Kimley»Horn

MEMORANDUM

To:	City of Smyrna
From:	Reid Irwin, P.E.
	Kimley-Horn and Associates, Inc.
Date:	December 2, 2021
Subject:	Arris Smyrna – Preliminary Stormwater Study for Rezoning

SITE BACKGROUND

The Arris Smyrna Project consists of seven parcels that are located at 4941, 4999, and 5041 South Cobb Drive and at 4960, 4970, 4980, and 5000 Oakdale Road in Smyrna, Cobb County, Georgia. These parcels are currently zoned GC (General Commercial – Smyrna). The proposed use for all parcels is MU (Mixed use District).

EXISTING TOPOGRAPHY AND STORMWATER INFRASTRUCTURE

The existing 6.90-acre site naturally drains to an existing low area in the center of the site. On site, there are two sub-basins with identified outfall points. Basin 1A covers the majority of the site, and stormwater is conveyed overland to the existing low area which discharges into an existing 18" reinforced concrete pipe (RCP) that runs under South Cobb Drive. Basin 1B in the southern portion of the site bypasses the low area in the center of the site. Stormwater is conveyed overland to an inlet in South Cobb Drive east of the site. This inlet and basin outfalls to the southeast in an 18" RCP pipe, which is piped under South Cobb Drive. The pipe ultimately outfalls to a tributary of Nickajack Creek. There are no existing storm water detention facilities on site.

CITY OF SMYRNA STORMWATER REQUIREMENTS

Upon development, the project will be required to meet the current City of Smyrna (CoS) stormwater ordinance. The ordinance notes that water quality and channel protection are required, as defined in the Georgia Stormwater Management Manual. The post developed peak flow rates for the 2, 5, 10, 25, 50, and 100-year, 24-hour storm events be reduced from the existing conditions or as further described below. Additionally, a ten percent drainage study will be required to confirm that this development does not impact the larger basin this project contributes to.

The City of Smyrna stormwater ordinance requires all pre-development uses to have a curve number of 55, unless buildings existed prior to 1978. Since this has not been confirmed and for the purpose of this hydro memo and preliminary sizing, it is assumed that a curve number of 55 will be required. Peak flows rates and volumes were determined utilizing this information.

PROPOSED STORMWATER INFRASTRUCTURE

The proposed stormwater management for the project is anticipated to be provided in one below grade detention system, which will outfall into basin 1A. Water quality volumes, channel protection volumes, and required detention volumes will be provided within the systems. The system for Basin 1A is anticipated to be approximately 84,000 cubic feet in size and will be located under an internal drive on the southern portion of the site.

A hydrovac truck (or similar) will be able to open a manhole and vacuum out any sediment or trash that may collect in the systems. The system is proposed to outfall to the 18" RCP in Basin 1A that is routed under South Cobb Drive. Basin 1B will be reduced in size and is not anticipated to require stormwater detention.

CLOSING

The proposed stormwater management infrastructure will provide attenuation of the design storm events such that development of the site does not have a negative impact on the site and/or downstream properties. The proposed detention volume provided to meet the runoff peak flow rate reduction factor will decrease peak flows. The retention of the required water quality on site will reduce flows and improve the quality of the water as it is discharged from the site. The following table shows the pre-development peak flows for the site. These flow rates were calculated on using a curve number of 55, and a time of concentration of 32 and 45 minutes. The proposed storm water management system will be designed to release peak flows from the site at a rate equal to or less than the pre development peak flow rates shown in the summary table.

Pre-Development Stormwater Flows		
Storm Event	Basin 1A Flow Rate (CFS)	Basin 1B Flow Rate (CFS)
2-Year	3.02	0.10
5-Year	5.17	0.21
10-Year	7.40	0.33
25-Year	11.06	0.53
50-Year	14.31	0.72
100-Year	17.84	0.93