



# Memo

**To: Board of Supervisors**

**From: Catherine Ricardo, Township Manager**

**Date: October 20, 2022**

**Re: Flow Assessment Services Review of Flow Meters in Manholes 21, 4A, and 5A  
Barton's Meadows WWTP**

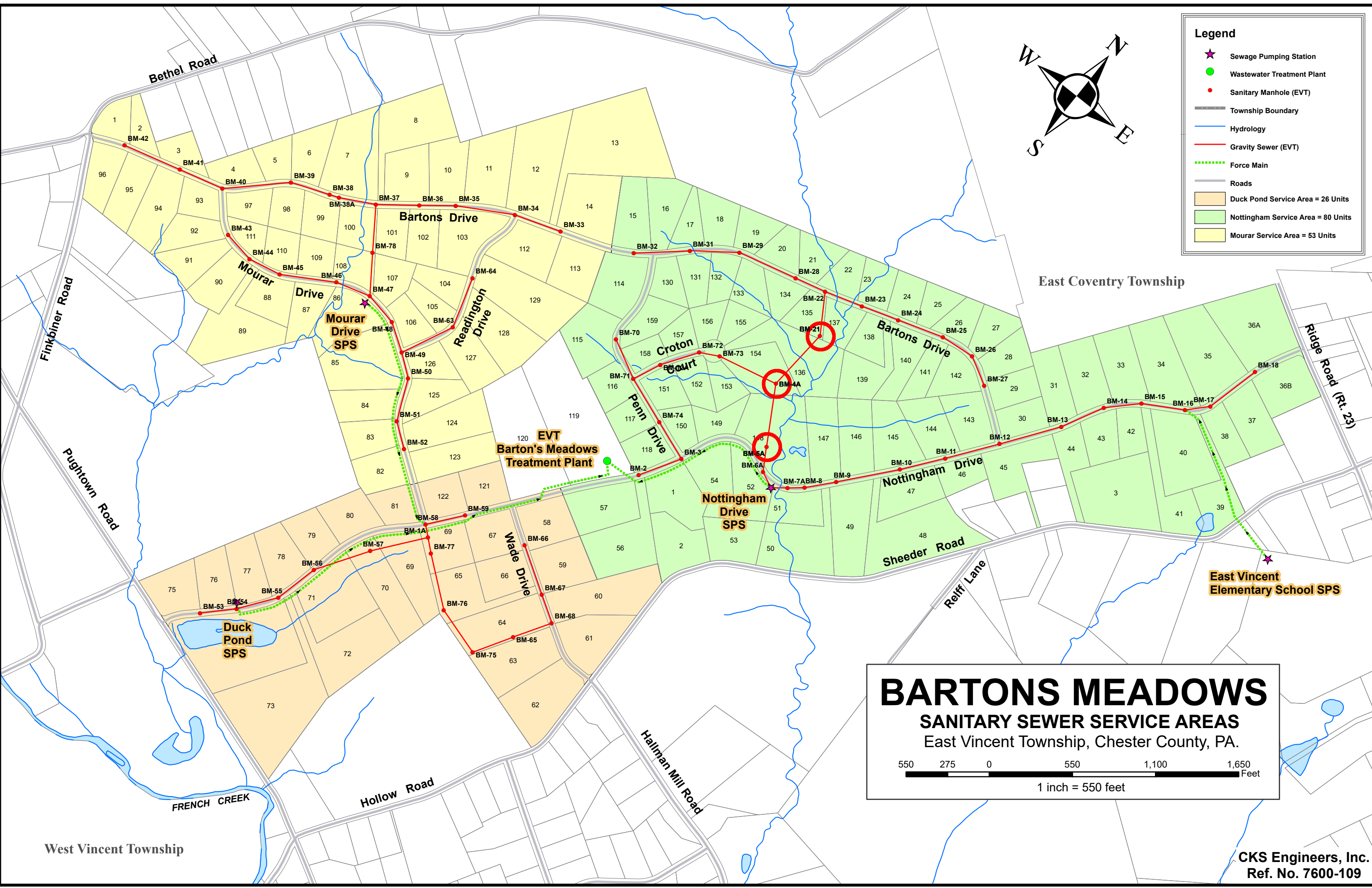
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When the Township requested a price quotation from Flow Assessment Services to install and monitor flow meters in manholes 21, 4A, and 5A in Barton's Meadows, Lucas Chapman, Mid-Atlantic Manager for Flow Assessment expressed hesitation to recommend placement of flow meters in the requested locations. Below is his explanation for the Board's consideration:

“We don't typically recommend that meters get placed in close proximity to each other with little contributions in-between.

Open channel flow monitoring equipment uses measured values for level and velocity or level only with known primary device geometry to calculate flow. Since collection systems are designed for conveyance, flow monitoring devices are often placed in structures that were not specifically designed to be monitored. Hydraulic conditions can vary from structure to structure based on the configuration such as slope, pipe material, and bends in the channel. Equipment can also be affected by the constituent parts of the flow including rags and debris. While flow monitoring equipment manufacturers may quote  $\pm 1-3\%$  accuracy or better, those results are in controlled environments and not the real-world conditions in a collection system. In normal applications it is not uncommon for the actual accuracy of a flow meter to be  $\pm 10\%$  or more. This variance means that flow monitoring equipment that is placed closely together with minimal inputs into the collection system between measurement points have the potential to produce confusing results due to the inherent accuracy of the equipment and the challenging conditions in which it is applied. These confusing results may include net negative flow values.

It is also worth noting that the challenges in metering locations that were not designed to be metered is why Flow Assessment places such an emphasis on regularly scheduled maintenance. The regular maintenance visits allow for confirmation of values as measured by hand at the time-of-service versus what the meter is seeing at that same time which allows us to build a defensible data set.”



**Legend**

- ★ Sewage Pumping Station
- Wastewater Treatment Plant
- Sanitary Manhole (EVT)
- Township Boundary
- Hydrology
- Gravity Sewer (EVT)
- Force Main
- Roads
- Duck Pond Service Area = 26 Units
- Nottingham Service Area = 80 Units
- Mourar Service Area = 53 Units



**BARTONS MEADOWS**  
**SANITARY SEWER SERVICE AREAS**  
 East Vincent Township, Chester County, PA.

550    275    0    550    1,100    1,650  
 Feet

1 inch = 550 feet

West Vincent Township

CKS Engineers, Inc.  
 Ref. No. 7600-109