GASKINS +LECRAW

September 27, 2023

Mr. David and Mrs. Laura Thorburn-Gundlach
Light Sport Aviators, LLC
1583L Westbrook Road
Milton, GA 30004
(706) 804-4438

Re: Pickens County Airport Hangar Drainage Issue
Update to Sept 2022 Correspondence

Dear Mr. and Mrs. Thorburn-Gundlach:

I am providing this update to a letter I prepared in September 2022 regarding drainage between the Light Sport Aviators hangar and Joe Aircraft Hangar at the Pickens County, GA airport. In preparing this update, I re-reviewed prior information consisting of the original construction plans for your Hangar prepared by Letel Metrics, the affidavit of Greg Johnson, an engineer working on behalf of David Cobb for the Joe Aircraft Hangar (JAH) filed in Cherokee County on August 21, 2022, and videos of water flow filmed by you. I have not visited the site, but base this update on the information referenced above. This update is specific to two items: Construction Plans prepared by Letel Metrics and the Management of Runoff from the tarmac at Pickens County Airport affecting Joe Aircraft Hanger.

Construction Plans

From my review of the plans drawn by Letel Metrics, there is no obvious design issue that would create flooding for JAH. The existing condition of water flow prior to construction of the Light Sport Aviators Hangar is reflected on Sheet 2. While not entirely definitive, the plans reflect the flow of water from the tarmac prior to construction is generally sheet flowing towards the areas of the Light Sport Aviators hangar and the JAH. This is also reinforced from photos and videos provided by you during rainfall events.

Sheet 3 and 4 of the Letel Metrics plans show the limit of the improvements for the Light Sport Aviators hangar and how stormwater is to be directed post construction. According to the plans, stormwater will continue to flow across the tarmac towards each hangar as it has historically flowed. However, once stormwater reaches the Light Sport Aviators hangar, flow is designed to split at the midway point of the front of the proposed hangar – half draining north and half draining south. Water directed to the south is designed to drain between the proposed hangar and the JAH via a swale. The issue then becomes the adequacy of the swale to accommodate the flow of water.

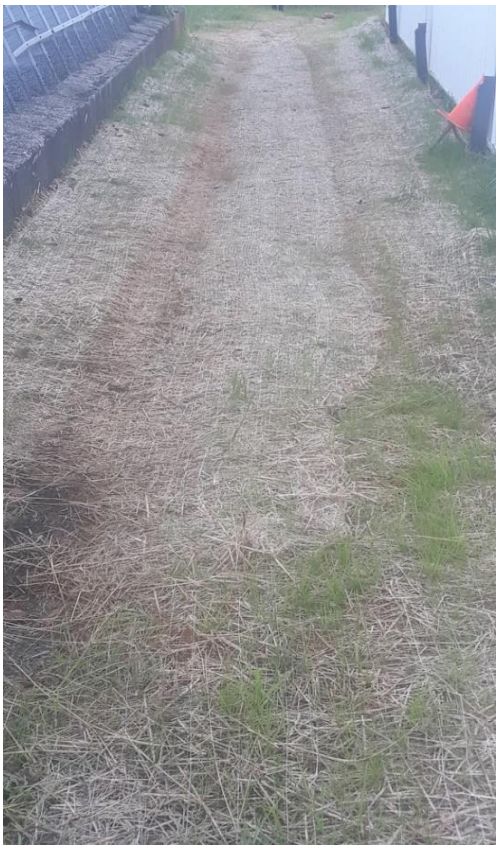
Using the information supplied from Mr. Johnson's affidavit, 0.19-acres drains across the tarmac to the JAH hangar and 0.12-acres drains towards the Light Sport Aviators hangar. Using this information and computing the runoff coefficient at 98% and time of concentration for each basin, the resulting peak volume flow rate at each hangar is provided in the table below.

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	0.889	1.017	-------	1.228	1.401	1.638	1.817	1.997	Joe Hangar
2	SCS Runoff	------	0.561	0.642	-------	0.776	0.885	1.034	1.148	1.261	Light Sport Aviator Hangar

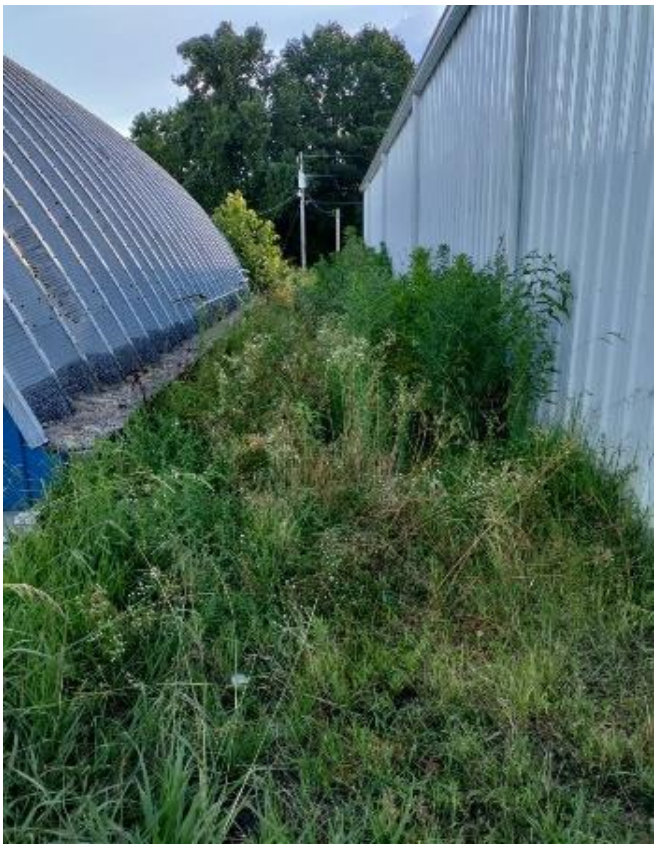
From information gathered from the Letel plan, the swale is designed to be 2-feet wide with a slope of 1% (approximately). While not specifically called out on the plan, the sides of the swale appear to be 4:1 slope. With this geometry and using a roughness coefficient of 0.025 (gravel/earthen channel), the designed swale can handle about 2.7 cubic feet of water per second (cfs) at velocity of 2.2 feet per second (fps) at a depth of 0.3 feet. Changing the roughness coefficient to 0.03 (brush, grass), the designed swale can handle the same flow (2.7 cfs), but the velocity will be slower at 2 feet per second and the depth increasing to 0.4 feet. Given this, the storm water being directed to the swale can be accommodated by the swale whether grass or gravel, but will work best if it is maintained with no weeds or obstructions.

Management of Runoff

The management of runoff of stormwater depends largely on maintenance of the swale. If weeds or other factors are allowed to grow in the swale, the flow conditions will change and the swale capacity will be significantly diminished. Below is a photo of the swale area taken some time in 2021, following Light Sport Aviators construction and in 2022, showing the unmaintained condition of the channel.



After Light Sport Aviators Construction - 2021



Neglected Maintenance - 2022

We are not certain of the horizontal limits of ownership of each hangar or the stipulations of responsibility by the Pickens County Airport agreements with the owners. From our point of view, the responsibility to maintain the swale appears to fall on the entity having ownership of the area between the two hangars. In addition to maintaining the condition of the flow line of the swale, it appears that any obstacle allowed at the point where water leaves the tarmac and enters the swale will create a potential diversion of water away from the swale. Removing any 'lip' of soil or grass that extends vertically above the point where asphalt and the swale connect is imperative to prevent a 'dam' effect and cause water to bypass or pool at the entrance to the swale.

Examining the flow characteristics of the JAH hangar, using the drainage area information supplied in Mr. Johnson's affidavit, it appears 0.19-acres of storm water has historically been (and currently is) directed to the entry of the JAH. We note a 4-inch drainage grate is in place to collect water prior to entering into the JAH. We are not sure of the length of the drain, if the outlet pipe from the drain is working correctly or the clogging condition of the grate, but assuming each of these items is not impeded, modeling the incoming flow (1.7 cfs) for a 25-year storm using this grate, the depth of flow for this could be as high as 8-inches. Given this, it appears the grate at JAH is undersized and could be a cause of flooding issues JAH is experiencing and not flow from the Light Sport Aviator hangar. More evaluation is needed to confirm this, but appears to be worthy of further investigation to solve the JAH flooding issue.

After reviewing this information, please let me know if you have any questions or if I can be of further assistance.

Best Regards,
Gaskins + LeCraw, Inc.

By: David Stuart, P.E.
Director of Engineering, West

Notary Public

SUZANNE M BEALL
NOTARY PUBLIC
My Commission Expires
02-23-2024
COBB COUNTY, GEORGIA

My commission expires: 02-23-2024