Table 3-17**.

Table 3-17 Prior Archaeological and Architectural Surveys Within the Golf Course Boardwalk/Pier APE

Survey No.	*Survey Type*	*Date*	*Author*	*Company*	*Title*	*Identified Sites*
138	CRAS	1979	Gary D. Knudsen	Florida State University	*Partial Cultural Resource Inventory of Tyndall Air Force Base, Florida*	8BY009, 8BY165, 8BY177
1387	Archaeological	1985	Prentice M. Thomas, Jr. and L. Janice Campbell	New World Research	*Cultural Resources Investigation at Tyndall Air Force Base, Bay County, Florida*	--
--	CRAS	2023	Teresa L. Brown	The NDN Companies	--	8BY2388, 8BY2389, 8BY2391
17186	Archaeological	2009	Frank Keel	PBS&J	*A Cultural Resources Assessment Survey of the VORTAC Tower Site, Tyndall Air Force Base, Bay County, Florida*	None
24373	Archaeological	2016	L. Janice Campbell, James R. Morehead, Ryan N. Clark, and Erica Meyer	Prentice Thomas and Associates	*Cultural Resources Survey of TY-108 (Task Order TY-14-0009) Contract W9128F-12-2-0002, Cultural Resources Management Support, Tyndall Air Force Base, Bay County, Florida*	8BY165, 8BY1792, 8BY1911-1915
25573	Archaeological	2016	L. Janice Campbell, Jennifer Wildt, James R. Morehead, Ryan N. Clark, and Benjamin Stewart	Prentice Thomas and Associates	*Cultural Resources Survey of TY-107 (Task Order TY-14-0008) Contract W9128F-12-2-0002, Cultural Resources Management Support, Tyndall Air Force Base, Bay County, Florida*	8BY1811
--	Archaeological	2021	Teresa L. Brown	The NDN Companies	*Road 32*	8BY1915

Survey No.	Survey Type	Date	Author	Company	Title	Identified Sites
--	Archaeological	2019	Dawn Bradley, Stephen Mocas, and Bridget A. Mohr	Wood Environmental & Infrastructure Solutions	*Wood TY-167*	None
17186	Archaeological	2009	Frank Keel	PBS&J	*VORTAC Delineation*	8BY17

Legend: APE = Area of Potential Effect; CRAS = Cultural Resources Assessment Survey.

Five historic properties (8BY177, 8BY1914, 8BY2388, 8BY2389, 8BY2391) are documented within the LOD. 8BY177 was the former residence of Frank Wood, a local individual of note, and later the clubhouse for the Pelican Point Golf Course. The property was demolished by the Air Force in 2022, and the demolition was considered an adverse effect to archaeological site 8BY1914, which is located beneath the former structure. 8BY1914 is a NRHP-eligible multiple component site composed of a shell midden dating from the Deptford, Weeden Island, and Fort Walton periods. The site was initially recorded by PTA (Campbell et al., 2016b), and recommended as potentially eligible for NRHP listing. However, Tyndall AFB recommended the site as eligible when they consulted with the Florida SHPO for the demolition of the clubhouse (8BY177). In 2022, Tyndall developed a memorandum of agreement with the Florida SHPO to mitigate the adverse effects of the demolition to 8BY1914.

The remaining three properties (8BY2388, 8BY2389, and 8BY2391) were recorded by NDN this year (Brown, 2023), and the report of the Cultural Resources Assessment Survey is currently under review by the Florida SHPO and Tyndall AFB's affiliated Native American Tribes. 8BY2388 is a multiple component archaeological site consisting of several pre-European Contact shell and earth middens and the ruins of a structure dating from the early 19th century. NDN recommended the site as potentially eligible for NRHP listing pending additional work. 8BY2389 is the fishing pier proposed for replacement under the preferred alternative. The pier initially dates from 1950 but was likely replaced several times and is currently in disrepair. NDN recommended 8BY2389 as not eligible for NRHP listing due to a loss of integrity. Finally, 8BY2391 is a concrete slab shaped and painted like the Air Force roundel. The roundel was placed in the yard of the former golf course clubhouse around 1964 but was abandoned when the clubhouse was closed and demolished. NDN recommended 8BY2389 as not eligible for NRHP listing due to a loss of integrity and context.

There are 13 additional historic properties located within 0.5 mile of the LOD. These properties represent human habitation and use of the landform from the Archaic through the Fort Walton periods and homesteads associated with the European-American settlement of the area during the 19th and 20th centuries. Aside from 8BY1914, four of the sites (8BY169, 8BY1917, 8BY1913, and 8BY009) are considered eligible for NRHP listing, and two of these properties (8BY165 and 8BY009) encompass pre-Contact burials. All identified properties within this APE are listed in **Table 3-18**.

Table 3-18 Identified Properties Within the Golf Course Boardwalk/Pier APE

Trinomial	*Name*	*Function*	*Age*	*NRHP Tyndall*	*NRHP District*	*NRHP SHPO*	*Comment*
8BY0177	Maj. Frank B. Wood House	House; Clubhouse	1934	Potentially eligible	Potentially eligible	Ineligible	Demolished
8BY2391*	Air Force Roundel	Decorative emblem	1964	Ineligible	Ineligible	Under review	--
8BY0009 +	Davis Point	Village; Shell midden	Late Archaic, Woodland, Ft. Walton	Eligible	--	Eligible	--
8BY0165+	Hole 8	Shell midden; Artifact scatter	Archaic, Deptford, Weeden Island, Early 20th c.	Eligible	--	Eligible	--
8BY1700	TY-102F	Artifact scatter	Undetermined Pre-Contact	Ineligible	--	Not evaluated	--
8BY1701	TY-102G	Artifact scatter	Undetermined Pre-Contact	Potentially eligible	--	Not evaluated	
8BY1702	TY-102H	Artifact scatter	Undetermined Pre-Contact	Ineligible	--	Not evaluated	--
8BY1703	TY-102I	Artifact scatter	Undetermined Pre-Contact	Ineligible	--	Not evaluated	--
8BY1792	TY-108E	Artifact scatter	Undetermined Pre-Contact	Ineligible	--	Not evaluated	--
8BY1811	TY-107A	Shell midden; Homestead	Weeden Island; Late 19th-Mid 20th c.	Potentially eligible	--	Not evaluated	--
8BY1911	TY-108G	Artifact scatter	Middle Archaic	Potentially eligible	--	Not evaluated	--
8BY1912	TY-108K	Campsite; Isolated find	Woodland (campsite); Late 19th-early 20th c.	Potentially eligible	--	Not evaluated	--
8BY1913	8BY1913	Shell midden; Artifact scatter; Homestead	Late Archaic, Woodland, Ft. Walton, Late 19th-Early 20th c.	Eligible	--	Eligible	--
8BY1914*	TY-108M	Shell midden; Homestead	Deptford, Weeden Island, Ft. Walton, Early 20th c.	Eligible	--	Eligible	--

Trinomial	*Name*	*Function*	*Age*	*NRHP Tyndall*	*NRHP District*	*NRHP SHPO*	*Comment*
8BY1915	TY-102F	Artifact scatter	Undetermined Pre-Contact	Ineligible	--	Ineligible	--
8BY1917	8BY00165 South	Shell midden; Artifact scatter; Homestead	Late Archaic, Woodland, 19th c.	Eligible	--	Eligible	--
8BY2388*		Structural ruins; shell and earth middens	Ft. Walton; Early 19th c.	Potentially eligible	--	Under review	--
8BY2389*	Golf Course Clubhouse Fishing Pier	Structure	1950	Ineligible	Ineligible	Under review	Destroyed by hurricane

Legend: APE = Area of Potential Effect; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Office
Notes: * = Located in LOD; + = Reported human remains present

3.6.4 Environmental Consequences

The following section provides an overview of the environmental consequences associated with the Proposed Action, categorized by project and classified as either direct or indirect effects.

3.6.4.1 Preferred Alternative

The direct effects of the Preferred Alternative are the most immediate and destructive of the impacts, and include demolition, vegetation clearance, construction, laydown and staging areas, and vehicular access. These effects would occur within the LOD and within 50 meters of the LOD. Historic properties affected by these direct effects are listed in **Table 3-19** by the Proposed Action.

Table 3-19 Historic Properties with Direct Effect

Proposed Action	*Direct Effects*	*Affected Properties*
Construct Perimeter Fence	Vegetation clearance, construction, laydown/staging, vehicular access	8BY3169
Extend Boardwalk, NCO Beach	Construction, laydown/staging, vehicular access	None
Construct Parking Lot, Eagle Drive Pier	Construction, laydown/staging, vehicular access	8BY153
Replace/Construct Boardwalk and Pier, Golf Course Clubhouse	Vegetation clearance, construction, laydown/staging, vehicular access	8BY1914, 8BY2388, 8BY2389, 8BY2391

As required by the NHPA and 36 CFR 800.5, the impacts of these direct effects must be assessed to determine if the Preferred Alternative would have an adverse effect on the eligibility of historic properties listed or eligible for listing on the NRHP.

The indirect effects of the Preferred Alternative are associated with the use and maintenance of the improved facilities, and would include increased vehicular and pedestrian traffic, ground maintenance, and routine repairs and upkeep. Properties which could experience indirect effects are listed in **Table 3-20**. These effects would concentrate around the LOD but may extend to a broader area. However, the effects are not anticipated to reach beyond the reviewed APE.

The indirect effects of the Preferred Alternative would affect the same sites as those impacted by the direct effects. As described above however, the indirect effects to 8BY3169, 8BY2389, and 8BY2391 would likely have no adverse effects to these properties if the SHPO concurs with the recommendations as ineligible for listing in the NRHP.

Table 3-20 Historic Properties with Indirect Effect

Proposed Action	*Indirect Effects*	*Affected Properties*
Construct Perimeter Fence, Building 9310	Maintenance	8BY3169
Extend NCO Boardwalk	Maintenance	None
Eagle Drive Parking Lot	Increased pedestrian and vehicular traffic; maintenance	8BY153
Golf Course Boardwalk/Pier	Increased pedestrian and vehicular traffic; maintenance	8BY1914, 8BY2388, 8BY2389, 8BY2391

3.6.4.1.1 Golf Course Boardwalk/Pier

8BY1914 is eligible for NRHP listing. As a result, the direct effects of the Preferred Alternative would have adverse effects to the integrity of the site and therefore, its potential for listing on the NRHP. The Preferred Alternative would likely minimize the indirect effects, however. Construction of the boardwalk and parking lot would provide an alternate use to minimize where pedestrian and vehicular traffic have previously taken place over portions of the site.

8BY2389, and 8BY2391 are currently recommended as ineligible for listing in the NRHP. The direct and indirect effects of the Preferred Alternative would have no adverse effect on the properties.

8BY2388 is currently recommended as potentially eligible for NRHP listing pending additional work. Since the eligibility of the property has not been assessed, the extent of the direct and indirect effects for the preferred alternative cannot be fully determined at this time.

Due to the potential for adverse effects of the project, construction of the boardwalk will not proceed until mitigation measures are consulted and agreed up on with the Florida SHPO and Native American Tribes. Recommended mitigation treatment can include monitoring and design to avoid significant impacts to sites 8BY1914 and 8BY2388. With mitigation measures to minimize impacts to these sites, the Preferred Alternative will not have a significant impact to the site's integrity.

3.6.4.1.2 Eagle Drive Parking Lot

Site 8BY153 has undergone testing and evaluation and awaiting on final report. Based on management summary, the deposits have limited integrity and the site is recommended as ineligible. The Eagle Drive Parking Lot project will not directly impact the site but is next to site boundary. However, a monitor will

be present to mitigate and avoid direct impacts while working near site boundaries. As a result, the Preferred Alternative project's direct and indirect effects will have no adverse effect on the property.

3.6.4.1.3 NCO Boardwalk

No historic properties are affected by the Preferred Alternative for the Proposed Action. However, the southern portion of the LOD for the extension of the NCO Beach Boardwalk has not been surveyed for archaeological resources.

Construction of the NCO boardwalk would likely minimize pedestrian traffic in the portion of the LOD that has not been surveyed. As a result, the indirect effects of the preferred alternative are unlikely to have an adverse effect to any undocumented properties in the LOD.

3.6.4.1.4 Perimeter Fence, Building 9310

8BY3169 is currently recommended as ineligible for listing in the NRHP. The site has undergone testing and evaluation and due to lack of integrity, the site is recommended as not eligible for listing in the NRHP. The Preferred Alternative project's direct and indirect effects would have no adverse effect on the property.

3.6.4.2 No Action Alternative

The No Action Alternative would result in no direct or cumulative effects to cultural resources since the Proposed Actions would not occur. However, 8BY153 and 8BY1914 may continue to undergo adverse indirect effects from vehicular and pedestrian traffic on the natural ground surface of the sites if the No Action Alternative is implemented.

3.6.4.3 Mitigation Measures

Consultation under the NHPA has not been completed for this project. The exact mitigation measures for cultural resources cannot be described at this time. However, recommended mitigation or treatment options to minimize the indirect and direct effects of the Preferred Alternative to the resources discussed above may take on the form of archaeological monitoring during construction at 8BY1914 and 8BY2388. Additionally, and based on the findings of a yet-to-be completed survey and assessment of 8BY2388, data recovery at the site may be warranted. Lastly, Tyndall AFB will halt all ground disturbing activities and follow procedures set forth by Chapter 872.05 (Florida's Unmarked Burials Law) of the Florida Statues if human remains are uncovered during ground disturbing activities.

3.7 Hazardous Materials and Waste

3.7.1 Definition of the Resource

Hazardous materials and hazardous waste are those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 U.S.C. 9601-9675), the Toxic Substances Control Act (15 U.S.C. 2601-2671), and the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (42 U.S.C. 6901-6992). In addition, hazardous materials are regulated by the Emergency Planning and Community Right-to-Know Act (42 U.S.C. 11001-11050). Hazardous materials are further defined in AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*, to include all items covered under the Emergency Planning and Community Right-to Know Act or other applicable host nation, federal, state, or local tracking or reporting requirements.

3.7.2 Affected Environment

Based on conversations with Tyndall AFB NEPA Program Manager, Edwin Wallace, occurring on April 27, 2023, no Environmental Restoration Program sites occur within the Proposed Action project boundaries or the adjacent properties.

Specific per- and polyfluoroalkyl substances (PFAS) have been recognized by the DoD as emerging environmental issues that have impacted various Air Force installations. These PFAS encompass elements found in Aqueous Film Forming Foam, which the Air Force adopted during the 1970s to combat petroleum fires. The USEPA has established site-specific Regional Screening Levels based on health considerations for surface soil and drinking water (groundwater). Site Inspections were initiated to collect soil and groundwater samples and analyze those media for 16 different PFAS at potential Aqueous Film Forming Foam release areas identified on Tyndall AFB. None of these source areas fall within or adjacent to Proposed Action project areas. Groundwater pathways of source contaminant also are not expected to occur beneath project boundaries per the installations Relative Risk Site Evaluation (USAF, 2023).

Traditionally, dock pilings were commonly treated with creosote, a wood preservative, to protect them from decay and insect damage. However, the use of creosote-treated wood for dock pilings has been phased out in many regions due to concerns about its environmental and human health impacts. It is undetermined whether existing dock pilings targeted for removal contain creosote. It is assumed that wooden dock pilings existing on Tyndal AFB contain creosote. Wood preservation is a K-Listed hazardous waste and characterized as a toxic waste as identified in the USEPA's Identification and Listing of Hazardous Waste 40 CFR Part 261. If the contractor comes into contact with pilings containing wood preservation chemical, reference would be made to 40 CFR Section 262.11 to determine the generator category based on quantity of the hazardous waste.

3.7.3 Environmental Consequences

3.7.3.1 Preferred Alternative (All Projects)

Construction for all Proposed Action projects would all occur in a similar fashion and using similar materials unless noted below; thus, any potential impacts to Hazardous Materials and Wastes would be consistent across all projects.

During construction activities, proper handling and storage of hazardous materials must adhere to relevant environmental compliance regulations and Tyndall AFB's environmental management plans. To prevent any potential releases, measures would be implemented to ensure compliance. Hazardous materials and petroleum products, such as fuel and lubricants, would be stored using double-walled tanks or secondary containment systems. These measures aim to mitigate any potential impacts to soil or groundwater in the event of a spill.

During the construction of the Eagle Drive parking lot, application of asphalt may produce bitumen fumes. Currently there are no Occupational Safety and Health Administration (OSHA) standards or permissible exposure levels for asphalt fumes. However, exposures to various chemical components of asphalt fumes are addressed in specific standards for the general and construction industries, such as 29 CFR 1910 Subpart I, Personal Protective Equipment, and 29 CFR 1926 Subpart E, Personal Protective and Life Saving Equipment. The American Conference of Governmental Industrial Hygienists currently recommends a Threshold Limit Value TLV of 0.5 mg/m3 as an 8-hour time weighted average.

Other hazardous materials not directly associated with the construction may affect the Proposed Actions, such as spills or leakage from motorized vehicles or equipment malfunctions. All spills would be reported immediately in accordance with USAF, local, state, and/or federal regulations.

Upon completion of the projects, it is anticipated that there would be no significant alterations or notable increases in the quantities and types of hazardous materials or wastes compared to the current conditions.

3.7.3.2 No Action Alternative

In the No Action Alternative, the absence of demolition and construction activities would result in the absence of any hazardous, toxic, or solid waste generation.

3.8 Land Use Infrastructure and Utilities

3.8.1 Definition of the Resource

Land use is defined as the current and planned use of a subject property as determined by governing authorities.

Utilities are the services that support the efficient and comfortable operation of a facility or location. Utilities typically considered include electricity, natural gas, steam, telecommunications, irrigation systems, water, and wastewater.

3.8.2 Affected Environment

Compatible development is partially achieved through the establishment of planning districts. There are seven unique land management districts identified for Tyndall AFB: Sabre, Flightline, Support, Ammo, Drone, Crooked Island and Silver Flag (USAF, 2019). There are 13 distinct land use categories that are within the planning districts. The land use categories include Administrative, Aircraft Operations and Maintenance, Airfield, Community (Commercial), Community (Service), Housing (Accompanied), Housing (Unaccompanied), Industrial, Medical/Dental, Open Space, Outdoor Recreation, Training, and Water.

The Golf Course Boardwalk/Pier project and Eagle Pier Parking Lot project are located in the Sabre District. The NCO boardwalk is located in the Support District and the fencing project at Building 9310 is located in the Drone District. Tyndall AFB manages installation land in accordance with the INRMP (USAF, 2020). The installation ensures that the INRMP is integrated with the Installation Master Plan to ensure that natural resource constraints and management strategies are evaluated in conjunction with base development (USAF, 2019; USAF, 2021).

3.8.3 Environmental Consequences

An action could have a significant effect on land use if it were to preclude the viability of a land use or the continued use or occupation of the area, be incompatible with adjacent land use to the extent that public health and safety is threatened, conflict with planning criteria established to ensure the safety and protection of human life and property, or result in noncompliance with laws, regulations, orders or plans related to land use. Other relevant factors considered when evaluating potential impacts on land use include the existing and future land use designations both on and adjacent to the project site, the proximity of adjacent land use parcels to the project site, the duration of the proposed activity, and its permanence.

3.8.3.1 Preferred Alternative

3.8.3.1.1 Golf Course Boardwalk/Pier

The Golf Course Boardwalk/Pier Project would reconstruct the boardwalk to the pier and the pier itself. The footprint of the pier would remain the same as the former pier at 47,000 square feet. In-water work would be required to install new pylons to support the pier, but they would be placed in the same location as existing pylons. The new pylons could be placed up to 20 feet deep. Installation methods for the pylons could include vibratory methods to reduce impacts. Due to the small number of total pylons required to reconstruct the pier, the pylon installation activity is anticipated to be short in duration, requiring only a few days to a week. If utilities were required, they would be placed subsurface, with no impact to the area once installed. As a reconstruction project, the land use would remain consistent with historical use, and no significant land use impacts would occur.

3.8.3.1.2 Eagle Drive Parking Lot

The Eagle Drive Pier Parking Lot is a rehabilitation and upgrade project that would expand the existing access, which is gravel and in deteriorated condition. The parking area would comprise 11,400 square feet of new impervious surface. The access road would be widened to 25 feet, for a total area of approximately 7,900 square feet. Grading of a total 65,000 square feet would be necessary to accommodate stormwater features and other project requirements. The project area includes little vegetation. Rehabilitation of the access road and parking lot would not alter the current land use and the addition of stormwater features to manage runoff from the impervious surface would ensure erosion would not result from the project. As a result, no significant land use impacts would occur from implementing the project.

3.8.3.1.3 NCO Boardwalk

The NCO boardwalk project includes new construction as the boardwalk is proposed to be extended an additional 600 feet. The NCO boardwalk project would also include a small restoration project to backfill the area washed out by storm activity, which is estimated to require 190 cubic yards of sand. The project represents no change from the existing land use beyond the extension of the NCO boardwalk, which would be a compatible use for the area and terminate prior to the permanent vegetation boundary. The NCO boardwalk would aid in protecting the natural dune environment and would also protect critical wildlife habitat by discouraging uncontrolled pedestrian access to the area. Concrete used for the construction would be similar to that which has been previously approved. The NCO boardwalk project would remain consistent with historical land use, and the overall project would result in a net positive benefit to the local ecosystem.

3.8.3.1.4 Perimeter Fence, Building 9310

The Perimeter Fence at building 9310 project would replace the existing perimeter fence that runs alongside PQM Lake Loop and Camp Eagle Road. The entire fence length would total 2,400 feet and clearing and grubbing would occur within a 10-foot border on each side of the fence, resulting in a total cleared area of 48,000 square feet, or 1.1 acres. The fence would not alter the current land use other than to remove vegetation from the 1.1-acre border. As a result, no significant land use impacts would occur from implementing the project.

3.8.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no new impacts to land use or utilities.

3.9 Earth Resources

3.9.1 Definition of the Resource

Earth resources associated with the Proposed Action include the following: geologic resources, soil, minerals, and landforms. For general purposes, this EA defines "soil" as unconsolidated material from the earth's crust and "rock" as consolidated material that makes up part of the earth's crust.

3.9.2 Affected Environment

Soils at Tyndall AFB are formed from sandy, marine sediments and are predominately sandy, acidic, poorly drained, have low shrink-swell potential, and are relatively close to the underlying water table (USAF, 2020). There are nine different soil types found within the areas of the Proposed Action projects. **Table 3-21** identifies soil types and acreages of soils included within the boundaries of each of the Proposed Action projects.

Table 3-21 Soil Types

Project	*Map Unit*	*Acres within Project Boundary*
Golf Course Boardwalk/Pier	Pamlico-Dorovan complex	0.19
Golf Course Boardwalk/ Pier	Mandarin sand, 0 to 2 percent slopes	0.84
Golf Course Boardwalk/Pier	Resota fine sand, 0 to 5 percent slopes	0.23
Eagle Drive Parking Lot	Pamlico-Dorovan complex	0.02
Eagle Drive Parking	Kureb sand, 0 to 5 percent slopes	0.64
NCO Boardwalk	Beaches	0.81
Perimeter Fence, Building 9310	Rutlege sand, 0 to 2 percent slopes	0.39
Perimeter Fence, Building 9310	Osier fine sand	0.08
Perimeter Fence, Building 9310	Arents, 0 to 5 percent slopes	0.16

3.9.3 Environmental Consequences

Adverse impacts on soils would occur if there are alterations in soil composition, structure, or function within the environment, or if there is an accumulation of substances in the soil.

3.9.3.1 Preferred Alternative (all projects)

Construction for all projects associated with the Proposed Action would all occur in a similar geographical setting using similar materials; thus, any potential impacts to Earth Resources would be consistent across all projects."

Approximately 3.16 acres of native and non-native soils would undergo direct disturbance as a result of site preparation and construction activities. Indirect effects may also occur due to erosion from the

construction sites. Therefore, it is crucial to implement measures to stabilize the disturbed soils and prevent their exposure to wind, rain, and stormwater runoff.

Prior to construction, it is necessary to obtain a Stormwater Construction Permit from the FDEP. The construction contractor would be obligated to create a site-specific SWPPP that outlines measures for preventing erosion and implementing effective control measures during site preparation and construction activities.

The impacts on soils resulting from the implementation of the Proposed Actions would be minimal due to the relatively small construction footprint, short construction duration, and the existing conditions of the project sites.

3.9.3.2 No Action Alternative

No construction or ground disturbing activities would occur under the Proposed Action. Therefore, no direct or indirect impacts, either beneficial or adverse, would be experienced on earth resources.

3.10 Environmental Justice and Socioeconomics

3.10.1 Definition of the Resource

USEPA defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (USEPA, 2022). It is mandated by several EOs, namely EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, and EO 14096, Revitalizing Our Nation's Commitment to Environmental Justice for All. These orders direct federal agencies to consider the potential adverse effects of their activities on Environmental Justice communities and children, and to take necessary measures to address any disproportionate impacts that may affect these communities.

CEQ has established specific criteria for identifying environmental justice communities based on race and income. According to these criteria, minority populations are considered to exist when the percentage of minorities exceeds 50 percent or significantly surpasses the general population of the surrounding area. Similarly, low-income populations are identified when there is a noticeable disparity in income and poverty levels between a community and its neighboring communities (CEQ, 1997b). In line with these guidelines, this EA evaluates the presence of environmental justice communities using key indicators such as the percentage of minority population, median household income, and the percentage of individuals living below the poverty level. Additionally, the EA examines the percentage of the population under 18 years of age to identify any notable concentrations of children within the study area.

Socioeconomics discusses population demographics, employment characteristics, schools, housing occupancy status, economic activity, tax revenue and related data providing key insights into the socioeconomic conditions that might be affected by a proposed action.

The ROI for socioeconomics and Environmental Justice encompasses the nearest surrounding community to the Proposed Action, as well as the entire county. The focus on nearby communities is based on the understanding that they are most likely to be directly affected by the Proposed Action,

leading to potential changes in socioeconomic conditions and the possibility of disproportionate impacts.

3.10.2 Affected Environment

Table 3-22 presents the environmental justice data for Panama City and Bay County, Florida, which constitutes the Proposed Actions ROI for this resource area. Panama City represents approximately 20 percent of Bay County's population. The environmental justice indicators show similarities between Panama City and Bay County, with the minority population being below 50 percent.

In particular, and as shown in the table below, the Demographic Index is a component used to evaluate the demographic characteristics of a particular area. It combines multiple demographic indicators to create a composite measure that helps identify potential environmental justice concerns. The indicators used in the Demographic Index may include:

1. Percent of Minority Population: This indicator measures the proportion of the population in an area that belongs to racial or ethnic minority groups.
2. Percent of Low-Income Population: It represents the proportion of the population in an area with income levels below the poverty line or designated income thresholds.
3. Percent of Linguistic Isolation: This indicator reflects the percentage of individuals in a given area who have limited English proficiency and may face challenges in accessing information or resources due to language barriers.
4. Percent of Less than High School Education: It measures the proportion of individuals in an area who have not completed high school.

By considering these demographic indicators, the Demographic Index helps identify areas where vulnerable or disadvantaged populations may be disproportionately affected by environmental hazards or stressors. The Demographic Index for Panama City is 36 percent which is below the State average value of 39 percent. Consequently, Panama City would not be classified as an environmental justice community of concern.

Table 3-22 Environmental Justice Data

Demographic Indicators	*Panama City*	*Bay County*
Median Household Income	$49,821	$54,425
Population Below Poverty Level (%)	38	32
Minority Population (%)	34	24
Demographic Index (%)	36	28
Population Under 5 Years (%)	6	6

Source: U.S. Census Bureau's American Community Survey, 2019

3.10.3 Environmental Consequences

3.10.3.1 Preferred Alternative

Given the absence of environmental justice communities of concern regarding race or income in the vicinity of any of the projects associated with the Proposed Action, it can be concluded that the Proposed Action does not have the potential to disproportionately affect Environmental Justice

communities. Additionally, the Proposed Action may present a beneficial use to the surrounding community through the use of Tyndall AFB's Outdoor Recreational Program in which non-DoD members wishing to participate in recreational activities such as fishing, hunting, and beach going may do so after the processing of an application and background check. Consequently, this particular resource is deemed unnecessary for further analysis.

3.10.3.2 No Action Alternative

Under the No Action Alternative, construction activities would not occur and, thus, there would be no changes to Environmental Justice. Additional recreational infrastructure would not be improved on Tyndall AFB. As a result, the No Action Alternative would not have any direct or indirect beneficial or adverse impacts on environmental justice communities.

3.11 Safety and Occupational Health

3.11.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. The elements of an accident-prone environment include the presence of a hazard and an exposed population at risk of encountering the hazard. Numerous approaches are available to manage the operational environment to improve safety, including reducing the magnitude of a hazard or reducing the probability of encountering the hazard.

3.11.2 Affected Environment

The 325th Fighter Wing Safety Office staff is responsible for the installation safety program. Safety's mission is to implement proactive mishap prevention programs to protect Tyndall's people, equipment, and combat capability. Safety is composed of three divisions: Flight Safety, Weapons Safety and Ground Safety. Ground Safety is responsible for the safety, both on and off duty, of the entire base populace, including military members, civilian employees, and dependents. Ground Safety's responsibilities include workplace safety, traffic safety, and recreational safety. Additionally, Ground Safety provides training to supervisors and unit safety representatives (TAFB, 2022).

3.11.3 Environmental Consequences

3.11.3.1 Preferred Alternative

No adverse impact on safety would be anticipated under any of the projects associated with the Proposed Action. Short-term, minor direct impacts on contractor health and safety could occur from implementation of the Proposed Action. The short-term risk associated with work performed by construction contractors would slightly increase at Tyndall AFB during the normal workday, as construction activity levels would increase. During construction, all actions would be performed in accordance with Air Force Occupational Safety and Health directives and OSHA regulations. Occupational health and safety hazards associated with construction of the proposed new facilities under the Proposed Actions would include loud noise, heavy machinery, debris, electricity, and hazardous materials used or encountered during work. To minimize occupational health and safety risks, workers would wear and use appropriate personal protective equipment and follow applicable OSHA standards and procedures. Work areas would be clearly marked with appropriate signage and secured against unauthorized entry. The Proposed Action would not pose new or unacceptable safety risks to installation personnel or activities at the installation but would enable Tyndall AFB to meet current and

future mission objectives at the installation and conduct or meet mission requirements in a safe operating environment. No long-term adverse impacts on safety would be expected.

3.11.3.2 No Action Alternative

Under the No Action Alternative, no construction would take place, thus no impacts to safety and occupational health would be experienced. As a result, the No Action Alternative would not have any direct or indirect beneficial or adverse impacts on safety and occupational health.

4 Cumulative Impacts and Other Environmental Considerations

4.1 Introduction

According to the 2022 updates to the NEPA, cumulative impacts are defined in 40 CFR section 1508.1(g)(3) as the environmental effects that arise from the combined impacts of a Proposed Action when considered in conjunction with the impacts of past, present, and reasonably foreseeable actions. These cumulative effects can result from the accumulation of individually minor actions that, when taken together over a period of time, can have a significant impact on the environment.

In addition, CEQ and USEPA have published guidance addressing implementation of cumulative impact analyses—*Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (CEQ, 2005) and *Consideration of Cumulative Impacts in EPA Review of NEPA Documents* (USEPA, 1999). CEQ guidance entitled *Considering Cumulative Impacts Under NEPA* (CEQ, 1997a) states that cumulative impact analyses should:

"…determine the magnitude and significance of the environmental consequences of the Proposed Action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts…[and]…focus on truly meaningful impacts."

Cumulative impacts are most likely to arise when a relationship or synergism exists between a Proposed Action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the Proposed Action would be expected to have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

- Does a relationship exist such that affected resource areas of the Proposed Action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the Proposed Action and another action could be expected to interact, would the Proposed Action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the Proposed Action is considered alone?

4.2 Past, Present, and Reasonably Foreseeable Actions

This section focuses on past, present, and reasonably foreseeable future projects at and near the Proposed Action locale. In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding the past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 4.1, it was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ, 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here as the intent is to focus the analysis on the meaningful actions relevant to informed decision-making. **Table 4-1** lists the past, present, and reasonably foreseeable future projects.

Table 4-1 Past, Present, and Reasonably Foreseeable Future Projects

Action	Location/District	Project Summary	Relevance to Proposed Action
Past Actions			
Replace/Expand Building 400 for New Logistics Readiness Squadron PN	Flightline District	Involves construction of a new addition to the existing facility of approximately 900 square feet. The addition would be located on the southeast side of the facility. Includes relocating the existing transformer and pad just outside of the footprint of the new addition. The project will also remove the existing fence within the footprint of the new addition and connect it to the exterior of the addition. The interior of the facility would be renovated to convert the existing lab into a classroom/conference room and provide an office. The roof of the facility will also be replaced, and the mechanical system upgraded.	None
Present Actions			
Pave Expeditionary/ Encampment Roads	Flightline District	Installation of a 12-foot paved roadway on existing gravel forest road. Expeditionary Road and Encampment Road is located 10 north of U.S. Highway 98 and west of Florida Avenue on Tyndall AFB.	None
Reconstruct Weapons Evaluation Group Small Boat Dock	Silver Flag District	The small boat facility is 4,200 square feet. The project is nearing completion and includes upgrades such as more fuel pumps, covered concrete boat docks with lifts for each vessel and a new boat ramp.	None
Florida Department of Transportation/ Northwest Florida Roads	U.S 98B	Resurface U.S. 98B (Beach Drive) from U.S. 98 (15th Street) to west of U.S. 231(Harrison Avenue). Additional improvements include resurfacing Johnson Bayou bridge, adding pedestrian lighting at the East Caroline Boulevard pedestrian crossing, upgrading sidewalks to meet current Americans with Disabilities Act standards.	None

Action	Location/District	Project Summary	Relevance to Proposed Action
Florida Department of Transportation / Northwest Florida Roads	State Route 390 from 23rd Street to East of Baldwin Road	Widen State Route 390 from 23rd Street in Panama City to east of Baldwin Road. Upon completion, the typical section would consist of six 12-foot travel lanes separated by a 22-foot median. Construct new four-foot bicycle lanes, six-foot sidewalks, curb, and gutter on both sides of the roadway.	None
Florida Department of Transportation / Northwest Florida Roads/ Tyndall AFB	Tyndall Flyover Project – State Route 30 (U.S. 98)	Improve U.S. 98 through Tyndall AFB. This project involves a one-mile segment of U.S. 98 centered at the intersection of U.S. 98 and Airey Avenue/Tyndall Drive at the Tyndall AFB main gate. The improvements will elevate the U.S. 98 travel lanes above Airey Avenue/Tyndall Drive and Louisiana Avenue to separate Tyndall AFB base traffic from U.S. 98 through traffic.	None
F–35A Wing Beddown	Flightline District	Establish new base missions for beddown of F-35A wing. Includes construction of needed facilities, mission headquarters buildings, and operation of aircraft.	None
Future Actions			
Fire Station #4	9700 Area	Construct a 6,356 square foot two bay, satellite firefighting vehicle station to meet response times to the Silver Flag Training Area and AFCEC Research, Development, Test and Evaluation Facilities.	None
8 Construction Projects – Tyndall AFB	Crooked Island/Support District	The eight construction projects include: 1. Constructing a new explosive ordnance disposal gravel road 2. Dredge the 325th Weapons Evaluation Group small boathouse area 3. Replace Weapons Evaluation Group Tower 1802 4. Improve expeditionary/encampment roads 5. Expand Family Camp site 6. Construct water main along north side of Flightline 7. Construct fishing/observation pier at Heritage Club (Building 1454) 8. Renovate the UNITE site	Impacts to Cultural Resources near the Proposed Action

Action	Location/District	Project Summary	Relevance to Proposed Action
Relocate Radar Approach Control	Flightline District	Construct a Radar Approach Control Center (9,784 square feet) as part of a consolidated Operations Support Squadron Facility to support the 53 Weapons Evaluation Group.	None
Construct AFCEC Research, Development, Test and Evaluation Facilities and Gate	Support District	Construction includes: Research, Development, Test and Evaluation Research Facility (135,120 square feet); AFCEC Firefighting Research and Development Facility (17,437 square feet); Ballistics Lab (11,000 square feet); Vehicle Maintenance Facility (12,540 square feet); Heavy Equipment Storage (5,500 square feet); Cyber Operations Building (22,000 square feet); Civil Engineer Materials Testing Runway Support Building (2,750 square feet); Robotics Range Control Support Building (27,500 square feet); Energy and Utility Range Control Support Buildings (1,100 square feet); Materials Testing Runway (75,000 square feet); Robotics Storage Range (200,000 square feet); Gate and Lane Houses (512 square feet); Vehicle Inspection Port (1,763 square feet) with Canopy (3,201 square feet). Perimeter Fencing (11,000 linear feet), and installation of five active and passive barriers along with approximately 34,800 square feet of access roadway.	None

Action	Location/District	Project Summary	Relevance to Proposed Action
Zone 4 Military Construction Utility Upgrades	Flightline District	Enhancing electric service resiliency by redundancy with installation of a new 12.47 kilovolt switchyard. The proposed switchyard shall be located southeast of the existing Tyndall Substation and on the east side of Cleveland Avenue. An alternative location for the switchyard is northwest of the existing Tyndall Substation, pending survey data. The footprint shall be approximately 200 feet by 100 feet and the maximum dig depth will be 4 feet in this location. The switchyard site shall avoid existing electrical underground duct bank and shall not interfere with exiting 12.47 kilovolt feeder circuits to limit any downtime during construction and allow for minimal electric service disruptions to the Base.	None
Site Development and Utilities	Multi-Area	Construct additional utilities that are required to align with the placement of new facilities. The existing utilities are in the path of new building locations and do not meet the current standards. Proposed utilities construction includes: electrical (120,851 linear feet), water (48,510 linear feet), wastewater (15,620 linear feet), stormwater (22,605 linear feet), communications (80,622 linear feet), roads (141,357 square yards), gas pipeline (gas main) (22,530 square feet), and security fence (22,424 linear feet).	None
Building Demolitions	Multi-Area	Demolish 264 buildings/structures on Tyndall AFB, totaling 1,921,2124 square feet, that have either sustained hurricane damage beyond what is economically recoverable, and/or are being replaced/consolidated by individual proposed actions.	Hazardous Waste

Action	Location/District	Project Summary	Relevance to Proposed Action
New Lodging Facilities	Support District	Construct new visiting quarters lodging facility (169,486 square feet) to provide 360 guestrooms, housekeeping spaces, and other amenities. The project will replace and consolidate the current aging and degraded visiting quarters facilities into a new facility that meets current standards for visitors' quarters. Approximately 354,012 square feet of existing pavement/parking areas and approximately 130,525 square feet of roadways would be demolished and replaced with new/realigned pavement/parking areas totaling approximately 686,496 square feet, as well as new/realigned roadways totaling 177,299 square feet.	None
Construct Indoor Firing Range	Support District	Construction of a new combat arms range would be approximately 17,000 square feet and enclosed within a complete building envelope. The existing combat arms range is to be demolished after the new range becomes operational.	None
Morale, Welfare and Recreational Facilities	Support District	Construct morale, welfare, and recreation facilities at the Marina and at a new recreation area. Marina facilities include pavilions (4,250 square feet), boat slips, floating pier, recreation center (42,728 square feet), restrooms (680 square feet) and a bath house (372 square feet). Approximately 98,005 square feet of parking area and 1,778 ft of dry storage fencing would also be installed. Recreational facilities include courts and athletic fields, pavilions and picnic areas, support facilities (5,983 square feet), playground, outdoor swimming pool and driving range. Includes 290,381 square feet of parking area, 12,321 square feet of sidewalk and two slabs totaling 6,337 square feet in size.	None

Legend: AFB = Air Force Base; AFCEC = Air Force Civil Engineer Center; U.S. = United States

4.3 Cumulative Impact Analysis

4.3.1 Air Quality and Climate Change

Implementation of the Preferred Alternative and reasonably foreseeable actions would generate air emissions from the use of construction equipment and vehicles. Construction emissions would be temporary, while long-term emissions would not be different from those currently occurring. Emissions from the Preferred Alternative and other reasonably foreseeable actions would be short-term and less-than-significant due to the temporary and localized nature of construction.

GHG emissions associated with the construction of the phase one expansion would be small, and is estimated at 280 tons of CO_2e for the construction period, one year. To put this amount in context, it would be the amount of GHG emissions produced by 52 cars driving the national average of 13,476 miles in one year (USDOT, 2022). No GHG emissions would result once the projects reached completion. While the GHG emissions generated from the construction activities alone would not be enough to cause global warming, in combination with past and future emissions from all other sources, they would contribute incrementally to the global warming that produces the adverse effects of climate change.

4.3.2 Noise

Implementation of the Preferred Alternative, as well as reasonably foreseeable actions, would not be likely to increase noise levels in the project areas. Although construction noise is generally considered a minor annoyance, due to its temporary nature, there is potential for temporary noise increases during construction activities. However, noise impacts from construction equipment are generally limited as noise attenuates quickly in the ambient environment. While an increase in temporary noise could be experienced by those within 500-feet of construction activities, cumulative noise would not substantially contribute to the existing soundscape already dominated by airfield activity. Noise impacts would be short-term and less than significant.

4.3.3 Biological Resources

Construction and dredging activities would impact potential wildlife habitat; however, most of these construction projects are replacing in-kind infrastructure that was damaged by hurricane impacts. The wildlife inhabiting these areas would experience some impact, but these effects are deemed minor and would not harm the overall population viability. Consequently, when considering the Proposed Actions along with other existing and anticipated projects, the cumulative adverse impacts on biological resources would be minor due to the majority of past, present and foreseeable projects being in-kind infrastructure projects with minimal to no new habitat loss.

4.3.4 Cultural Resources

The cumulative effect of the Preferred Alternative is due primarily from repeated construction activities in the same locations. Both the NCO Boardwalk and the Eagle Drive Parking Lot would be constructed in areas where ground disturbance has not occurred and no historical properties exist. As a result, these projects would have no adverse effects on NRHP listed properties.

The Perimeter Fence would replace the existing perimeter fence. Because the project footprint is minimal, the effects to 8BY3169 would be limited. Further, 8BY3169 is likely ineligible for NRHP listing. As a result, there would be no adverse cumulative effects to NRHP eligible properties from the construction of the Perimeter Fence.

Construction of the boardwalk at the Golf Course Clubhouse could have an adverse cumulative effect to 8BY1914, which was previously damaged by the construction and demolition of 8BY177. 8BY2388 would also see an adverse cumulative effect with the construction of the boardwalk. Completion of the NHPA consultation for this Proposed Action is necessary before a determination of effects can be fully assessed for the cumulative impacts to both sites.

Potential recommended mitigation measures or treatment options may be archaeological monitoring during construction activities and possible data recovery, based on the result of a yet-to-be completed survey and assessment of 8BY2388.

4.3.5 Water Resources

The construction activities related to the Proposed Action would have an impact on wetlands and OSWs. However, during the design and permitting stages, every effort would be made to minimize these impacts to the fullest extent possible. Mitigation measures would be implemented to reduce the effects on wetlands and OSW, in accordance with Section 404 of CWA and Chapter 62-340 F.A.C. permitting requirements.

The construction activities would result in the permanent loss of some floodplain functions. Considering the ongoing restoration-related construction in Bay County and Tyndall AFB, it is likely that there would be additional impacts on floodplains. However, these impacts would be minimized through the implementation of state and local ordinances and permitting functions that specifically address floodplains.

No significant long-term impacts on surface waters and groundwater are expected. Consequently, the Preferred Alternative, when considered alongside other past, present, and reasonably foreseeable projects, would only make minor contributions to adverse cumulative impacts on water resources, particularly in relation to wetlands and floodplain functions. This is due to the fact that the Proposed Action projects would impact.

4.3.6 Hazardous Materials and Waste

All hazardous materials and waste impacts originating from construction activities would be minimal and temporary. Increases in fuel use and oils are expected. Demolition associated with the Building 9310 Perimeter Fence and the Golf Course Boardwalk/Pier replacement would generate minimal waste and would be disposed of properly. Upon completion of the projects, it is anticipated that there would be no significant alterations or notable increases in the quantities and types of hazardous materials or wastes compared to the current conditions.

The Proposed Action, when combined with other past, present, and reasonably foreseeable projects would result in minor contributions to adverse cumulative impacts on hazardous materials.

4.3.7 Land Use Infrastructure and Utilities

Implementation of the Preferred Alternative has been evaluated in consideration with reasonably foreseeable future actions that could result in cumulative impacts. Based on this analysis, it has been determined that the implementation of the Preferred Alternative and other reasonably foreseeable actions would not significantly impact land use in the project area. The land would continue to be managed in accordance with current management plans and standards, and the land use designation for the construction projects is consistent with the historical and current use of the areas. As a result, no long-term land use impacts would occur.

4.3.8 Earth Resources

Construction activities related to the Proposed Action would directly disturb both native and non-native soils. To proceed with construction, Tyndall AFB would need to obtain a Stormwater Construction Permit from the FDEP. The construction contractor would be responsible for developing a Site-Specific SWPPP for each location. This plan would outline measures to prevent and control erosion during site preparation and construction activities. Considering the Proposed Actions in combination with past, present, and reasonably foreseeable projects, the overall impact on regional soils would be relatively minor.

In contrast, the No Action Alternative would involve no implementation of the Proposed Action, thereby resulting in no associated contribution to cumulative impacts on soils.

4.3.9 Environmental Justice and Socioeconomics

The Preferred Alternative would have no cumulative effect that disproportionately impacts environmental justice communities. Therefore, the Preferred Alternative would not contribute to adverse cumulative impacts on environmental justice communities.

4.3.10 Safety and Occupational Health

There is a possibility of short-term, minor adverse cumulative impacts on health and safety (such as slips, falls, heat exposure, and exposure to mechanical, explosive, electrical, vision, and chemical hazards) resulting from construction, dredging, and repair activities associated with the Proposed Action. Nonetheless, by implementing appropriate safety protocols and adhering to the safety standards set by OSHA and Air Force Occupational Safety and Health during these activities, the potential for such impacts can be minimized. With the implementation of these measures, the health and safety risks associated with all planned projects, including their cumulative effects, would be reduced to acceptable levels. Therefore, no significant cumulative impacts on safety and occupational health are expected.

As the Proposed Action projects are not within or near Environmental Restoration Program sites, there is no cumulative risk to construction workers coming into contact with contaminated water or soil.

If the No Action Alternative is chosen, none of the Proposed Actions or alternatives would take place, and as a result, there would be no impact on cumulative impacts related to health and safety.

5 List of Preparers

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Appendix A
Agency Coordination and Public Involvement

List of Agencies/Tribes Contacted

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DEPARTMENT OF THE AIR FORCE
325TH FIGHTER WING (ACC)
TYNDALL AIR FORCE BASE FLORIDA

Representative Letter

Colonel George R. Watkins
Commander
325th Fighter Wing
501 Airey Avenue, Suite 1
Tyndall AFB FL 32403-5549

Billy Cypress, Chairman
Miccosukee Tribe of Indians of Florida Tamiami Station
PO Box 440021
Miami FL 33144

Dear Chairman Cypress

The United States Air Force is currently preparing an Environmental Assessment (EA) for repair, rehabilitation, and construction of existing facilities at Tyndall Air Force Base (AFB), Bay County, Florida (see Figure 1-1). The EA analyzes the potential environmental impacts of the Proposed Action, and is being prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations implementing NEPA, and the Air Force NEPA regulations.

The Proposed Action is to repair in kind or construct replacement facilities for four areas where infrastructure or facilities were extensively damaged during Hurricane Michael in 2018. The Proposed Action is needed to provide functionality improvements necessary for continued mission support and recreational services for service members and their families at Tyndall AFB. Without repair further deterioration of these functions and capabilities will occur over time due to obsolescence.

The Proposed Action and the No Action Alternative are being considered in the EA. All project locations (see Figure 1-2) are within the installation property. The following four projects comprise the Proposed Action:

Perimeter Fence, Building 9310: This project would include repair by replacing the existing security fence that runs alongside PQM Lake Loop and Camp Eagle Road (See Figure 2-1). The project would include clearing and grubbing vegetation along the fence line, 10 feet on each side of fence. All vegetation and trees greater than 8 vertical inches would be removed within the clearing zone. The length of fence would be approximately 2,400 linear feet and include several gates for personnel access. Fence posts would be installed approximately every 10 feet.

Extend Tyndall Noncommissioned Officer (NCO) Beach Boardwalk: This project would restore the landscape by backfilling the storm created washed out area (approximately 190 cubic yards) with a clean sand material similar to the native surficial sands and extend the boardwalk

up to 600 feet to the south along the existing walking path. The extension would terminate prior to reaching the permanent vegetation line (See Figure 2-2). Low impact methods would be used to install wooden piles and construct the boardwalk structure. Once complete, the boardwalk would enhance the preservation of the natural dune environment and protect critical wildlife habitat by discouraging uncontrolled pedestrian throughfare.

Construct Eagle Drive Pier Parking Lot: This project would involve expansion and widening of the existing access road and construction of asphalt parking area closer to the pier. The current area consists of a deteriorating gravel road and does not allow for parking to access the beach or any potential future recreational use. The proposed parking area would be 11,400 square feet of new impervious surface. The total project area would be 65,000 square feet to accommodate stormwater features, lay-down areas and design changes due to limitations to the project area. This project would be in a teardrop shape to allow for handicap parking and widening of the road by 25 feet. No additional utilities are anticipated (See Figure 2-3).

Repair (Replace) Pier, Golf Course: This project would include a dock/pier repair and replace within the same footprint of the existing dock/pier and would be approximately 47,000 square feet (See Figure 2-4). New pylons may have to be installed to support the pier, but they would be placed in the same location as existing pylons. The depths of the pylons may be up to 20 feet. Construction staging could include two methods: 1. Staging at the existing parking lot; or 2. Staging/construction materials from a barge. The boardwalk or a walking path may be constructed up to 280-linear feet and be up to 5-feet wide. The boardwalk or walking path would commence from the existing parking lot and travel down existing grade to the pier. The elevation of the boardwalk or walking path may be up to 4-feet above the ground at any location. The existing parking lot would remain while the existing Golf Course Pier would be demolished in a separate project. No changes would be made to the parking lot. If utilities are needed, they would be trenched from the nearest connection point. The trench would have the maximum dimensions of 4 feet deep by 4 feet wide. Any soil disturbed during construction activities would remain on-site. No dredging is anticipated, and no boats would dock at the pier. The use of the pier would be consistent with prior usage as a recreational fishing location.

As part of the NEPA process, the Air Force must consider reasonable alternatives. A number of selection standards were applied when reasonable alternatives were sought, and it was determined that no reasonable alternatives exist. The selection standards used are listed below:

1. Site Size Sufficiency. The site must provide a minimum contiguous size to accommodate surrounding landscaping, roadways, parking, and other supporting infrastructure and features.
2. Avoidance of sensitive natural and cultural resources. Development that affects cultural resources, sensitive species and their habitats, wetlands, and floodplains should be avoided. Open spaces that characterize the base landscape should be preserved to the maximum extent possible.
3. Land use compatibility and Accessibility. The selected site must be compatible with existing land uses and land management objectives and currently accessible locations.
4. Cost Efficient. The selected site must be cost efficient and consider limited expenditure of funds and time to repair in kind.
5. Support Morale and Welfare. The selected site must support and increase access to recreational facilities for service members and their dependents.

During the EA process, the Air Force will determine whether the Proposed Action would have adverse impacts on archaeological resources, architectural resources, traditional cultural properties, or other cultural resources. The Air Force is not aware of any historic properties of religious or tribal significance located within the project area on Tyndall AFB. In accordance with Section 306108 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800, the Air Force would like to initiate government-to-government consultation regarding the Proposed Action.

Please let us know if you are aware of any properties of cultural and religious significance to Miccosukee Tribe of Indians of Florida within or in the vicinity of the project area you believe this undertaking might adversely affect. Additionally, as a stakeholder in the environmental analysis process, the Air Force requests your input in identifying any issues or areas of concern you feel should be addressed.

The Air Force respectfully requests your written comments and other input on the Proposed Action within 30 days of receipt of this letter so they can be considered during preparation of the draft EA and Section 106 consultation materials, though we will accept responses provided after 30 days. If you have any questions or require additional information, please contact Tyndall AFB's Point of Contact, Mr. Edwin Wallace, via email at edwin.wallace.1@us.af.mil, or via telephone at (850) 283-2714.

Sincerely

WATKINS.GEORGE.R.1086349333 Digitally signed by WATKINS.GEORGE.R.1086349333 Date: 2023.03.05 18:46:54 -05'00'

GEORGE R. WATKINS, Colonel, USAF
Commander

Enclosures:
1. Tyndall AFB Vicinity Map
2. Various Construction Projects Location Maps

Sent via email to:
kevind@miccosukeetribe.com;
hopel@miccosukeetribe.com

Figure-1 Tyndall AFB Vicinity Map

Figure-2 Tyndall AFB Various Construction Project Locations

Figure-3 Tyndall AFB Various Construction Project Location #1 – Perimeter Fence, Building 9310

Figure-4 Tyndall AFB Various Construction Project Location #2 – Extend NCO Boardwalk

Figure-5 Tyndall AFB Various Construction Project Location #3 – Eagle Drive Pier Parking Lot

Figure-6 Tyndall AFB Various Construction Project Location #4 – Golf Course Pier Repair

DEPARTMENT OF THE AIR FORCE
325TH CIVIL ENGINEER SQUADRON (ACC)
TYNDALL AIR FORCE BASE FLORIDA

Representative Letter

Mr. José J. Cintron
Chief, Environmental Element
325th Civil Engineer Squadron
103 Mississippi Road
Tyndall AFB FL 32403-5014

Mr. Chris Stahl, Coordinator
Office of Intergovernmental Programs
Department of Environmental Protection
3900 Commonwealth Blvd, Mail Station 47
Tallahassee FL 32399

Re: Environmental Assessment for Various Construction Projects, Tyndall Air Force Base, Florida

Dear Mr. Stahl

The United States Air Force is currently preparing an Environmental Assessment (EA) for repair, rehabilitation, and construction of existing facilities at Tyndall Air Force Base (AFB), Bay County, Florida. The EA analyzes the potential environmental impacts of the Proposed Action and is being prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations implementing NEPA, and the Air Force NEPA regulations.

The Proposed Action is to repair in kind or construct replacement facilities for four areas where infrastructure or facilities were extensively damaged during Hurricane Michael in 2018. The Proposed Action is needed to provide functionality improvements necessary for continued mission support and recreational services for service members and their families at Tyndall AFB. Without repair, further deterioration of these functions and capabilities will occur over time due to obsolescence.

The Proposed Action and the No Action Alternative are being considered in the EA. All project locations (see Figure 1-2) are within the installation property. The following four projects comprise the Proposed Action:

Perimeter Fence, Building 9310: This project would include repair by replacing the existing security fence that runs alongside PQM Lake Loop and Camp Eagle Road. See Figure 2-1. The project would include clearing and grubbing vegetation along the fence line, 10 feet on each side of fence. All vegetation and trees greater than 8 vertical inches would be removed within the

2

clearing zone. The length of fence would be approximately 2,400 linear feet and include several gates for personnel access. Fence posts would be installed approximately every 10 feet. Based on available data, wetlands have the potential to be affected. A wetland delineation is scheduled for Spring 2023.

Extend Tyndall Noncommissioned Officer (NCO) Boardwalk: This project would restore the landscape by backfilling the storm created washed out area (approximately 190 cubic yards) with a clean sand material similar to the native surficial sands and extend the boardwalk up to 600 feet to the south along the existing walking path. The extension would terminate prior to reaching the permanent vegetation line. See Figure 2-2. Low impact methods would be used to install wooden piles and construct the boardwalk structure. Once complete, the boardwalk would enhance the preservation of the natural dune environment and protect critical wildlife habitat by discouraging uncontrolled pedestrian throughfare.

Construct Eagle Drive Pier Parking Lot: This project would involve expansion and widening of the existing access road and construction of asphalt parking area closer to the pier. The current area consists of a deteriorating gravel road and does not allow for parking to access the beach or any potential future recreational use. The proposed parking area would be 11,400 square feet of new impervious surface. The total project area would be 65,000 square feet to accommodate stormwater features, lay-down areas and design changes due to limitations to the project area. This project would be in a teardrop shape to allow for handicap parking and widening of the road by 25 feet. No additional utilities are anticipated. See Figure 2-3.

Repair (Replace) Pier, Golf Course: This project would include a dock/pier repair and replace within the same footprint of the existing dock/pier and would be approximately 47,000 square feet. See Figure 2-4. New pylons may have to be installed to support the pier but they would be placed in the same location as existing pylons. The depths of the pylons may be up to 20 feet. Construction staging could include two methods: 1. Staging at the existing parking lot; or 2. Staging/construction materials from a barge. The boardwalk or a walking path may be constructed up to 280-linear feet and be up to 5-feet wide. The boardwalk or walking path would commence from the existing parking lot and travel down existing grade to the pier. The elevation of the boardwalk or walking path may be up to 4-feet above the ground at any location. The existing parking lot would remain while the existing Golf Course Pier would be demolished in a separate project. No changes would be made to the parking lot. If utilities are needed, they would be trenched from the nearest connection point. The trench would have the maximum dimensions of 4 feet deep by 4 feet wide. Any soil disturbed during construction activities would remain on-site. No dredging is anticipated, and no boats would dock at the pier. The use of the pier would be consistent with prior usage as a recreational fishing location. Based on available data, wetlands have the potential to be affected. A wetland delineation is scheduled for Spring 2023.

As part of the NEPA process, the Air Force must consider reasonable alternatives. A number of selection standards were applied when reasonable alternatives were sought, and it was determined that no reasonable alternatives exist. The selection standards used are listed below:

1. Site Size Sufficiency. The site must provide a minimum contiguous size to accommodate surrounding landscaping, roadways, parking, and other supporting infrastructure and features.

3

2. Avoidance of sensitive natural and cultural resources. Development that affects cultural resources, sensitive species and their habitats, wetlands, and floodplains should be avoided. Open spaces that characterize the base landscape should be preserved to the maximum extent possible.
3. Land use compatibility and Accessibility. The selected site must be compatible with existing land uses and land management objectives and currently accessible locations.
4. Cost Efficient. The selected site must be cost efficient and consider limited expenditure of funds and time to repair in kind.
5. Support Morale and Welfare. The selected site must support and increase access to recreational facilities for service members and their dependents.

During the EA process, the Air Force will determine whether the Proposed Action would have adverse impacts on coastal resources protected under the state of Florida's Coastal Zone Management Program.

The Air Force respectfully requests your written comments and other input on the Proposed Action within 30 days of receipt of this letter so they can be considered during preparation of the draft EA and Coastal Consistency Determination. When completed, the draft EA will also be submitted to the State Clearinghouse for review and comment. If you have any questions or require additional information, please contact Tyndall AFB's Point of Contact, Mr. Edwin Wallace, via email at edwin.wallace.1@us.af.mil, or via telephone at (850) 283-2714.

Sincerely

CINTRON.JOSE.J.1182275146 Digitally signed by CINTRON.JOSE.J.1182275146 Date: 2023.01.31 11:00:43 -06'00'

JOSÉ CINTRON, GS-13, DAF

Sent via email to: state.clearinghouse@dep.state.fl.us; Chris.Stahl@dep.state.fl.us

Enclosures:
1. Tyndall AFB Vicinity Map
2. Various Construction Projects Location Maps

Figure-1 Tyndall AFB Vicinity Map

Figure-2 Tyndall AFB Various Construction Project Locations

Figure-3 Tyndall AFB Various Construction Project Location #1 – Perimeter Fence, Building 9310

Figure-4 Tyndall AFB Various Construction Project Location #2 – Extend NCO Boardwalk

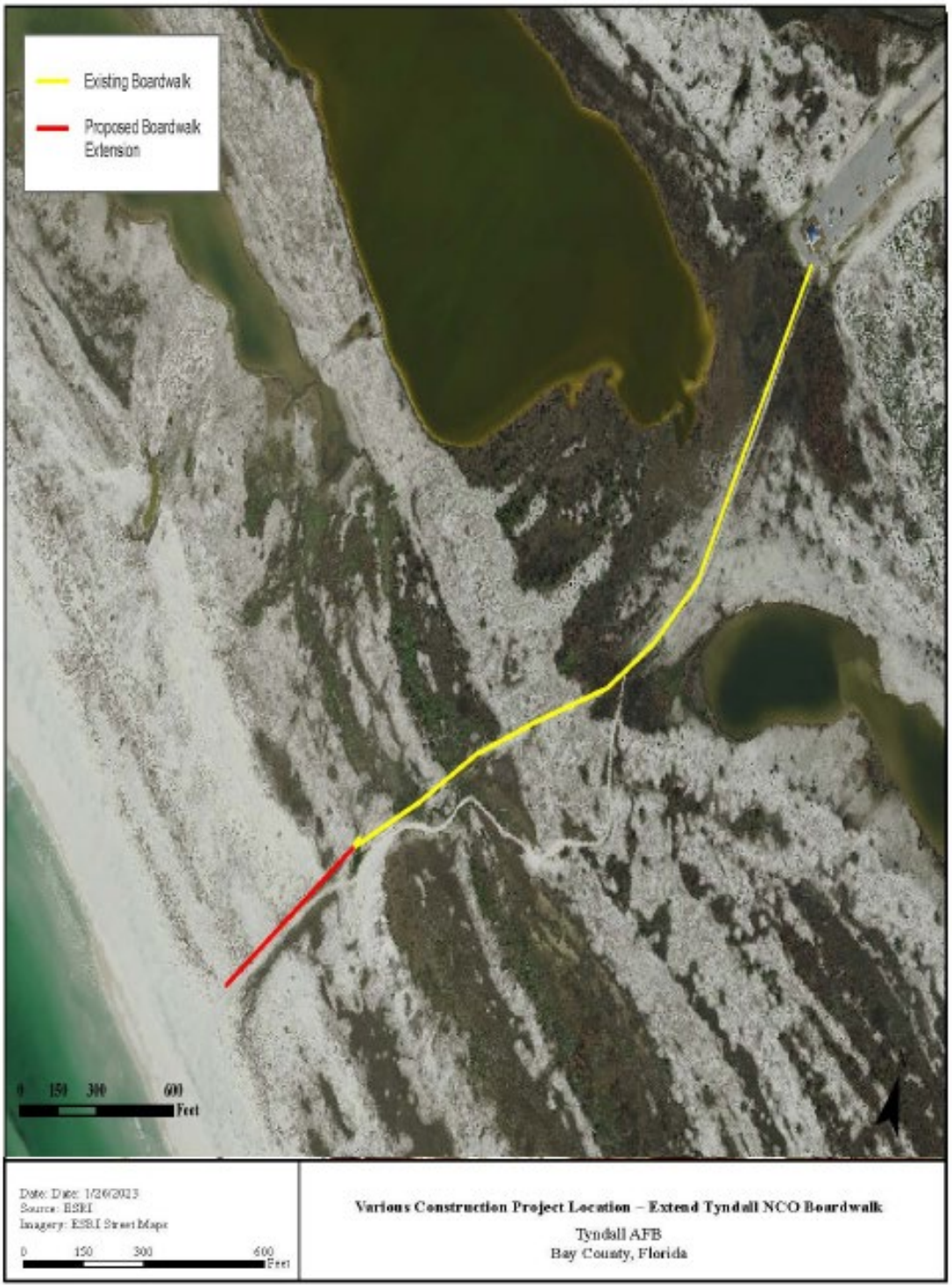

Figure-5 Tyndall AFB Various Construction Project Location #3 – Eagle Drive Pier Parking Lot

Figure-6 Tyndall AFB Various Construction Project Location #4 – Golf Course Pier Repair

Agency Coordination and Public Involvement Responses

From: Phillips, Bryan
To: edwin.wallace.1@us.af.mil
Cc: DiGruttolo, Laura; Cucinella, Josh; Irving, Robert; Pepe, Diana; Brandon Faustini
Subject: Environmental Assessment - Tyndall Air Force Base, Bay County, Florida - Various Constructions Projects
Date: Wednesday, April 19, 2023 5:26:00 PM

Mr. Wallace:

Florida Fish and Wildlife Conservation Commission (FWC) staff reviewed the scoping request for the Environmental Assessment for Various Construction Projects on Tyndall Air Force Base as technical assistance in response to a request e-mail from your group dated March 9, 2023. We have no comments, recommendations, or objections related to fish and wildlife or listed species and their habitat to offer on the scoping request or this project at this time.

The liability to not impact or cause "take" of listed species, migratory wildlife, and other regulated species of wildlife is the responsibility of the applicant or developer associated with this project. Please refer to the Florida Administrative Code, 68A-27 for definitions of "take" and a list of species. If state-listed species, such as beach nesting shorebirds or gopher tortoise, are observed onsite in the future, FWC staff are available to provide decision support information or assist in obtaining the appropriate permits.

For review and coordination of Federally listed species, such as piping plover and Choctawhatchee beach mouse, or Federally-designated Critical Habitat that may be present or impacted by the proposed project, please contact the Panama City Field Station of the USFWS Ecological Service Office at 850-769-0552.

FWC staff look forward to reviewing the draft Environmental Assessment once it is available. If you need any further assistance, please do not hesitate to contact our office by email at ConservationPlanningServices@MyFWC.com. If you have specific technical questions, please contact me at (850) 767-3646 or by email at Bryan.Phillips@MyFWC.com.

Sincerely,

Bryan Phillips
Conservation Planning Services
Florida Fish and Wildlife Conservation Commission
3911 Hwy 2321
Panama City, Florida 32409-1658

Office: 850-767-3646

From: WALLACE, EDWIN B CIV USAF ACC 325 CES/CEIEC
To: Brandon Faustini
Cc: Melanie Hernandez
Subject: FW: State Clearance Letter for FL202303109744C- Evaluation Of Various Constructions Projects, Tyndall Air Force Base, Bay County, Florida
Date: Wednesday, May 3, 2023 2:35:42 PM

Brandon,

Please see below for your records.

Edwin Wallace, GS-12, DAF
Program Manager LBP/Asbestos,
NEPA
325 CES/CEIEC
101 Mississippi Road, B36233
Tyndall Air Force Base, FL 32403
850-283-2714 DSN 523-2714

From: Stahl, Chris <Chris.Stahl@FloridaDEP.gov>
Sent: Wednesday, May 3, 2023 1:31 PM
To: WALLACE, EDWIN B CIV USAF ACC 325 CES/CEIEC <edwin.wallace.1@us.af.mil>
Cc: State_Clearinghouse <State.Clearinghouse@dep.state.fl.us>
Subject: [URL Verdict: Neutral][Non-DoD Source] State Clearance Letter for FL202303109744C- Evaluation Of Various Constructions Projects, Tyndall Air Force Base, Bay County, Florida

May 3, 2023

Edwin Wallace
USAF -Tyndall
325th Fighter Wing
501 Airey Avenue
Tyndall AFB, Florida 32403

RE: Department of Defense, Department of the Air Force, U.S. Air Force, Evaluation of Various Constructions Projects, Tyndall Air Force Base, Bay County, Florida
SAI # FL202303109744C

Dear Edwin:

Florida State Clearinghouse staff has reviewed the proposal under the following authorities:

Presidential Executive Order 12372; § 403.061(42), Florida Statutes; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

According to the supplied documents, an Environmental Resource Permit may be required if construction will take place in wetlands. In addition, a stormwater Individual ERP permit may be required, per 62-330.020, F.A.C., if the proposed project includes the addition of more than 4,000 sq. ft. of impervious surface subject to vehicular activity or 9,000 sq. ft. total. For any future guidance for this project, please contact the Department of Environmental Protection. Additionally, the installation of the potable service lines and sanitary sewer laterals are exempt from DEP water and wastewater permitting.

1. The clearing of vegetation in repairment of the security fence or for the boardwalk (if done) may generate a large amount of vegetative debris. Land clearing debris in connection with construction for buildings, right-of-way and land development is allowed, provided the below requirements in subsection 62-256.700(3), F.A.C., and paragraphs 5I-2.006(4)(b) and (d), F.A.C., are met:
    a. Burning is restricted to the site where the debris was generated.
    b. Burning is conducted between the hours of 8:00 AM CST to one hour before sunset.
    c. The location of the open burn must be set back at least 1000 feet from any occupied building other than that of the landowner, and 100 feet from any paved public roadway, wildlands, brush or combustible structure.
    d. Fire must be attended with fire extinguishing equipment ready at all times.
    e. Moisture and composition of material is favorable to good burning which will minimize smoke.
    f. Prior to open burning of land clearing debris, the person responsible for the burn contacts the FFS regarding the planned burning activity.

   Prohibitions to open burning may be found at Rule 62-256.300, F.A.C. Any other open burning of land clearing debris that cannot meet these requirements shall be conducted using an ACI in accordance with the terms of the exemption from air permitting pursuant to Rule 62-210.300(3)(a)26., F.A.C., if eligible. Otherwise, it shall be conducted in accordance with Rule 62-296.401, F.A.C., and any other terms and conditions of the ACI's DEP-issued air permit.
2. Possible presence of asbestos during demolition - surveys should be conducted and required management practices should be applied. Department regulations concerning asbestos are applicable to the renovation (maintenance) or demolition of commercial, industrial, institutional, facility components or public structures, buildings or installations. These regulations are listed in Chapter 62-257 Florida Administrative Code and Title 40, Code of Federal Regulations, Part 61, Subpart M (40 CFR 61, Subpart M, also known as the asbestos NESHAP).
3. During construction, reasonable precautions should be made to control unconfined particulate matter according to Rule 62-296.320(4)(c) of the Florida Administrative Code. Reasonable precautions include:
    1. Application of water or chemicals to control emissions from such activities as grading roads, construction, and land clearing;
    2. Removal of particulate matter from roads and other paved areas under the control of

the owner or operator of the facility to prevent reentrainment, and from buildings or work areas to prevent particulate from becoming airborne; and

3. Landscaping or planting of vegetation.

In addition, according to Rule 62-296.320(4)(b) of the Florida Administrative Code, emissions of air pollutants from any activity shall not have a density of which blocks out 20% or more of the background.

4. If relocatable concrete batch plants or asphalt plants are brought onsite as part of Eagle Drive Pier Parking Lot construction, they should be properly permitted and up to date on testing requirements.

Helpful Links:
Open burning:
https://floridadep.gov/air/permitting-compliance/content/open-burning
Asbestos:
https://floridadep.gov/air/permitting-compliance/content/asbestos
Concrete Batch Plants:
https://floridadep.gov/air/permitting-compliance/content/concrete-batching-plants
Asphalt Plants:
https://floridadep.gov/air/permitting-compliance/content/asphalt-concrete-plants
Relocation Notification Info:
https://floridadep.gov/air/permitting-compliance/forms/facility-relocation-notification

Based on the information submitted and minimal project impacts, the state has no objections to the subject project and, therefore, it is consistent with the Florida Coastal Management Program (FCMP). Thank you for the opportunity to review the proposed plan. If you have any questions or need further assistance, please don't hesitate to contact me at (850) 717-9076.

Sincerely,

Chris Stahl

Chris Stahl, Coordinator
Florida State Clearinghouse
Florida Department of Environmental Protection
3900 Commonwealth Blvd., M.S. 47
Tallahassee, FL 32399-2400
ph. (850) 717-9076
Chris.Stahl@floridadep.gov

From: State_Clearinghouse
To: edwin.wallace.1@us.af.mil
Cc: Brandon Faustini
Subject: SAI# FL202303109744C
Date: Monday, March 13, 2023 6:00:47 PM

To: Edwin Wallace,

Re: Florida State Clearinghouse Project Review

Project SAI#: FL202303109744C
Date Received: 03/09/23
Project Description: DEPARTMENT OF DEFENSE, U.S. AIR FORCE, EVALUATION OF VARIOUS CONSTRUCTIONS PROJECTS, TYNDALL AIR FORCE BASE, BAY COUNTY, FLORIDA.

The Florida State Clearinghouse has received the above-referenced project and has forwarded it to the appropriate state agencies for review. Please refer to the State Application Identifier (SAI) number in all correspondence with the Florida State Clearinghouse regarding this project. Applicants should expect to receive their State Clearance Letter 30-60 days from the received date. Additional information can be found at http://dep.state.fl.us/secretary/oip/state_clearinghouse/manual2.htm.

Please submit all future project applications and correspondence by email to state.clearinghouse@dep.state.fl.us. If your submittal is too large to send via email or if you need other assistance, contact Chris Stahl at (850) 717-9076.

From: WALLACE, EDWIN B CIV USAF ACC 325 CES/CEIEC
To: Brandon Faustini
Subject: FWC Scoping POC Change
Date: Thursday, March 16, 2023 11:15:28 AM

Brandon,

See Email below.

Edwin Wallace, GS-12, DAF
Program Manager LBP/Asbestos,
NEPA
325 CES/CEIEC
101 Mississippi Road, B36233
Tyndall Air Force Base, FL 32403
850-283-2714 DSN 523-2714

-----Original Message-----
From: Pepe, Diana <Diana.Pepe@MyFWC.com>
Sent: Tuesday, March 14, 2023 3:06 PM
To: CINTRON, JOSE J CIV USAF ACC 325 CES/CEIE <jose.cintron.1@us.af.mil>
Subject: [Non-DoD Source] commenting requests

Hi Jose,

I typically only handle INRMPs. Please send other environmental commenting and scoping requests to conservationplanningservices@MyFWC.com <mailto:conservationplanningservices@MyFWC.com> . The projects will then be logged in our database and an FWC staff member will be assigned lead (sometimes it's me, but usually not). I forwarded on the commenting requests for the coastal resilience implementation plan and the construction projects.

Also, Billy Sermons retired last year. Jon Creamer is the new regional director (Jon.Creamer@MyFWC.com <mailto:Jon.Creamer@MyFWC.com>)

Best,

Diana K. Pepe

Northwest Region Conservation Biologist

Wildlife and Habitat Management Section

Division of Habitat and Species Conservation

Florida Fish and Wildlife Conservation Commission

5300 High Bridge Rd.

Quincy, FL 32351

(850)717-8742

Visit us at MYFWC.com <http://myfwc.com/>

Early Public Notice

LOCALiQ
The Gainesville Sun | The Ledger
Daily Commercial | Ocala StarBanner
News Chief | Herald-Tribune | News Herald
Northwest Florida Daily News
PO Box 631244 Cincinnati, OH 45263-1244

PROOF OF PUBLICATION

Brandon Faustini
The NDN Companies
3740 Saint Johns Bluff RD S # 10
Jacksonville FL 32224-2649

STATE OF FLORIDA, COUNTY OF BAY

The Panama City News Herald, a newspaper printed and published in the city of Panama City, and of general circulation in the County of Bay, State of Florida, and personal knowledge of the facts herein state and that the notice hereto annexed was Published in said newspapers in the issue dated or by publication on the newspaper's website, if authorized, on:

03/17/2023

and that the fees charged are legal.
Sworn to and subscribed before on 03/17/2023

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KAITLYN FELTY
Notary Public
State of Wisconsin

EARLY PUBLIC NOTICE FOR A PROPOSED ACTIVITY WITHIN OR ADJACENT TO A 100-YEAR FLOODPLAIN OR WETLAND – UNITED STATES AIR FORCE

The United States Air Force (USAF) is notifying the public of a proposed activity with the potential to be within or near a 100-Year floodplain at Tyndall Air Force Base, Florida. The Proposed Action would be implemented at existing Tyndall AFB facilities in Bay County, Florida some of which were extensively damaged due to Hurricane Michael in 2018. The projects are expected to consist of new facility and infrastructure construction and renovation for recreational facility enhancements.The Proposed Action would include four projects: 1. In-kind replacment of the Building 9310 perimeter fence spanning 2,400 linear feet; 2. Extending the Tyndall NCO Boardwalk 600 feet to the south along an existing pathway; 3. Constructing Eagle Drive Pier Parking Lot with 11,400 square feet of new impervious surface and a total project area of 65,000 square feet; and 4. Repairing and replacing the golf course dock/pier with new pylons. No action alternatives are considered.

This public notice is required by Executive Order 11988, Floodplain Management, and by Section 2(b) of Executive Order 11990, Protection of wetlands and has been prepared and made available to the public by the Air Force in accordance with Title 32, Code of Federal Regulations (CFR), Part 989 .

In accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations, and the USAF NEPA regulations, opportunity to review the Draft Environmental Assessment and provide comment will be made available at a later date.

NF-34915166

Appendix B
Wetlands Survey

WETLAND DELINEATION
VARIOUS CONSTRUCTION PROJECTS
TYNDALL AIR FORCE BASE, FLORIDA

PREPARED FOR:
Department of the Air Force

June 2023

June 7, 2023

United States Air Force
Tyndall Air Force Base
Panama City, Bay County, Florida 32403

RE: Wetland Delineation Report
Perimeter Fence, Building 9310 & Golf Course Boardwalk/Pier
Tyndall AFB
Panama City, Bay County, FL 32403

To whom it may concern,

Between March 27 and March 28, 2023, The NDN Companies (NDN) performed a wetland survey for the project areas referenced above. An assessment of the two project areas were conducted to identify any jurisdictional wetlands, waterways, and other surface waters found on-site and document all habitat types present. Based on information provided by Tyndall Air Force Base (Tyndall AFB), the focus of this assessment included two project areas; a 0.64 acre portion of the perimeter fence in the vicinity of Building 9310 and a 2.24-acre area southwest of the former golf course clubhouse off Sabre Drive. Tyndall AFB intends to repair the fence line in the vicinity of Building 9310 and reconstruct a boardwalk and pier into Saint Andrew Bay, south of the former clubhouse.

A preliminary desktop review of site conditions in both project areas, including land use, soils, habitat, and National Wetland Inventory (NWI) data, was conducted prior to the field surveys. Based on this preliminary review, freshwater wetlands and surface waters were expected to occur within both project areas. This report details the findings of this assessment as they pertain to federal- and state-jurisdictional wetlands, waterways, and other surface waters.

Land Use

Perimeter Fence, Building 9310
According to the Florida Land Use and Cover Classification System (FLUCCS), 0.59 acres of the 0.64-acre perimeter fence project area is classified as Hydric Pine Flatwoods (6250 FLUCCS). Additional land use types identified include 0.05 acres of Coniferous Plantation (4410 FLUCCS). Land use within the project area vicinity is largely classified as Hydric Pine Flatwoods and Coniferous Plantation with flightline and associated facilities to the north-northeast, access roads to the west and south, and a surface water feature to the south. A map depicting the land use assigned to the perimeter fence project area is provided in Figure 1.

Site reconnaissance confirms that the land use classifications characterized at the site and surrounding areas are generally accurate.

Golf Course Boardwalk/Pier
According to the Florida Land Use and Cover Classification System (FLUCCS), the majority of the golf course pier project area (0.87 acres) is classified as Embayments opening directly into the Gulf of Mexico (5410 FLUCCS). Additional land use types identified include 0.34 acres of Mixed Coniferous/Hardwood Upland (4340 FLUCCS), 0.54 acres of Mixed Forested Wetland (6300 FLUCCS), and 0.50 acres of Rural land in transition without positive indicators of intended activity (7410 FLUCCS). Land use within the project area vicinity is consistent with the classifications listed in the project area, with remnants of the former

golf course, associated clubhouse, and Sabre Drive to the north-northeast . A map depicting the land use assigned to the subject site is provided in Figure 2.

Site reconnaissance confirms that the land use classifications characterized at the site and surrounding areas are generally accurate.

Soils

Perimeter Fence, Building 9310

Mapped soil types, according to the Soil Survey of Bay County, Florida (U.S. Department of Agriculture – Natural Resources Conservation Service), consist primarily of the Rutledge sand (0.39 acres), characterized as hydric, very poorly drained soils with 0-2% slope and concave in shape with frequent ponding. The remaining portions of the project area consist of 0.16 acres of Arents, characterized as non-hydric, somewhat poorly drained soils with 0-5% slope and convex to linear in with no frequency for flooding or ponding, and 0.08 acres of Osier fine sand, characterized as hydric, poorly drained soil with 0-2% slope and concave in shape with frequent ponding. Based on observations of the landscape and soils during site reconnaissance, the locations and characteristics of these soil types are generally accurate. A map depicting the soil types associated with the perimeter fence project area is provided in Figure 3.

Golf Course Boardwalk/Pier

Mapped soil types, according to the Soil Survey of Bay County, Florida (U.S. Department of Agriculture – Natural Resources Conservation Service), consist of primarily of the Mandarin fine sand (0.84 acres), characterized as non-hydric, somewhat poorly drained soils with 0-2% slope and convex to linear in shape with no frequency of flooding or ponding. The remaining portions of the project area consist of 0.23 acres of Resota fine sand, characterized as non-hydric, moderately well drained soils with 0-5% slope and convex to linear in shape with no frequency of flooding or ponding, and 0.19 acres of Pamlico-Dorovan complex, characterized as hydric, very poorly drained soils with 0-1% slope and linear to concave in shape with frequent ponding and flooding. Based on observations of the landscape and soils during site reconnaissance, the locations and characteristics of these soil types are generally accurate. A map depicting the soil types associated with the golf course pier project area is provided in Figure 4.

Wetlands, Surface Waters, and Waterways

Perimeter Fence, Building 9310

An initial screening for the potential presence of wetlands was conducted utilizing the U.S. Fish and Wildlife Services (FWS) National Wetland Inventory (NWI) Mapping tool. Based on this planning level database, freshwater forested wetlands and a freshwater pond were expected to occur within the project boundary. An approximately 60-acre freshwater lake was noted to border the project area to the south across PQM Lake Loop Road to Building 9310. Riverine habitat was noted to border the project area to the north across the flightline. This information was confirmed during the on-site reconnaissance survey conducted by NDN biologists.

NDN biologists delineated 0.61 acres of the 0.64-acre project area as freshwater forested/shrub wetland. The delineated wetlands were generally observed to coincide with the topography of the area. Delineated wetlands were noted to extend beyond the limits of the project area north of the perimeter fence line toward the flightline and Building 9310; however, connection to navigable water ways or other surface waters does not appear visible at this time. Wetlands in the project area appear to be isolated and bound by Tyndall AFB roads and infrastructure. As such, this wetland would fall under jurisdiction of the Florida Department of Environmental Protection (FDEP) and future potential permitting of wetland impacts would require obtaining an Environmental Resource Permit (ERP) from the state. Based on the narrow project boundary and the

delineated wetlands observed, NDN anticipates 0.61 acres of freshwater forested wetland will be impacted by the replacement of the perimeter fence.

The delineated wetland is characterized as hydric Pine Flatwoods, appearing as a concave surface with dense shrub and herbaceous coverage and a mature canopy layer of Longleaf Pine (*Pinus palustris*). Saturated soils, standing water, water-stained leaves were noted throughout, as well as crayfish burrows across portions of the project area. Site conditions were observed to be typical of the season and the project area appears to be undisturbed. General topography at the site was observed to be concave and of lower elevation than surrounding roads and infrastructure. Soils observed exhibited hydric characteristics with saturation to the surface, a mucky organic surface layer followed by sand, and dark matrix color, consistent with a Histosol soil classification in the Atlantic and Gulf Coast Plain Region.

No additional wetlands, waterways, or surface waters were identified within the perimeter fence project boundary. A map of the delineated wetland is provided in **Figure 5**. A map of the anticipated wetland impacts as a result of the perimeter fence replacement is provided in **Figure 6**.

Golf Course Boardwalk/Pier

An initial screening for the potential presence of wetlands was conducted utilizing the U.S. Fish and Wildlife Services (FWS) National Wetland Inventory (NWI) Mapping tool. Based on this planning level database, freshwater forested wetlands and estuarine and marine wetlands were expected to occur within the Golf Course Boardwalk/Pier project boundary. Saint Andrew Bay was also noted to be present within the southwestern portion of the project area encompassing the pier location. This information was confirmed during the on-site reconnaissance survey conducted by NDN biologists.

NDN biologists delineated 0.75 acres of the 2.24-acre project area as freshwater forested/shrub wetland on the northeastern portion of the project area and 0.87 acres as surface waters of Saint Andrew Bay on the southwestern portion of the project area. The delineated wetlands were generally observed to coincide with the topography of the site, located within a swale between the toe of the slope downgradient of the former golf course clubhouse and the shoreline fo Saint Andrews Bay to the south. The onsite wetland appears to extend beyond the project boundary to the northwest. Connection to Saint Andrews Bay appears likely during exceptionally high tides or high volumes of rain. As such, this wetland would fall under jurisdiction of the Florida Department of Environmental Protection (FDEP) and United States Army Corps of Engineers (USACE). Future potential permitting of wetland impacts would require obtaining an Environmental Resource Permit (ERP) from the state and Section 404 Permitting with USACE. Based on a review of the proposed project plans and the wetlands observed, it is anticipated that the boardwalk and pier construction will impact approximately 0.009 acres of freshwater forested/shrub wetland and 0.01 acres of surface water.

The delineated wetland appears as a vegetated concave surface, primarily consisting of dense shrub and herbaceous strata hydric vegetation. General topography at the site was observed to slope southwest from the former clubhouse to the shoreline with Saint Andrew Bay. A high water table was observed in soil test pits to four inches below land surface and saturation was observed to the surface. Soils observed exhibited hydric characteristics with saturation to the surface, a mucky composition, and oxidized minerals dispersed throughout sub-surface layers, consistent with a Histosol soil classification in the Atlantic and Gulf Coast Plain Region.

No additional wetlands, waterways, or surface waters were identified within the project boundary. A map of the delineated wetland and surface waters is provided in **Figure 7.** A map of the anticipated wetland impacts as a result of the boardwalk installation and pier replacement is provided in **Figure 8**.

Adjacent Waterways

Perimeter Fence, Building 9310
Waterways adjacent to the perimeter fence project area consist of a lake to the south of the perimeter fence . PQM Lake Loop Road bisects the wetland and lake. Based on field reconnaissance, the lake appears to be isolated with no connection to other surface waters or waterways.

Golf Course Boardwalk/Pier
Waterways adjacent to the Golf Course Boardwalk/Pier project area include Saint Andrew Bay to the south-southwest with immediate connection to the Gulf of Mexico. No other waterways, surface waters, or wetlands adjacent to the project area were observed during field reconnaissance.

Flood Zone Identification

Flood zone identification involves analyzing various factors, such as historical flood data, topography, hydrological studies, and rainfall patterns, to assess the likelihood and severity of flooding in a given area. The goal is to create accurate floodplain maps and designate different flood zones based on the level of risk associated with each zone.

Flood Zone A categorize areas that have a moderate risk of flooding. In Flood Zone A, the probability of experiencing a flood is estimated to be moderate, typically with a 1% annual chance (also referred to as a "100-year flood"). This means that there is a 1% chance of a flood of that magnitude occurring in any given year.

Flood Zone AE categorize areas with a high risk of flooding. In Flood Zone AE, properties are at a higher risk of flooding compared to other flood zones. The designation takes into account various factors such as topography, hydrological data, and rainfall patterns to determine the flood risk in a specific area.

Flood Zone VE is a flood zone designation which identifies areas at high risk of flooding from coastal or tidal sources. Flood Zone VE is specifically designed for coastal areas where the potential for wave damage is significant. It applies to areas along the coastlines that are vulnerable to storm surges, high tides, and wave action caused by hurricanes, tropical storms, or other coastal weather systems.

Flood Zone X is a flood zone which identifies areas with a moderate or minimal risk of flooding. Areas located in Flood Zone X have a reduced risk of flooding. However, it's important to note that Flood Zone X does not mean the area is completely immune to flooding. It indicates that the risk is considered lower but not entirely eliminated.

Perimeter Fence, Building 9310
A review of available Federal Emergency Management Agency (FEMA) Flood Insurance Rating Map (FIRM) data indicated that the perimeter fence project area falls within FEMA Floodzones A, AE, and X. Floodzone AE occurs within the project area along 0.31 acres of the perimeter fence line. Floodzone X occurs within 0.32 acres of the western portion of the project area between the flightline and PQM Lake Loop Road after the fence line turns northwest. Floodzone A occurs within a 0.01-acre portion of the western limit of the project area adjacent to the flightline. The Base Flood Elevation (BFE) for Flood Zone A is not defined. Delineated wetlands within the project area occur in all three flood zones identified. A map depicting the flood zones within the perimeter fence project area is provided in Figure 9.

Golf Course Boardwalk/Pier
A review of available Federal Emergency Management Agency (FEMA) Flood Insurance Rating Map (FIRM) data indicated that the Golf Course Boardwalk/Pier project area falls within FEMA Flood zones VE and AE. The majority of the project area (1.4

acres) along the shoreline occurs within Floodzone VE. Floodzone AE accounts for 0.83 acres of the northwestern portion of the project area. Delineated wetlands within the project area occur primarily in Floodzone AE. A map depicting the flood zones within the Golf Course Boardwalk/Pier project area is provided in **Figure 10**.

Habitat

Perimeter Fence, Building 9310
A survey of this site indicated that the majority of the habitat present in the project area consisted of hydric Pine Flatwoods. Observed vegetative species in the vicinity of the wetland included a tree stratum of Longleaf Pine (*Pinus palustris*), and Sweet-Bay Magnolia (*Magnolia virginiana*), a shrub stratum of Southern Wax Myrtle (*Myrica cerifera*), and a herbaceous stratum of Bull Thistle (*Cirsium vulgare*), Saw Greenbrier (*Smilax bona-nox*), Northern Dewberry (*Rubus flagellaris*), Bushy Bluestem (*Andropogon glomeratus*), and Bristle-Leaf Sedge (*Carex eburnea*).

Golf Course Boardwalk/Pier
A survey of this site indicated that the project area consists of a coastal habitat comprised of freshwater forested and shrub wetland to the northeast, landward of the shoreline, and estuarine surface waters of Saint Andrew Bay to the southwest. Observed vegetative species in the vicinity of the wetland include a dense shrub stratum of Salt Bush (*Baccharis glomerulifolia*) and Southern Wax Myrtle (*Myrica cerifera*) with a herbaceous stratum of False Nettle (*Boehmeria cylindrica*), Louisiana Vetch (*Vicia ludoviciana*), Pepper Vine (*Nekemias arborea*), All Fruit Sedge (*Carex stipata*), Needle Spike Rush (*Eleocharis acicularis*), Wild Garlic (*Allium canadense*), and Bushy Bluestem (Andropogon glomeratus). A tree stratum of Oak species (*Quercus spp.*) and Cabbage Palm (*Sabal Palmetto*) were also noted on portions of the project area.

Significant Natural Communities

Perimeter Fence, Building 9310
The Florida Longleaf Pine Ecosystem (LPE) Geodatabase was queried for the presence of LPE. While no LPE were noted by the database within the project boundary, site reconnaissance revealed the presence of LPE over majority of the project area. Several other occurrences of LPE were noted within five miles north, northwest, and southeast of the project area on Tyndall AFB lands. The perimeter fence project area is located in largely forested, undeveloped landscape and does not contain coastal or xeric habitats.

Golf Course Boardwalk/Pier
The Florida Longleaf Pine Ecosystem (LPE) Geodatabase was queried for the presence of LPE. No LPE were present within the project boundary or in the vicinity of the project. Several occurrences of LPE were noted within five miles east of the project area on Tyndall AFB lands. Site reconnaissance confirms this data. The Golf Course Boardwalk/Pier project area is located in largely forested, vacant, and coastal landscape previously developed as a golf course and does not contain xeric habitats.

We appreciate the opportunity to be of assistance to this project. Please contact me if you have any questions or are in need of any further information.

Sincerely,

William Gerrard
Project Manager
TheNDNCompanies

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FIGURE 1
Perimeter Fence, Building 9310
Land Use Map


4410
6250
Perimeter Fence Building 9310 - 0.64 AC. +/-
4410: Coniferous Plantations - 0.05 AC. +/-
6250: Hydric Pine Flatwoods - 0.59 AC. +/-
Tyndall Air Force Base
Date: Date: 5/5/2023
Source: ESRI, NWFWMD
Imagery: 2019 Aerial Imagery (FDOT)
0 125 250 500
Feet
Landuse Map – Perimeter Fence Building 9310
Tyndall AFB
Bay County, Florida

1

FIGURE 2
Golf Course Pier
Land Use Map


6300
7410
4340
5410
Golf Course Peir - 2.24 AC. +/-
4340: Upland Mixed - Coniferous / Hardwood - 0.34 AC. +/-
5410: Embayments opening directly into the Gulf of Mexico or the Atlantic Ocean - 0.87 AC. +/-
6300: Wetland Forested Mixed - 0.54 AC. +/-
7410: Rural land in transition without positive indicators of intended activity - 0.5 AC. +/-
Tyndall Air Force Base
Date: Date: 5/3/2023
Source: ESRI, NWFWMD
Imagery: 2019 Aerial Imagery (FDOT)
0 37.5 75 150
Feet
Landuse Map – Repair (Replace) Piers, Golf Course
Tyndall AFB
Bay County, Florida

FIGURE 3
Perimeter Fence, Building 9310
NRCS Soils Survey Map

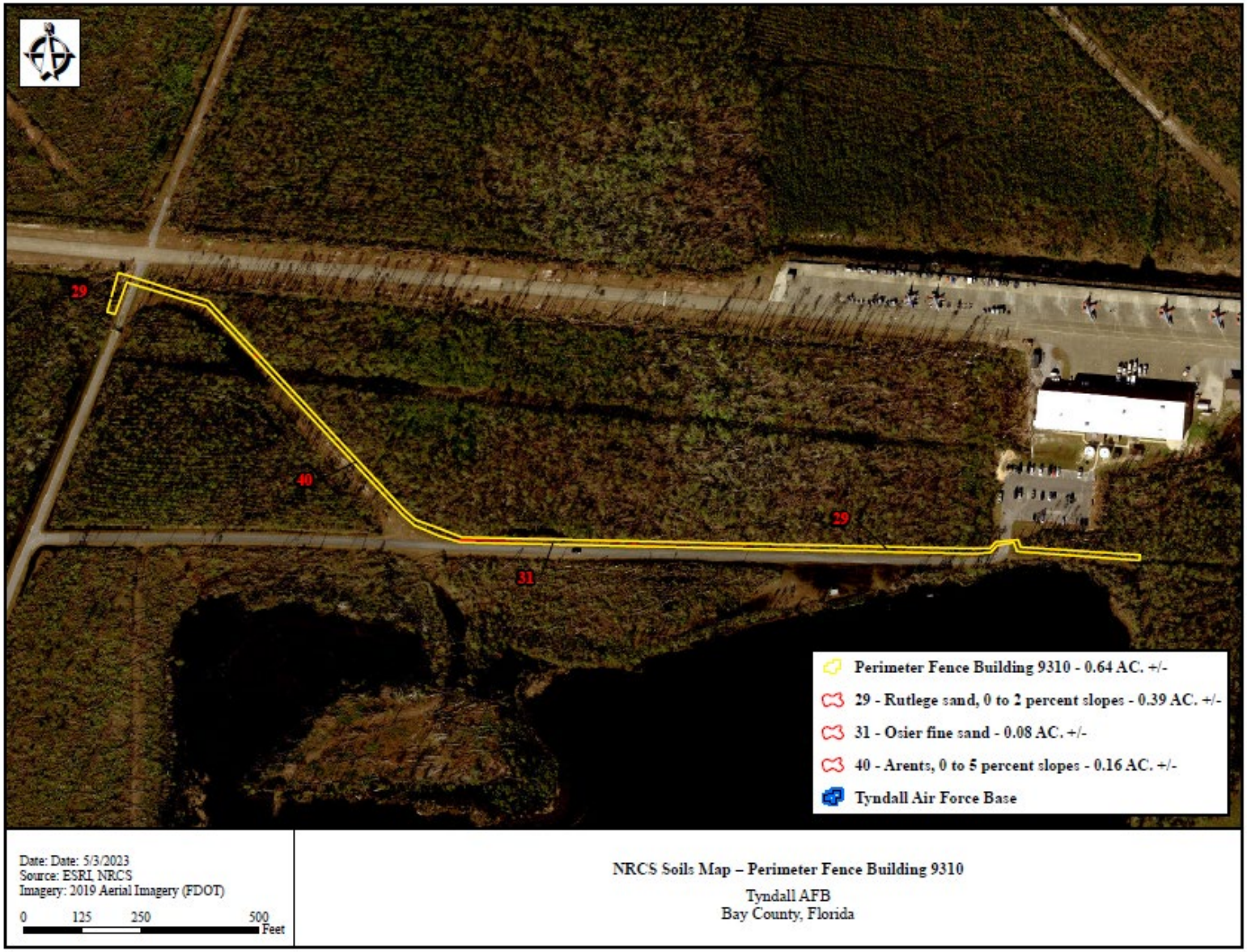

29
40
29
31
Perimeter Fence Building 9310 - 0.64 AC. +/-
29 - Rutlege sand, 0 to 2 percent slopes - 0.39 AC. +/-
31 - Osier fine sand - 0.08 AC. +/-
40 - Arents, 0 to 5 percent slopes - 0.16 AC. +/-
Tyndall Air Force Base
Date: Date: 5/3/2023
Source: ESRI, NRCS
Imagery: 2019 Aerial Imagery (FDOT)
0 125 250 500
Feet
NRCS Soils Map – Perimeter Fence Building 9310
Tyndall AFB
Bay County, Florida

FIGURE 4
Golf Course Pier
NRCS Soils Survey Map

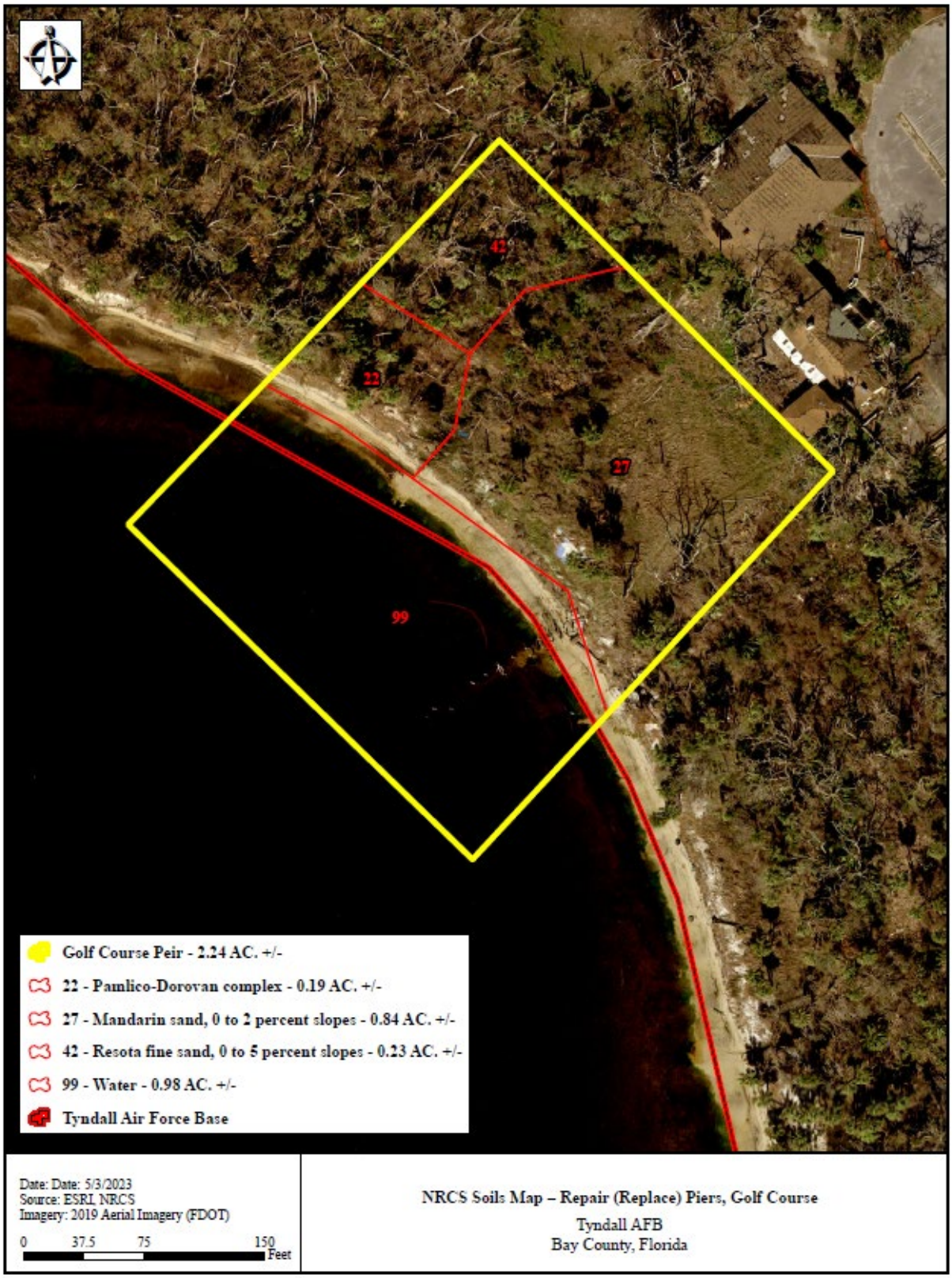

42
22
27
99
Golf Course Peir - 2.24 AC. +/-
22 - Pamlico-Dorovan complex - 0.19 AC. +/-
27 - Mandarin sand, 0 to 2 percent slopes - 0.84 AC. +/-
42 - Resota fine sand, 0 to 5 percent slopes - 0.23 AC. +/-
99 - Water - 0.98 AC. +/-
Tyndall Air Force Base
Date: Date: 5/3/2023
Source: ESRI, NRCS
Imagery: 2019 Aerial Imagery (FDOT)
0 37.5 75 150
Feet
NRCS Soils Map – Repair (Replace) Piers, Golf Course
Tyndall AFB
Bay County, Florida

FIGURE 5
Perimeter Fence, Building 9310
Wetland Delineation Map

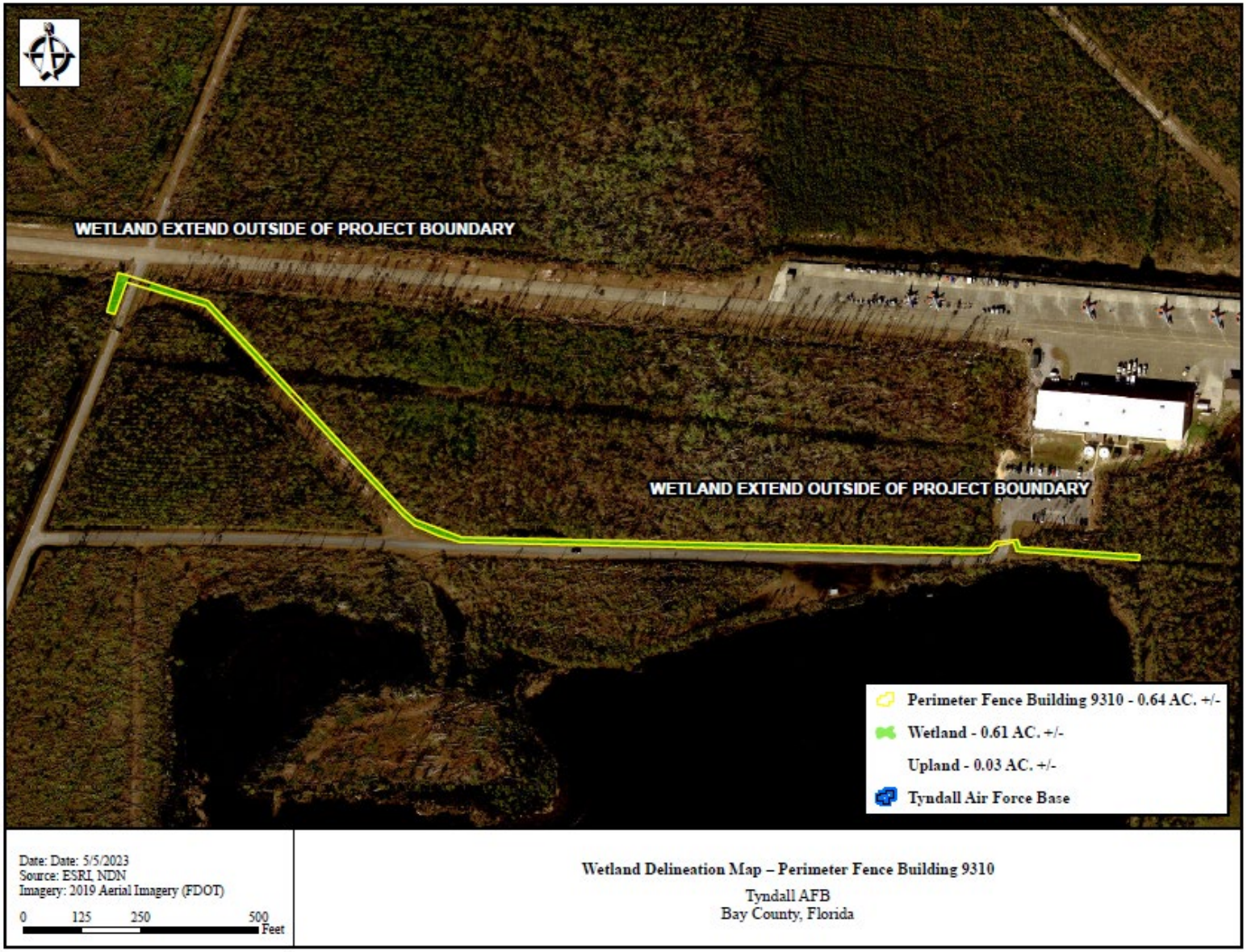

WETLAND EXTEND OUTSIDE OF PROJECT BOUNDARY
WETLAND EXTEND OUTSIDE OF PROJECT BOUNDARY
Perimeter Fence Building 9310 - 0.64 AC. +/-
Wetland - 0.61 AC. +/-
Upland - 0.03 AC. +/-
Tyndall Air Force Base
Date: Date: 5/5/2023
Source: ESRI, NDN
Imagery: 2019 Aerial Imagery (FDOT)
0 125 250 500
Feet
Wetland Delineation Map – Perimeter Fence Building 9310
Tyndall AFB
Bay County, Florida

FIGURE 6
Perimeter Fence, Building 9310
Wetland Impact Map

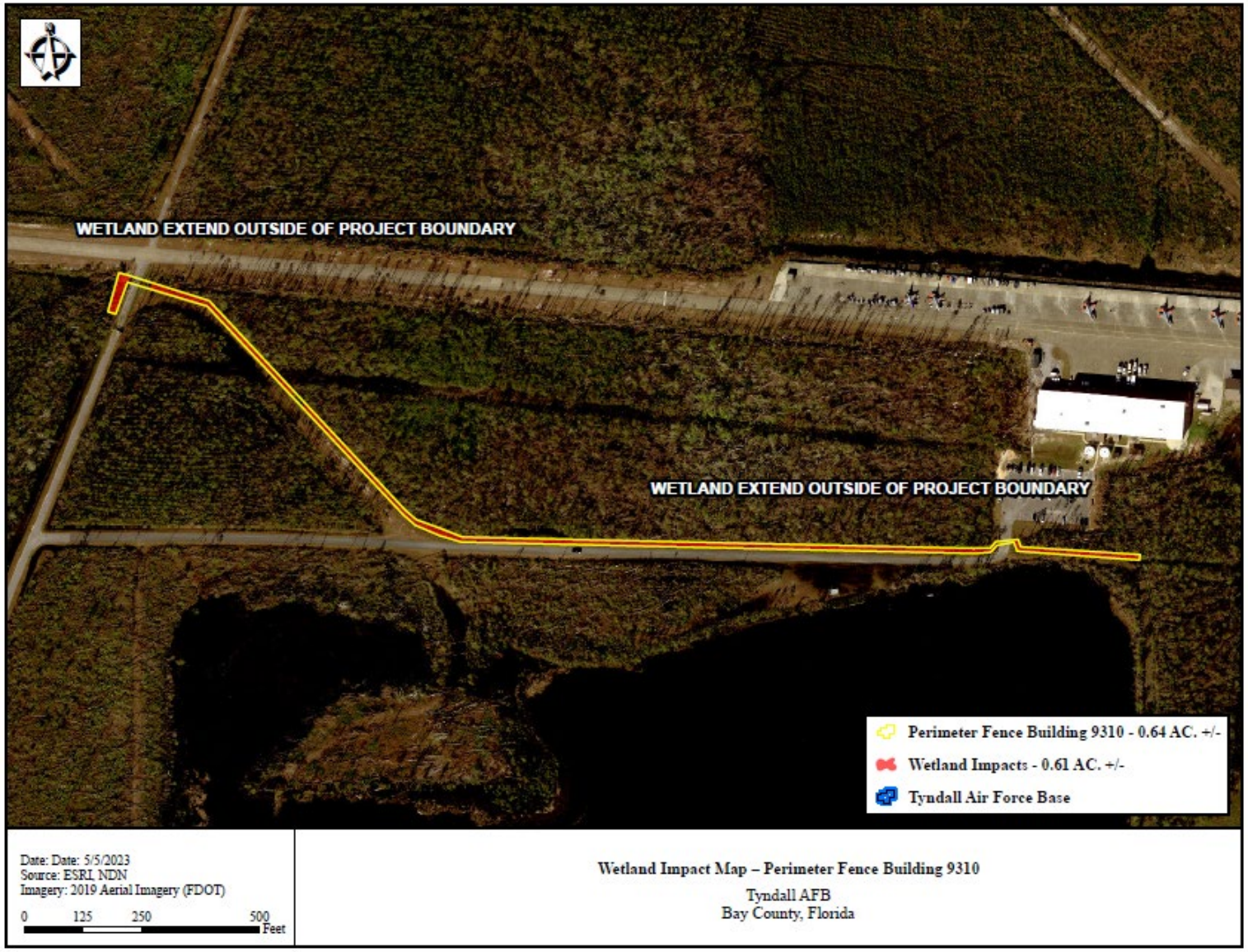

WETLAND EXTEND OUTSIDE OF PROJECT BOUNDARY
WETLAND EXTEND OUTSIDE OF PROJECT BOUNDARY
Perimeter Fence Building 9310 - 0.64 AC. +/-
Wetland Impacts - 0.61 AC. +/-
Tyndall Air Force Base
Date: Date: 5/5/2023
Source: ESRI, NDN
Imagery: 2019 Aerial Imagery (FDOT)
0 125 250 500
Feet
Wetland Impact Map – Perimeter Fence Building 9310
Tyndall AFB
Bay County, Florida

FIGURE 7
Golf Course Pier
Wetland Delineation Map

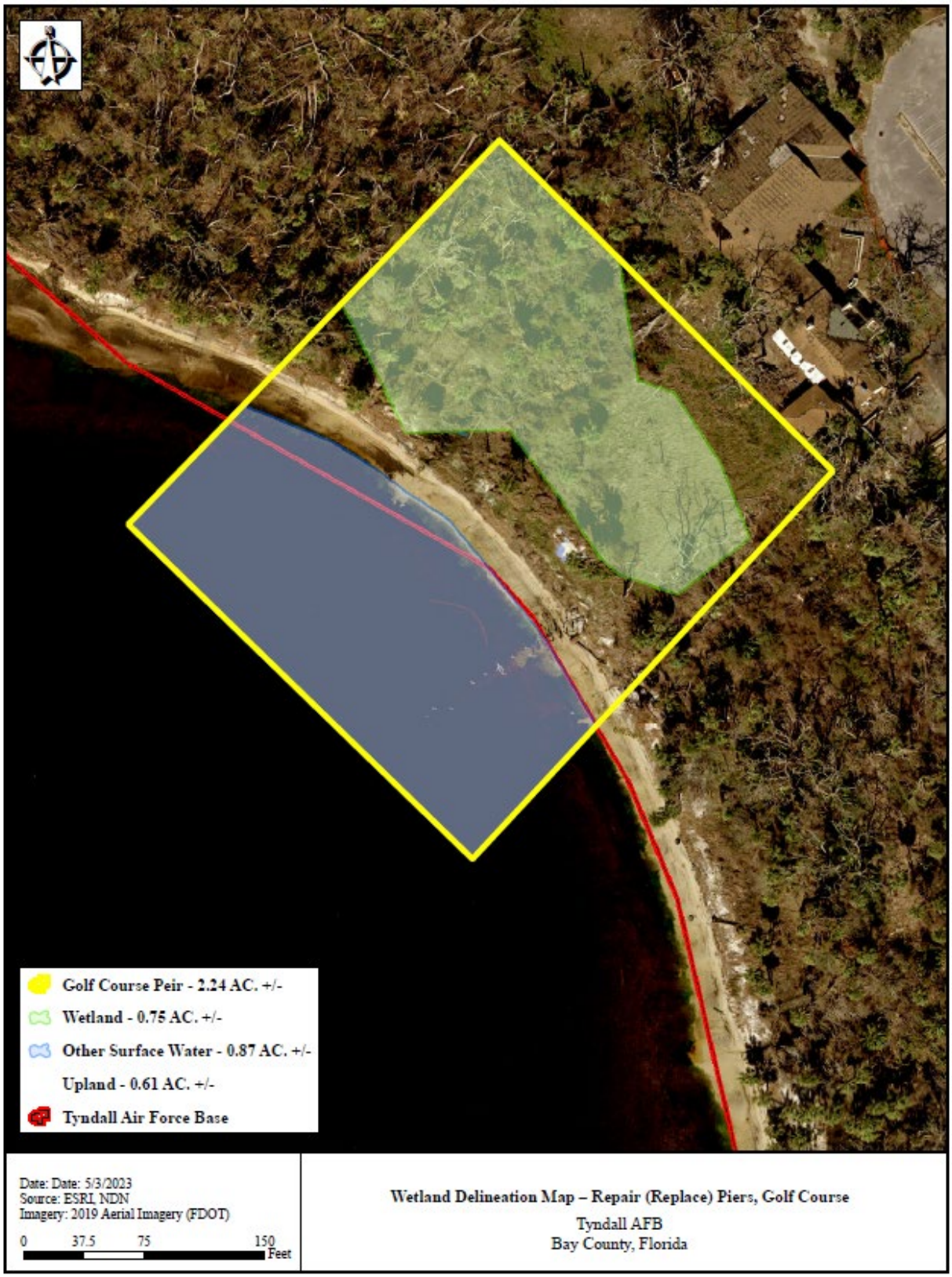

Golf Course Peir - 2.24 AC. +/-
Wetland - 0.75 AC. +/-
Other Surface Water - 0.87 AC. +/-
Upland - 0.61 AC. +/-
Tyndall Air Force Base
Date: Date: 5/3/2023
Source: ESRI, NDN
Imagery: 2019 Aerial Imagery (FDOT)
0 37.5 75 150
Feet
Wetland Delineation Map – Repair (Replace) Piers, Golf Course
Tyndall AFB
Bay County, Florida

FIGURE 8
Golf Course Pier
Wetland Impact Map

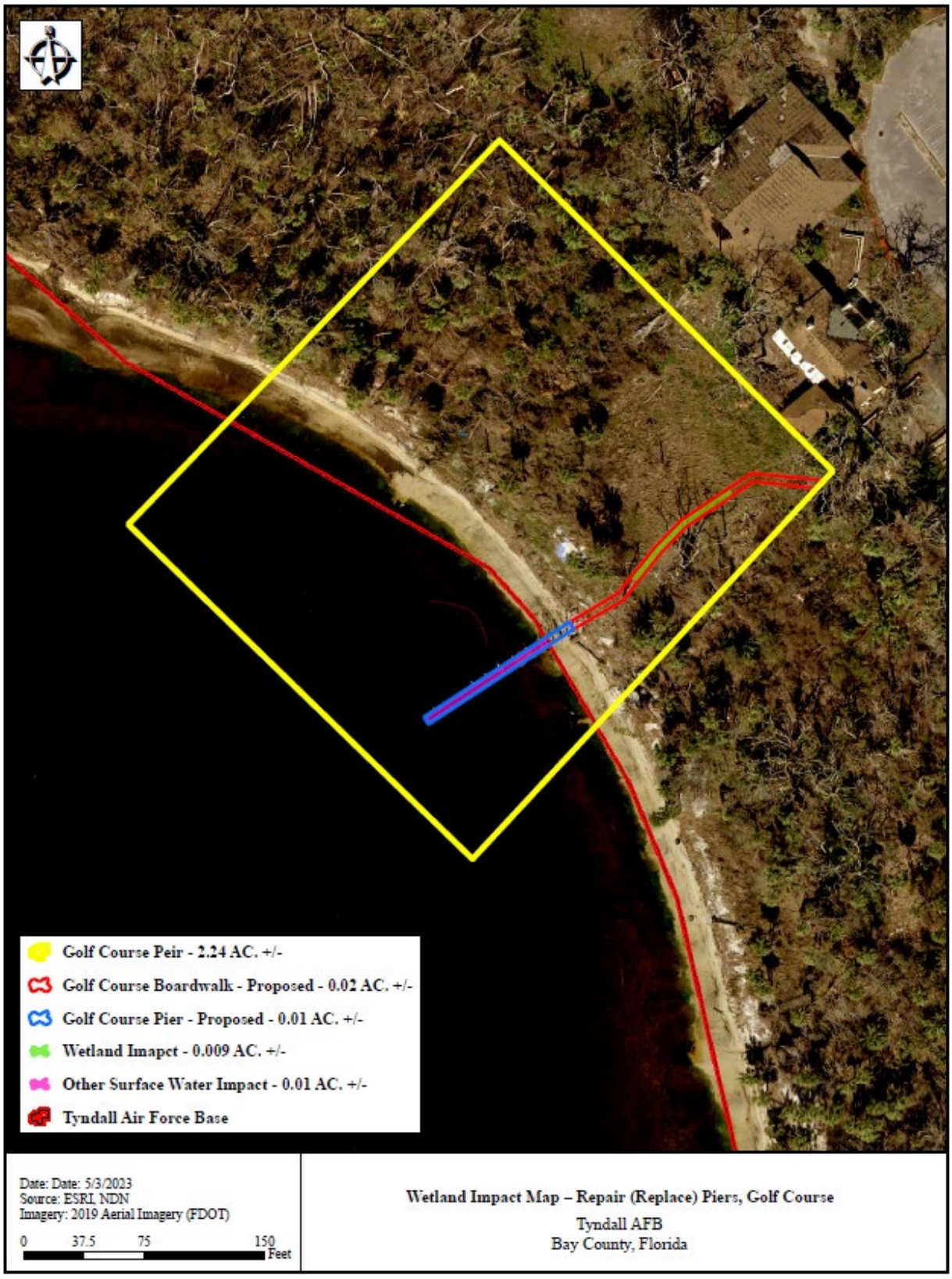

Golf Course Peir - 2.24 AC. +/-
Golf Course Boardwalk - Proposed - 0.02 AC. +/-
Golf Course Pier - Proposed - 0.01 AC. +/-
Wetland Imapct - 0.009 AC. +/-
Other Surface Water Impact - 0.01 AC. +/-
Tyndall Air Force Base
Date: Date: 5/3/2023
Source: ESRI, NDN
Imagery: 2019 Aerial Imagery (FDOT)
0 37.5 75 150
Feet
Wetland Impact Map – Repair (Replace) Piers, Golf Course
Tyndall AFB
Bay County, Florida

FIGURE 9
Perimeter Fence, Building 9310
FEMA Floodzone Map

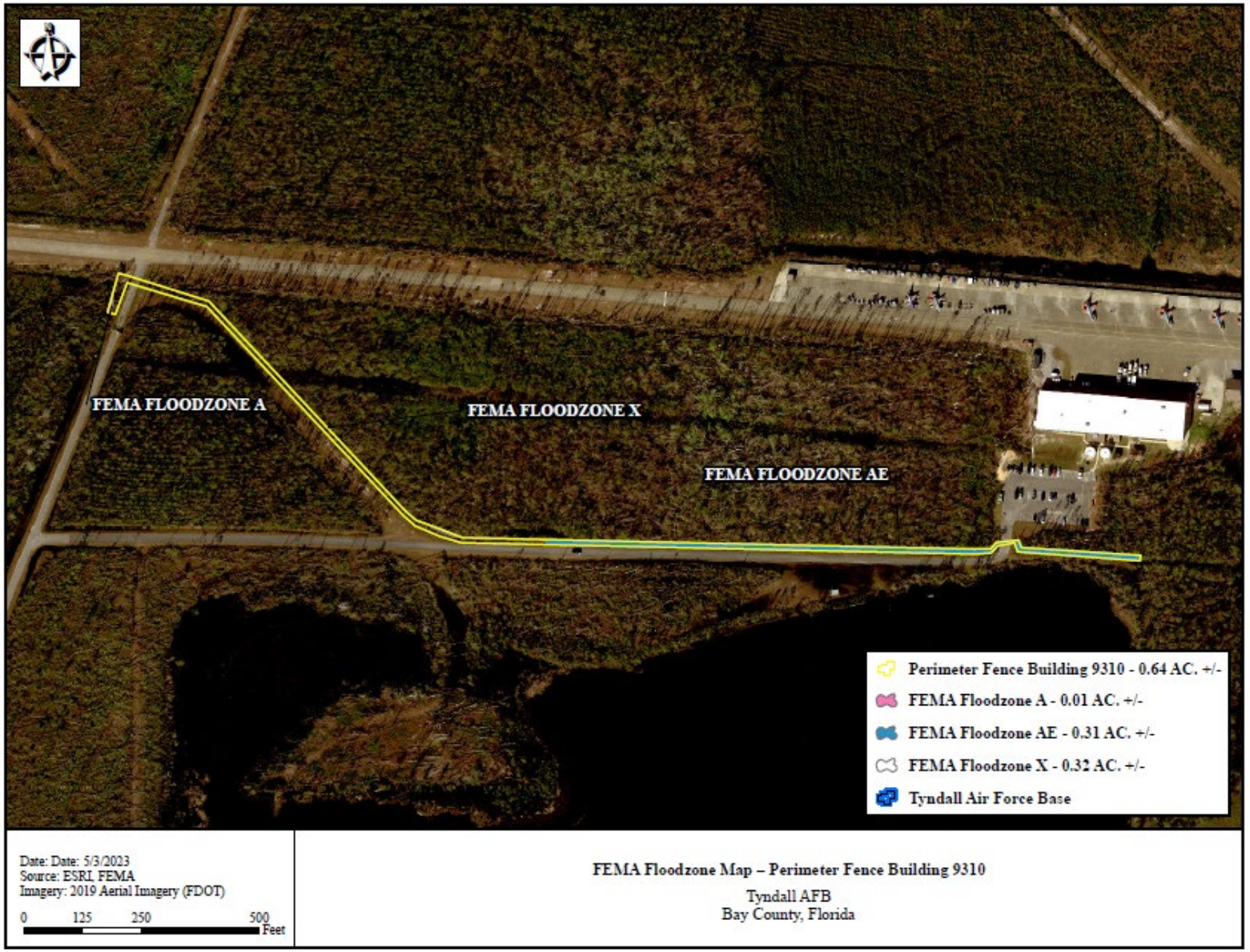
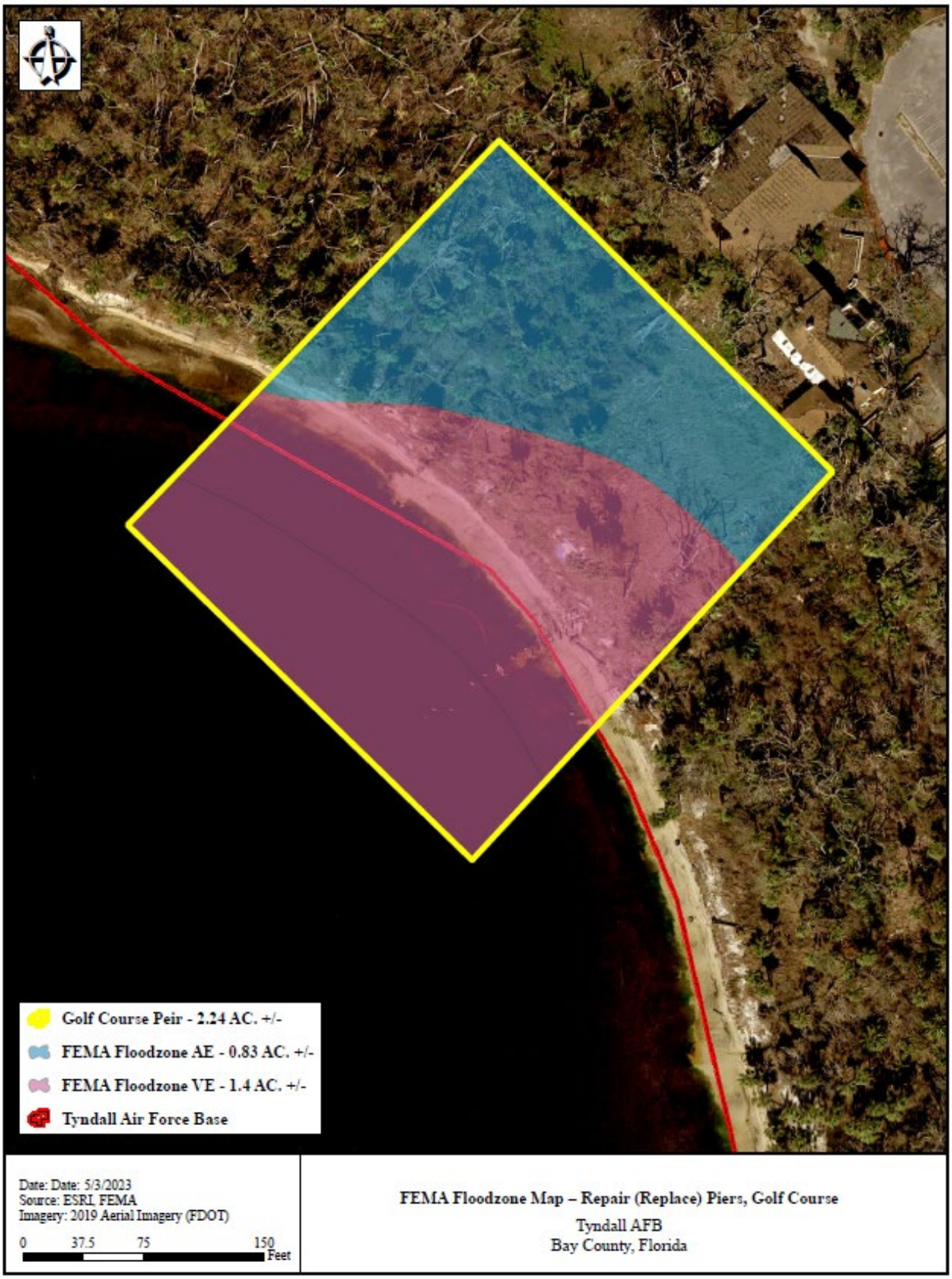

FEMA FLOODZONE A
FEMA FLOODZONE X
FEMA FLOODZONE AE
Perimeter Fence Building 9310 - 0.64 AC. +/-
FEMA Floodzone A - 0.01 AC. +/-
FEMA Floodzone AE - 0.31 AC. +/-
FEMA Floodzone X - 0.32 AC. +/-
Tyndall Air Force Base
Date: Date: 5/3/2023
Source: ESRI, FEMA
Imagery: 2019 Aerial Imagery (FDOT)
0 125 250 500 Feet
FEMA Floodzone Map – Perimeter Fence Building 9310
Tyndall AFB
Bay County, Florida

FIGURE 10
Golf Course Pier
FEMA Floodzone Map


Golf Course Peir - 2.24 AC. +/-
FEMA Floodzone AE - 0.83 AC. +/-
FEMA Floodzone VE - 1.4 AC. +/-
Tyndall Air Force Base
Date: Date: 5/3/2023
Source: ESRI, FEMA
Imagery: 2019 Aerial Imagery (FDOT)
0 37.5 75 150
Feet
FEMA Floodzone Map – Repair (Replace) Piers, Golf Course
Tyndall AFB
Bay County, Florida

PHOTOLOG

Perimeter Fence, Building 9310: Typical view of freshwater forest wetlands in relation to the perimeter fence.

Perimeter Fence, Building 9310: Typical view of hydric Pine Flatwoods in the vicinity of the perimeter fence.

Golf Course Pier/Boardwalk: Typical view of onsite freshwater forested wetlands in the northwest portion of the project area.

Golf Course Pier/Boardwalk: Typical view of freshwater shrub wetlands across majority of the project area.

Appendix C
UMAM Assessment

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Tyndall Air Force Base - Various Construction Projects EA		Impacted wetland - Golf Course Boardwalk/Pier

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
Mixed Forested Wetland		Impact	0.009 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
HUC Basin 03140101/St. Andrew-St. Joseph Bays	Class III	none

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Connection to Saint Andrew Bay appears likely during exceptionally high tides or high volumes of rain. the topography of the site, wetland is located within a swale between the toe of the slope downgradient of the former golf course clubhouse to the north and the shoreline of Saint Andrewa Bay to the south.

Assessment area description

Coastal habitat comprised of freshwater forested and shrub wetland to the northeast, landward of the shoreline, and estuarine surface waters of Saint Andrew Bay to the southwest. Observed vegetative species in the vicinity of the wetland primarily included a dense shrub stratum of Salt Bush (Baccharis glomerulifolia) and Southern Wax Myrtle (Myrica cerifera) with a herbaceous stratum of False Nettle (Boehmeria cylindrica). A tree stratum of Oak species (Quercus spp.) and Cabbage Palm (Sabal Palmetto).

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Saint Andrews Bay	not unique for the region

Functions	Mitigation for previous permit/other historic use
some wildlife utilization, groundwater recharge, wetland plant habitat, water quality improvements	No previous mitigation use at assessment site

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
resident and migratory birds, reptile and amphibian species, small mammals.	Eastern Black Rail (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

none

Additional relevant factors:

vernal pool adjacent to impact area

Assessment conducted by:	Assessment date(s):
Brandon Faustini, The NDN Companies	5/28/2023

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Tyndall Air Force Base - Various Construction Projects EA		Impacted Wetland (0.009 acres)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	B Faustini	5/28/2023

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: 5 with: 0	Adjacent wildlife habitats/corridors outside of the assessment area. The wetland is located adjacent to Saint Andrews Bay. Some wildlife (shorebirds, secretive marsh species, small mammals) may be negatively impacted.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: 7 with: 0	No water quality impacts appear ro be present due to adjacent land uses.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: 6 with: 0	Vegetative community: a dense shrub stratum of Salt Bush (Baccharis glomerulifolia) and Southern Wax Myrtle (Myrica cerifera) with a herbaceous stratum of False Nettle (Boehmeria cylindrica), Louisiana Vetch (Vicia ludoviciana), Pepper Vine (Nekemias arborea), All Fruit Sedge (Carex stipata), Needle Spike Rush (Eleocharis acicularis), Wild Garlic (Allium canadense), and Bushy Bluestem (Andropogon glomeratus). A tree stratum of Oak species (Quercus spp.) and Cabbage Palm (Sabal Palmetto) were also noted on portions of the project area.

Score = sum of above scores/30 (If uplands, divide by 20)	If preservation as mitigation,	For impact assessment areas
current or w/o pres: 0.6 with: 0	Preservation adjustment factor =	FL = delta x acres = 0.0054
	Adjusted mitigation delta =	acres = 0.009

Delta = [with-current]	If mitigation	For mitigation assessment areas
0.6	Time lag (t-factor) =	RFG = delta/(t-factor x risk) =
	Risk factor =	

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Tyndall Air Force Base - Various Construction Projects EA		Impacted wetland - Perimeter Fence, Bldg 9310

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
641 Freshwater Marsh	Wetland Cut Ditch	Impact	0.42 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Lower St. Johns River/030801 2216	NA	none

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Wetland is characterized as hydric Pine Flatwoods, appearing as a concave surface with dense shrub and herbaceous coverage and a mature canopy layer of Longleaf Pine (Pinus palustris). Culverted entrance to Building 9310 bisects wetland. Wetland recieves drainage from a wetland cut ditch to the north.

Assessment area description

The assesment area consists of freshwater forested/shrub wetland and is dominated by Longleaf Pine (Pinus palustris) , Sweet bay magnolia (*Magnolia virginiana*), and Wax myrtle (*Myrica cerifera*).

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
PQM Lake (L1UBHx) on south side of PQM Lake Loop road	not unique for the region

Functions	Mitigation for previous permit/other historic use
some wildlife utilization, groundwater recharge, wetland plant habitat	No previous mitigation use at assessment site

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
resident and migratory birds, reptile and amphibian species, small mammals, and historical black bear sightings.	Eastern Black Rail (T), Red Knot (T), Monarch Butterfly ©

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

none

Additional relevant factors:

none

Assessment conducted by:	Assessment date(s):
Brandon Faustini, The NDN Companies	5/28/2023

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
JEA NGS		Impacted Wetland (0.42 acres)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	B Faustini	7/13/2021

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 6	with: 0	Adjacent wildlife habitats outside of the assessment area. The wetland is located adjacent to PQM Lake. Some wildlife may be negatively impacted.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 7	with: 0	No water quality impacts appear ro be present due to adjacent land uses.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 7	with: 0	Vegetative community: Dominant strata present include shrub and herbaceous layers. The assessment area is dominated by Royal fern (Osmunda regalis), torpedograss (Panicum repens), and common cattail (Typha latifolia). Also present are bigpod sesbania (*Sesbania herbacea*), common rush (*Juncus effusus*), dogfennel (*Eupatorium capillifolium*).

Score = sum of above scores/30 (If uplands, divide by 20)		
current or w/o pres: 0.66666	with: 0	

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.407

acres = 0.61

Delta = [with-current]
0.66666

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

Appendix D
Air Conformity Applicability Model Report
Record of Air Analysis (ROAA)

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:
Base: TYNDALL AFB
State: Florida
County(s): Bay
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Tyndall AFB Various Construction Projects

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2024

e. Action Description:

Four projects comprise the proposed action:
1. Replace existing security fence by building 3910, which involves land clearing activities on 10 feet of either fence side. Total project size = 48,000 SF.
2. Extend Tyndall Noncommissioned Officer Academy boardwalk by 600 feet and backfill an area impacted by storm washout (190 cubic yards of sand). Total estimated project size = 3,000 SF.
3. Expand and widen access road to parking area off of Eagle Drive; expand parking area to 11,400 square feet of pavement. Add stormwater features. Total size of project = 65,000 SF.
4. Replace the golf course pier and boardwalk leading to it. Total project size = 48,400 SF.

f. Point of Contact:
Name: Lesley Hamilton
Title: AQ analyst
Organization: Scout
Email:
Phone Number:

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS)

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2024

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.132	250	
NOx	0.796	250	
CO	1.095	250	
SOx	0.003	250	
PM 10	0.344	250	
PM 2.5	0.027	250	
Pb	0.000	25	No
NH3	0.001	250	
CO2e	279.7		

2025 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	
NOx	0.000	250	
CO	0.000	250	
SOx	0.000	250	
PM 10	0.000	250	
PM 2.5	0.000	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	0.0		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality. Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.

Lesley Hamilton, AQ analyst DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location
Base: TYNDALL AFB
State: Florida
County(s): Bay
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: Tyndall AFB Various Construction Projects

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2024

- Action Purpose and Need:
To provide facility, infrastructure and functionality improvements necessary to provide continued mission support and recreational services for service members and their families. The Proposed Action is needed to repair in-kind facilities (e.g., repair in existing footprints) and infrastructure at the installation and to prevent further deterioration of these functions and capabilities that can occur over time due to obscolescence.

- Action Description:
Four projects comprise the proposed action:
1. Replace existing security fence by building 3910, which involves land clearing activities on 10 feet of either fence side. Total project size = 48,000 SF.
2. Extend Tyndall Noncommissioned Officer Academy boardwalk by 600 feet and backfill an area impacted by storm washout (190 cubic yards of sand). Total estimated project size = 3,000 SF.
3. Expand and widen access road to parking area off of Eagle Drive; expand parking area to 11,400 square feet of pavement. Add stormwater features. Total size of project = 65,000 SF.
4. Replace the golf course pier and boardwalk leading to it. Total project size = 48,400 SF.

- Point of Contact
Name: Lesley Hamilton
Title: AQ analyst
Organization: Scout
Email:
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Construction / Demolition	Security Fencing Replacement at Building 9310
3.	Construction / Demolition	Extend Tyndall NCOA boardwalk
4.	Construction / Demolition	Widening and paving Eagle Drive pier access road and parking lot
5.	Construction / Demolition	Replace golf course pier and boardwalk

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

County: Bay
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Security Fencing Replacement at Building 9310

- Activity Description:
Replace existing security fency by building 9310, which involves land clearing activities on 10 feet of either fence side. Total project size = 48,000 SF.

- Activity Start Date
Start Month: 1
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 1
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.013005
SO_x	0.000200
NO_x	0.084768
CO	0.080942
PM 10	0.161488

Pollutant	Total Emissions (TONs)
PM 2.5	0.003183
Pb	0.000000
NH_3	0.000076
CO_2e	20.7

2.1 Demolition Phase

2.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 0
Number of Days: 5

2.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 600
Height of Building to be demolished (ft): 7

- Default Settings Used: No

- Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Generator Sets Composite	1	8
Rubber Tired Dozers Composite	1	8

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust
  Average Hauling Truck Capacity (yd^3): 12
  Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
  Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Concrete/Industrial Saws Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0357	0.0006	0.2608	0.3715	0.0109	0.0109	0.0032	58.544
Generator Sets Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0303	0.0006	0.2464	0.2674	0.0091	0.0091	0.0027	61.061
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.227	000.002	000.112	003.995	000.003	000.003		000.024	00326.033
LDGT	000.249	000.003	000.200	004.463	000.005	000.004		000.026	00420.631
HDGV	001.020	000.006	000.905	015.294	000.024	000.021		000.052	00940.955
LDDV	000.055	000.001	000.084	003.818	000.002	000.002		000.008	00335.620
LDDT	000.064	000.001	000.127	002.601	000.003	000.003		000.008	00381.263
HDDV	000.117	000.004	002.489	001.691	000.053	000.049		000.032	01275.703
MC	003.044	000.003	000.569	012.909	000.024	000.021		000.052	00386.988

2.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.2 Site Grading Phase

2.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 1

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 0
Number of Days: 10

2.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 48000
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 462

- Site Grading Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Dumpers/Tenders Composite	4	2
Rubber Tired Dozers Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 12
Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Dumpers/Tenders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0091	0.0001	0.0581	0.0313	0.0021	0.0021	0.0008	7.6451
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
County: Bay
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Extend Tyndall NCOA boardwalk

- Activity Description:
Backfill 190 cubic yards of sand and extend the existing boardwalk 600 feet.

- Activity Start Date
Start Month: 1
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 1
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.018745
SO_x	0.000395
NO_x	0.096610
CO	0.158513
PM 10	0.033595

Pollutant	Total Emissions (TONs)
PM 2.5	0.003747
Pb	0.000000
NH_3	0.000133
CO_2e	38.7

3.1 Trenching/Excavating Phase

3.1.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 1

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Number of Days: 0

3.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information

Area of Site to be Trenched/Excavated (ft^2): 3000
Amount of Material to be Hauled On-Site (yd^3): 190
Amount of Material to be Hauled Off-Site (yd^3): 0

- Trenching Default Settings

Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Dumpers/Tenders Composite	4	2
Excavators Composite	1	8
Generator Sets Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Loaders Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 10
Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.578	000.008	000.613	005.086	000.009	000.008		000.034	00391.932
LDGT	000.823	000.010	001.060	008.566	000.010	000.009		000.034	00522.586
HDGV	001.597	000.016	002.785	026.982	000.023	000.020		000.046	00814.010
LDDV	000.216	000.004	000.307	004.001	000.006	000.006		000.008	00402.372
LDDT	000.537	000.006	000.822	008.176	000.008	000.008		000.008	00626.077
HDDV	000.762	000.015	007.639	002.810	000.395	000.363		000.028	01633.017
MC	003.190	000.008	000.648	014.785	000.027	000.024		000.048	00392.026

3.1.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

4. Construction / Demolition

4.1 General Information & Timeline Assumptions

- **Activity Location**
  County: Bay
  Regulatory Area(s): NOT IN A REGULATORY AREA

- **Activity Title:** Widening and paving Eagle Drive pier access road and parking lot

- **Activity Description:**
  Expand access road to approximately 7,900 square feet; parking area expansion to 11,400 square feet. Both would be paved. Total 65,000 square feet land disturbance in order to install stormwater and other features.

- **Activity Start Date**
  Start Month: 1
  Start Month: 2024

- **Activity End Date**
  Indefinite: False
  End Month: 1
  End Month: 2024

- **Activity Emissions:**

Pollutant	Total Emissions (TONs)
VOC	0.012831
SO_x	0.000183
NO_x	0.072802
CO	0.086494
PM 10	0.122884

Pollutant	Total Emissions (TONs)
PM 2.5	0.003257
Pb	0.000000
NH_3	0.000051
CO_2e	18.4

4.1 Demolition Phase

4.1.1 Demolition Phase Timeline Assumptions

- **Phase Start Date**
  Start Month: 1
  Start Quarter: 1
  Start Year: 2024

- **Phase Duration**
  Number of Month: 0
  Number of Days: 2

4.1.2 Demolition Phase Assumptions

- **General Demolition Information**
  Area of Building to be demolished (ft^2): 3600
  Height of Building to be demolished (ft): 0.33

- **Default Settings Used:** No

- **Average Day(s) worked per week:** 5

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Dumpers/Tenders Composite	4	1
Rubber Tired Dozers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 12
Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

4.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Dumpers/Tenders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0091	0.0001	0.0581	0.0313	0.0021	0.0021	0.0008	7.6451
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.227	000.002	000.112	003.995	000.003	000.003		000.024	00326.033
LDGT	000.249	000.003	000.200	004.463	000.005	000.004		000.026	00420.631
HDGV	001.020	000.006	000.905	015.294	000.024	000.021		000.052	00940.955
LDDV	000.055	000.001	000.084	003.818	000.002	000.002		000.008	00335.620
LDDT	000.064	000.001	000.127	002.601	000.003	000.003		000.008	00381.263
HDDV	000.117	000.004	002.489	001.691	000.053	000.049		000.032	01275.703
MC	003.044	000.003	000.569	012.909	000.024	000.021		000.052	00386.988

4.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)

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BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

4.2 Site Grading Phase

4.2.1 Site Grading Phase Timeline Assumptions

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- Phase Start Date
  - Start Month: 1
  - Start Quarter: 1
  - Start Year: 2024

- Phase Duration
  - Number of Month: 0
  - Number of Days: 4

4.2.2 Site Grading Phase Assumptions

- General Site Grading Information
  - Area of Site to be Graded (ft^2): 65000
  - Amount of Material to be Hauled On-Site (yd^3): 18
  - Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
  - Default Settings Used: No
  - Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	8
Rubber Tired Dozers Composite	1	8
Tractors/Loaders/Backhoes Composite	2	7

- Vehicle Exhaust
  - Average Hauling Truck Capacity (yd^3): 12
  - Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
  - Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

4.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.227	000.002	000.112	003.995	000.003	000.003		000.024	00326.033
LDGT	000.249	000.003	000.200	004.463	000.005	000.004		000.026	00420.631
HDGV	001.020	000.006	000.905	015.294	000.024	000.021		000.052	00940.955
LDDV	000.055	000.001	000.084	003.818	000.002	000.002		000.008	00335.620
LDDT	000.064	000.001	000.127	002.601	000.003	000.003		000.008	00381.263
HDDV	000.117	000.004	002.489	001.691	000.053	000.049		000.032	01275.703
MC	003.044	000.003	000.569	012.909	000.024	000.021		000.052	00386.988

4.2.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

4.3 Paving Phase

4.3.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 0
Number of Days: 10

4.3.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 19300

- Paving Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Pavers Composite	1	6
Paving Equipment Composite	1	8
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

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	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

4.3.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.227	000.002	000.112	003.995	000.003	000.003		000.024	00326.033
LDGT	000.249	000.003	000.200	004.463	000.005	000.004		000.026	00420.631
HDGV	001.020	000.006	000.905	015.294	000.024	000.021		000.052	00940.955
LDDV	000.055	000.001	000.084	003.818	000.002	000.002		000.008	00335.620
LDDT	000.064	000.001	000.127	002.601	000.003	000.003		000.008	00381.263
HDDV	000.117	000.004	002.489	001.691	000.053	000.049		000.032	01275.703
MC	003.044	000.003	000.569	012.909	000.024	000.021		000.052	00386.988

4.3.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)

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VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

5. Construction / Demolition

5.1 General Information & Timeline Assumptions

- Activity Location
County: Bay
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Replace golf course pier and boardwalk

- Activity Description:
Replace 47,000 square foot pier and boardwalk access. Existing footprints would be reused. Total project size = 48,400 square feet.

- Activity Start Date
Start Month: 1
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 5
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)

Pollutant	Total Emissions (TONs)

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VOC	0.087023
SO_x	0.002039
NO_x	0.542272
CO	0.768754
PM 10	0.025890

PM 2.5	0.016956
Pb	0.000000
NH_3	0.000392
CO_2e	201.9

5.1 Trenching/Excavating Phase

5.1.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 1
Number of Days: 15

5.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 600
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Trenching Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Bore/Drill Rigs Composite	1	8
Cranes Composite	1	8
Other Construction Equipment Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 12
Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

5.1.3 Trenching / Excavating Phase Emission Factor(s)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Construction Exhaust Emission Factors (lb/hour)

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.578	000.008	000.613	005.086	000.009	000.008		000.034	00391.932
LDGT	000.823	000.010	001.060	008.566	000.010	000.009		000.034	00522.586
HDGV	001.597	000.016	002.785	026.982	000.023	000.020		000.046	00814.010
LDDV	000.216	000.004	000.307	004.001	000.006	000.006		000.008	00402.372
LDDT	000.537	000.006	000.822	008.176	000.008	000.008		000.008	00626.077
HDDV	000.762	000.015	007.639	002.810	000.395	000.363		000.028	01633.017
MC	003.190	000.008	000.648	014.785	000.027	000.024		000.048	00392.026

5.1.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

5.2 Building Construction Phase

5.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 2
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 3
Number of Days: 10

5.2.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 48400
Height of Building (ft): 2
Number of Units: N/A

- Building Construction Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Bore/Drill Rigs Composite	1	8
Cranes Composite	1	8
Generator Sets Composite	1	8
Rough Terrain Forklifts Composite	1	6
Tractors/Loaders/Backhoes Composite	1	6

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

POVs	0	0	0	0	0	100.00	0

- Worker Trips
  Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips
  Average Vendor Round Trip Commute (mile): 40

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

5.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Bore/Drill Rigs Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0430	0.0017	0.2891	0.5006	0.0043	0.0043	0.0038	164.97
Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Generator Sets Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0303	0.0006	0.2464	0.2674	0.0091	0.0091	0.0027	61.061
Rough Terrain Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0415	0.0008	0.2498	0.4433	0.0106	0.0106	0.0037	70.374
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.227	000.002	000.112	003.995	000.003	000.003		000.024	00326.033
LDGT	000.249	000.003	000.200	004.463	000.005	000.004		000.026	00420.631
HDGV	001.020	000.006	000.905	015.294	000.024	000.021		000.052	00940.955
LDDV	000.055	000.001	000.084	003.818	000.002	000.002		000.008	00335.620
LDDT	000.064	000.001	000.127	002.601	000.003	000.003		000.008	00381.263
HDDV	000.117	000.004	002.489	001.691	000.053	000.049		000.032	01275.703
MC	003.044	000.003	000.569	012.909	000.024	000.021		000.052	00386.988

5.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)

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EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft^3 to trips (0.42 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase
$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft^3 to trips (0.38 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)

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2000: Conversion Factor pounds to tons