

The Indian Hills Sewer Pump Station serves most of the Town of Hildebran, 100% of the Town of Rhodhiss, and portions of the Icard and George Hildebrand communities. These areas include six public schools and a residential rehab/care facility that depend on the pump station for sewer service. The population is broken down as follows:

1. Hildebran: 90% of its population of 1,686 (per NC Office of State Management & Budget, July 1, 2021) = 1,517
2. Rhodhiss: 296 sewer customers x 3.29 persons per household (per the town's 2021 local water supply plan) = 974
3. 100 County residential customers in Icard and George Hildebran x 2.48 (Burke County persons per household per US Census) = 250
4. Carolina Rehab Center has 90 beds = 90
5. George Hildebrand Elem. School students = 294
6. East Burke High School students = 842
7. East Burke Middle School students = 651
8. Hildebran Elem. School students = 354
9. Icard Elem. School students = 278
10. Ray Childers Elem. School students = 438

Subtotal = 5,688

The schools serve students from areas inside and outside the sewer service area. Except for Hildebran Elementary, the majority of students do not live in homes that are connected to the sewer system. To prevent double-counting students who do live in homes connected to the sewer system, the student populations benefiting from the project are reduced by 50% for Hildebran Elem. and by 10% for all other schools.

Then total estimated population = 5,688 less 427 = 5,261

Documentation is included in Appendix 5.

According to Burke County personnel, the pump station is inaccessible at least one day per year due to flooding, and it is inaccessible for three days during major storm events such as the recent Tropical Cyclone Eta (November 12, 2020).

The return interval (RI) = 1 for the shorter disruption of services, as noted by the County. For the longer (3-day) disruptions, the RI is estimated by comparing the NOAA Atlas 14 point-precipitation-frequency estimates table to the recorded precipitation on November 12, 2020. This data indicates an RI = 5 years (4.71" actual 24-hour rainfall compared to 4.62" associated with RI = 5 years on the NOAA table). Refer to the attached documentation. As confirmation of the County's statement that 1-day disruptions occur at least annually, the attached photograph showing water on the access road on October 9, 2021 is associated with an October 8, 2021 rain event of 2.36." The NOAA table shows 3.00" having an RI = 1 year. Refer to attached documentation.

Furthermore, the effects of Climate Change are expected to increase the frequency of precipitation events that cause this site to flood. Refer to the attached report entitled "NOAA National Centers for Environmental Information - State Climate Summaries 2022 - North Carolina." Relevant statements include:

"The number of landfalling hurricanes in North Carolina is highly variable from year to year. Hurricane-associated storm intensity and rainfall rates are projected to increase as the climate warms." (Key Message #2).

In Figure 3 on page 3 it states, "Annual precipitation and the number of 3-inch extreme precipitation events show variability but were well above average during the 2015–2020 period. A typical reporting station experiences a 3-inch precipitation event about once every 1 to 2 years."

The October 8, 2021 event was less than 3 inches.

Documentation is included in Appendix 6.