Appendix 10-2

Preliminary Karst Field Reconnaissance

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Preliminary Karst Field Reconnaissance

AES – Riverside Solar Project

June 16, 2021

STATE OF NEW YORK
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1 Introduction

ANS Geo, Inc. is pleased to provide this report to AES to summarize the results of our preliminary karst field reconnaissance in support of the proposed Riverside Solar Energy Generation project ("Riverside Solar", or "Project") located in Chaumont, New York.

To address concerns over the possible presence of karst, and the impacts to the proposed Project, ANS Geo was retained by AES to provide perform a focused field evaluation to investigate a potential disappearing stream located within the project boundary, as well as two suspect topographic depressions which may be markers for subsurface karst activity. The disappearing stream and depression were noted by TRC Engineers, Inc of Ithaca, NY during their cultural resource and wetland delineations on-site, as well as LiDAR surveying activities.

ANS Geo's geotechnical representative, under the direction of a Professional Engineer licensed in the State of New York and experienced in karst terrain, photovoltaic developments, and karst characterization, completed the field reconnaissance and walkthrough Friday, June 11 to Saturday, June 12, 2021.

2 Site Maps

Prior to the start of work, ANS Geo was provided a figure identifying the location of four areas of consideration ("AOC"). Each of these areas have been labeled as AOC-01 through AOC-04, from west to east. Additionally, while on site and after reviewing publicly available digital elevation models, our geotechnical representative added four more areas to be evaluated, labeled AOC-05 through AOC-08. A map is provided below with the areas labeled.

Figure 1 – Site Map

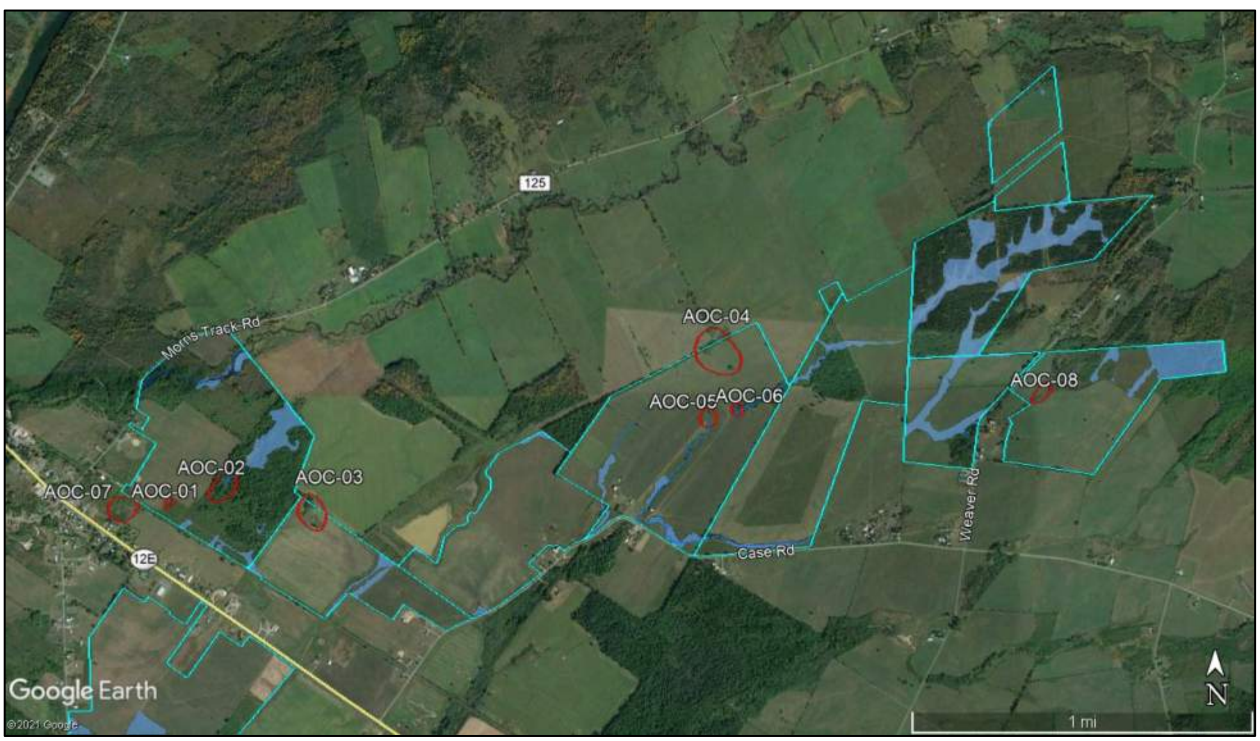

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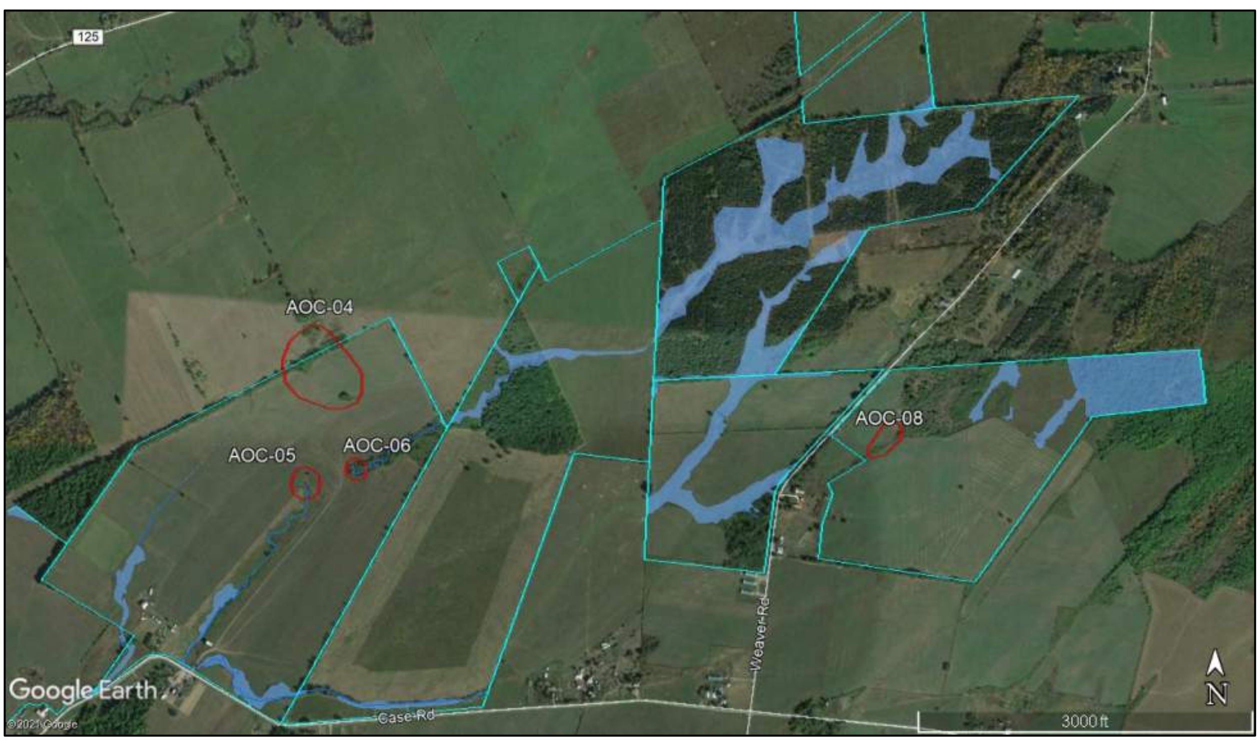
Figure 2 – Site Map West

Figure 3 – Site Map East



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3 Observations

AOC-01

Visual inspection by our onsite geotechnical representative showed there were several features consistent with karst topography. On the northern end of this AOC was an opening in the rock roughly one square foot in size. This opening was fairly deep, approximately 25 feet based on visual estimates. Our geotechnical representative classified this as a small ponor. There was also an additional light source in the hole which points to a second opening to the cavern. However, our geotechnical representative was unable to locate this opening. This feature can be seen in **Figure 4**. Approximately 20 feet to the south was a narrow chasm, with walls lined with bedrock. It was approximately 50 feet in length. It varied in width from less than a foot to upwards of 5 feet. It was difficult to discern the depth of the feature because it had been used as a dumping ground for trash. This feature can be seen in **Figure 5** and **Figure 6**. AOC-01 was heavily vegetated and therefore the video recorded by our aerial drone does not show these features.

Figure 4

Figure 5

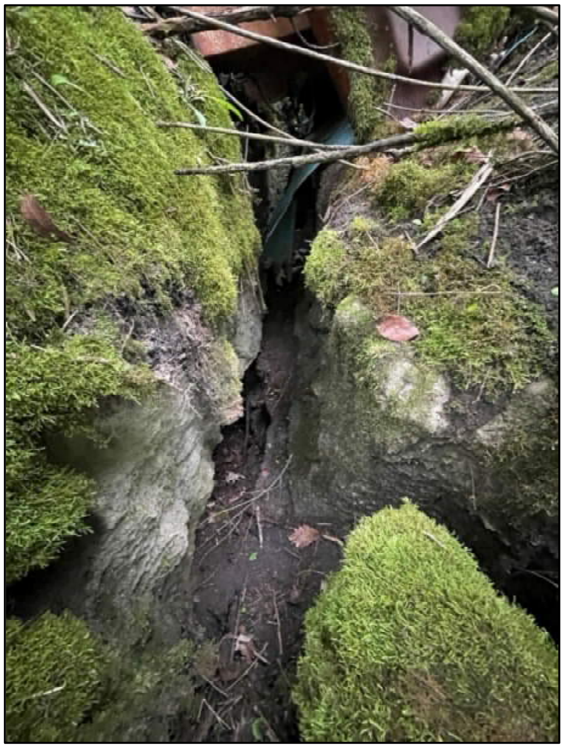


Figure 6

AOC-02

Visual inspection revealed the presence of karst features. To the south of the AOC, there were multiple depression areas which varied in size from 5 feet wide to 20 feet wide. These features can be found in **Figure 7**. This AOC was also mapped as having a disappearing stream. Our geotechnical representative was able to find evidence of a streambed; however, it should be noted it had rained the night prior to inspection and the streambed was dry. There was also a considerable amount of leaf litter in the streambed indicated that water had not flown in some time. Regardless, the streambed led to a narrow chasm characteristic of karst. The streambed can be seen in **Figure 8** and the chasm can be seen in **Figure 9**. A rock sample was taken from the wall of the chasm. AOC-02 was heavily vegetated and therefore the video recorded by our aerial drone does not show these features.

Figure 7

Figure 8

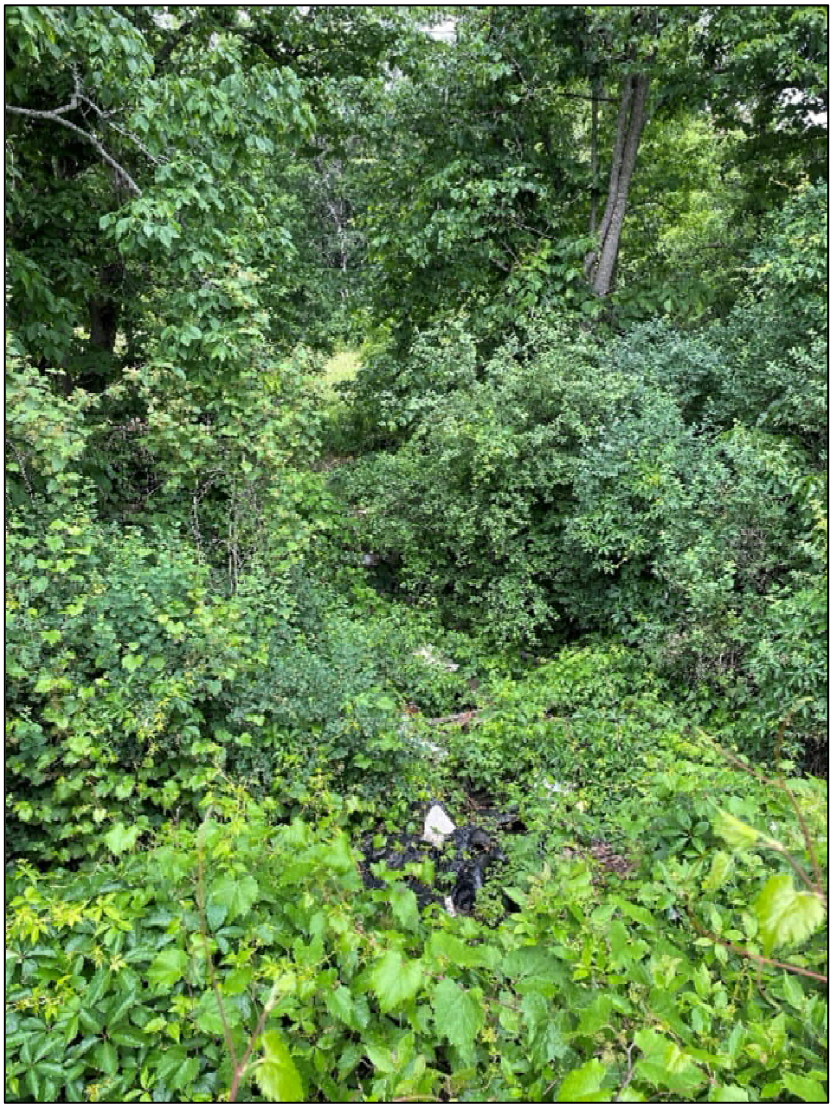
Figure 9

AOC-03

Visual inspection by our geotechnical representative revealed the presence of karst topography in this area. At the southern end of the area were several depressed areas around 5 feet in diameter. There was also a shallow, narrow vertical chasm ranging from 1 to 2 feet in width and approximately 20 feet in length. This chasm is pictured in **Figure 10**. The northern end of the AOC was covered with very thick brush making navigating through the area and visually inspecting it quite difficult. However, our geotechnical representative was still able to find a large sinkhole, approximately 50 feet in diameter. This sinkhole is pictured in **Figure 11**. AOC-03 was heavily vegetated and therefore the video recorded by our aerial drone does not show these features.

Figure 10

Figure 11



AOC-04

Visual inspection by our geotechnical representative revealed the presence of karst topography. At the southern end of the AOC was a large sinkhole, approximately 45ft in diameter. Depth was difficult to discern as the sinkhole had been filled with trash. The sinkhole is pictured in **Figure 12**. At the northern end of the AOC was another large sinkhole. This sinkhole was similar in size to the other one at this AOC. It is worth nothing that there were no large trees in this sinkhole and there was one fallen tree. This may indicate some more recent activity. Immediately adjacent to this sinkhole was a narrow chasm approximately 3 feet in width a depth of approximately 6 feet. The sinkhole can be seen in **Figure 13** and the chasm can be seen in **Figure 14**. Aerial footage taken by the drone here shows the large surface depressions.

Figure 12

Figure 13

Figure 14

Additional Areas of Concern (AOC-05 to AOC-08)

AOC-05, located south of AOC-04 and west of AOC-06, contained a spring located within a deep surface depression. There is also a deep depression approximately 10 feet in diameter just north of the spring. This spring is pictured in **Figure 15**.

AOC-06 contained a disappearing stream within a deep surface depression. This area is located over 400 feet east of AOC-05, so it is plausible that the spring in AOC-0 is fed by the disappearing stream in AOC-06.

AOC-07 was located off the site boundaries however it is immediately adjacent to the site and in close proximity to AOC-01 and AOC-02. Our geotechnical representative did not go onto the property but did inspect the area with an aerial drone. It appears that there may be karst terrain at the location of AOC-07, pictured in **Figure 16**.

AOC-08 did not appear to have any karst features, though bedrock was present at the surface.

Figure 15

Figure 16

4 Recommendations and Future Site Investigation

To improve an understanding of the depth, character, and possible risk of these karst features to the project development, ANS Geo recommends completing Electrical Resistivity Imaging (ERI), a non-disruptive geophysics technique used to map 2-Dimensional images of the subsurface. ERI surveys provide many apparent resistivities at various depths and spacings along a survey line. Different subsurface soil and rock types and conditions have unique resistivity values. A series of karstic piping networks or sinkholes that are air-filled, should reflect a resistivity that is very high, generally 10,000 ohm-meters or higher. Where-as a clay or soil filled sinkhole or void should reflect a very small apparent resistivity, generally 100 ohm-meters or less. Contrasting these very high or very low resistivities with the resistivities from the surrounding intact bedrock, can allow us to better delineate the type of karst anomalies present and their locations and sizes.

ANS Geo recommends completing a series of ERI surveys along the footprints of suspected karst features and at least one perpendicular survey at each location to determine wide of any anomalies. To better calibrate depth to bedrock, we propose completing a Multi-Channel Analysis of Surface Waves (MASW) test at each investigation location, unless bedrock is exposed at the ground surface. These proposed investigation locations will include areas with suspected karst features identified in our desktop study and field reconnaissance investigation. Following these ERI and MASW tests, if necessary, air-track probe (ATP) drilling exploration along ERI lines may be completed in order to calibrate the resistivity profiles.