Boone County
Soil & Water
Conservation District

211. N. Appleton Road
Belvidere, IL 61008
815-544-3465 x3

September 19, 2025

SWCD NRI #: 1807

Village of Poplar Grove Planning Department
200 N. Hill Street
Poplar Grove, IL 61065

Dear Sir/Madam,

A request for a Natural Resource Information Report was submitted. We will supply a written reply to your office as indicated below:

_____ Our review does not apply in this instance.
__X__ Other (see attached)

Location of Site: Menge Lane, Vacant Lot, Poplar Grove, IL 61065
PIN(S): 03-26-400-014

Contact	**Petitioner**	**Owner**
Tyler M. Wilke 40 Brink St. Crystal Lake, IL	AYAE Development, LLC 23530 N. Owl Ct. Lake Barrington, IL 60010	Anoosh and Alberta Varda
(815) 459-8800 twilke@zcwlaw.com	(847) 660-0638	anoosh.varda@gmail.com

Request: Change in zoning from R-1 (single-family) to R-5 (mixed residential); and a variance to allow for max density of 20 dwelling units per acre in R-5—vacant land zoned for residential use.

Notes, if any: By considering the current zoning, current land use, Geographical Information Systems maps, and requested variance, the Boone County Soil and Water Conservation District has determined that the proposed use may have some impact on the natural resources of the parcel or surrounding area. Please see additional information and comments attached.

Sincerely,

Heather VanTilburg

Heather VanTilburg
Resource Conservationist, Boone County SWCD

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Cc: Village of Poplar Grove, Anoosh Varda (Owner), Tyler M. Wilke (Attorney)

Comments from SWCD:

Tile Investigation

Subsurface drainage is used to remove excess water in poorly drained soils or areas impacted by heavy rain or storm events, such as a grassed waterway. These systems are very common in northern Illinois agricultural fields. When a subsurface drainage system is working correctly, these tiles can improve infiltration rates, reduce surface runoff, and increase water storage capacity of the soil in the fields. In cases where the tile fails upland drainage patterns can be compromised, field will hold standing water for days after a storm event, and large holes where soil has washed into the tile line can appear. All of these problems make it hard for equipment to access the area. Prompt repair of any drain tile failure will keep the system in good working order and prevent permanent damage to it.

A tile inspection is recommended for this site in order to identify if and where there are tile lines, so they can be accurately located and maintained throughout the life of the project to minimize potential future damages.

Erosion Concerns

The proposed land use of this site is for the construction of residential housing. It is currently being used as farmland. Soil disturbance will occur as a result of developing the site, which is moderately sloping and susceptible to erosion. The area of disturbance will be greater than one acre, so **an IEPA NPDES permit, and Storm Water Pollution Prevention Plan (SWPPP) will be required**; as well as any City/County Permit requirements.

Soil disturbance can create soil erosion which must be properly managed to prevent adverse environmental impacts. Erosion from construction sites is a leading cause of water quality problems in Illinois. Problems caused by this sediment include:

- *Increased flooding* – Sediment build-up lowers the flow capacity of channels causing more frequent flooding in areas that rarely or never flooded before
- *Financial burden to taxpayers* - Sediment that finds its way into streets, storm sewers, and ditches result in additional maintenance costs for local, state and federal governments
- *Water quality impairment* - Sediment laden runoff transfers nutrients and other pollutants to downstream lakes and rivers degrading aquatic habitats and increasing costs for water treatment.

Simple but effective controls include preserving existing trees and grass where possible, using silt fence to trap sediment on the down slope sides of the area of disturbance, using a gravel drive used by all vehicles to limit tracking of mud onto streets, cleaning up

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sediment carried off-site by vehicles or storms, installing curb inlet controls, using downspout extenders to prevent roof runoff from eroding exposed soil, locating soil piles

away from any roads or waterways, and reseeding or sodding the site as soon as possible. The materials (silt fence, stakes, gravel entrance, inlet controls, and grass seed) are easy to find and relatively inexpensive.

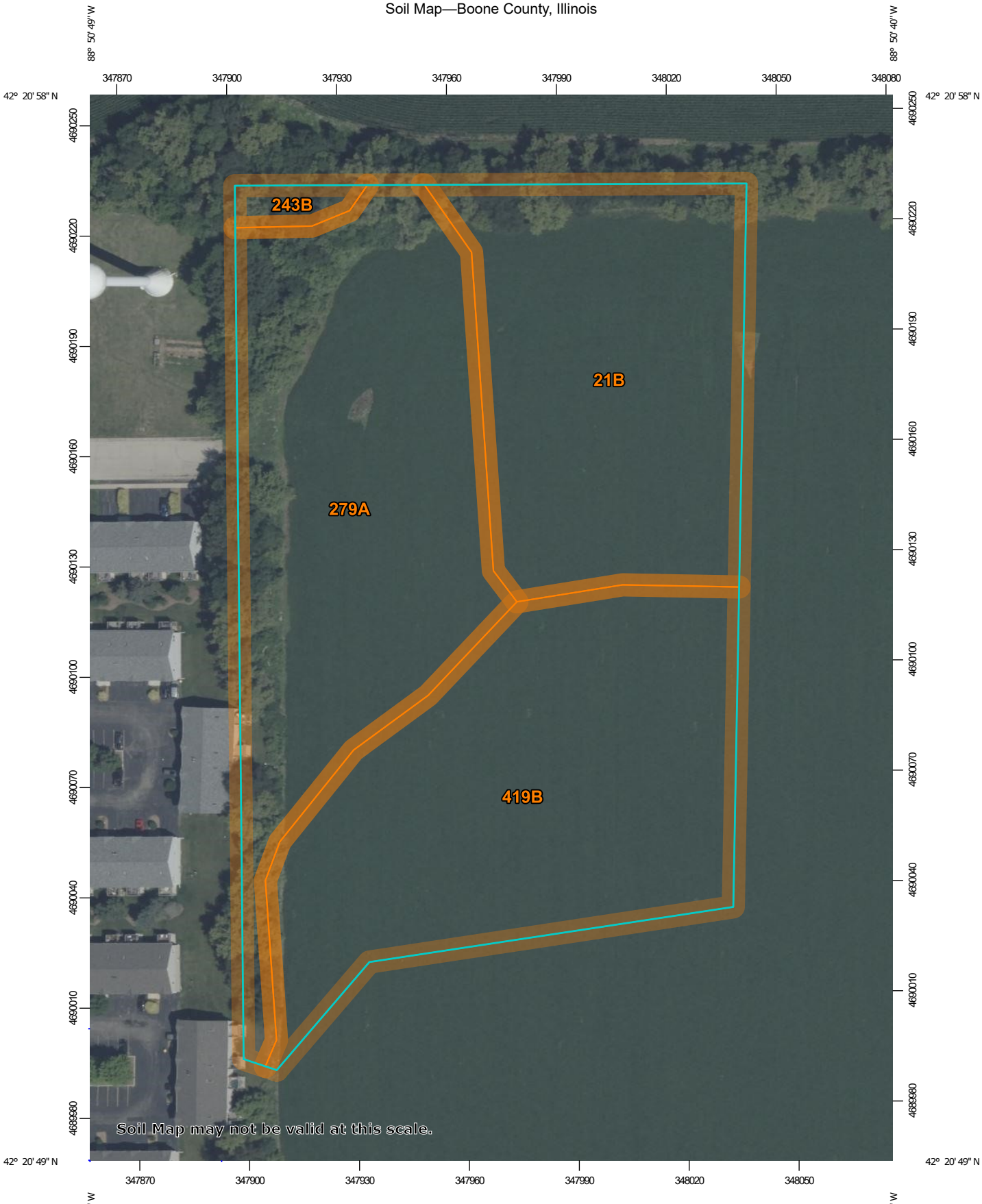
Best management practices should be implemented at the site during any periods of disturbance to prevent erosion and result in clean discharges from the site. The Illinois Urban Manual is a resource of practices used throughout the State and can be accessed at http://www.aiswcd.org/ium/. The concept of these practices can be carried over to good housekeeping measures after development occurs and buildings are occupied to prevent stormwater runoff from becoming contaminated.

Stormwater Management Systems

Newly developed areas can experience an increase in runoff from impervious surfaces that can cause flooding, erosion, and water pollution. The use of green infrastructure is highly recommended for the proposed land use—which can be achieved through vegetative swales, bioretention areas, constructed wetlands and other traditional detention systems. The incorporation of native vegetation to these systems can help prolong the effectiveness of the practice and should be considered with species selection for permanent stabilization.

****Any acreage discrepancies are due to the acres included with Right of Ways****

Thank you for taking the SWCD's advisement under consideration. Continued below is more information regarding soils and possible limitations for the proposed use. If you have any questions or comments about this report or the findings, please contact the Boone County Soil and Water Conservation District at (815) 544-3465 ext. 3 or by email at boonecountyswcd@gmail.com.



Map Scale: 1:1,410 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

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According to the USDA Natural Resource Conservation Service Soil Survey of Boone County, the site consists of the following:

Map Unit: 21B—Pecatonica silt loam, 2 to 5 percent slopes

The Pecatonica component makes up 90 percent of the map unit. Slopes are 2 to 5 percent. This component is on ground moraines. The parent material consists of thin layer of loess over paleosol formed in loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the F095XB010WI Loamy and Clayey Upland ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Map Unit: 243B—St. Charles silt loam, 2 to 5 percent slopes

The St. Charles component makes up 95 percent of the map unit. Slopes are 2 to 5 percent. This component is on outwash plains on uplands. The parent material consists of loess over stratified loamy outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the F108XA015IL Outwash Forest ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Map Unit: 279A—Rozetta silt loam, 0 to 2 percent slopes

The Rozetta component makes up 95 percent of the map unit. Slopes are 0 to 2 percent. This component is on ground moraines, till plains. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during February, March, April. Organic matter content in the surface horizon is about 2 percent. This component is in the F095XB010WI Loamy and Clayey Upland ecological site. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Map Unit: 419B—Flagg silt loam, 2 to 5 percent slopes

The Flagg component makes up 90 percent of the map unit. Slopes are 2 to 5 percent. This component is on ground moraines. The parent material consists of loess over paleosol formed in till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the F095XB010WI Loamy and Clayey Upland ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

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Soil Conditions and Degree of Limitations for Proposed Use:

Soil Map Unit	Soil Name and Slope	Soil Compaction	Shallow Excavations	Septic Tank Absorption Fields	Hydric Soil	Erosion & Sediment Hazard
21B	Pecatonica silt loam, 2 to 5 percent slopes	High	Somewhat limited	Somewhat limited	NO	Moderate
243B	St. Charles silt loam, 2 to 5 percent slopes	Medium	Somewhat limited	Somewhat limited	NO	Moderate
279A	Rozetta silt loam, 0 to 2 percent slopes	Medium	Somewhat limited	Somewhat limited	NO	Slight
419B	Flagg silt loam, 2 to 5 percent slopes	High	Somewhat limited	Somewhat limited	NO	Moderate

Soil Interpretations Explanation:

These interpretative ratings help engineers, planners, and others to understand how soil properties influence behavior when used for nonagricultural uses such as building site development or construction materials. This report gives ratings for proposed uses in terms of limitations and restrictive features. Ratings come from the soils "natural" state, that is, no unusual modification of the site or soil material is made other than that which is considered normal practice for the rated use. Even though soils may have limitations, an engineer may be able to alter soil features or adjust building plans for a structure to compensate for most degrees of limitations. Most of these practices, however, are costly.

The final decision in selecting a site for a particular use generally involves weighing the costs for site preparation and maintenance. Soil properties influence development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Soils are rated for the uses expected to be important or potentially important to users of soil survey information. The rating system of slight, moderate, severe, very severe, and restrictive, are given for the types of proposed improvements that are listed or inferred by the petitioner as entered on the report application and/or zoning petition. They are defined as follows:

Slight or Not Limited: This soil has favorable properties for the use. The degree of limitation is minor and can be overcome easily. Good performance and low maintenance can be expected.

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Moderate or Somewhat Limited: This soil has moderately favorable properties for the use Special planning, design, or maintenance can overcome this degree of limitation. During some part of the year, the expected performance is less desirable than for soils rated slight.

Restrictive: This soil has restrictive properties for the use. This rating is given to soils that have rapid or very rapid permeability's. These soils are sandy or have sand and/or gravel within a depth which makes them poor filters of septic effluent.

Severe or Very Limited: This soil has one or more properties that are unfavorable for the rated use. These may include the following: steep slopes, bedrock near the surface, flooding, high shrink-swell potential, a seasonal high water table, or low strength. This degree of limitation generally requires major soil reclamation, special design, or intensive maintenance, which in most situations is difficult and costly.

Very Severe: This soil rating is given to soils that have properties that are difficult or impossible to overcome or modify for the intended use.

Land Use Explanations:

Shallow Excavations

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the number of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table,

flooding and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Erosion and Sediment Control

Based on the percent slope and the erodibility of the soil-mapping unit. Length of slope and vegetative cover are equally important in determining erosion losses and should be determined by on-site investigations. Under most conditions, establishment and maintenance of good vegetative cover is required to prevent excessive erosion and sedimentation.

Hydric soils

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. To determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are

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described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). According to the U.S. Corps of Engineers and the Natural Resource Conservation Service (NRCS), the presence of hydric soils is one third of the requirements needed to meet a jurisdictional wetland. The two other requirements include wetland hydrology and hydrophytic vegetation.

Permeability/Groundwater

Groundwater is water that exists in the pore spaces and fractures in rock and sediment beneath the Earth's surface. It originates as rainfall or snow and then moves through the soil into the groundwater system. The soil types present near the surface, and their permeability, can have a direct correlation to water quality of shallow groundwater systems. Water quality refers to such things as the temperature, the number of dissolved solids (hardness), and the presence of pollutants.

Most pollution of groundwater is the result of biological activity, much of it human. Among the sources of contamination are: failing or inadequate on-site septic systems, broken sewer lines, waste dumps (both industrial and residential), spills, biological waste products, agricultural pollutants such as fertilizers and pesticides, and salt contamination from excess salt applications in the winter. Groundwater contamination can result from a point source where the contaminant plume emanates from one spot, or from a widespread source where the pollution is introduced over a wide area and diffused throughout the groundwater over a broad region. Nonpoint source contaminants are difficult to identify and address. Groundwater contaminant plumes change over time. They grow in length with groundwater flow. They grow in width by diffusion and dispersion. Large plumes pollute large areas and affect many people.