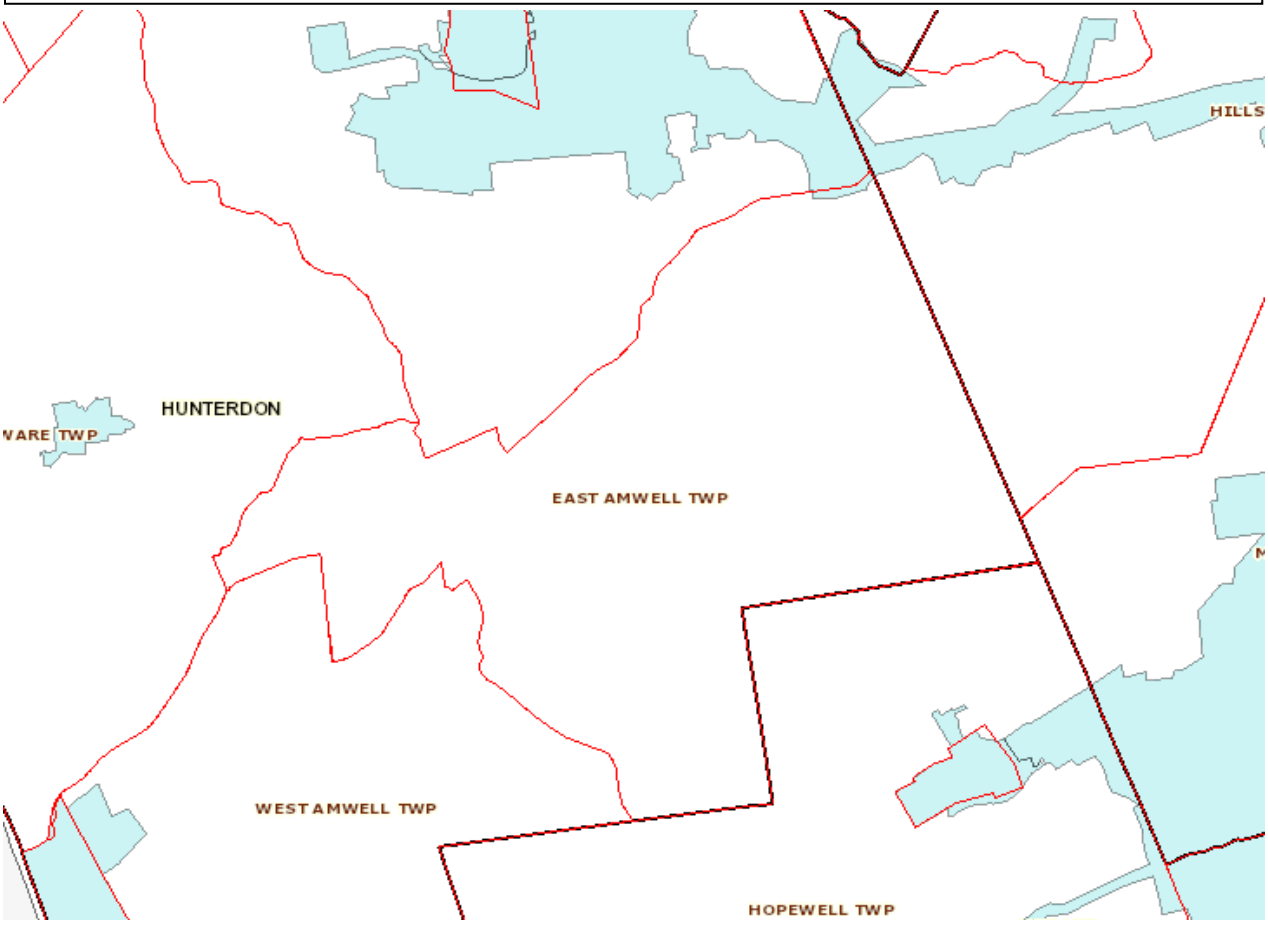
Implications of Proposed Helistop on the Drinking Water Supply in East Amwell Township

The East Amwell Township Environmental Commission has the following concerns regarding allowing helicopters to take off and land at The Ridge at Back Brook:

- Drinking water for East Amwell residents and businesses, and the East Amwell Township School, is sourced from private wells supplied by groundwater in East Amwell;
- The Ridge at Back Brook and the surrounding area have an extensive network of streams, ponds, lakes, and wetlands that could become conduits for contamination from emergency responses to enter our drinking water supply; and
- The cost of characterizing and remediating contamination from emergency responses would fall on individual well owners.

As shown in **Figure 1,** all the areas in white are served by individual private drinking water wells.

Figure 1
Location of public drinking water supplies near East Amwell



Drinking Water Sources in East Amwell

Drinking water supplies in East Amwell are uniquely vulnerable to the impacts of helicopter crashes and associated emergency responses. With the exception of twelve homes, all residents, businesses, farms, and the East Amwell Township School depend on individual private wells supplied by groundwater for drinking water. According to State Geologist Jeff Hoffman of Raritan Headwaters Association, there are 1774 private wells in East Amwell which service homes, businesses, and the school.

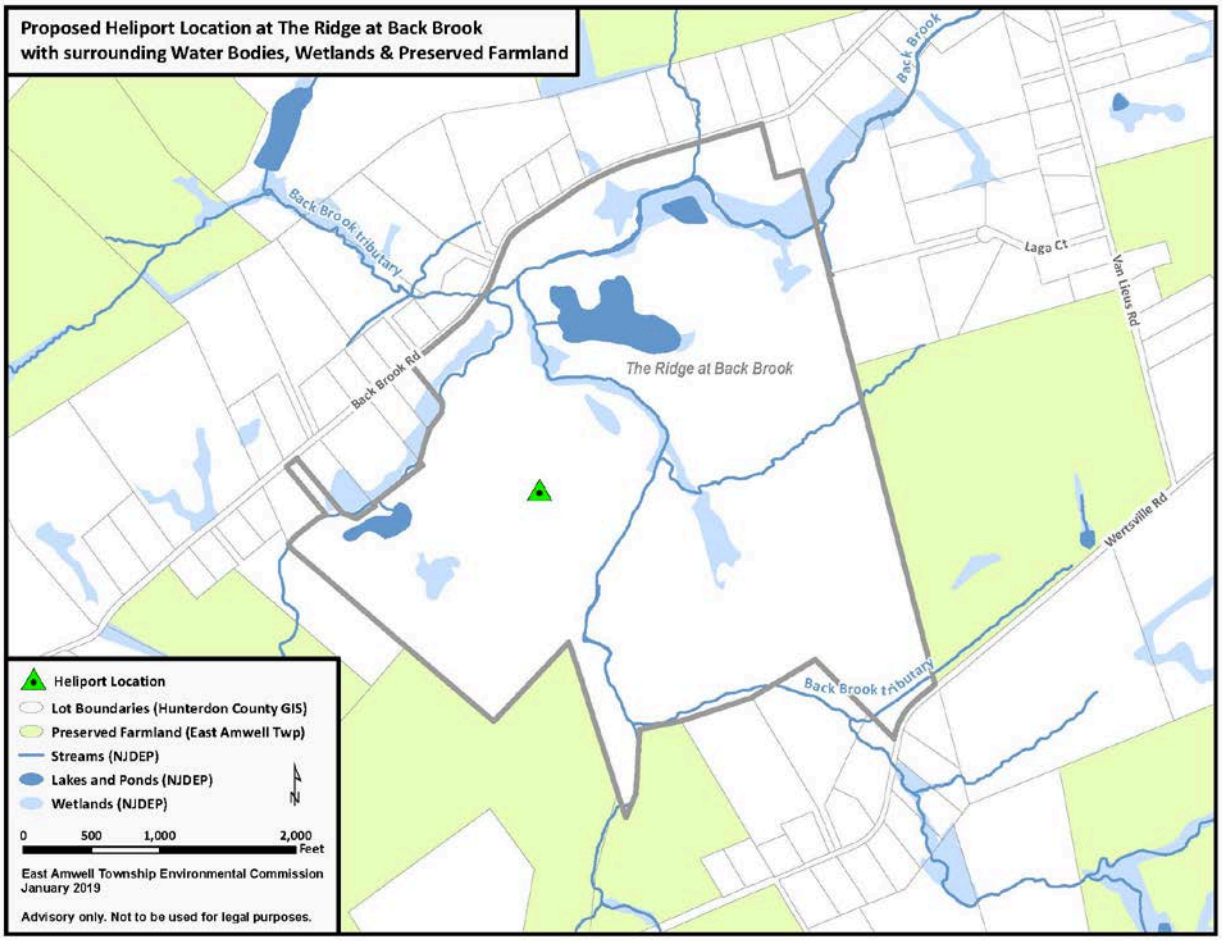
Potential Impacts of Emergency Response

The drinking water in East Amwell is particularly vulnerable because of the prevalence of streams, lakes, ponds, and wetlands on and around The Ridge at Back Brook, as shown on **Figure 2**. These surface water bodies have direct connections to the drinking water aquifers within the Township.

Helicopter traffic can lead to two types of incidents that will impact the waters of East Amwell. First, in the same manner as a car, truck, or any vehicle, a helicopter will have leaks from its fluid systems, including aviation fuel, hydraulic oil, engine oil, and glycol-based coolants. Over time, these leaks will lead to the contamination of the shallow groundwater through percolation. Second, helicopter crashes, incidents, or accidents within the township will release aviation fuel, oils, and hydraulic fluid to the ground surface. In the process of responding to the emergency, volunteer first responders will flood the area with thousands of gallons of Class B Fire Fighting Foam to either prevent or extinguish a fire. (A standard fire truck pumps 1,000 to 1,500 gallons/minute.[i]) This massive quantity of Fire Fighting Foam and water will easily flow over the ground to one of the numerous nearby water bodies or infiltrate the ground and groundwater. The older formulations of Fire Fighting foams contain perfluorooctane sulfonate (PFOS) and newer versions contain chemicals which break down into perfluorooctanoic acid (PFOA).[ii] These chemicals are not used in responses to structure fires.

During the response to an emergency situation, there is generally no consideration given to protecting surface water bodies and no attempt to mitigate impacts following the incident. Responses generally produce thousands to tens of thousands of gallons of contaminated water. Once the water containing fuel, oil, hydraulic fluid, antifreeze, and Fire Fighting Foam are in the surface water of East Amwell, it will migrate into the aquifer and into the drinking water supply. Figure 2 shows the prevalence and close proximity of streams, lakes, ponds, and wetlands in the area of The Ridge at Back Brook.

Figure 2
Location of Surface Water Bodies Near the Ridge at Back Brook



Cost to Individual Well Owners

On January 18, 2019, New Jersey Department of Environmental Protection (NJDEP) proposed Ground Water Quality Criteria for Fire Fighting Foam ingredients PFOS and PFOA of 10 parts per trillion (ppt).[iii] This standard equates to 1 milliliter or drop of contaminant impacting approximately 25,000,000 gallons of drinking water. These standards will also require individual homeowners and businesses to test their wells prior to property transfer and pay out of pocket for treatment systems which currently cost $3,000-$5,000 each and require annual maintenance costing hundreds of dollars.

PFOA and PFOS bioaccumulate within crops and livestock. New Jersey has already issued fish consumption advisories for the lower Delaware River Watershed.[iv] Treating PFOA and PFOS contaminated water at a commercial scale can cost as much as $1 per gallon.[v] Contaminating our water supply with PFOA and PFOS puts our farms, restaurants, and wineries at significant financial risk.

In summary, due to our community's dependence on groundwater for our drinking water supply, the unique natural environment of the East Amwell area, and our economic dependence on affordable, clean groundwater, the potential impact of contamination is far too great to gamble upon.

[i] https://www.fireapparatusmagazine.com/articles/print/volume-15/issue-8/departments/pump-talk/history-brings-us.html
[ii] https://www.firerescuemagazine.com/content/dam/fire-rescue/downloads/Firefighting%20foam%20fact%20sheet.pdf
[iii] https://www.nj.gov/dep/newsrel/2019/19_0006.htm
[iv] https://www.nj.gov/dep/newsrel/2018/18_0063.htm
[v] https://iaspub.epa.gov/tdb/pages/general/home.do