TIMMONS GROUP
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December 7, 2021

Mr. Andy Hull
Apex Clean Energy Holdings, LLC
310 4th Street NE, Suite 300
Charlottesville, VA 22902

RE: Dogwood Lane Solar – Desktop T&E Resources Memorandum

Dear Mr. Hull,

Timmons Group has completed a desktop review of the Dogwood Lane Solar project for a proposed solar electric power generation facility. The project is located on approximately 31.2 acres and is located in Lunenburg County, Virginia (see Figure 1: County Map). The study was developed as a preliminary planning tool to help identify potential constraints to assist in developing the proposed Dogwood Lane Solar facility (Site). The study consists of desktop database searches, providing a comprehensive review of publicly available environmental mapping and database resources to identify local, state, and federally regulated resources that have the potential to significantly impact the feasibility of the Site.

I. Threatened and Endangered Species Database Search

An endangered species review was conducted to gain insight regarding the potential presence of Endangered Species Act (ESA) listed species as well as State listed species onsite or in the vicinity of the Site. The following agencies and associated databases were reviewed for threatened and endangered species:

- U.S. Fish and Wildlife Services (USFWS) – Information, Planning and Consultations system (IPaC)
- Virginia Department of Wildlife Resources (VDWR) – Wildlife Environmental Review Map Service (WERMS)
- Virginia Department of Wildlife Resources (VDWR) – Virginia Fish and Wildlife Information Service (VaFWIS)
- Virginia Department of Wildlife Resources (VDWR) – Northern Long Eared Bat (NLEB) Winter Habitat and Roost Tree Locator
- Virginia Department of Wildlife Resources (VDWR) – Little Brown Bat and Tri-colored Bat Winter Habitat & Roosts Locator
- Virginia Department of Conservation and Recreation (VDCR) – Natural Heritage Data Explorer (NHDE)
- Virginia Department of Environmental Quality (VDEQ) – Coastal Geospatial and Education Mapping System (GEMS)
- Center for Conservation Biology (CCB) – VaEagles Nest Locator
- U.S. Fish and Wildlife Services (USFWS) – Bald Eagle Concentration Areas

The comprehensive database search determined there is the potential for one species with federal and state protection to occur within the project area (see Attachment 1: Threatened and Endangered Database Searches). The potentially present species and their associated databases are listed below in Table 1.

Table 1. Threatened and Endangered Species Potentially Present at Dogwood Lane Solar

Common Name	Scientific Name	Status	Agency Source
Mammal			
Northern Long-eared Bat	*Myotis septentrionalis*	Federal Threatened State Threatened	USFWS
Butterfly			
Monarch Butterfly	*Danaus plexippus*	Candidate	USFWS

According to the USFWS IPaC results, the federally and state threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*) has the potential to occur on the Site. Based upon a review of available information, in particular the VDWR NLEB Winter Habitat and Roost Tree Locator, there are no known maternity roosts or hibernacula located within or in close proximity to the Site. Therefore, the Site will not likely affect any known NLEB areas and additional coordination with USFWS regarding this species is not anticipated. The Site may choose to implement voluntary conservation measures by conducting tree removal activities outside of the active season (April 15 – September 15) and/or outside of the pup season (June 1 – July 31). However, under the NLEB final 4(d) rule, the USFWS reserves the right to request additional studies or information during consultation with federal permitting agencies.

According to the USFWS IPaC results, the monarch butterfly (*Danaus plexippus*) has the potential to occur on the Site. The monarch butterfly is a candidate species, but it is not currently listed as federally or state threatened or endangered. Monarch butterflies are found across North America and are broken into two populations separated by the Rocky Mountains. Milkweed is the host plant of this species, and the monarch butterfly relies on this plant to complete its lifecycle. As the species is not listed as threatened or endangered, there is no time of year restrictions for this species, but USFWS recommends protective measures to enhance the butterfly habitat, including planting pollinator habitat.

According to the VDWR Little Brown Bat and Tri-colored Bat Winter Habitat & Roosts Locator, the little brown bat (*Myotis lucifugus*) and tri-colored bat (*Perimyotis subflavus*) do not have hibernacula within range of the Site.

According to VDCR results, there are no known natural heritage resource that occur onsite. The Project will not affect any documented state-listed plants or insects.

Information provided by VDEQ Coastal GEMS indicates that the Project is not located in part or in whole within a Coastal Area Protection Zone (CAPZ).

A search of known bald eagle nest locations/concentration areas utilizing the VDWR VaFWIS database, the CCB website, and USFWS Bald Eagle Concentration Areas mapping tool indicates there are no bald eagle nests or bald eagle concentration designated areas near the vicinity of the Site.

II. Summary and Conclusions

We have conducted queries of federal and state databases for the presence of threatened and endangered species.

If work is proposed in wetlands or waters of the U.S., then Section 401 and Section 404 Clean Water Act Permits will be required. Submittal of a Section 404 Clean Water Act Permit will provide a federal nexus

that will trigger a review of threatened and endangered species that could further impose timeline restrictions or reduce the developable footprint of the project.

The Site may choose to implement voluntary conservation measures for the Northern Long Eared Bat by conducting tree removal activities outside of the active season (April 15 – September 15) and/or outside of the pup season (June 1 – July 31). The monarch butterfly also has the potential to be present within the vicinity of the Site; however, this species is not listed and has no time of year restriction.

We appreciate the opportunity to present this preliminary analysis for planning purposes. Please note that threatened and endangered database searches must be current (data accessed within six months) to be considered by reviewing agencies.

If you have any questions, please contact me at (804) 200-6577 or julia.jenkins@timmons.com.

Sincerely,

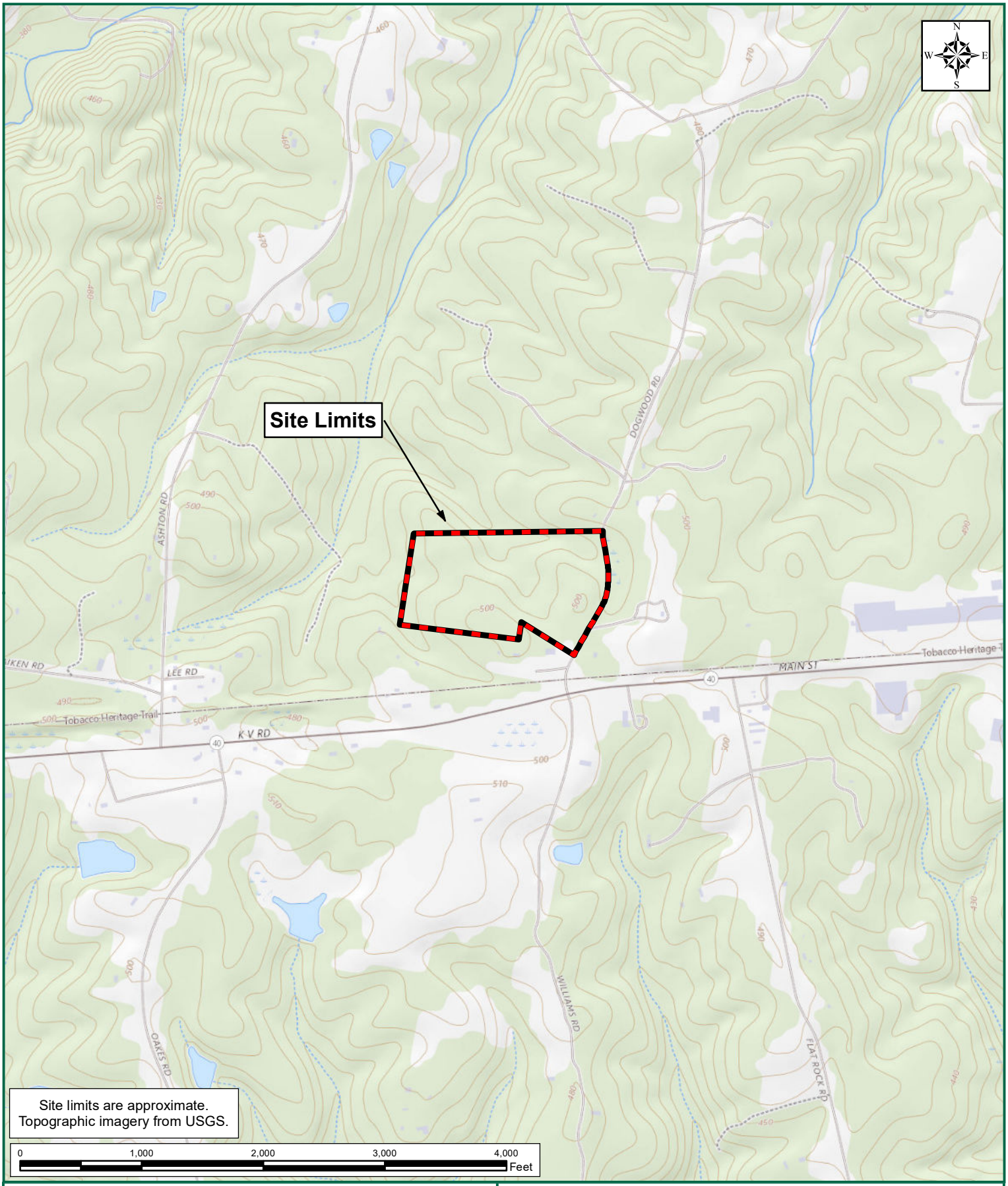
Julia Jenkins

Attachments

Figure 1 Vicinity Map

Attachment 1 Threatened and Endangered Species Database Searches

Path: Y:\852\99999-Dogwood_Lane_Apex\GIS\VIC.mxd



Site limits are approximate.
Topographic imagery from USGS.

DOGWOOD LANE SOLAR

LUNENBURG, VIRGINIA

FIGURE 1: VICINITY MAP

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TIMMONS GROUP JOB NUMBER:*41659.081*
PROJECT STUDY LIMITS:*31.24 ACRES*
LATITUDE:*36.968127*
LONGITUDE:*-78.161389*

U.S.G.S. QUADRANGLE(S):*KENBRIDGE WEST*
DATE(S):*2019*
WATERSHED(S):*NOTTOWAY (ALBEMARLE-CHOWAN RIVER BASIN)*
HYDROLOGIC UNIT CODE(S):*03010201*

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Attachment 1: Threatened and Endangered Species Database Searches

U.S. Fish and Wildlife Services (USFWS) –
Information, Planning and Consultations System (IPaC)

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Location

Lunenburg County, Virginia

Local office

Virginia Ecological Services Field Office

(804) 693-6694
(804) 693-9032

6669 Short Lane
Gloucester, VA 23061-4410

http://www.fws.gov/northeast/virginiafield/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

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NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

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Migratory birds

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

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

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

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NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Kentucky Warbler *Oporornis formosus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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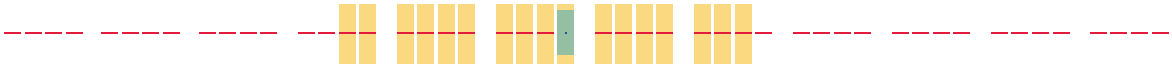
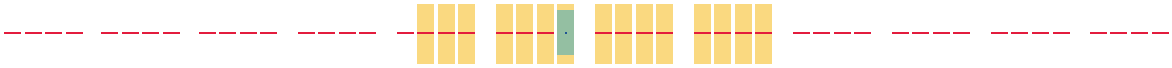
■ probability of presence ■ breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Kentucky Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Wood Thrush BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



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

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

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

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

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in

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

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

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

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

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Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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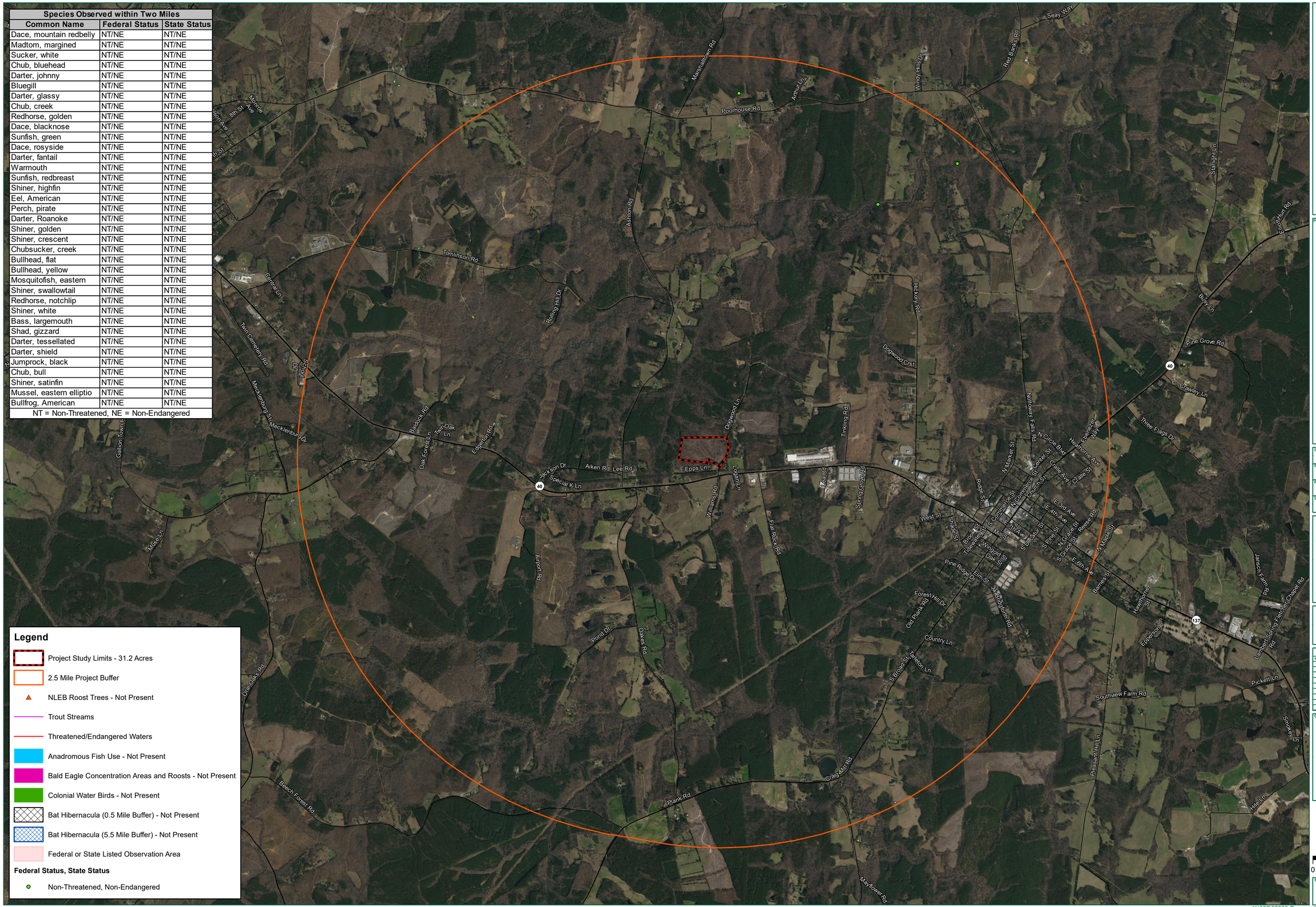
Virginia Department of Wildlife Resources (VDWR) – Wildlife Environmental Review Map Service (WERMS)

Species Observed within Two Miles		
Common Name	**Federal Status**	**State Status**
Dace, mountain redbelly	NT/NE	NT/NE
Madtom, margined	NT/NE	NT/NE
Sucker, white	NT/NE	NT/NE
Chub, bluehead	NT/NE	NT/NE
Darter, johnny	NT/NE	NT/NE
Bluegill	NT/NE	NT/NE
Darter, glassy	NT/NE	NT/NE
Chub, creek	NT/NE	NT/NE
Redhorse, golden	NT/NE	NT/NE
Dace, blacknose	NT/NE	NT/NE
Sunfish, green	NT/NE	NT/NE
Dace, rosyside	NT/NE	NT/NE
Darter, fantail	NT/NE	NT/NE
Warmouth	NT/NE	NT/NE
Sunfish, redbreast	NT/NE	NT/NE
Shiner, highfin	NT/NE	NT/NE
Eel, American	NT/NE	NT/NE
Perch, pirate	NT/NE	NT/NE
Darter, Roanoke	NT/NE	NT/NE
Shiner, golden	NT/NE	NT/NE
Shiner, crescent	NT/NE	NT/NE
Chubsucker, creek	NT/NE	NT/NE
Bullhead, flat	NT/NE	NT/NE
Bullhead, yellow	NT/NE	NT/NE
Mosquitofish, eastern	NT/NE	NT/NE
Shiner, swallowtail	NT/NE	NT/NE
Redhorse, notchlip	NT/NE	NT/NE
Shiner, white	NT/NE	NT/NE
Bass, largemouth	NT/NE	NT/NE
Shad, gizzard	NT/NE	NT/NE
Darter, tessellated	NT/NE	NT/NE
Darter, shield	NT/NE	NT/NE
Jumprock, black	NT/NE	NT/NE
Chub, bull	NT/NE	NT/NE
Shiner, satinfin	NT/NE	NT/NE
Mussel, eastern elliptio	NT/NE	NT/NE
Bullfrog, American	NT/NE	NT/NE
NT = Non-Threatened, NE = Non-Endangered		



TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.
1001 Boulders Parkway, Suite 300
Richmond, VA 23225
TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

DOGWOOD LANE SOLAR

LUNENBURG COUNTY - VIRGINIA

DATE	11/18/2021
PROJECT NUMBER	41659.081
PROJECT NAME	DOGWOOD LANE SOLAR
DESIGNED BY / DRAWN BY	J. FRAZIER

NOTES:
Project Limits are approximate.
WERMS data from DWR.
Bat hibernacula include identifications of Northern long-eared bat, Tri-colored bat, Little-brown bat, Virginia big-eared bat, Gray bat, and Indiana bat.
Aerial imagery from VGIN.

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REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION
WILDLIFE ENVIRONMENTAL REVIEW MAP

SCALE (FEET)
0 1,500 3,000
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H:1 " = 1,500 '	1

Y:\852\99999-Dogwood_Lane_Apex\GIS\WERMS.mxd

Virginia Department of Wildlife Resources (VDWR) – Virginia Fish and Wildlife Information Service (VaFWIS)

VaFWIS - Department of Game and Inland Fisheries

36.96867 -78.16161
is the Search Point
Submit Cancel

Search Point
- ◉ **Change** to "clicked" map point
- ○ **Fixed** at 36.96867 -78.16161

Show Position Rings
○ Yes ◉ No
1 mile and 1/4 mile at the **Search Point**

Show Search Area
◉ Yes ○ No
2.5 Search distance miles buffer

Search Point is at map center

Base Map Choices
BW Aerial Photography

Map Overlay Choices
Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

T & E Waters
- Federal
- State

Predicted Habitat WAP Tier I & II
- Aquatic
- Terrestrial

Trout Waters
- Class I - IV
- Class V - VI

Anadromous Fish Reach
- Confirmed
- Potential

23 Impediment

2.5 mile radius Search Area

Bald Eagle Concentration Areas and Roosts

Bald Eagle nests 660 and 330 foot management zones

Data Observation Site

back

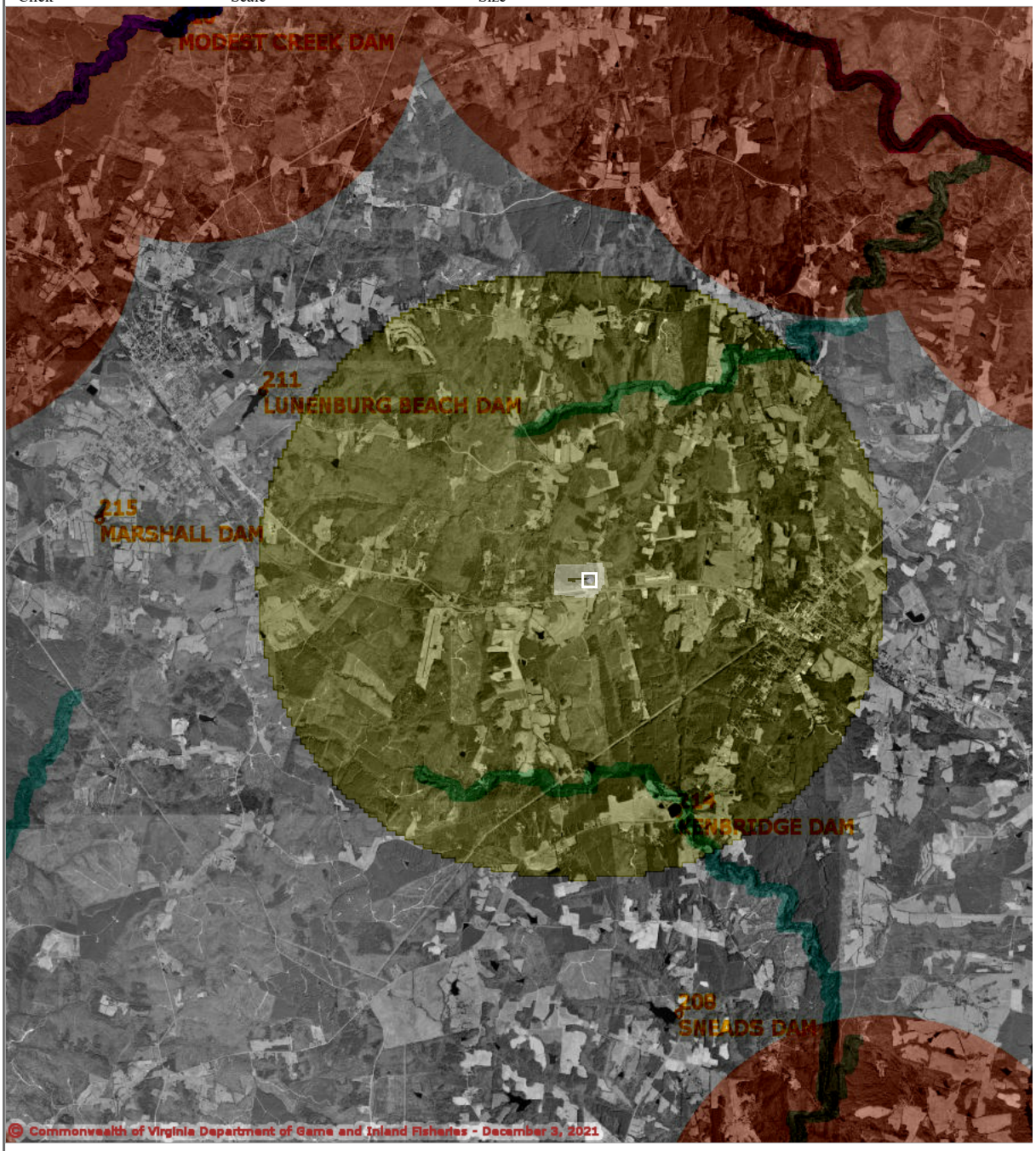
Map Click: Pan Id M

Refresh Browser Page

Map Scale: In Zoom Out

Screen Size: Small Size Big

Help



N

1 0 1 2 3 4 Kilometers

1 0 1 2 3 4 Miles

Point of Search 36.96867 -78.16161
Map Location 36.96867 -78.16161

Select **Coordinate System:**
- ○ Degrees,Minutes,Seconds Latitude - Longitude
- ◉ Decimal Degrees Latitude - Longitude
- ○ Meters UTM NAD83 East North Zone
- ○ Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see Microsoft terraserver-usa.com for details)

Map projection is UTM Zone 17 NAD 1983 with left 744681 and top 4103163. Pixel size is 14. . Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixles. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+-
are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.
Shaded topographic maps are from TOPO! ©2006 National Geographic
http://www.national.geographic.com/topo
All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2021-12-03 09:42:12 (qa/qc March 21, 2016 12:20 - tn=1151154 dist=4022.5 I)
$poi=36.9680000 -78.1591000

© 1998-2021 Commonwealth of Virginia Department of Game and Inland Fisheries

VaFWIS Initial Project Assessment Report Compiled on 12/3/2021, 9:43:26 AM

Help

Known or likely to occur within a **2.5 mile buffer around polygon; center 36.9680000 -78.1590999** in **111 Lunenburg County, VA**

View Map of Site Location

395 Known or Likely Species ordered by Status Concern for Conservation (displaying first 21) (21 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA,Habitat
010214	FESE	IIa	Logperch, Roanoke	Percina rex		BOVA,Habitat
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FTST	IIa	Lance, yellow	Elliptio lanceolata		BOVA
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
040385	ST	Ia	Sparrow, Bachman's	Peucaea aestivalis		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni		BOVA,Habitat
060081	ST	IIa	Floater, green	Lasmigona subviridis		BOVA
010070	ST	IIc	Shiner, whitemouth	Notropis alborus		BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
010174		Ia	Bass, Roanoke	Ambloplites cavifrons		BOVA,Habitat
020002		IIa	Treefrog, barking	Hyla gratiosa		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA
040140		IIa	Woodcock, American	Scolopax minor		BOVA
060071		IIa	Lampmussel, yellow	Lampsilis cariosa		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 395 species** View 395

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; CC=Collection Concern

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need;
IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need
Virginia Widlife Action Plan Conservation Opportunity Ranking:
a - On the ground management strategies/actions exist and can be feasibly implemented.;

b - On the ground actions or research needs have been identified but cannot feasibly be implemented at this time.;
c - No on the ground actions or research needs have been identified or all identified conservation opportunities have been exhausted.

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams

N/A

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters

N/A

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species (3 Reaches)

View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species

Stream Name	Tier Species		View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name	
Big Hounds Creek (03010201)	FESE	010214 FESE IIa Logperch, Roanoke Percina rex	Yes
		060003 FESE Ia Wedgemussel, dwarf Alasmidonta heterodon	
		060173 FPST Ia Pigtoe, Atlantic Fusconaia masoni	
Flat Rock Creek	FPST	010174 Ia Bass, Ambloplites	Yes

(03010204)					Roanoke	cavifrons	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
tributary (03010201)	FESE	010214	FESE	IIa	Logperch, Roanoke	Percina rex	Yes
		060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
tributary (03010201)	FESE	010214	FESE	IIa	Logperch, Roanoke	Percina rex	Yes
		060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

N/A

Compiled on 12/3/2021, 9:43:26 AM I1151154.0 report=IPA searchType= P dist= 4022 poi= 36.9680000 -78.1590999 siteDD= 36.9680037 -78.1591008;36.9679532 -78.1591399;36.9679296 -78.1591574;36.9679293 -78.1591576;36.9678834 -78.1591916;36.9678209 -78.1592379;36.9676283 -78.1593783;36.9675194 -78.1594566;36.9674102 -78.1595341;36.9673008 -78.1596110;36.9672199 -78.1596672;36.9679628 -78.1611494;36.9675745 -78.1612220;36.9675720 -78.1612224;36.9676314 -78.1618011;36.9678301 -78.1637396;36.9679149 -78.1645674;36.9686728 -78.1644172;36.9686749 -78.1644168;36.9699667 -78.1641607;36.9699767 -78.1641587;36.9700078 -78.1597282;36.9700139 -78.1588430;36.9700040 -78.1588441;36.9699837 -78.1588457;36.9699633 -78.1588465;36.9699430 -78.1588467;36.9699227 -78.1588461;36.9699024 -78.1588447;36.9698720 -78.1588413;36.9695791 -78.1587759;36.9693845 -78.1587334;36.9692251 -78.1586996;36.9691862 -78.1586963;36.9691473 -78.1586937;36.9691083 -78.1586917;36.9690694 -78.1586906;36.9690304 -78.1586902;36.9689914 -78.1586906;36.9689524 -78.1586916;36.9689135 -78.1586934;36.9688746 -78.1586960;36.9688357 -78.1586993;36.9687968 -78.1587033;36.9687580 -78.1587081;36.9687193 -78.1587136;36.9686966 -78.1587173;36.9686807 -78.1587199;36.9686421 -78.1587268;36.9686036 -78.1587345;36.9685479 -78.1587533;36.9685241 -78.1587624;36.9685005 -78.1587721;36.9684772 -78.1587826;36.9684540 -78.1587937;36.9684310 -78.1588055;36.9684083 -78.1588179;36.9683858 -78.1588311;36.9683636 -78.1588449;36.9683416 -78.1588594;36.9683200 -78.1588745;36.9681854 -78.1589721;36.9680037 -78.1591008;

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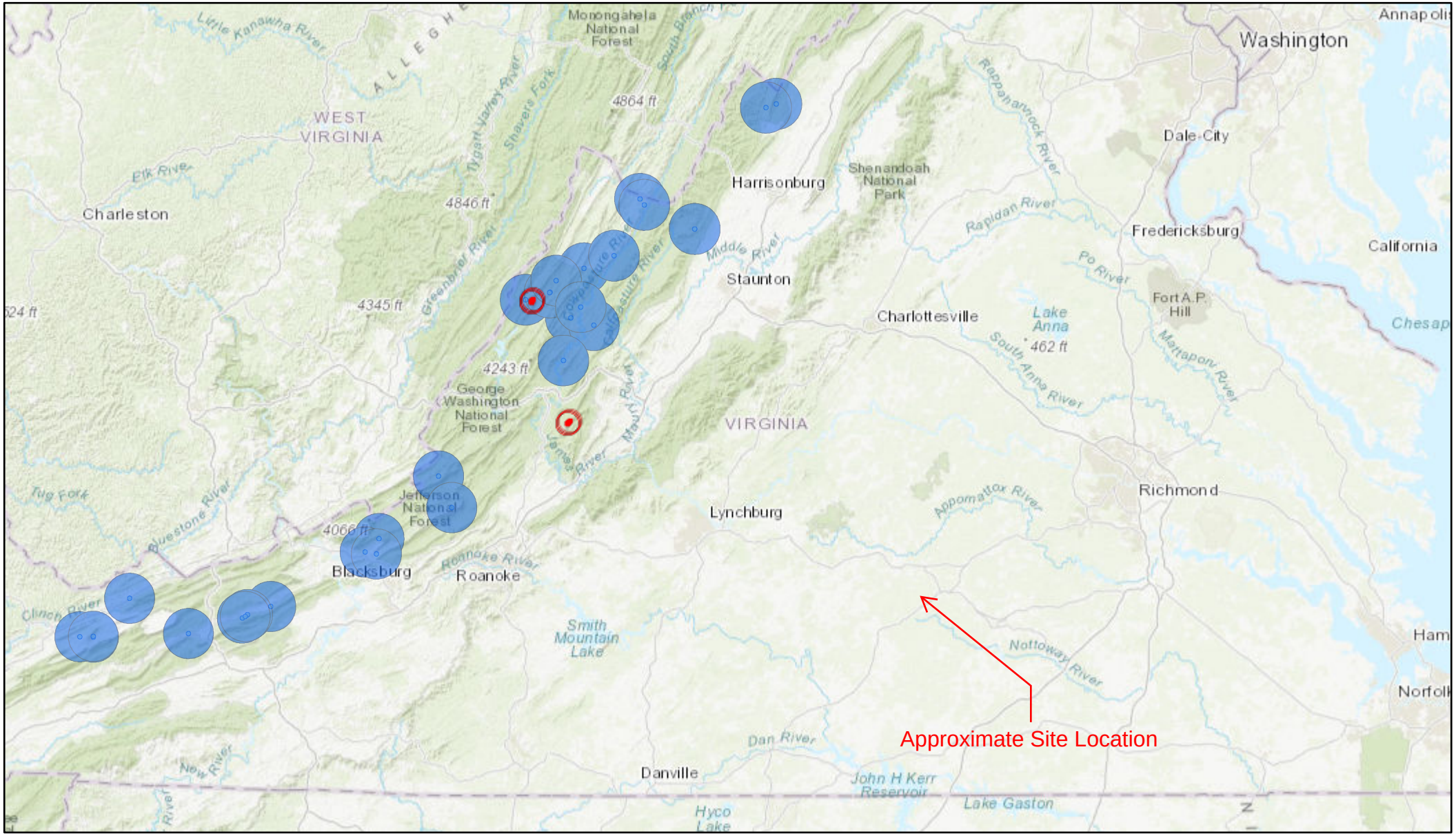
Virginia Department of Wildlife Resources (VDWR) – Northern Long Eared Bat (NLEB) Winter Habitat and Roost Tree Locator

NLEB Locations and Roost Trees



12/3/2021, 9:49:00 AM

NLEB Known Occupied Maternity Roost (Summer Habitat)

NLEB Hibernaculum 5.5 Mile Buffer

NLEB Hibernaculum Half Mile Buffer

1:2,311,162

0 15 30 60 mi

0 25 50 100 km

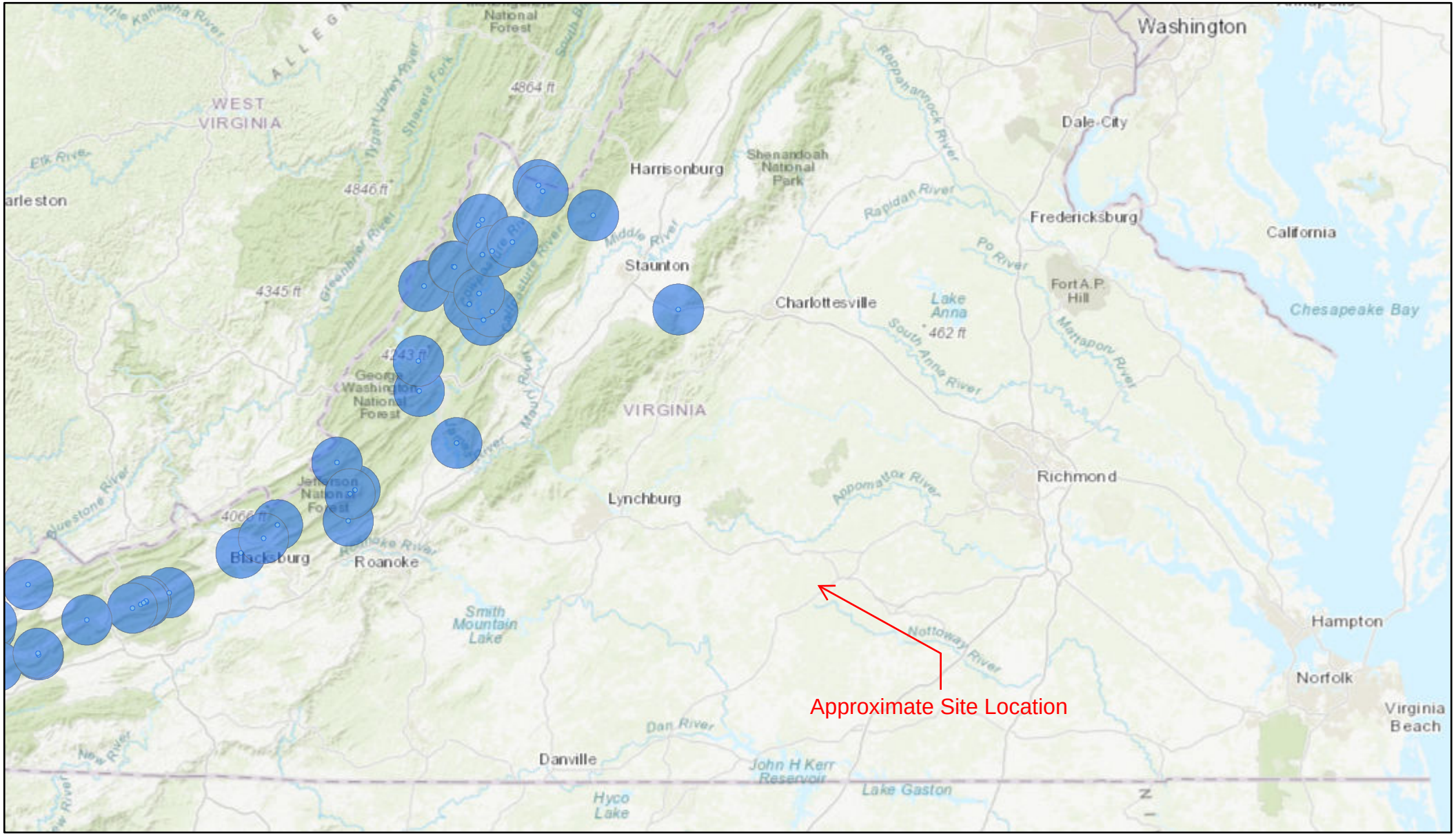
Esri, HERE, Garmin, FAO, USGS, EPA, NPS

VA Dept. Game & Inland Fisheries

Esri, HERE, Garmin, FAO, USGS, EPA, NPS |

Virginia Department of Wildlife Resources (VDWR) – Little Brown Bat and Tri-colored Bat Winter Habitat & Roosts Locator

Tri-Colored and Little Brown Bat Locations and Roost Trees



12/3/2021, 9:51:41 AM

Tri-colored and Little Brown Hibernaculum Half Mile Buffer

Tri-colored and Little Brown Hibernaculum 5.5 Mile Buffer

1:2,311,162

0 15 30 60 mi

0 25 50 100 km

Esri, HERE, Garmin, FAO, USGS, EPA, NPS

Dept. Game and Inland Fisheries

Esri, HERE, Garmin, FAO, USGS, EPA, NPS |

Virginia Department of Conservation and Recreation (VDCR) – Division of Natural Heritage (DNH) Project Review

Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

Web Project ID: WEB0000016773

Client Project Number: 99999

PROJECT INFORMATION

TITLE: Dogwood Solar Lunenburg

DESCRIPTION: Dogwood Solar is a proposed solar facility in Lunenberg County.

EXISTING SITE CONDITIONS: recently timbered

QUADRANGLES: Kenbridge West

COUNTIES: Lunenburg

Latitude/Longitude (DMS): 36° 58' 7.9581" N / 78° 9' 41.8329" W

Acreage: 30 acres

Comments:

REQUESTOR INFORMATION

Priority: N

Tier Level: Tier I

Tax ID: 54-1301413

Contact Name: Julia Jenkins

Company Name: Timmons Group

Address: 1001 Boulders Pkwy Ste 300

City: Richmond

State: VA

Zip: 23225

Phone: 8042006577

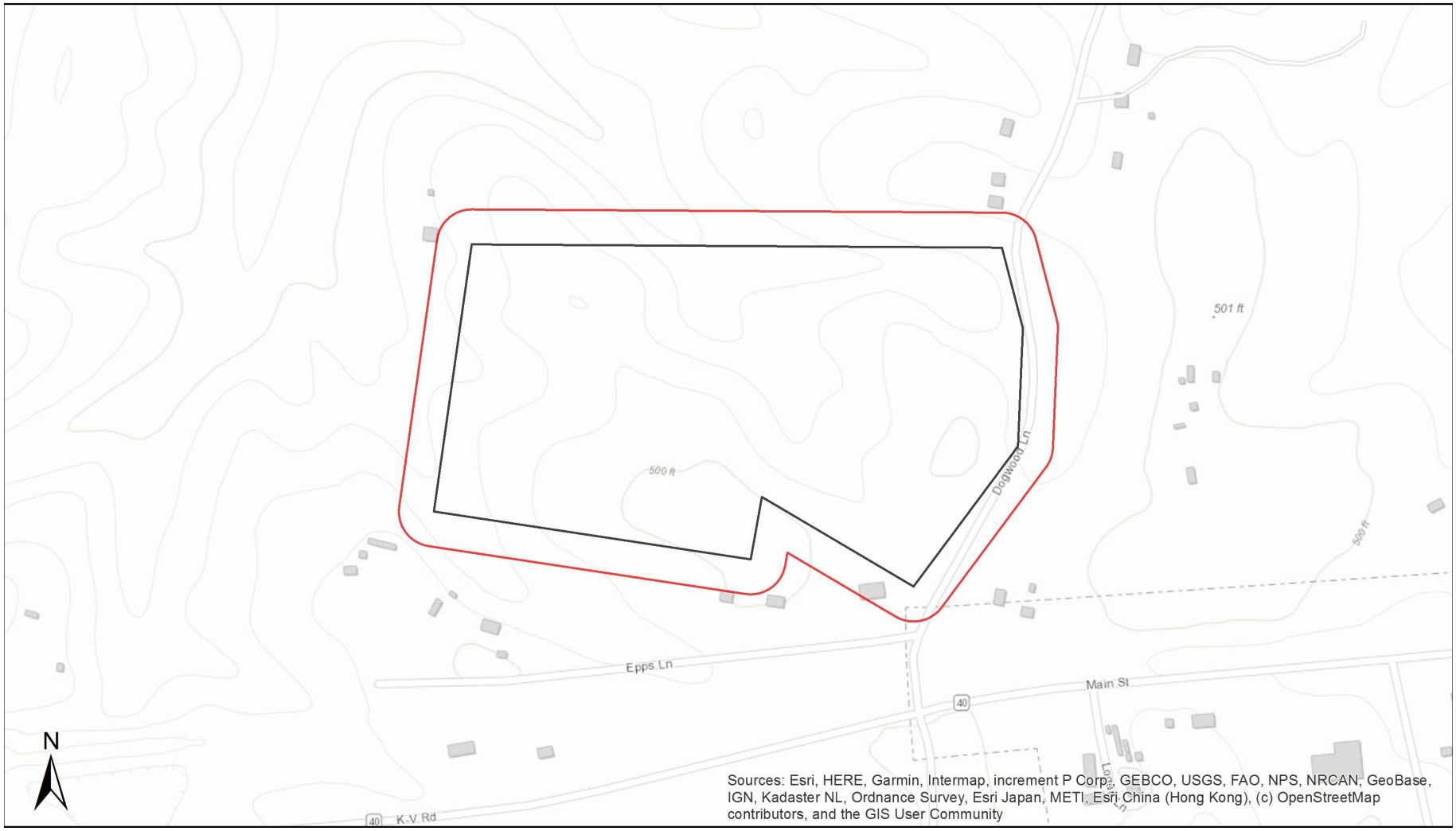
Fax:

Email: julia.jenkins@timmons.com

Conservation Site	Site Type	Brank	Acreage	Listed Species Presence	Essential Conservation Site?
Natural Heritage Screening Features Intersecting Project Boundary					

Intersecting Predictive Models
Predictive Model Results

Dogwood Solar Lunenburg



Project Boundary

Buffered Project Boundary

1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

Quads: Kenbridge West

Counties: Lunenburg

Company: Timmons Group

Lat/Long: 365807 / -780941

Ann Jennings
Secretary of Natural and Historic Resources and Chief Resilience Officer

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Clyde E. Cristman
Director

The project mapped as part of this report has been searched against the Department of Conservation and Recreation's Biotics Data System for occurrences of natural heritage resources in the vicinity of the area indicated for this project. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in Biotics, natural heritage resources have not been documented within the submitted project boundary including a 100 foot buffer. In addition, the project area does not intersect any of the predictive models identifying potential habitat for natural heritage resources.

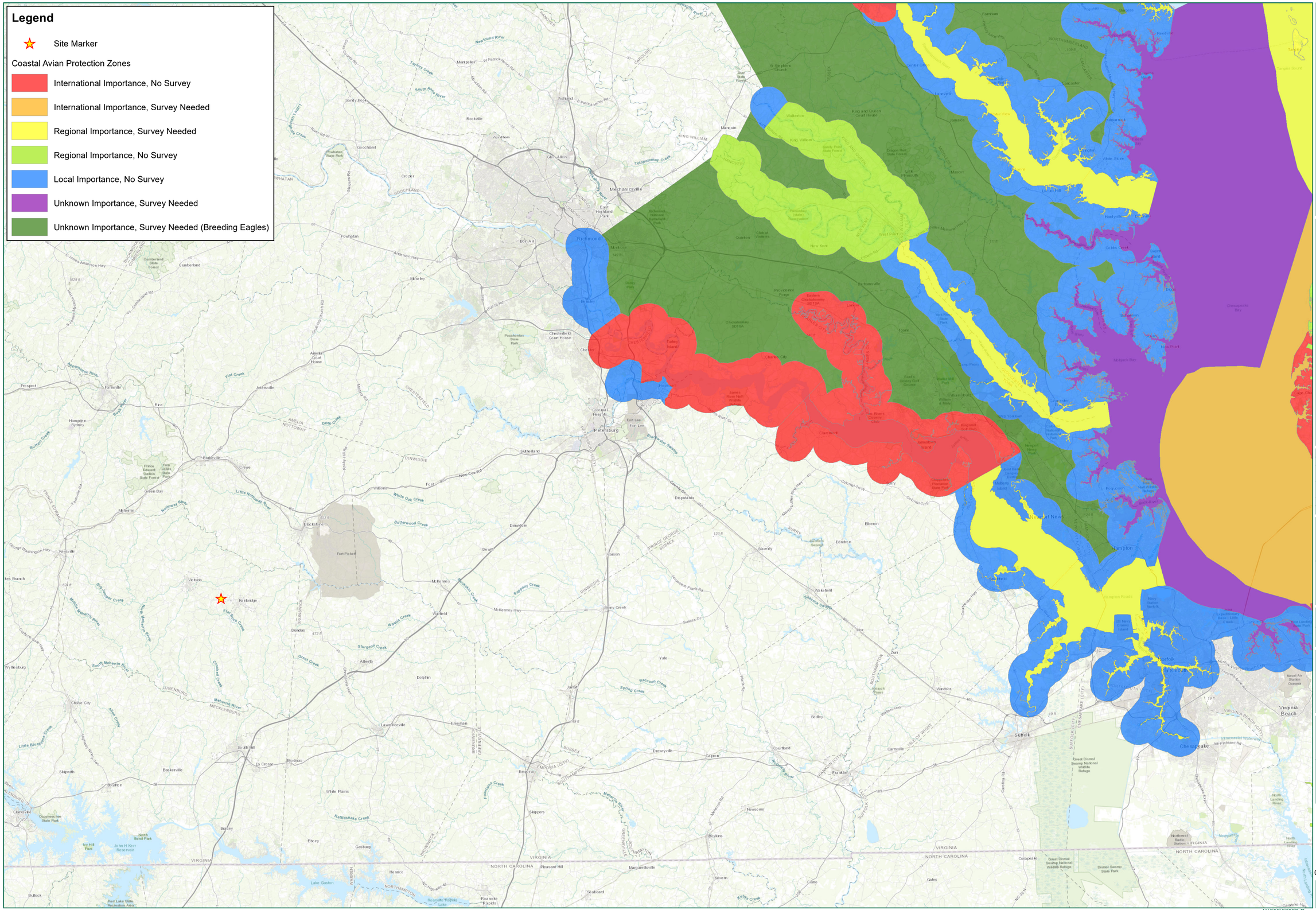
Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

Any absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks additional natural heritage resources. New and updated information is continually added to Biotics. Please revisit this website or contact DCR for an update on this natural heritage information if a significant amount of time passes (DCR recommends no more than six months) before it is utilized.

The Virginia Department of Wildlife Resources maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, that may contain information not documented in the Natural Heritage Data Explorer. Their database may be accessed from http://vafwis.org/fwis/ or contact Amy Martin (804-367-2211 or amy.martin@dwr.virginia.gov).

Thank you for submitting your project to the Virginia Department of Conservation and Recreation's Natural Heritage Data Explorer Web Service. Based on the preliminary screening results for this project, no further correspondence will be sent from this office. Should you have any questions or concerns about this report, the Data Explorer, or other Virginia Natural Heritage Program services, please contact the Natural Heritage Project Review Unit at 804-371-2708.

Virginia Department of Environmental Quality (VDEQ) –
Coastal Geospatial and Educational Mapping System (GEMS)



TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.
1001 Boulders Parkway, Suite 300
Richmond, VA 23225
TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

DOGWOOD LANE SOLAR

LUNENBURG COUNTY - VIRGINIA

DATE	12/2/2021
PROJECT NUMBER	41659.081
PROJECT NAME	DOGWOOD SOLAR
DESIGNED BY / DRAWN BY	J. FRAZIER

NOTES:
Project Limits are approximate.
Coastal Avain Protection Zone data from VCU's Virginia Coastal Zone Management Program for Virginia Only.
Aerial imagery from ESRI.

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REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION
COASTAL AVAIAN PROTECTION ZONE MAP

Miles
0 5 10

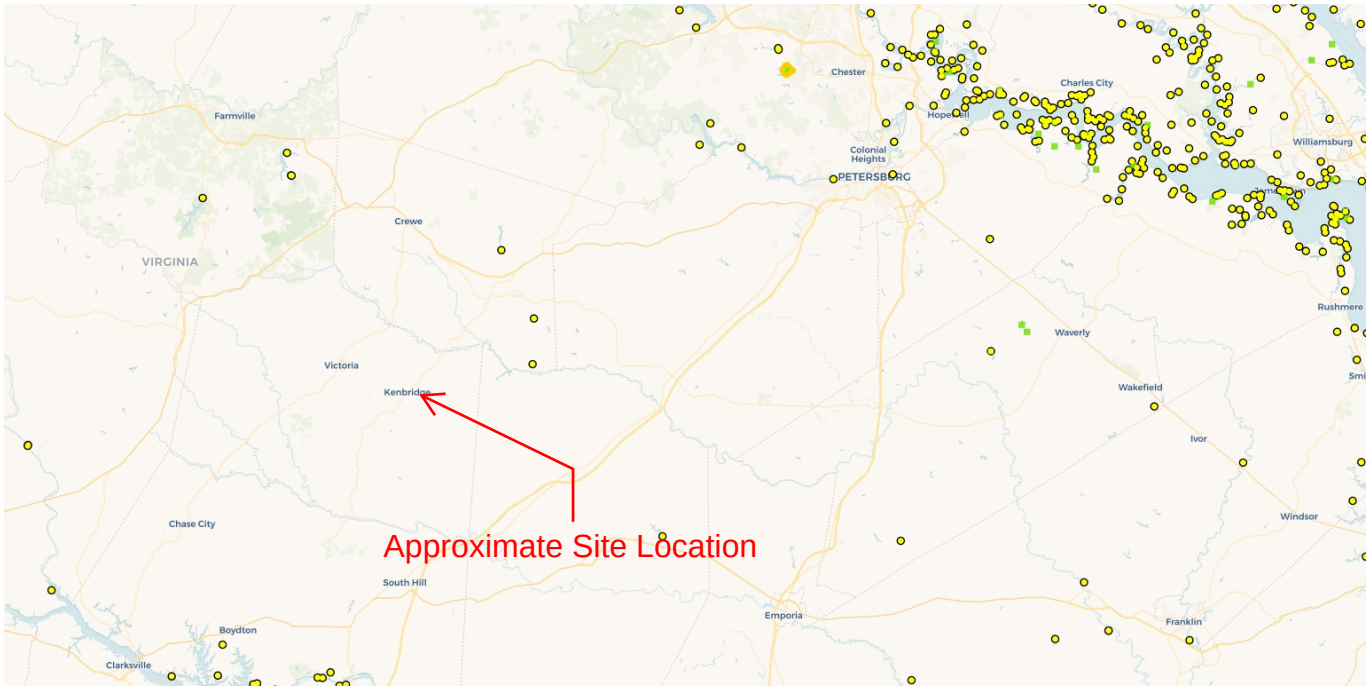
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
1 " = 5 mi	1

Y:\852\99999-Dogwood_Lane_Apex\GIS\CAPZ.mxd

Center for Conservation Biology (CCB) – VaEagles Nest Locator

CCB Mapping Portal



Layers: VA Eagle Nest Locator, VA Eagle Nest Buffers, Eagle Roosts, Eagle Roost Polygons, Eagle Roost Buffers

Map Center [longitude, latitude]: [-77.640380859375, 37.04202441635081]

Map Link:
https://www.ccbbirds.org/maps/#layer=VA+Eagle+Nest+Locator&layer=VA+Eagle+Nest+Buffers&layer=Eagle+Roosts&layer=Eagle+Roost+Polygons&layer=Eagle+Roost+Buffers&zoom=10&lat=37.04202441635081&lng=-77.640380859375&legend=legend_tab_59557df6-c07b-11e5-a485-0e31c9be1b51&base=Street+Map+%28OSM%2FCarto%29

Report Generated On: 12/03/2021

The Center for Conservation Biology (CCB) provides certain data online as a free service to the public and the regulatory sector. CCB encourages the use of its data sets in wildlife conservation and management applications. These data are protected by intellectual property laws. All users are reminded to view the Data Use Agreement to ensure compliance with our data use policies. For additional data access questions, view our Data Distribution Policy, or contact our Data Manager, Marie Pitts, at mlpitts@wm.edu or 757-221-7503.

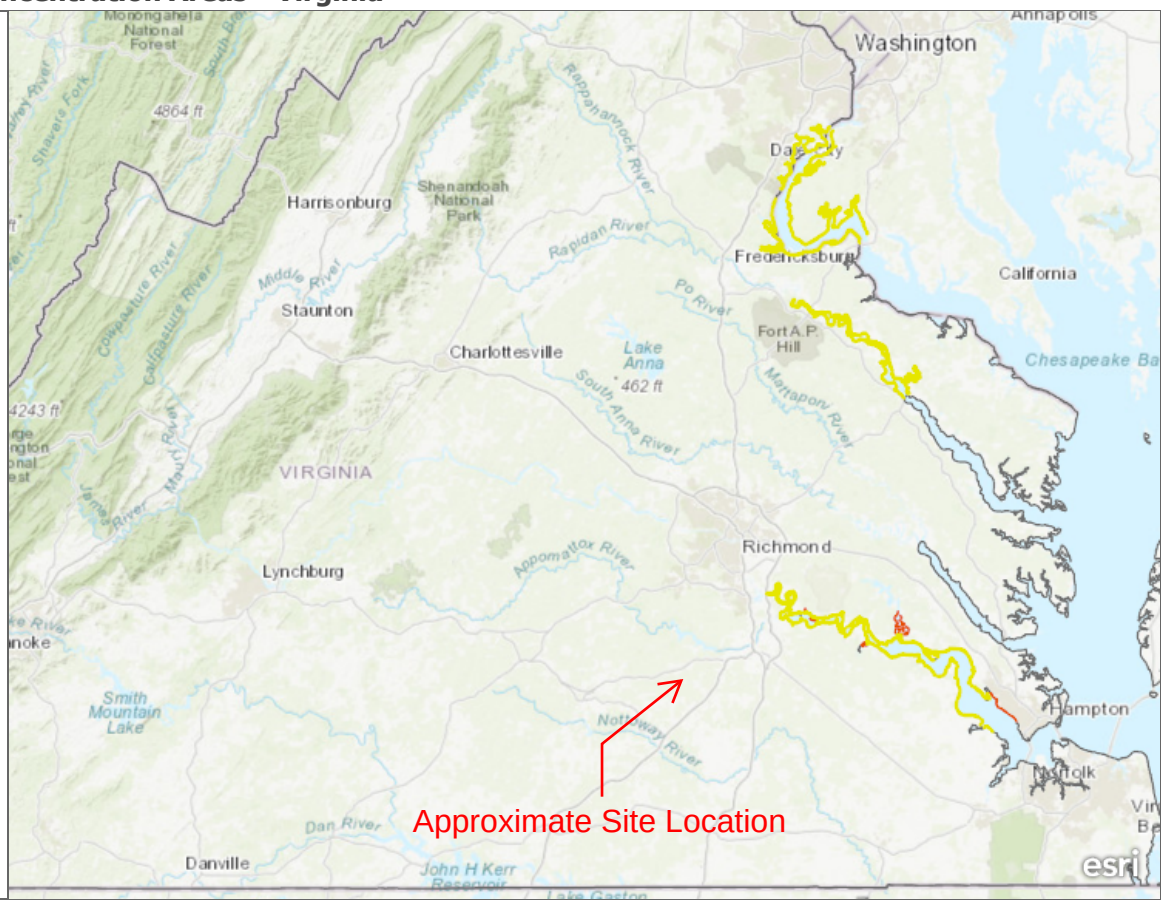
United States Fish and Wildlife Services (USFWS) –
Bald Eagle Concentration Areas

USFWS Bald Eagle Concentration Areas - Virginia

Bald Eagle Concentration Areas

- December 15 to March 15
- May 15 to August 31 and December 15 to March 15

Virginia



This map depicts designated Bald Eagle Concentration Areas in the State of Virginia. The Intent of this map is to provide information to the public about shoreline areas that ar ...

Esri, HERE, Garmin, FAO, USGS, EPA, NPS