Weston & Sampson SM

1 Winners Circle, Suite 130, Albany, NY 12205

December 19, 2022

AmRam Adar
BHT Properties Group LLC
5081 SW 48th Street, 1023
Davie, FL 33314

Re: Hydrogeologic Impact Assessment of Proposed Construction Business Office and Storage Facility
248 Stickles Pond Road, Andover Township, Sussex County, New Jersey

Dear Mr. Adar:

As per your request, Weston & Sampson has prepared on behalf of BHT Properties Group LLC (BHT) this summary of our assessment of the groundwater resources at and surrounding the site being considered by BHT Properties Group LLC (BHT) for development of a business involved with the storage of construction equipment and materials, as well as an office building associated with the administration of the related activities (the Development). The Development site is located at 248 Stickles Pond Road in the western portion of Andover Township, Sussex County, New Jersey (the Town). The purpose of the completed work was to use currently available information to assess the potential of the proposed Development to adversely impact the local groundwater resources and nearby groundwater supplies. To this end Weston & Sampson reviewed available environmental, soil, geologic, and water-resource information, including the records available for surrounding wells in the immediate area of the proposed Development property and engineering/environmental studies related to the proposed development of the property, and its historic and anticipated future uses. A list of the more relevant information reviewed in the preparation of this summary is provided in the attached References listing.

Background

The Development property is located in the western part of the Town and occupies a roughly northeast-southwest oriented ridge and surrounding lowland, just south of Stickle Pond, west of Stickles Pond Road, east of the southwest flowing Pequest River, and north of the intersection of Route 206 and Stickles Pond Road (see Figure 1). The site property is located in the headwaters of the Pequest River watershed, in the northern New Jersey area commonly referred to as the Valley and Ridge Province, The Valley and Ridge province is located just outside of the New Jersey Highlands region. As such, current land development constraints associated specifically with the development of land in the Highlands are not applicable to the proposed site development activities.

The approximately 96.84-acre Development property currently consists of a former small aircraft landing strip with ancillary buildings and surrounding woods and fields. The proposed Development is anticipated to consist of an approximately 13,000 square foot (ft^2) office building surrounded by parking, driveways, and staging areas/bins, minor landscaping, and four stormwater management basins used to infiltrate stormwater runoff from the site and incorporate into the local subsurface as groundwater recharge as per the applicable requirements of the New Jersey Department of Environmental Protection (NJDEP). The remainder of the Development property is proposed to remain undeveloped and maintained in a manner consistent with the protection of the existing on-site wetlands. The proposed building will be served by an on-site water-supply well and subsurface wastewater treatment and disposal facility (e.g., septic system and leach field). Though the current average day water supply demand for the office building has not been established, based on its size an average day use of about 25 gallons per day (gpd) per occupant will most likely be adequate for drinking water and waste disposal needs. By using an on-site wastewater disposal methodology, much of the water used by the building occupants is anticipated to be returned to the local water resources following in-situ treatment within the local subsurface environment (e.g., unsaturated soils).

The area surrounding the proposed Development property consists of a mixture of residential, agricultural, undeveloped, and commercial properties. Based on available information, the properties located closest to the proposed Development appear to be served by individual, on-site wells, and wastewater disposal beds. Available

information indicates that these properties are typically supplied with groundwater developed from on-site (private) drilled wells with depths ranging from about 50 to over 300 feet below grade (ft bg) and encountered depths to bedrock ("ledge") of about 2 to over 150 ft bg (see Table 1). The reported yields of these wells range from about less than 1 gallons per minute (gpm) to over 100 gpm and are dependent on the tapped geologic formation as discussed below. Greater yields are typically associated with public community water supply wells (PWS) located north of the site.

Local Groundwater Resources and Hydrogeologic Conditions

The proposed Development property and immediately surrounding area of the Town occupies topographically high areas that are bordered by lower elevation stream valleys, ponds, and wetlands. The location of Stickle Pond coincides with the approximate upgradient extent of the southward flowing Pequest River and associated tributaries. Though some of the topography of the site slopes toward Stickle Pond, the overall drainage of the site is anticipated to be consistent with that of the southward flowing Pequest River. Generally, groundwater in the geologic formations hydraulically connected to the Pequest River and/or the riparian corrido of the drainage basin can be expected to flow in the same direction (towards the south), with minor local deflections resulting from natural and anthropogenic recharge variations, and/or well pumping.

The existing topography and drainage generally reflect past glacial activity which occurred in the area until about 12,000 years ago, and the influences of the underlying bedrock types. This glacial activity eroded and smoothed the local bedrock surface and locally covered it with unconsolidated materials (overburden) derived from the eroded bedrock. As such, the overburden in the Development area can be expected to generally vary in thickness and grain-size makeup depending on its primary manner of deposition, and topographic location. Where the hydrogeologic conditions are favorable, groundwater typically occupies the intergranular pore spaces of the overburden materials at a depth consistent with local recharge conditions (defined by the top of the zone of saturation or "water table"). Based on work completed by others for BHT using the NJDEP groundwater recharge spreadsheet [based on New Jersey Geological Survey (NJGS) Method GSR-32] the current amount of annual precipitation for the site area (about 467 inches per year) that is potentially available for groundwater recharge over the approximately 96.84 acre site is 3,733,11 cubic feet per year (ft^3/yr) which is equivalent to about 27.9 million gallons per year (mgy) or 11 inches per year (about 25 percent of the average annual precipitation amount).

Based on the type of glacial activity which occurred in the area, the majority of the overburden covering the higher elevations (e.g., top of ridge in the northern part of the site, and ridge bordering the east side of Stickles Pond Road) in the Town consists primarily of mixtures of clay, silt, sand and gravel, cobbles and boulders deposited directly by the glacial ice as it advanced and receded through the area (see Figure 2). These materials, identified as "till", are not typically considered to be favorable for supporting groundwater supply development due to their inherently low permeability and/or limited thickness. However, in some instances, the permeability of these materials may be moderate (due to a combination of limited compactness, and low to non-existent amounts of clay and silt). Under such conditions, till can support domestic groundwater supply needs and locally function as a source of recharge to connected geologic formations (e.g., bedrock). In other areas, the type of glacial activity resulted in the deposition by melting glacial ice of stratified (layered) and sorted deposits of clay, silt, sand, gravel, sand and gravel, and cobbles and boulders [collectively identified locally as stratified drift (Qsd)], along the sides of these ridges and in low-lying areas (e.g., the lower elevations of the site). The coarser grain-size dominated deposits generally possess moderate to high permeability and are thus typically capable of supporting not only domestic water supply needs, but also municipal and industrial water supply needs (contingent upon the corresponding thickness). Test pits completed by others in early 2022 in the portions of the Development property proposed for the construction of stormwater management facilities (groundwater recharge basins) generally encountered sand and gravel (consistent with stratified drift) extending over 8 feet thick. Bedrock was encountered at a depth of about 5 to 6 ft bg at only three locations (locally at "Sites B" and "D"). Where encountered groundwater occurred at depths of greater than 9 to 10 ft bg. As discussed below, most of the overburden materials at the respective locations are anticipated to be favorable for supporting local groundwater recharge enhancement conditions by way of the proposed stormwater infiltration basins.

The overburden at the site and immediately surrounding area is underlain by sedimentary bedrock consisting primarily of limestone and dolostone (collectively classified as carbonate bedrock) that are over 400 to 500 million

years old (see Figure 3). These bedrock units are generally bounded by sedimentary rocks consisting primarily of shale, slate, and siltstone that are slightly younger though still over 300 million years old and typically identified as belonging to the Martinsburg Formation. Bedrock consisting of igneous and metamorphic rocks (e.g., granite and gneiss) occurs to the east of the site as one approaches the New Jersey Highlands. The carbonate bedrock units that underly the site and surrounding area tend to be folded, layered (related to sedimentary bedding planes), and fractured. The non-bedding plane fractures (i.e., partings or openings) which penetrate the carbonate and Martinsburg Formation rocks reflect impact from past geologically induced movement (faults), and "loading" and "unloading" (i.e., geological forces and stresses associated with the occurrence of massive glacial ice accumulations that occurred in the region). These fractures can extend for less than 1 foot to hundreds of feet in extent and comprise the primary hydrogeologic feature that influences groundwater movement and storage in the associated bedrock units, with inter-mineral crystal pore spaces providing limited influence on groundwater movement and storage. Where the fractures are open to the atmosphere, either directly or by way of the intergranular pore spaces of the covering overburden, or indirectly as part of an interconnected network at depth in the bedrock mass, they can function as conduits for movement and storage of groundwater. The more extensive and frequent these features, the more potential for groundwater storage and yield potential.

In addition, to the aforementioned dependence on fractures for groundwater movement and storage, the carbonate rock units can be prone to fracture enlargement associated with the dissolution of the rock mass by infiltrating groundwater. This process, can result in the formation of "karst" topography (e.g., closed depressions in rock surfaces) and subsurface features such as caves. No evidence of such features has been determined to currently exist at the surface of the site, most likely as a result of the stratified drift overburden which blankets most of the property and the related glacial activity which formed the existing topography. Karst features have been previously identified off-site and to the west (Figure 3).

Proposed Site Development Considerations

As previously discussed, private wells in the proposed Development site area reportedly range from (about 1 to over 100 gpm), with the higher yields typically being associated with the carbonate bedrock and/or the stratified drift formations (see Figure 4 and Table 1). In addition, though detailed yield and construction information is not readily available, several public water supply (PWS) wells are located to the northwest of the site (Figure 4). Based on their respective designations, it can be assumed that these wells are high capacity and based on their locations most liked tap either the carbonate bedrock and/or stratified drift formations. As such, the anticipated individual water supply demand for the proposed Development office building should be obtainable from either of these formations underlying the property.

As previously discussed, the work completed by others for BHT using the NJDEP groundwater recharge spreadsheet [based on New Jersey Geological Survey (NJGS) Method GSR-32] indicates that the current amount of annual precipitation for the site area (about 467 inches per year) that is potentially available for groundwater recharge over the approximately 96.84 acre site is 3,733,11 cubic feet per year (ft^3/yr) which is equivalent to about 27.9 million gallons per year (mgy) or 11 inches per year (about 25 percent of the average annual precipitation amount). In terms of potential well yield, this amount equates to a yield of at least 50 gpm, which indicates that a future well located at the site should be able to be supported by groundwater recharge derived from within the property boundaries. Furthermore, as part of the evaluations in support of the proposed Development, the use of stormwater infiltration systems to enhance groundwater recharge is prosed to not only counter possible loss due to an increase in impervious surfaces associated with the parking, building, and storage facilities. Based on the local conditions and proposed systems, a net increase in groundwater recharge within the site boundaries of about 222,635 ft^3/yr has been projected. This equates to an additional approximately 3 gpm to the local geologic formations. Hence, the use of an on-site well and proposed stormwater infiltration systems is not anticipated to impact the quantity of groundwater available from the local formations and the local surface water resources (e.g., Pequest River, on-site wetlands) they are hydraulically connected to.

Regarding the potential for future conditions at the site related to the proposed Development, it should be noted that the proposed activities will be limited to storage of equipment and supplies, along with the use of the proposed office building. No maintenance or hazardous materials storage or use has been proposed based on our review

of the existing information submitted in support of the proposed application. The proposed stormwater management activities are intended to not only focus stormwater back into the local geologic formations where it is released as groundwater recharge, but it will also be pre-treated in compliance with applicable NJDEP requirements. Additional protection is hydrogeologically provided to the identified off-site PWS wells due to their bing located "upgradient" of the site and within a different drainage basin than the Pequest River (they are located in the Paulinskill River drainage basin. Furthermore, the projected Tier 3 Wellhead Protection Areas (WHPAs), which assumes a time of travel of about 12 years, for the respective wells encroaches only on the northwestern site boundaries and are most like over-projected give the anticipated direction of groundwater flow at the site being to the south, away from these wells. As such, the site Development as currently proposed is not anticipated to adversely impact the local groundwater quality.

Closing

In closing, Weston & Sampson has utilized currently available information to assess the potential for impact on the local groundwater resources in the Town resulting from the proposed Development conditions. The results of this assessment indicate that the local groundwater resources can support the future use of a water supply well at the site, without adversely impacting on-site and off-site water resources based on the enhancement of on-site groundwater recharge from the proposed stormwater infiltration systems and on-site wastewater disposal system. The proposed activities at the site along with the proposed stormwater management methods are anticipated to not adversely impact the on-site groundwater quality and protect off-stie groundwater resources and supplies.

If you have any questions or need addition information, please do not hesitate to call me at (201) 741-1960.

Sincerely,

WESTON & SAMPSON ENGINEERS, INC.

Frank Getchell, PG
Sr. Technical Leader

Distribution: R. Thomas, Esq., Dolan & Dolan

Attachments

REFERENCES

Dalton, R.F., 1976, "Caves of New Jersey", New Jersey Geological Survey, Bulletin 70.

Engineering and Land Planning Associates, Inc. (E&LP), "Environmental Impact Statement, 248 Stickles Pond Road, Block 151 Lot 21, Andover Township, Sussex County, New Jersey" prepared for BHT Properties Group, dated December 2019 (Revised January 2021; Revised October 2022).

Engineering and Land Planning Associates, Inc. (E&LP), "Stormwater Management Report, 248 Stickles Pond Road, Block 151 Lot 21, Andover Township, Sussex County, New Jersey" prepared for BHT Properties Group, dated November 2019 (Revised September 2021; Revised March 2022).

Engineering and Land Planning Associates, Inc. (E&LP), "Updated Phase I Environmental Site Assessment/Preliminary Assessment Report, Stickles Pond Road, Block 151, Lot 21, Andover Township, Sussex County, New Jersey, 07860" prepared for BHT Properties Group, dated April 2020.

Engineering and Land Planning Associates, Inc. (E&LP), "Preliminary and Final Major Site Plan, BHT Properties, Block 151, Lot 21, Andover Township, Sussex County, New Jersey" Sheets 1- 27, prepared for BHT Properties Group, dated March 2022.

Engineering and Land Planning Associates, Inc. (E&LP), "Freshwater Wetlands Report General Permit 6 and Transition Waiver, 248 Stickles Pond Road, Block 151 Lot 21, Andover Township, Sussex County, New Jersey" prepared for BHT Properties Group, dated January 2020 (Revised January 2021).

Engineering and Land Planning Associates, Inc. (E&LP), "Flood Hazard Area Verification Report, 248 Stickles Pond Road, Block 151 Lot 21, Andover Township, Sussex County, New Jersey" prepared for BHT Properties Group, dated January 2020 (Revised January 2021).

Miller, J.W., Jr., 1974, "Geology and Ground Water Resources of Sussex County and the Warren County Portion of the Tocks Island Impact Area", New Jersey Geological Survey, Bulletin 73.

Monteverde, D.H., and Herman, G.C., 2021, "Geologic Map of the Newton West Quadrangle, Sussex County New Jersey", New Jersey Geological and Water Survey, Geologic Map Series GMS 21-3.

Witte, R.W., 2012, "Quaternary Geology and Geologic Material Resources of the Newton West Quadrangle, Sussex and Warren Counties, New Jersey", New Jersey Geological and Water Survey, Open-File Map OFM 90.

Table 1
Summary of Reported Groundwater Supply Wells[1]
Proximal to the Proposed BHT Group Stickles Pond Road Development

Well ID [2]	Yield (gpm)[3]	Depth (ft bg)[4]	Geologic Formation [5]	Well Intake Interval or Cased Depth [6] (ft bg)	Static Water Level (ft bg [7]	Depth to Bedrock (ft bg)
2	25	68	C0k	–[8]	20	–
19	60	54	Qsd	49-54	6	–
20	12	116	Omb	27	12	–
27	50	202	C0k	–	11	53
30	120	90	C0k	78	10	–
31	22	120	C0k	21	13	–
32	50	400	C0k	70	14	–
33	10	41	C0k	27	10	27
34	25	65	Qsd	165	9	–
35	20	132	Qsd	132	8	–
36	30	170	Qsd	170	8	–
37	50	160	Qsd, C0k	158	8	158
38	100	180	Qsd, C0k	173	7	173
39	100	173	Qsd, C0k	172	7	172
40	–	165	Qsd	165	–	–
41	60	182	C0k	20	6	–
42	15	52	C0k	28	12	–
72	10	82	C0k	43	20	–
73	24	340	C0k	23	39	–
74	0.5	222	C0k	25	30	–
75	4.5	184	C0k	17	59	–
76	24	185	C0k	35	33	–
78	8	47	pC	18	6	–

Andover Township, Sussex County, New Jersey

Notes: (1) Information based on NJGS Bulletin 73.
(2) See Figure 4 for corresponding well locations, based on mapped locations shown in NJGS Bulletin 73.
(3) Yield expressed in units of gallons per minute.
(4) Depth measured in feet below grade.
(5) Geologic formation identifiers follow Figures 3 and 4, with:C0k=the corresponding carbonate bedrock unit; Omb=Martinsburg Formation; Qsd=glacially deposited stratified drift; and pC=one of the igneous/metamorphic bedrock formations.
(6) Represents bottom of casing depth for open-borehole bedrock wells, or screen interval for sand and gravel (Qsd) wells.
(7) Measured at time of well completion.
(8) Not reported in Bulletin 73.

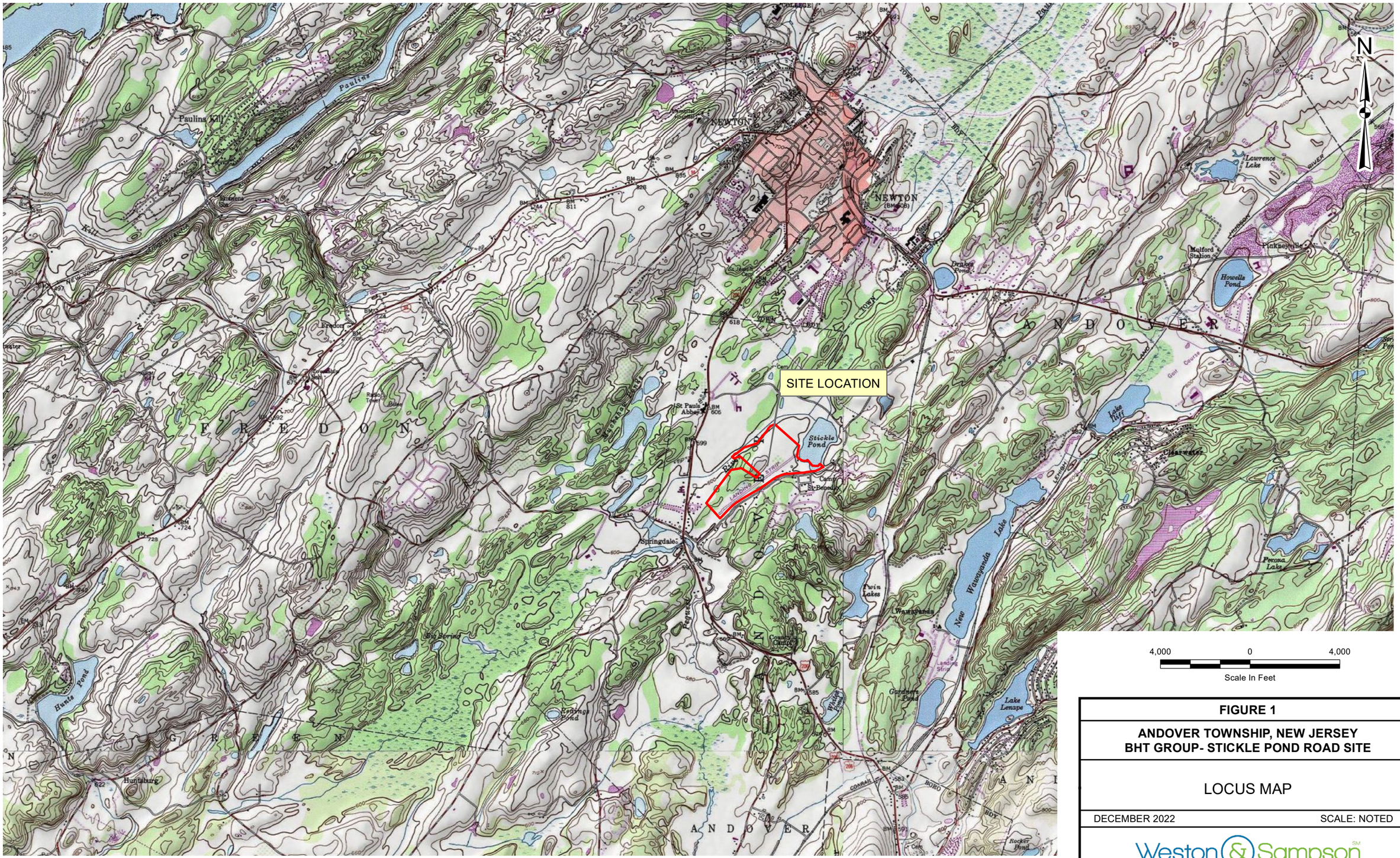

FIGURE 1

ANDOVER TOWNSHIP, NEW JERSEY
BHT GROUP- STICKLE POND ROAD SITE

LOCUS MAP

DECEMBER 2022 SCALE: NOTED

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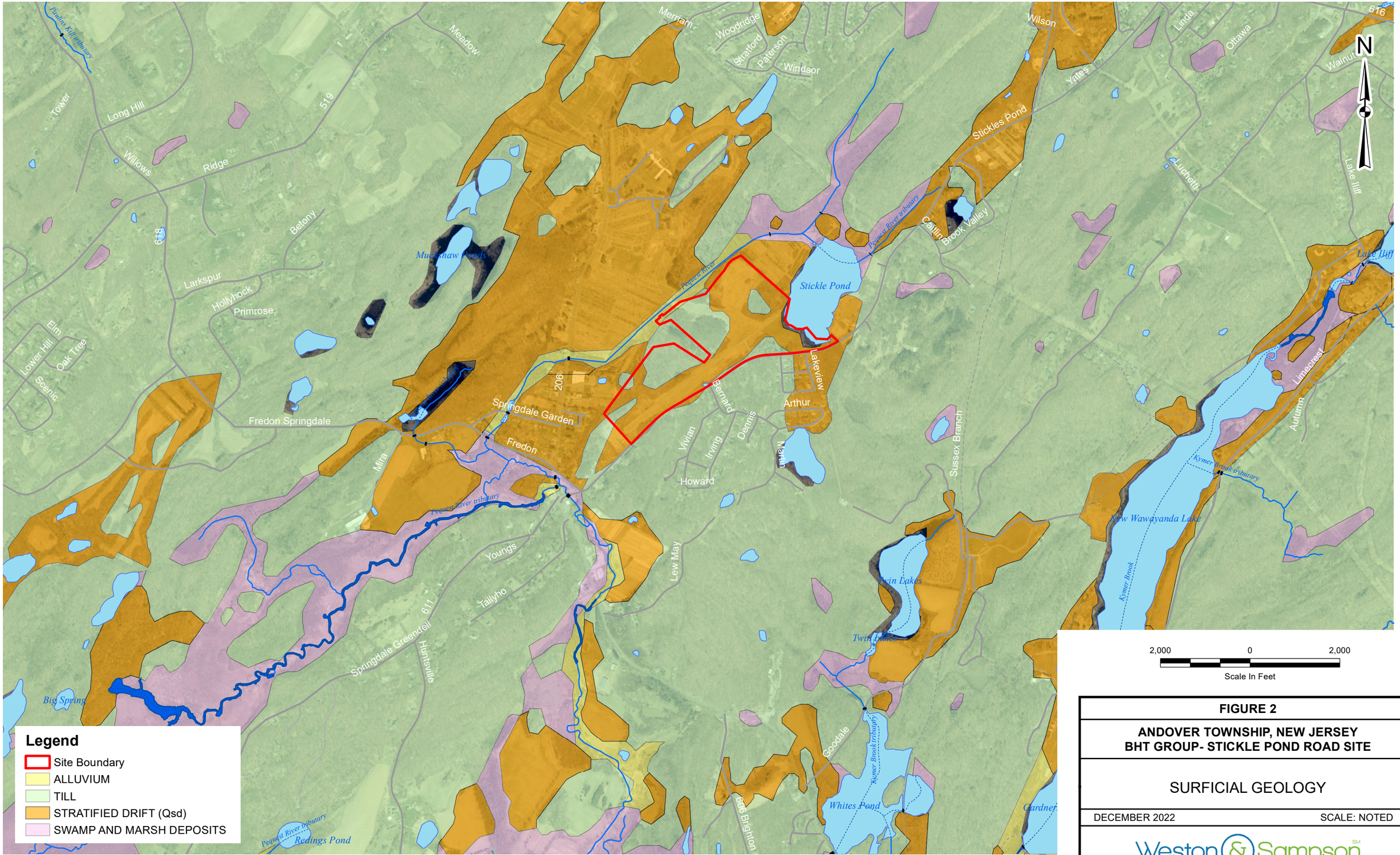

FIGURE 2

ANDOVER TOWNSHIP, NEW JERSEY
BHT GROUP- STICKLE POND ROAD SITE

SURFICIAL GEOLOGY

DECEMBER 2022 SCALE: NOTED

Weston & Sampson SM

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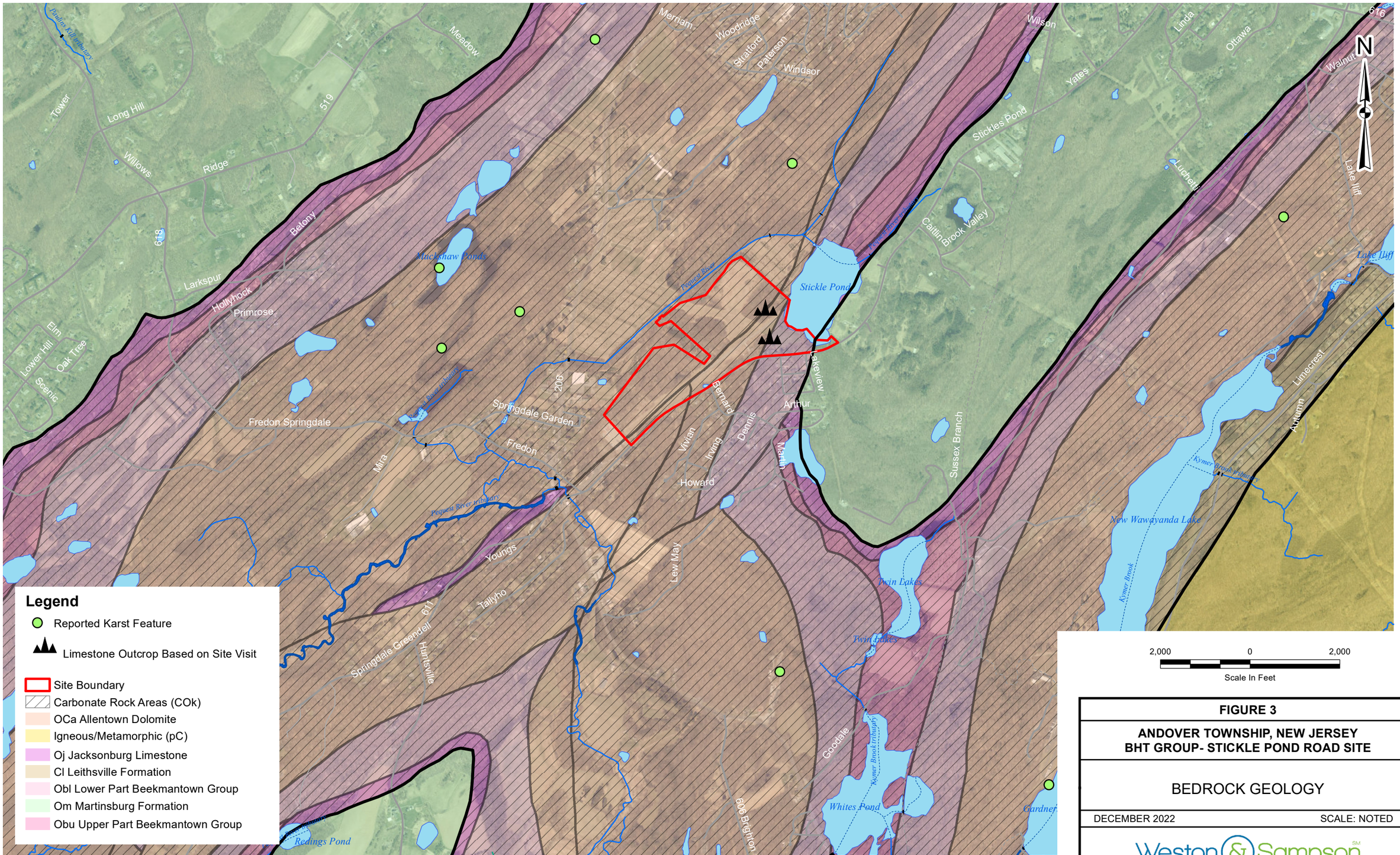

Legend

- Reported Karst Feature
- Limestone Outcrop Based on Site Visit
- Site Boundary
- Carbonate Rock Areas (COk)
- OCa Allentown Dolomite
- Igneous/Metamorphic (pC)
- Oj Jacksonburg Limestone
- Cl Leithsville Formation
- Obl Lower Part Beekmantown Group
- Om Martinsburg Formation
- Obu Upper Part Beekmantown Group

FIGURE 3

ANDOVER TOWNSHIP, NEW JERSEY
BHT GROUP- STICKLE POND ROAD SITE

BEDROCK GEOLOGY

DECEMBER 2022 SCALE: NOTED

Weston & Sampson SM

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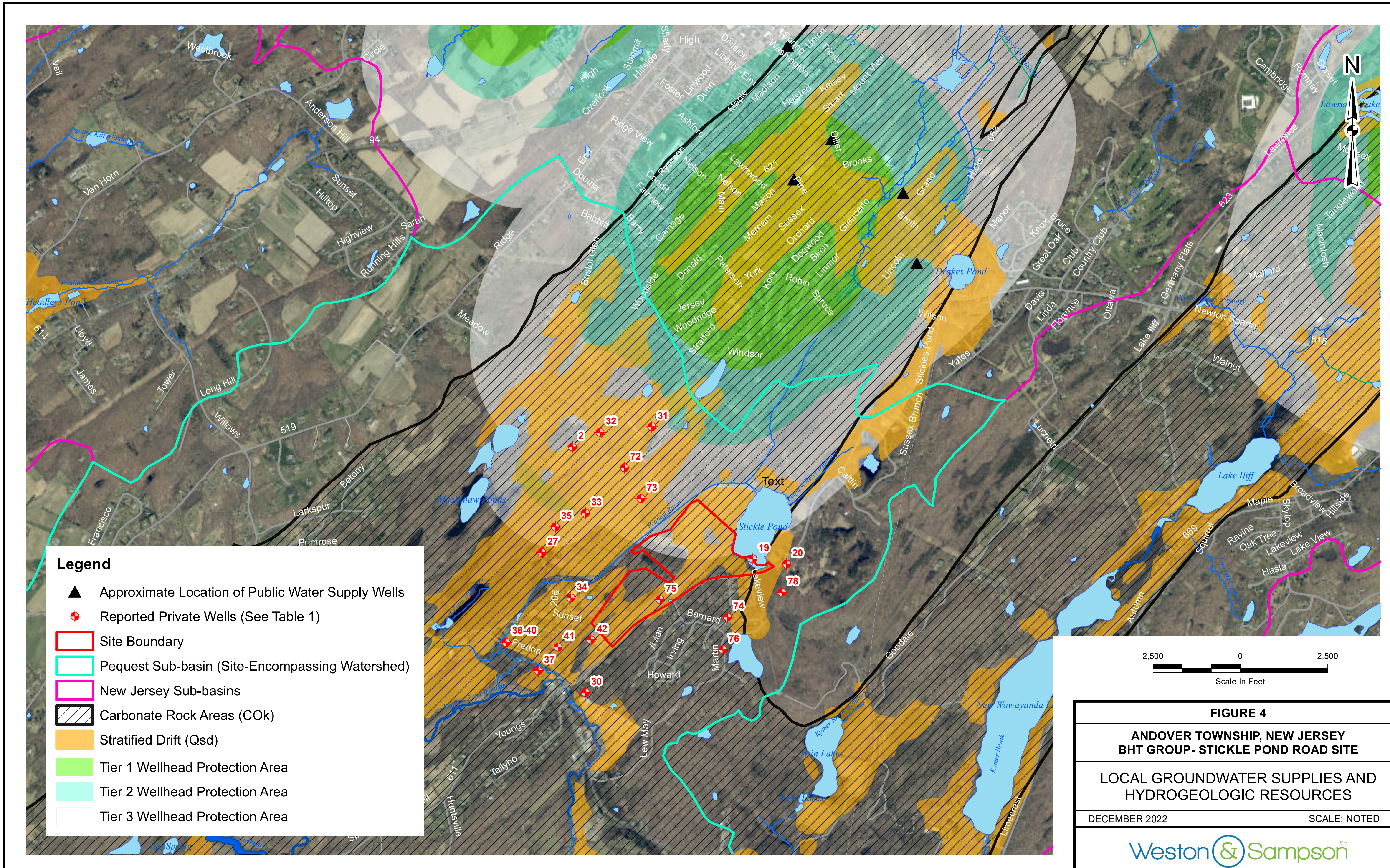

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