

## *DPH-12 Report on Use of the LAS Withheld Bit Flag*

The USGS Lidar Base Specification 2022 rev. A states: "The withheld bit flag, as defined in LAS specification version 1.4–R15 (ASPRS, 2019), shall only be used to identify points that cannot be reasonably interpreted as valid surface returns. Examples include outliers, blunders, geometrically unreliable points, aerosol back-scatter, laser multi-path, airborne objects, and sensor anomalies. The withheld flag may be used in conjunction with other classification codes (low/high noise for example), but it should be used in all cases where the previously mentioned criteria are met. The usage of the LAS Withheld Bit Flag is of such importance that proof of performance is required. This proof shall be provided as

- Preferred: Maximum Surface Height Rasters as detailed in the appendix.
- Other test or metadata as agreed to by the USGS in advance and documented in the project Task Order."

The purpose of this section is to list the presence and quantities of points flagged as Withheld for all lidar data files.

Total Withheld points (all classes, all files)

97449352