

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

The USGS Lidar Base Specification 2023 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 Appendix 1, or
- Other test or metadata as agreed to by the USGS in advance and documented in the project Task Order.

The proof of performance shall be derived from the lidar point cloud as delivered.
The proof of performance shall be recreated upon any changes to the point cloud."

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

[Data Source - Y:\Mapping\Projects\100060_MN_RiverWest\Production\LIDAR\10_LiDAR_Reclass\Project_Wide\LAS\B3](#)

Total Withheld points in class 7 (all files)	109983410
Total Withheld points in class 18 (all files)	331102950
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Total Withheld points (all classes, all files)	441086360

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

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

[Data Source - Y:\Mapping\Projects\100060_MN_RiverWest\Production\LiDAR\10_LiDAR_Reclass\Project_Wide\LAS\B3](#)

[Result Path - Y:\Mapping\Projects\100060_MN_RiverWest\Admin\QA_QC\MN_West_B3_QC\DPH_12\Withheld.jpg](#)

