



Autumn Chase Subdivision Phase 3

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INTRODUCTION

The City of Bryan, Ohio has planned an expansion of the Autumn Chase subdivision. The expansion aims to address the growing housing demand in the area while ensuring sustainable development that adheres to the latest civil engineering standards and practices.

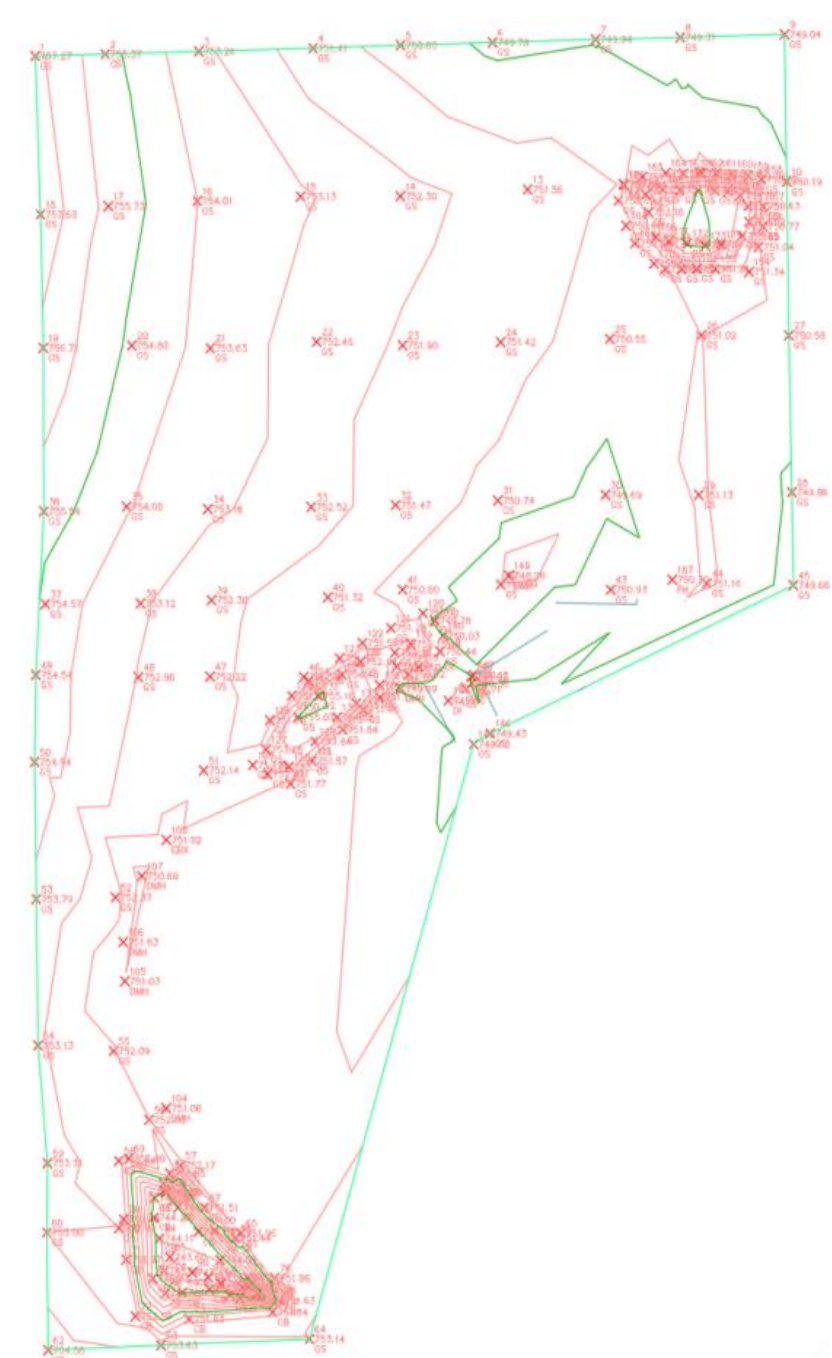
The scope of this project includes the design and layout of residential lots, associated infrastructure such as roads, drainage systems, and public utilities, and the integration of green spaces to enhance the community's environmental and aesthetic value.

Site Location



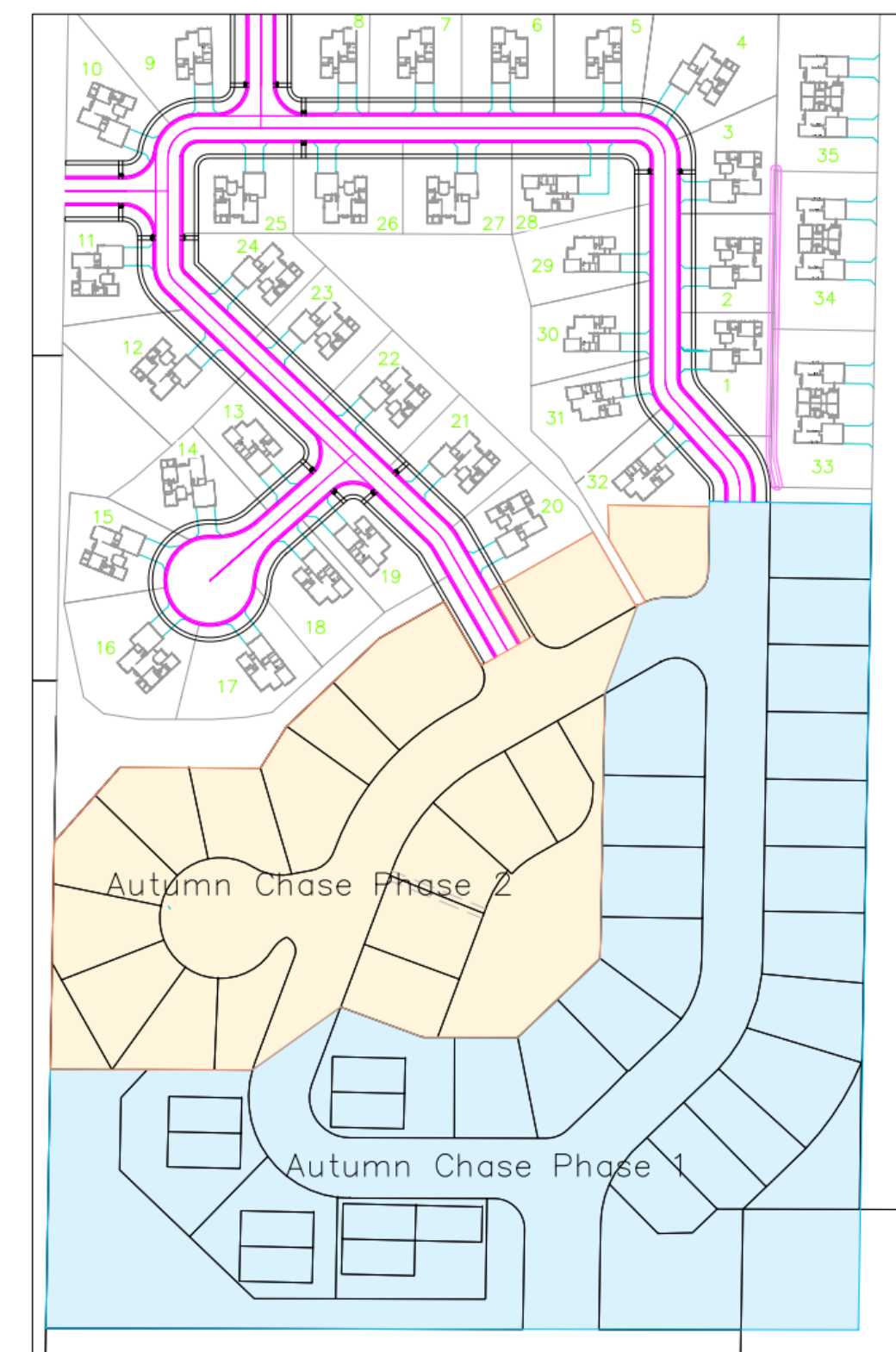
Data Collection

The initial stages involved conducting detailed land surveys to understand the topography and layout of the existing subdivision and the surrounding areas. Additionally, soil boring tests were performed across various locations within the project site. These tests were crucial for assessing soil composition and stability, which are vital for determining the appropriate pavement design and infrastructure placement.

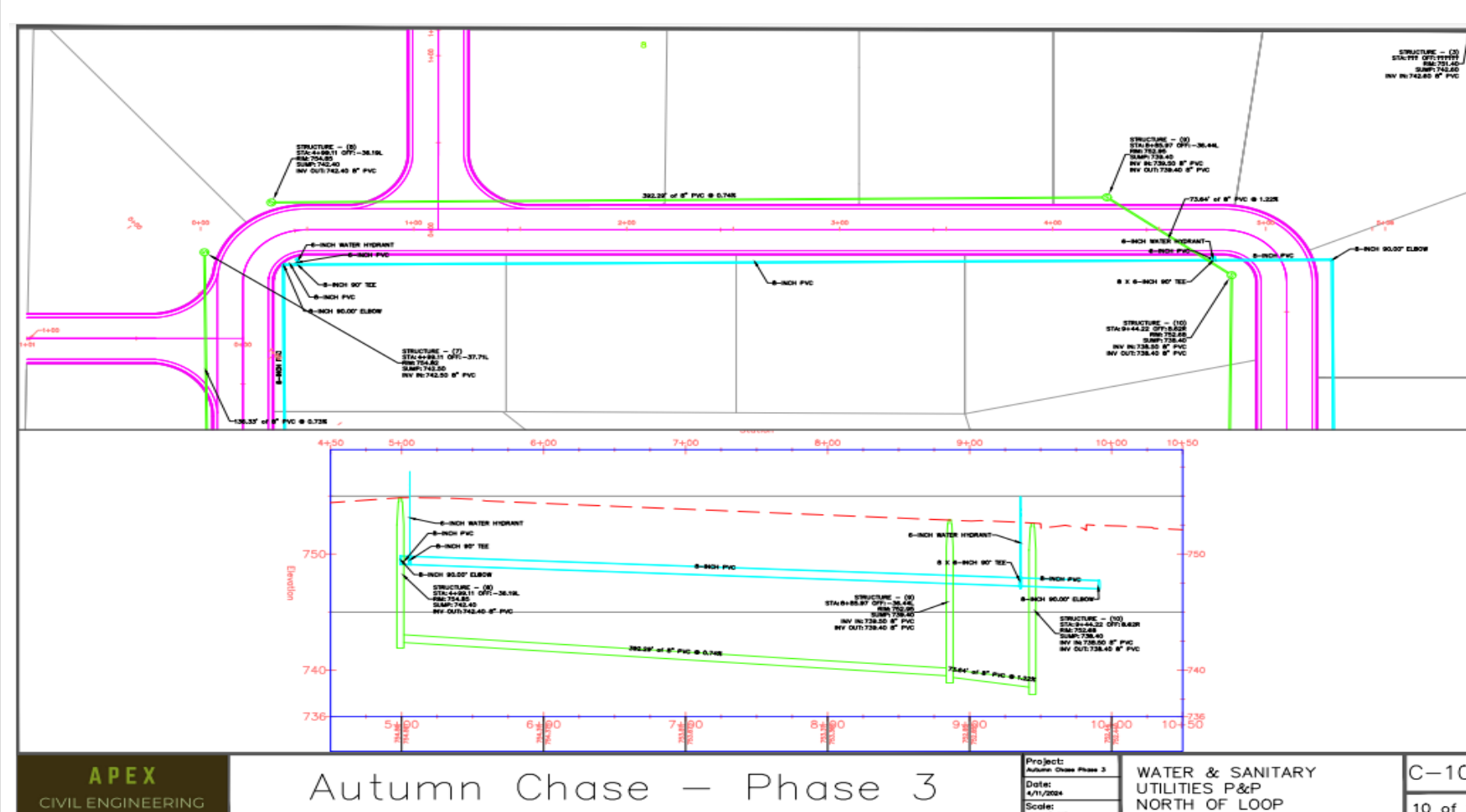
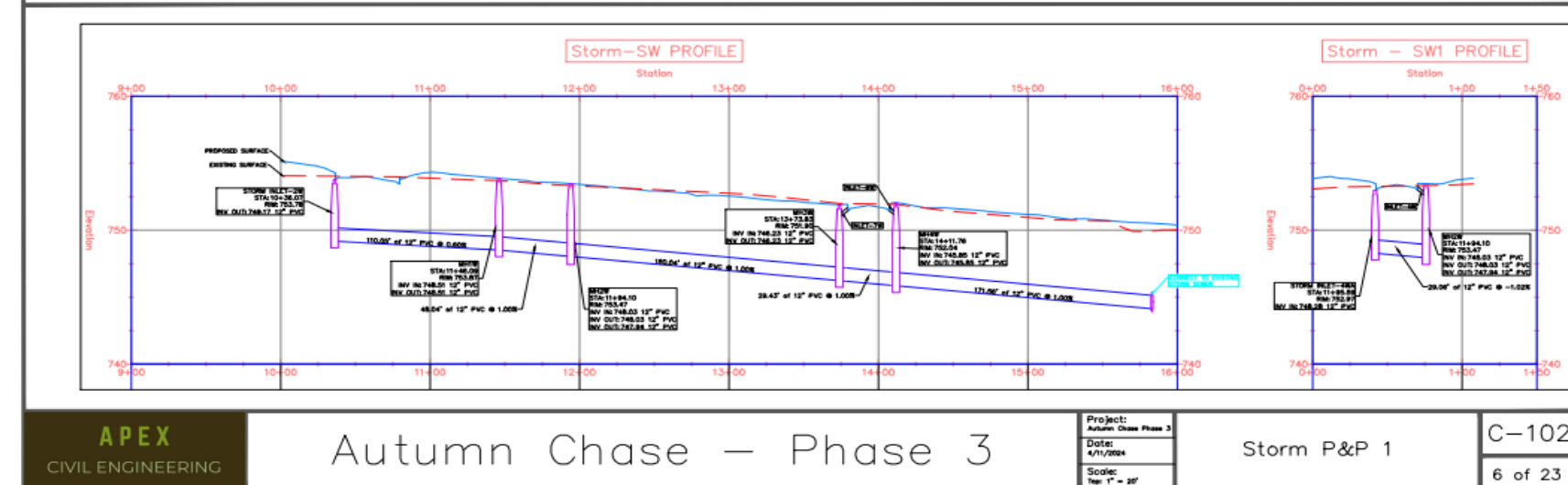
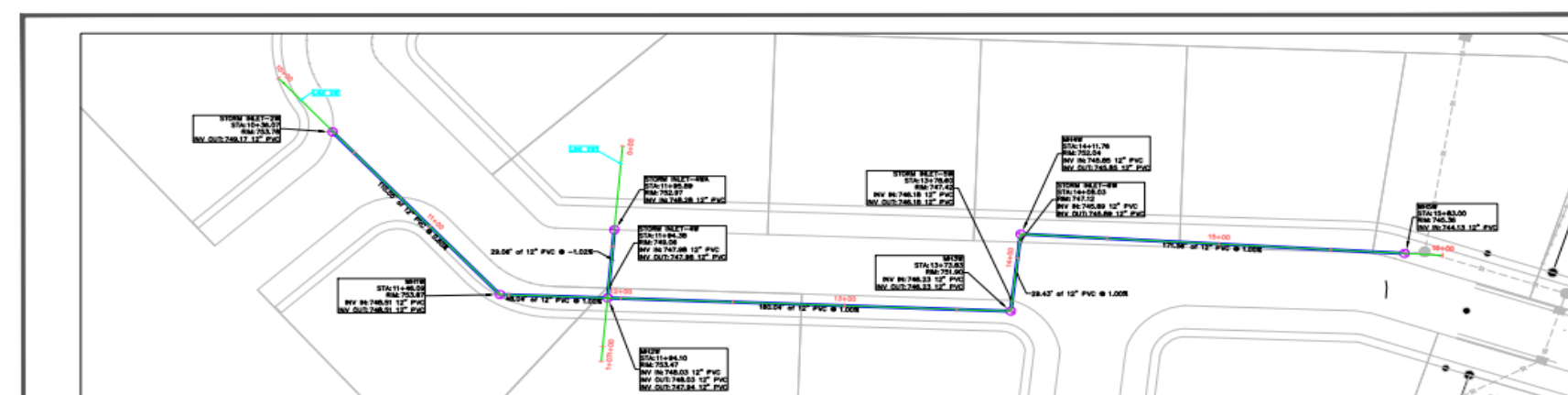


SITE DESIGN

We utilized Civil3D to layout our roadways and lots. Considering the existing subdivisions and future expansion we came up with a layout that meshes well with the existing subdivisions while still having a unique and useable layout.



Typical Plan and Profile



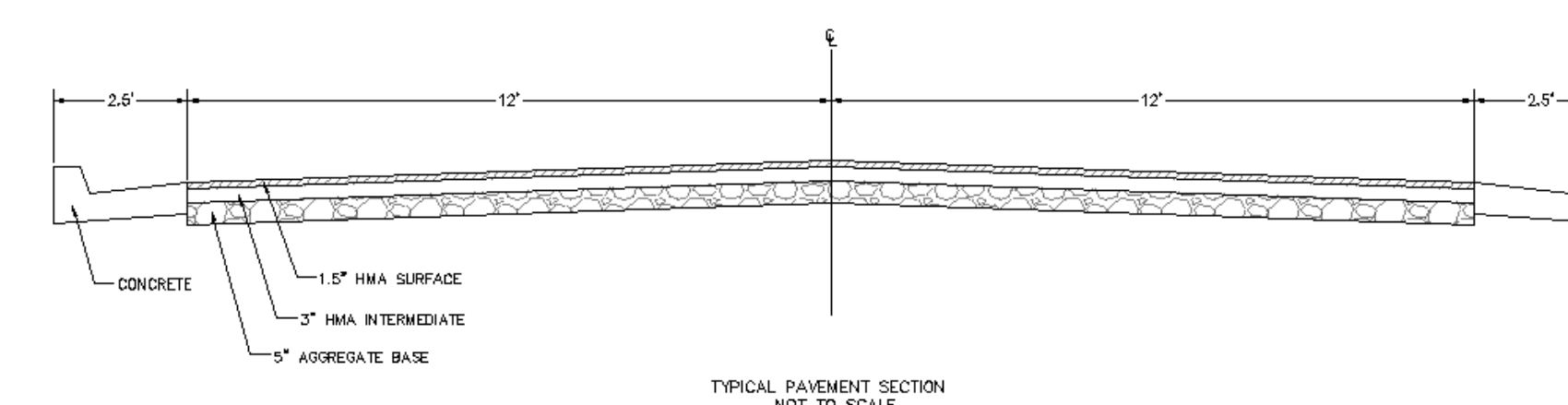
STORMWATER MANAGEMENT

Stormwater management includes a well-designed storm sewer system to efficiently channel runoff to a safe outlet, preventing localized flooding. Additionally, the project incorporates a single vegetated swale, placed to slow down water flow, naturally filter out pollutants and reduce stress on the infrastructure.



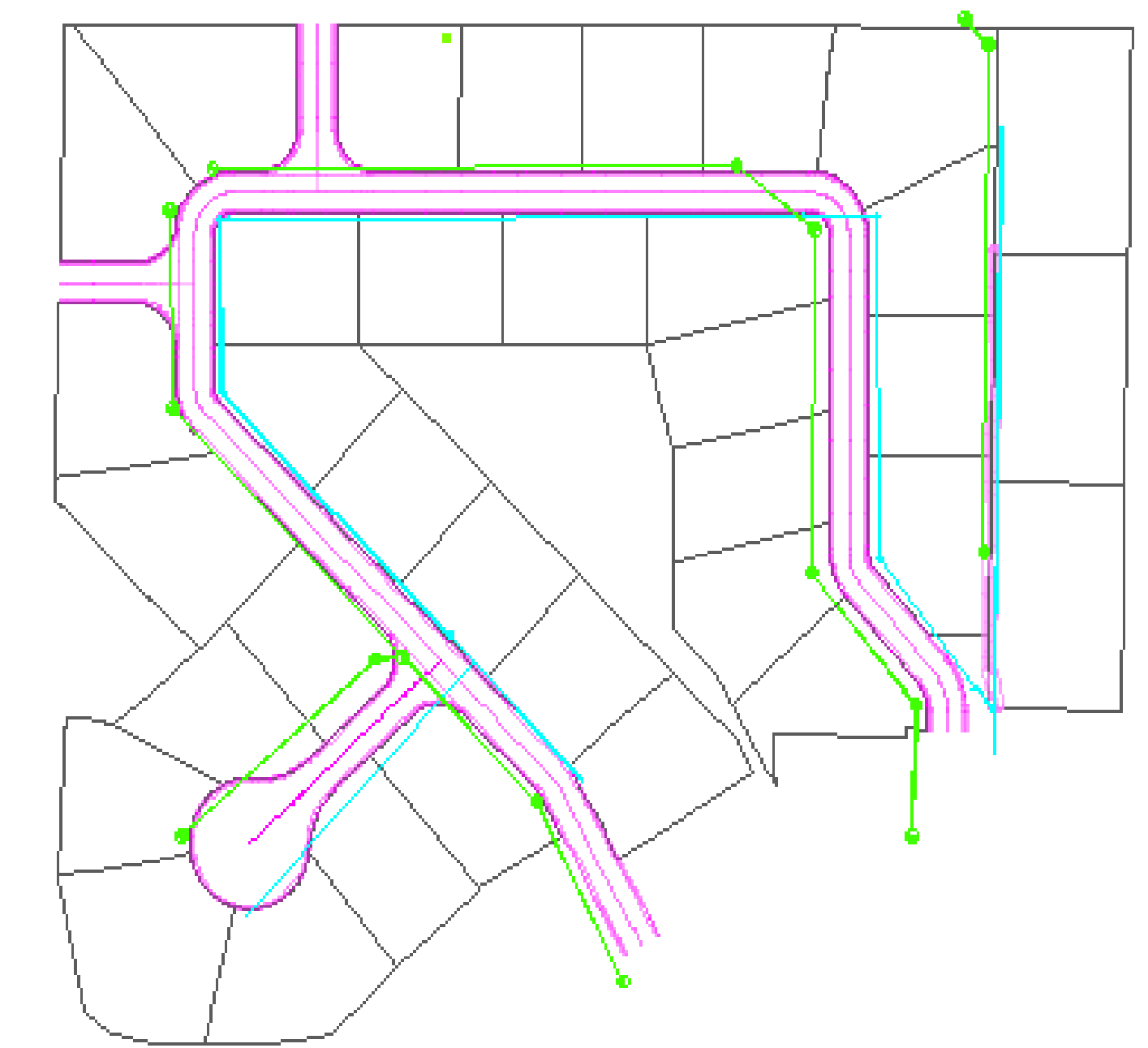
PAVEMENT DESIGN

Apex calculated a pavement cross-section based on traffic loads, soil characteristics, weather conditions, and drainage requirements. We determined that we would use the minimum pavement cross section for a cross section lower than the minimum standards according to the Ohio Department of Transportation.



WATER & SANITARY DESIGN

Apex connected a new 8-inch PVC sanitary pipe to the existing line in the subdivision. Manholes were installed at every bend, and there is a consistent 1/10' drop between the inlet and outlet at each structure to maintain flow. The invert elevations at each connection were verified to ensure that the velocity of wastewater meets the requirements specified in the Ohio EPA Greenbook Code 2.2.



FINAL COST ESTIMATE

Item	Cost
Pavement	\$391,969
Earthwork	\$43,748
Erosion Control	\$12,045
Utilities	\$184,260
Transportation	\$31,601
Stormwater	\$860,628

Cost Estimate
\$1.56 Million