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December 20, 2024

VIA E-MAIL (mwlubinsky@cumberlandcountypa.gov)
AND REGULAR MAIL

MICHAEL LUBINSKY
DISTRICT ENGINEER
CONSERVATION DISTRICT
310 ALLEN ROAD, SUITE 301
CARLISLE, PA 17013-9101

RE: AAMPA HOLDINGS
RITNER HIGHWAY

Dear Mike:

Please be advised that I serve as Solicitor for the Borough of Newville. The primary water source is the Cool Spring located in West Pennsboro Township near the Laughlin Mill.

The Newville Borough Council has retained a stormwater expert, William J. Seaton, Ph.D., P.G., a Senior Hydrogeologist, with the ARM Group located in Hershey, Pennsylvania. Enclosed please find a copy of his report in which he makes seven (7) recommendations found on page 5. He addresses the need for greater protection and investigation of the site subsurface bedrock. I have sent a copy to Hubert X. Gilroy, Esquire, who represents the warehouse developer.

Please give me a call when you have had a chance to review this report.

Very truly yours,

IRWIN & McKNIGHT, P.C.

Marcus A. McKnight, III

MAM:sls
Enclosure
cc: Robert Sabatini, Newville Borough Manager
Jack Eriksen, Borough of Newville Councilman

ARM GROUP LLC
MEMO

To: Robert J. Sabatini, Newville Borough Manager, Newville, PA

From: William Seaton, Senior Hydrogeologist, ARM Group LLC

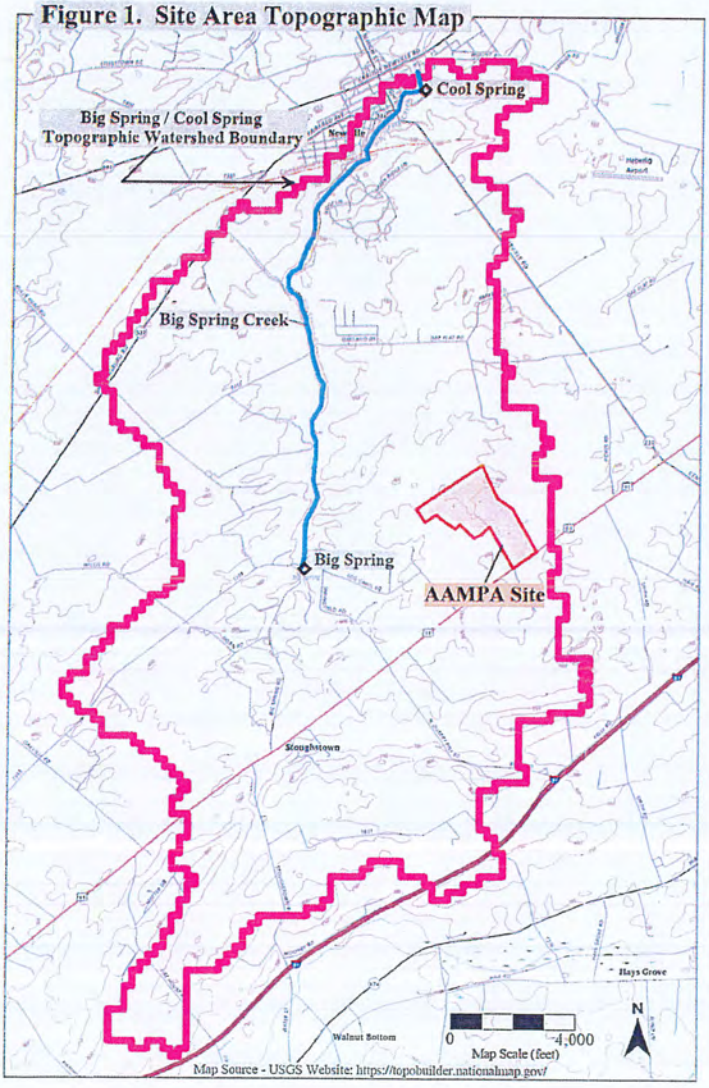
Date: November 18, 2024

Re: AAMPA Holdings – Ritner Hwy Project, West Pennsboro Township, Cumberland County, Pennsylvania

Robert,

ARM Group LLC (ARM) has conducted a hydrogeologic review and analysis of the suitability of the AAMPA Holdings – Ritner Hwy Project (AAMPA Site), a proposed commercial development located within the Big Spring / Cool Spring Topographic Watershed in West Pennsboro Township, Cumberland County, PA (**Figure 1, Site Area Topographic Map**).

Figure 1. Site Area Topographic Map



ARM conducted a review of the following sources of information for this project:

1) AAMPA Site Documents

- Geotechnical Engineering Report, ECS Mid-Atlantic LLC, June 20, 2023.
- Geotechnical Engineering Report for Stormwater Management, ECS Mid-Atlantic LLC, May 30, 2023.
- Post Construction Stormwater Management Report for the AAMPA Site, June 2024.
- Erosion and Sediment Control Plan, 2/26/24
- Post Construction Stormwater Management Plan, 11/15/23

2) Relevant published information regarding the geology and hydrogeology of Cumberland County and the Site area (see **References** section below).

3) ARM also conducted a fracture trace / bedrock structural analysis of the AAMPA Site area using digital topographic data and published information.

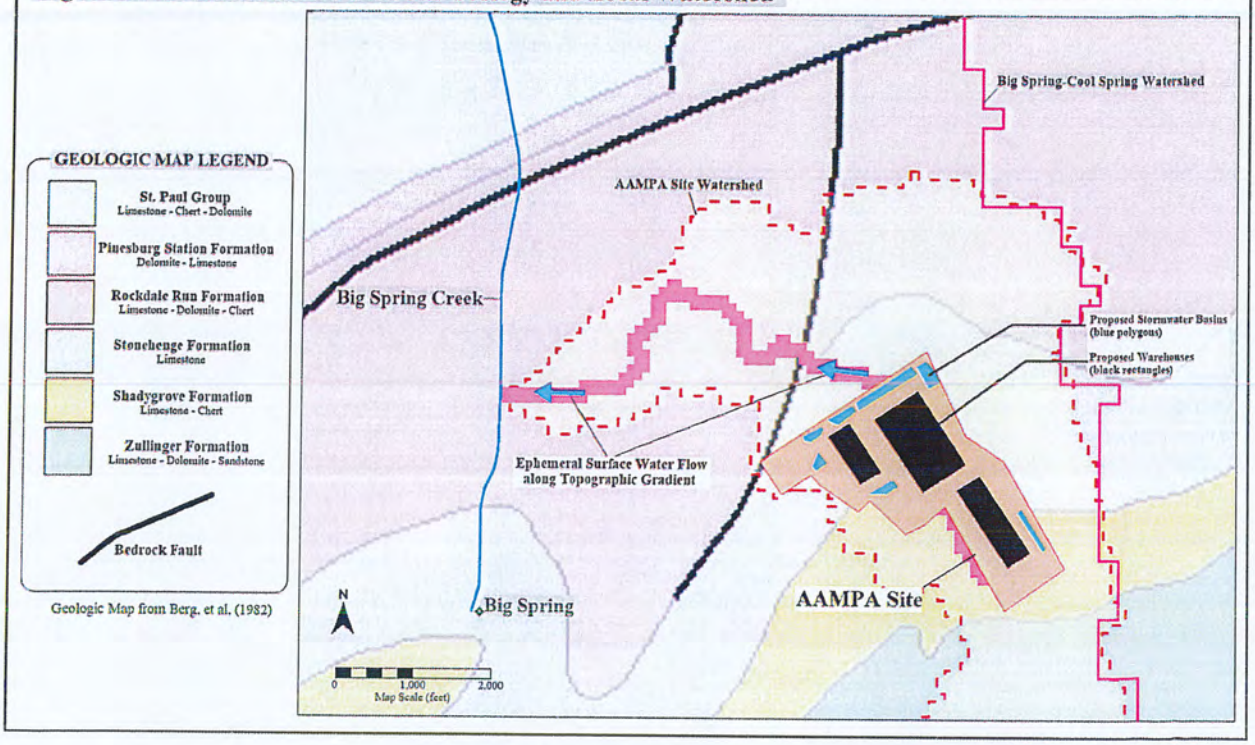
The following represents our concerns regarding the development of the AAMPA Site:

Potential for Groundwater Contamination

- The AAMPA Site is located within the Big Spring – Cool Spring Watershed (refer to **Figures 1-4**) which is underlain by faulted and fractured carbonate (karst) bedrock geology. The karst bedrock conditions provide for relatively rapid downward vertical infiltration of precipitation through relatively porous overburden and bedrock as noted by the absence of significant wetlands, streams, or related surface water features in the site area. In addition, the presence of a relatively continuous water table aquifer throughout the Big Spring – Cool Spring Watershed (Becher & Root, 1981) is likely due to higher regional hydraulic transmissivities in the overlying overburden and bedrock.

- Ephemeral surface drainage following precipitation events or snow melt tends to flow westward toward Big Spring Creek (**Figure 2, AAMPA Site Area Bedrock Geology and Local Watershed**).

Figure 2. AAMPA Site Area Bedrock Geology and Local Watershed



- Groundwater flow is controlled by open fractures and fault zones in the bedrock. Mapped faults (Berg, et al, 1982, **Figures 2 and 3**) and interpreted faults and fractures (**Figure 3**, ARM) indicate a complexly faulted and fractured subsurface (Becher & Root, 1981).

- Groundwater recharge is estimated to be > 10 inches per year in the site area (Reese and Risser, 2010). Groundwater recharge associated with bedrock faults or fractures may focus significant volumes of surface water runoff through localized high transmissivity zones in deeper bedrock aquifers.

- Groundwater flows west – northwest from the AAMPA Site toward Big Spring Creek as indicated by water table mapping in Becher & Root, 1981 (refer to **Figure 4**).

- The AAMPA Site is underlain and adjacent to several interpreted fault/fracture zones, dipping bedrock, and associated bedding planes that can serve as localized conduits to rapidly move surface water into the

subsurface and to downgradient water resources such as Big Spring, Big Spring Creek, Cool Spring, homeowner wells, local springs, etc.

- Significant proposed ground cover removal (nearly 100% of the site area, ~ 112 acres) and blasting of bedrock is planned for the construction phase at the AAMPA Site.

- Significant / serious risks of downgradient contamination exist following precipitation events that may occur during the construction phase of this project or following potential malfunctions in the planned stormwater management measures (e.g., stormwater basins, conveyances, etc.).

- Sources of groundwater contamination may include unconsolidated bedrock weathering products (mud, silt, rock fragments, etc.), dissolved solids, chlorides, nitrates, bacteria, and other potentially harmful substances that are introduced into the bedrock aquifers by surface disturbances (excavation, blasting, etc.). These types of water quality issues can persist beyond a potential contamination event in karst terranes.

Figure 3. AAMPA Site Area Detailed Hydrogeologic Map

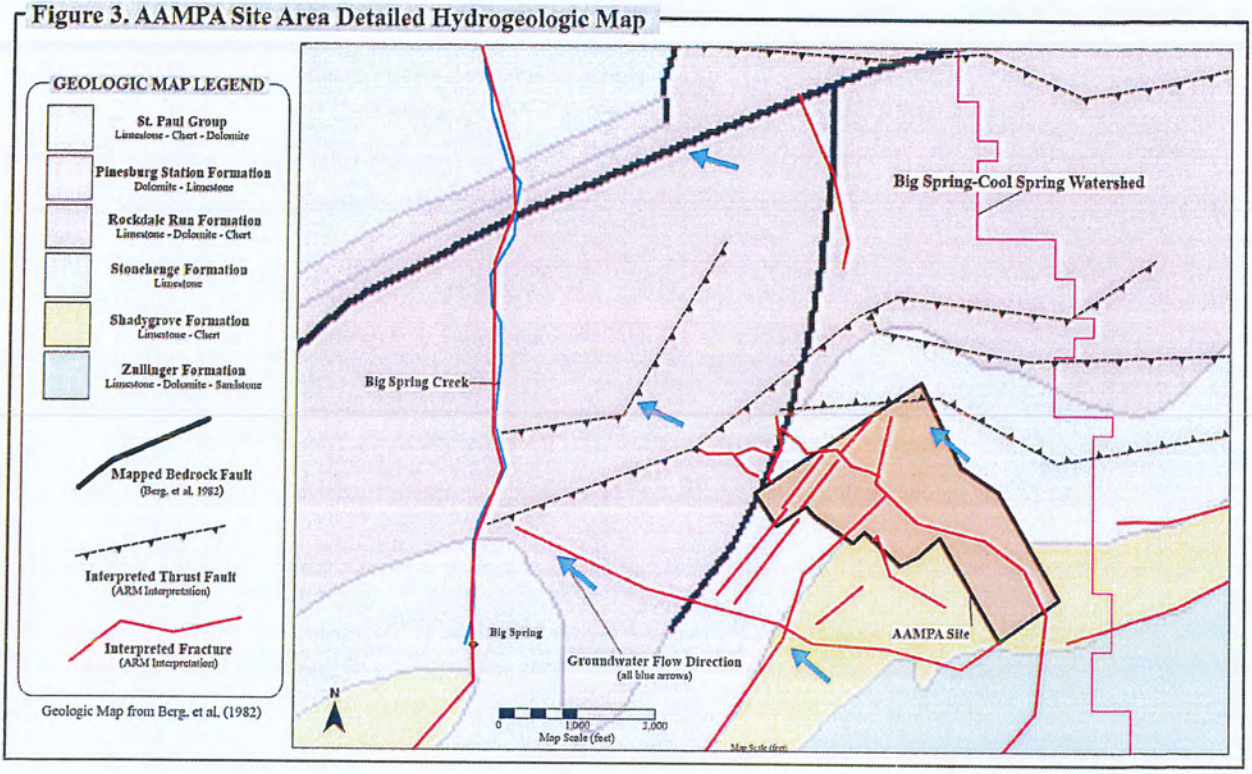
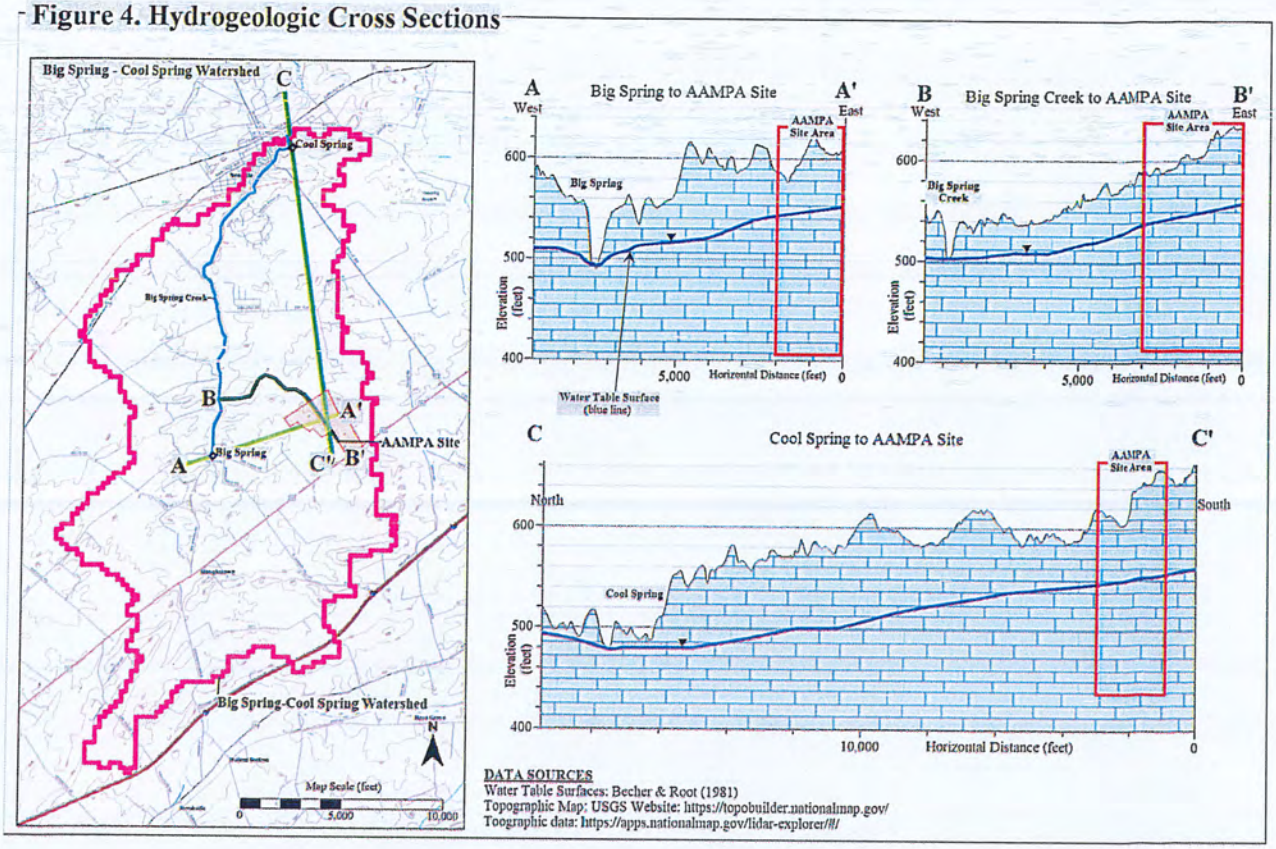


Figure 4. Hydrogeologic Cross Sections



Potential Degradation of Big Spring, Big Spring Creek, and Cool Spring

Potential contamination as described above could impact water quality in the downgradient Big Spring, Big Spring Creek (a high-quality cold-water fishery), and Cool Spring.

Potential for Increased Water Treatment Costs

Potential contamination in Big Spring, Big Spring Creek, or Cool Spring could increase the cost of water treatment at the Cool Spring Water Treatment Plant in Newville, PA.

Recommendations

1. The Big Spring – Cool Spring Watershed should be treated as a protected "capture zone" (similar to a Wellhead Protection Zone) for the existing valuable water resources in the site area.

2. Proposed land development plans within the Big Spring – Cool Spring Watershed should include a Detailed Hydrogeological Evaluation of surface and subsurface conditions to understand and evaluate the potential for significant changes in groundwater quality caused by construction activities such as soil stripping, excavation, blasting, regrading, altering the existing infiltration (quantities / rates / water quality), etc.

3. The goals of a Detailed Hydrogeological Evaluation include gaining an understanding of subsurface (bedrock) recharge pathways and the potential unintended consequences to water quality that may occur by altering existing surface conditions.

4. A Detailed Hydrogeological Evaluation would include development of a three-dimensional subsurface model using existing hydrogeological data, information from new monitoring wells, and new geophysical data across the AAMPA Site and downgradient areas. The new geophysical data, when combined with other information, could identify the locations of localized groundwater recharge surface areas, deep subsurface groundwater recharge pathways, potential contamination threats, and related factors.

5. As of this writing, no site specific detailed hydrogeological studies investigating the deep pathways for groundwater movement from the AAMPA site to Big Spring, Big Spring Creek, or Cool Spring are known to this author.

6. Among the Pennsylvania Department of Environmental Protection (PADEP) recommendations for Best Management Practices (BMPs) in karst terranes are: Detailed Geologic Investigations, Groundwater Monitoring, Geophysical Surveys and Professional Expertise (PADEP, 2006 and PADEP, 2022). These BMPs would be met by a comprehensive Detailed Hydrogeological Evaluation as described above.

7. Approval of proposed land development plans within the Big Spring – Cool Spring Watershed should be contingent upon mitigation of potential threats to downgradient sources as identified by a Detailed Hydrogeological Evaluation.

Respectfully submitted,
ARM Group LLC

William Seaton, Ph.D.
Senior Hydrogeologist / Project Manager

REFERENCES

Becher, A. E., & Root, S. I. (1981). Groundwater and geology of the Cumberland Valley, Cumberland County, Pennsylvania. Pennsylvania Geological Survey, 4th series, Water Resource Report 50, 95 pages

Berg, T.M., Edmunds, W.E., Geyer, A.R., Glover, A.D., Hoskins, D.M., MacLachlan, D.B., Root, S.I., Sevon, W.D., and Socolow, A.A., comps., 1980, Geologic map of Pennsylvania: Pennsylvania Geological Survey, 4th ser., scale 1:250,000, 2 sheets.

Geyer, A. R., and Wilshusen, J. P., 1982, Engineering characteristics of the rocks of Pennsylvania (2nd ed.): Pennsylvania Geological Survey, 4th ser., Environmental Geology Report 1, 300 p.

Hurd, T., Brookhart-Rebert, A., Feeney, T., Otz, M., & Otz, I. (2010). Fast, Regional Conduit Flow to an Exceptional-Value Spring-Fed Creek: Implications for Source-Water Protection in Mantled Karst of South-Central Pennsylvania. Journal of Cave and Karst Studies, 72(3), 129–136. https://doi.org/10.4311/jcks2009es0112

PADEP, 2006, Pennsylvania Stormwater Best Management Practices Manual, Appendix C – Site Evaluation and Soil Testing, https://www.stormwaterpa.org/assets/media/BMP_manual/13_Appendix_C.pdf

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Reese, S. O., and Risser, D. W., 2010, Summary of groundwater-recharge estimates for Pennsylvania: Pennsylvania Geological Survey, 4 ser., Water Resource Report 70, 18 p., 6 plates, scale 1:2,000,000, Portable Document Format (PDF).

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