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COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Laura Ellis
Deputy Director for
Administration and Finance

June 25, 2025

Paul Leeger
Geosyntec Consultants, Inc.
9211 Arboretum Parkway, Suite 200
Richmond, VA 23236

Re: GXEXXXXX, Maroon Solar

Dear Mr. Leeger:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. 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 in our files, the Southern Culpeper Diabase Flatwoods Conservation Site is located within the project area, including a 100-foot buffer. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking (B-rank) based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Southern Culpeper Diabase Flatwoods Conservation Site has been assigned a B-rank of B2, which represents a site of very high significance. The natural heritage resource associated with this site are:

	Piedmont Mafic Barren	G1/S1/NL/NL
<i>Phlox pilosa</i>	Downy Phlox	G5/S1/NL/NL

The Northern Piedmont Mafic Barren is known only from scattered mafic outcrops in the northern and western Virginia Piedmont, restricted to exposed outcrops of diabase, metabasalt, amphibolite, and other mafic rocks. There are only nine known occurrences of this community rangewide, most of them less than one acre in size, and totaling less than 20 acres rangewide. This small patch community occurs as a mosaic of lichen, moss mats, and herbs with scattered, stunted trees. The massive outcrops supporting this community type effectively limit the normal establishment and development of trees. White ash (*Fraxinus americana*) and Eastern red cedar (*Juniperus virginiana*) are the most typical woody plants. Characteristic herbaceous species include prickly-pear cactus (*Opuntia humifusa*), little bluestem (*Schizachyrium scoparium*), poverty oat grass (*Danthonia spicata*), Pennsylvania sedge (*Carex pensylvanica*), hairy lip fern (*Cheilanthes lanosa*), round-leaf fameflower (*Phemeranthus teretifolius*), slender knotweed (*Polygonum tenue*), and dwarf dandelion (*Krigia virginica*). (NatureServe, 2010).

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This community has probably always been rare; some loss of acreage has occurred due to road construction, and several sites have been degraded by invasion of weedy species from nearby disturbed areas. This community is highly threatened by quarrying and road construction (NatureServe, 2010).

Additionally, this community has the potential to support the Opuntia Squash Bug (*Chelinidea vittiger*, G3G5/S1/NL/NL), a state rare insect associated with the prickly-pear cactus.

Downy phlox, a state rare plant species, inhabits dry to mesic woodlands and forests and has also been found in such disturbed areas as roadbanks and powerline right-of-ways. This perennial blooms in May and June (Weakley, in prep.). Downy phlox is currently known from four locations in Virginia and historically known from multiple locations in the state.

DCR recommends avoiding all documented occurrences associated with this conservation site and any additional occurrences resources documented during additional surveys of the construction areas including but not limited to temporary roads, permanent development, and equipment staging.

Furthermore, according to the diabase screening layer and a review by a DCR biologist, several rare plants which are typically associated with prairie vegetation and inhabit semi-open diabase glades in Virginia, may occur at this location if suitable habitat is present. Diabase glades are characterized by historically fire-dominated grassland vegetation on relatively nutrient-rich soils underlain by Triassic bedrock. Diabase flatrock, a hard, dark-colored volcanic rock, is found primarily in northern Virginia counties and is located within the geologic formation known as the Triassic Basin. Where the bedrock is exposed, a distinctive community type of drought-tolerant plants occurs. Diabase flatrocks are extremely rare natural communities that are threatened by activities such as quarrying and road construction (Rawinski, 1995).

In Northern Virginia, diabase supports occurrences of several global and state rare plant species: Earleaf False foxglove (*Agalinis auriculata*, G3/S1/NL/NL), American bluehearts (*Buchnera americana*, G5?/S1S2/NL/NL), Downy phlox (*Phlox pilosa*, G5/S1/NL/NL), Torrey's Mountain-mint (*Pycnanthemum torreyi*, G2/S2/SOC/LT), Stiff goldenrod (*Solidago rigida* var. *rigida*, G5T5/S2/NL/NL), and Hairy hedgenettle (*Stachys arenicola*, G4?/S1/NL/NL).

Please note that Torrey's Mountain-mint is listed as threatened by the Virginia Department of Agriculture and Consumer Services (VDACS). Torrey's Mountain-mint is also listed as a Species of Concern (SOC) by United States Fish and Wildlife Service (USFWS); however, this is not a legal designation.

Due to the potential for this site to support populations of natural heritage resources, DCR recommends an inventory for rare plants associated with diabase soils, the Piedmont Mafic Barren community and Downy phlox in the study area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified to conduct inventories for rare, threatened, and endangered species and are interested in surveying the property free of charge for these natural heritage resources. Please contact Anne Chazal, Natural Heritage Chief Biologist, at anne.chazal@dcr.virginia.gov or 804-786-9014 to discuss availability for field work.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. Survey results should be coordinated with DCR-DNH. Upon review of the results, if it is determined the species is present, and there is a likelihood of a negative impact

on the species, DCR-DNH will recommend coordination with VDACS to ensure compliance with Virginia's Endangered Plant and Insect Species Act.

The Sumerduck Run Stream Conservation Site (SCS) is also located within the project area. SCSs encompass stream/river reaches, waterbodies, and terrestrial contributing areas containing or associated with aquatic or semi-aquatic resources, including upstream and downstream reaches and tributaries up to 3-km stream distance from the aquatic resources. The size and dimensions of a SCS are based on the hydrology of the waterway and surrounding landscape, taking into consideration dam locations and whether the waterway is tidal. SCS's are given a biodiversity significance ranking (B-rank) based on the rarity, quality, and number of element occurrences they contain. The Sumerduck Run SCS has been assigned a B-rank of B3, which represents a site of high significance. The natural heritage resource associated with this SCS is:

NP-Rapidan-Upper Rappahannock Third Order Stream

G2/S2/NL/NL

The documented Aquatic Natural Community is based on Virginia Commonwealth University's **INSTAR** (*Interactive Stream Assessment Resource*) database which includes over 2,000 aquatic (stream and river) collections statewide for fish and macroinvertebrate. These data represent fish and macroinvertebrate assemblages, instream habitat, and stream health assessments. The associated Aquatic Natural Community is significant on multiple levels. First, this stream is a grade B per the VCU-Center for Environmental Sciences (CES), indicating its relative regional significance, considering its aquatic community composition and the present-day conditions of other streams in the region. This stream reach also holds a "Healthy" stream designation per the INSTAR Virtual Stream Assessment (VSS) score. This score assesses the similarity of this stream to ideal stream conditions of biology and habitat for this region. Lastly, this stream contributes to high Biological Integrity at the watershed level (6th order) based on number of native/non-native, pollution-tolerant/intolerant and rare, threatened or endangered fish and macroinvertebrate species present.

Threats to the significant Aquatic Natural Community and the surrounding watershed include water quality degradation related to point and non-point pollution, water withdrawal and introduction of non-native species.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow.

The proposed project will impact an Ecological Core (**C2**) as identified in the Virginia Natural Landscape Assessment (<https://www.dcr.virginia.gov/natural-heritage/vaconvisvnl>). Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: <http://vanhde.org/content/map>.

Ecological Cores are areas of at least 100 acres of continuous interior, natural cover that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Interior core areas begin 100 meters inside core edges and continue to the deepest parts of cores. Cores also provide the natural, economic, and quality of life benefits of open space, recreation, thermal moderation, water quality (including drinking water recharge and protection, and erosion prevention), and air quality (including sequestration of carbon, absorption of gaseous pollutants, and production of oxygen). Cores are ranked from C1 to C5 (C5 being the least significant) using nine prioritization criteria, including the habitats of natural heritage resources they contain.

Impacts to cores occur when their natural cover is partially or completely converted permanently to developed land uses. Habitat conversion to development causes reductions in ecosystem processes, native biodiversity, and

habitat quality due to habitat loss; less viable plant and animal populations; increased predation; and increased introduction and establishment of invasive species.

DCR recommends avoidance of impacts to cores. When avoidance cannot be achieved, DCR recommends minimizing the area of impacts overall and concentrating the impacted area at the edges of cores, so that the most interior remains intact.

The proposed project will impact a core with very high ecological integrity. Further investigation of these impacts is recommended and DCR-DNH can conduct a formal impact analysis upon request. This analysis would estimate direct impacts to cores and habitat fragments and indirect impacts to cores. The final products of this analysis would include an estimate of the total impact of the project in terms of acres. For more information about the analysis and service charges, please contact Joe Weber, DCR Chief of Biodiversity Information and Conservation Tools at Joseph.Weber@dcr.virginia.gov.

DCR also recommends the development of an invasive species management plan for the project and the planting of Virginia native pollinator plant species that bloom throughout the spring, summer, and fall to maximize benefits to native pollinators. DCR recommends planting these species in at least the buffer areas of the planned facility, and optimally including other areas within the project site. For screening zones outside the perimeter fencing, DCR recommends native species appropriate for the region be used. Guidance on plant species can be found here: <https://www.dcr.virginia.gov/natural-heritage/native-plants-finder>. In addition, Virginia native species alternatives to the non-native species listed in the Virginia Erosion and Sediment Control Handbook (Third Edition 1992), can be found in the 2017 addendum titled "Native versus Invasive Plant Species", here: <https://www.deq.virginia.gov/home/showpublisheddocument?id=2466>. Page 3 of the addendum provides a list of native alternatives for non-natives commonly used for site stabilization including native cover crop species (i.e., Virginia wildrye).

A fee of \$95.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, DCR Finance, 600 East Main Street, 24th Floor, Richmond, VA 23219. Payment is due within thirty days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The Virginia Department of Wildlife Resources (VDWR) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed at <https://services.dwr.virginia.gov/fwis/> or contact Lee Brann at Lee.Brann@dwr.virginia.gov.

The U.S. Fish and Wildlife Service (USFWS) utilizes an online project review process (<https://www.fws.gov/office/virginia-ecological-services/virginia-field-office-online-review-process>) to facilitate compliance with the Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884) (ESA), as amended. The process enables users to 1) follow step-by-step guidance; 2) access information that will allow them to identify threatened and endangered species, designated critical habitat, and other Federal trust resources that may be affected by their project; and 3) accurately reach determinations regarding the potential effects of their project on these resources as required under the ESA. If you have questions regarding the online review process, please contact virginiafieldoffice@fws.gov.

Should you have any questions or concerns, feel free to contact me at 804-625-3979. Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Nicki Gustafson". The signature is fluid and cursive, with the first name "Nicki" written in a larger, more prominent script than the last name "Gustafson".

Nicki Gustafson
Natural Heritage Project Review Assistant

Cc: Susan Tripp, DEQ,
Samuel A. McLearn, Culpepper County Administrator

Literature Cited

Rawinski, T.J. 1995. Natural communities and ecosystems: Conservation priorities for the future. Unpublished report for DCR-DNH.