TECHNICAL MEMORANDUM

Date:	Wednesday, October 14, 2020 rev. October 12, 2021
Project:	Mulberry Knoll Road Extension Planning and Environmental Linkages (PEL) Study
Subject:	Environmental Constraints Map Summary

In order to inform the planning-level design and development of alternative transportation corridors for consideration in the Mulberry Knoll Road Extension Planning and Environmental Linkages (PEL) Study, the enclosed environmental constraints mapping has been developed to identify resources to which impacts should be avoided or minimized to the extent practicable. The following provides a brief summary of the features and resources considered and incorporated on the map:

Field Inventory Area

In 2018, the Delaware Department of Transportation (DelDOT) completed the *Henlopen Transportation Improvement District (TID) Existing Conditions* Report and has subsequently identified a number of recommended projects proposed for inclusion in DelDOT's Capital Transportation Program. These projects include innovative intersection improvements as well as widening of Plantation Road (SR 1D) and a new connector extending Mulberry Knoll Road from John J Williams Highway (SR 24) to Lewes Georgetown Highway (US 9). Informed by the new location alignment for a roadway connector as identified in the Henlopen TID study, the field inventory area was established as an overall corridor in which a future connection could likely be implemented, considering the existing development and general environmental constraints within the study area vicinity. Developed in coordination with DelDOT, this field inventory boundary represents the area within which a physical site investigation occurred to inform a detailed understanding of the potential environmental constraints that may influence the development of a future new roadway alignment.

Parcel Boundary

Based on geographic information system (GIS) data obtain from Sussex County, Delaware, this feature represents individual property boundaries within the project vicinity. Property potentially impacted by any future new roadway alignment would require conversion of the property to public transportation use. As a result, affected property owners would receive fair compensation for any acquisition or easements of private properties to be incorporated into the roadway right of way.

Delineated Natural Resources

Within the Field Inventory Area, a field delineation of waters of the U.S., including wetlands, was conducted in October 2020, in accordance with the 1987 U.S. Army Corps of Engineers' *Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (Version 2.0). A routine on-site inspection procedure was followed for making wetland determinations and the boundaries of each feature were delineated using sequentially numbered pink ribbon/pin flags in the field and each flag was located using global positioning system (GPS) equipment capable of sub-meter accuracy. Each wetland or waters identified within the field inventory area have been classified per the U.S Fish and Wildlife Service's (USFWS) *Classification of Wetlands and Deepwater Habitats of the United States*.

Palustrine-Forested (PFO) Wetlands

Of the delineated wetlands, Palustrine-Forested (PFO) wetlands were primarily identified within the Field Inventory Area. PFO wetlands are nontidal wetlands bound by upland areas and dominated by trees. PFO wetlands are regulated resources that require a permit for potential impacts and may require compensation,

depending on the degree and extent of impacts. As a result, impacts to these features should be avoided or minimized to the extent practicable.

Open Water
Impacts to open water are also regulated, require a permit, and may require compensation, depending on the degree and extent of impacts. Conversely compared to PFO wetlands, if required, compensation for unavoidable impacts to open water is typically commensurate with the amount of impact. To the extent practicable, impacts to these features should be avoided or minimized.

Stream
Streams are also natural resource features identified within the Field Inventory Area that may convey surface water or groundwater discharge ephemerally, intermittently, or perennially and demonstrate bed and bank or an ordinary high water mark. These regulated resources may require structural roadway improvement (i.e. bridge or culvert) to convey continued surface flow or base flow and may require compensation for potential impacts, based on the degree and extent of the impact.

Natural Areas
In 1978, the State of Delaware enacted the Natural Areas Preservation System (7 Del. Code, Chapter 73) for the purpose of establishing an inventory of natural areas statewide and a system of nature preserves. A "natural area" as defined by the law is an "area of land or water, or of both land and water, whether in public or private ownership, which either retains or has reestablished its natural character (although it need not be undisturbed), or has unusual flora or fauna, or has biotic, geological, scenic or archaeological features of scientific or educational value".

Agricultural Lands Preservation
The Delaware Department of Agriculture manages Delaware's Agricultural Lands (Aglands) Preservation Program. This program, established in 1991, allows landowners to voluntarily preserve their farms. Resources identified under the Aglands Preservation Program are noted to distinguish where landowners have agreed to use their land for agricultural purposes under a ten-year agreement. Termination or transfer of this agreement may require coordination with the Agricultural Lands Preservation Foundation, established under the Delaware Department of Agriculture.

Structure
Based on a review of aerial photography, existing structures have been identified. Similar to any affected property owners, any structures acquired or relocated would be compensated for the fair market value, in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended).

Historic Property
Previously identified historic properties and extant structures have been mapped, based on a review of the Delaware Division of Historical and Cultural Affairs' (DHCA) Cultural and Historic Resource Information System (CHRIS). Based on the information obtained from CHRIS, these resources are either those that have been identified as eligible or are currently listed on the National Register of Historic Places (NRHP) as well as existing structures that have been previously evaluated by DHCA and remain intact. Coordination with the State Historic Preservation Officer (SHPO), DHCA, would be required to verify the eligibility of these previously identified historic resources and determine the potential degree of effect as well as any mitigation that may be required, should any of these properties be impacted.

Federal Emergency Management Agency (FEMA) Flood Zones

Digital floodplain data were obtained from the Federal Emergency Management Agency (FEMA) and overlaid in GIS to determine where 100-year and 500-year floodplains are present in the project vicinity. The floodplain areas identified are land areas susceptible to being inundated by floodwaters from any source. Several Federal directives regulate construction in floodplains to ensure that consideration is given to avoidance and mitigation of adverse effects to floodplains. These Federal directives include the National Flood Insurance Act of 1968, EO 11988 (May 24, 1977), EO 13690 (January 30, 2015), and USDOT Order 5650.2, entitled Floodplain Management and Protection. The National Flood Insurance Act of 1968 established the National Flood Insurance Program (NFIP), which is administered by FEMA. The design for any roadway improvements would be subject to Federal policies and procedures for the location and hydraulic design of highway encroachments on floodplains contained in 23 CFR §650 Subpart A. These features have been identified to inform the planning and design for future roadway improvements to ensure that there would be no increase in flood levels nor the probability of flooding or the potential for property loss and hazard to life.

Floodway

The floodway represents the area that encounters the deepest water and the highest velocities.

100 year (yr) Flood Hazard

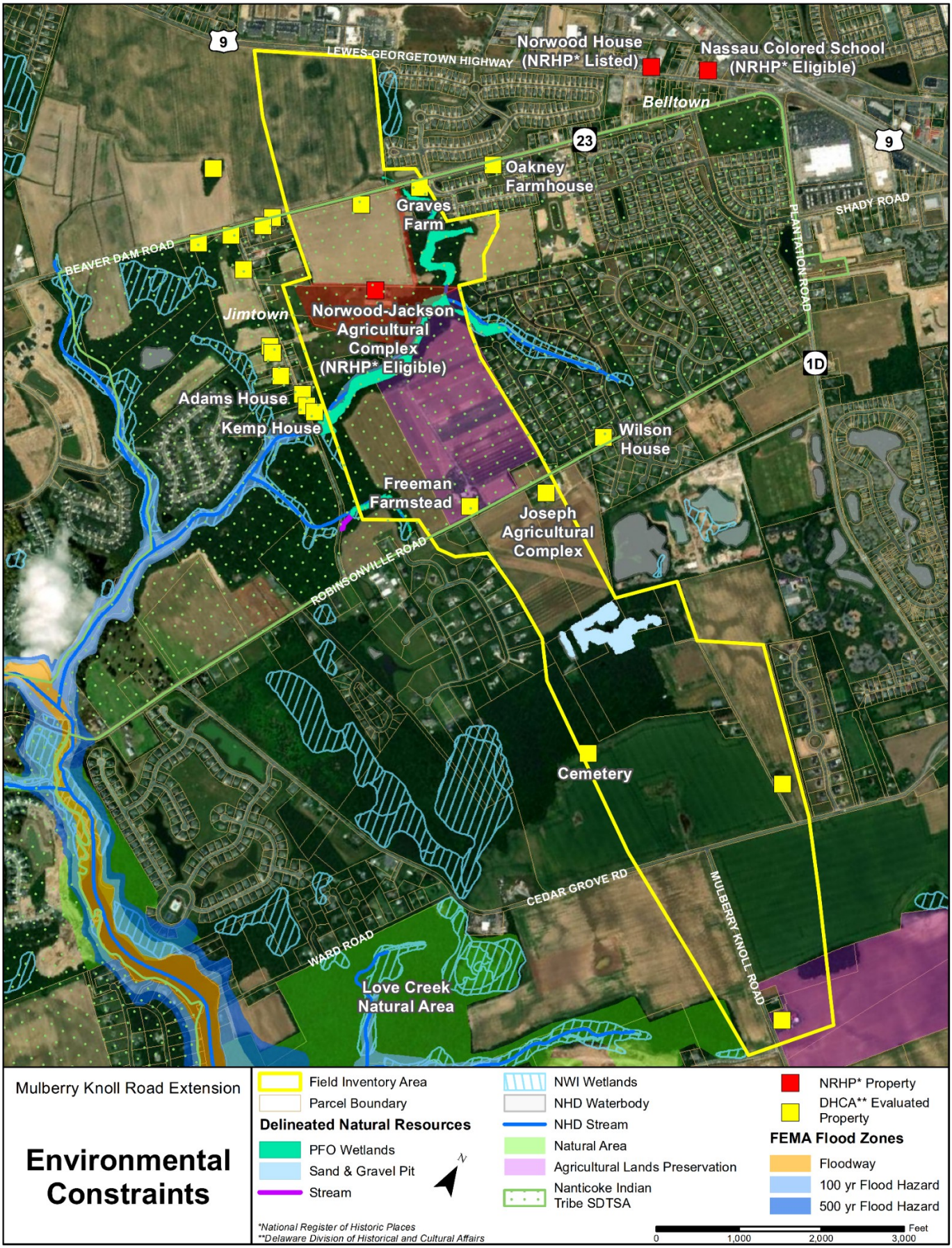
The 100-year (yr) flood, or base flood, is the area covered by a flood that has a one percent chance of occurring in any given year; this is commonly referred to as the 100-yr floodplain. The 100-yr floodplain includes the floodway as well as the flood fringe.

500 yr Flood Hazard

The 500-yr floodplain is the area covered by a flood that has a 0.2 percent chance of occurring in any given year.

Nanticoke Indian Tribe State Designated Tribal Statistical Area (SDTSA)

SDTSAs are statistical geographic areas identified and delineated for state recognized tribes that are not federally recognized and do not have an American Indian reservation or off-reservation trust land. The Census Bureau works with a governor appointed state liaison to delineate statistical areas for state-recognized tribes. SDTSAs provide state recognized tribes without reservations statistical data for a geographic area that encompasses a substantial concentration of tribal members (Census, 2021).


9
LEWES-GEORGETOWN HIGHWAY
Norwood House (NRHP* Listed)
Nassau Colored School (NRHP* Eligible)
Belltown
23
9
Oakney Farmhouse
Graves Farm
SHADY ROAD
PLANTATION ROAD
BEAVER DAM ROAD
Jimtown
Norwood-Jackson Agricultural Complex (NRHP* Eligible)
1D
Adams House
Kemp House
Wilson House
Freeman Farmstead
Joseph Agricultural Complex
ROBINSONVILLE ROAD
Cemetery
CEDAR GROVE RD
MULBERRY KNOLL ROAD
WARD ROAD
Love Creek Natural Area
Mulberry Knoll Road Extension
Environmental Constraints
Field Inventory Area
Parcel Boundary
Delineated Natural Resources
PFO Wetlands
Sand & Gravel Pit
Stream
NWI Wetlands
NHD Waterbody
NHD Stream
Natural Area
Agricultural Lands Preservation
Nanticoke Indian Tribe SDTSA
NRHP* Property
DHCA** Evaluated Property
FEMA Flood Zones
Floodway
100 yr Flood Hazard
500 yr Flood Hazard
*National Register of Historic Places
**Delaware Division of Historical and Cultural Affairs
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