

**Before****Case Study: Eaglebrook Subdivision**

Upon acquisition, the Eaglebrook Subdivision wastewater facility faced numerous operational challenges that compromised its ability to effectively manage wastewater and maintain compliance. The influent lift station, equipped with sub-standard pumps, frequently clogged and was at risk of imminent failure due to a failing station panel and inadequate pump quality. The plant itself was undersized, necessitating an increase in flow capacity and expansion. Critical components such as blowers, filters, and air diffusers required thorough inspection and potential replacement, and the absence of remote monitoring made it challenging for operators to detect issues promptly. Additionally, a generator quick connect was needed to ensure uninterrupted operation during power outages. The facility also had a history of non-compliance with NPDES reports, primarily due to ammonia nitrogen exceedances and inadequate aeration in the equalization basin.

To address these issues and enhance the facility's performance, a comprehensive improvement plan was implemented. The upgrade process began with repairing the culvert and conducting a general site cleanup, including debris removal and ongoing fence repairs. New pumps and floats were installed in the influent lift station, and accumulated sludge was pumped and hauled out of the plant. Electrical upgrades and the installation of a new magnetic flow meter and remote monitoring systems at both the treatment plant and the influent lift station enabled real-time data tracking and improved response times. The bar screen was repaired and placed into operational service, and new MBBR pods with aeration and control panels were introduced to optimize the aeration process.

Additional upgrades included the installation of an influent mini-screen with controls and freeze protection, and dechlorination tablet feeder to enhance disinfection. The facility underwent significant physical improvements, with sand blasting and painting of the treatment facility, and modifications to the piping system. The aeration system was revamped, including the replacement of the cat-walk and railing.

The results of these improvements have been significant. The facility's average ammonia level, which was 48 mg/L in 2019, has been reduced to just 1.1 mg/L in the past year, representing a 98% reduction. Similarly, biochemical oxygen demand (BOD) levels have dropped from an average of 58.7 mg/L in 2019 to just 6.2 mg/L - a remarkable 89% reduction. Total suspended solids (TSS) have also seen a dramatic decrease, going from an average of 93.5 mg/L in 2019 to 9.8 mg/L, reflecting a 90% reduction.

These upgrades have significantly improved the Eaglebrook Subdivision wastewater facility's operational efficiency and compliance. With enhanced aeration, improved monitoring capabilities, and upgraded infrastructure, the facility now provides reliable and effective wastewater management, addressing previous compliance issues and ensuring continued service reliability for the community.

**After**