

May 17, 2022

Patten Companies
9128 Strada Place
Naples, Florida 34103
Attn: Renee Howes

phone (928) 713-1841

**RE: Legacy Shores
Driveway Culvert Sizing
Benchmark Job No. 2020.025**

Ms. Howes:

Benchmark Design Group, LLC (Benchmark) is the engineer of record (EOR) for the above referenced project. We were asked to provide a summary outlining the culvert sizes for the driveways in this subdivision. Analyzing the runoff and making a few assumptions allowed Benchmark to prepare Table 1 below outlining the culvert sizes required for each lot in this subdivision.

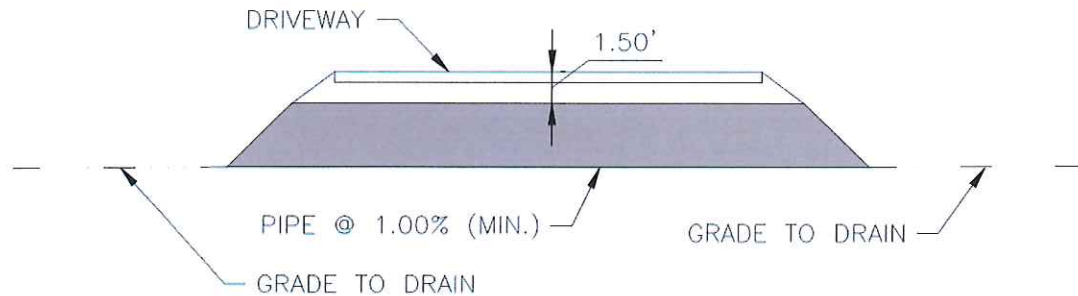
Table 1 – Culvert Sizing Chart

Driveway Culvert Sizing Chart	
Lots	Culvert
1-63,69,72-75,77,80-83,89-91	1-18" Pipe
64,65,70,71,76	1-24" Pipe
78,79,84-86	1-30" Pipe
87,88	1-36" Pipe
66,67	4-36" Pipes
*68	1-18" Pipe
**68	4-36" Pipes
*68 Driveway off Legacy Shores Rd.	
**68 Driveway off Shadow Pine Dr.	

The assumptions made to determine the culvert sizes required for each driveway are as follows. First, that each culvert would be installed at a 1% minimum slope. Second, the ends of the pipes would be mitered. Third, there would be a minimum of 1.5' of cover over the top of the pipe to the top of the driveway. Lastly, the driveway culverts are to be placed in the roadside ditch and not internal to the properties. Most of these assumptions can be seen in Figure 1 below.

"Achieving Goals by Design"

Figure 1 – Typical Driveway Culvert Section



Benchmark appreciates this opportunity to be of service and welcome any questions or comments.

Respectfully submitted,
BENCHMARK DESIGN GROUP, LLC

Ryan Davis

Ryan Davis, PE



Ryan Davis
5-17-22