# DPH-14 Report on Point Classification

The USGS Lidar Base Specification 2022 rev. A states: "The minimum, required classification scheme for lidar data is found in table 5.
 - All points that fall within the minimum classification scheme (table 5) and not flagged as withheld shall be properly classified.
 - Additional classes may be used on specific projects.
 - Accuracy of point classification into classes beyond the minimum scheme (table 5) will not be assessed by the USGS, as documented in metadata.
 - Assessing and verifying accuracy of point classification into classes beyond the minimum scheme will be the responsibility of the partner requesting the additional classes.
 - No points in the classified LAS deliverable may remain assigned to Class 0, unless these points are flagged as withheld.
 - Points classified as water will only be checked when associated with a breakline.
 - Classification codes shall not be used in lieu of the overlap bit flag to identify overlap points.
 - Model key points, if calculated, shall be identified using the key point bit flag as defined in LAS specification version 1.4–R15 (ASPRS, 2019). Model key points may, in addition, be identified using class 8 at the discretion of the data producer."

**Table 5.** Minimum light detection and ranging data classification scheme.

| Code | Description |
|------|-------------|
| 1 | Processed, but unclassified |
| 2 | Bare earth |
| 7 | Low noise |
| 9 | Water |
| 17 | Bridge deck |
| 18 | High noise |
| 20 | Ignored ground *(typically breakline proximity)* |
| 21 | Snow *(if present and identifiable)* |
| 22 | Temporal exclusion *(typically nonfavored data in intertidal zones)* |

The purpose of this section is to report total numbers of points for each class within the LAS files.

# DPH-14 Report on Point Classification - Class Totals

The purpose of this section is to list the number of points in each classification so the user can determine if any points exist in unintended classes or contain incorrect bit flags.

| Class | Total | MKP | WH | Overlap | Class | Total | MKP | WH | Overlap |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 00 | 00 | 00 | 00 | 64 | 00 | 00 | 00 | 00 |
| 1 | 3,036,583,102 | 00 | 00 | 00 | 65 | 00 | 00 | 00 | 00 |
| 2 | 12,324,895,402 | 00 | 00 | 00 | 66 | 00 | 00 | 00 | 00 |
| 3 | 00 | 00 | 00 | 00 | 67 | 00 | 00 | 00 | 00 |
| 4 | 00 | 00 | 00 | 00 | 68 | 00 | 00 | 00 | 00 |
| 5 | 00 | 00 | 00 | 00 | 69 | 00 | 00 | 00 | 00 |
| 6 | 00 | 00 | 00 | 00 | 70 | 00 | 00 | 00 | 00 |
| 7 | 8,401,088 | 00 | 8,401,088 | 00 | 71 | 00 | 00 | 00 | 00 |
| 8 | 00 | 00 | 00 | 00 | 72 | 00 | 00 | 00 | 00 |
| 9 | 6,483 | 00 | 00 | 00 | 73 | 00 | 00 | 00 | 00 |
| 10 | 00 | 00 | 00 | 00 | 74 | 00 | 00 | 00 | 00 |
| 11 | 00 | 00 | 00 | 00 | 75 | 00 | 00 | 00 | 00 |
| 12 | 00 | 00 | 00 | 00 | 76 | 00 | 00 | 00 | 00 |
| 13 | 00 | 00 | 00 | 00 | 77 | 00 | 00 | 00 | 00 |
| 14 | 00 | 00 | 00 | 00 | 78 | 00 | 00 | 00 | 00 |
| 15 | 00 | 00 | 00 | 00 | 79 | 00 | 00 | 00 | 00 |
| 16 | 00 | 00 | 00 | 00 | 80 | 00 | 00 | 00 | 00 |
| 17 | 214,162 | 00 | 00 | 00 | 81 | 00 | 00 | 00 | 00 |
| 18 | 123,966,197 | 00 | 123,966,197 | 00 | 82 | 00 | 00 | 00 | 00 |
| 19 | 00 | 00 | 00 | 00 | 83 | 00 | 00 | 00 | 00 |
| 20 | 3,747 | 00 | 00 | 00 | 84 | 00 | 00 | 00 | 00 |
| 21 | 00 | 00 | 00 | 00 | 85 | 00 | 00 | 00 | 00 |
| 22 | 00 | 00 | 00 | 00 | 86 | 00 | 00 | 00 | 00 |
| 23 | 00 | 00 | 00 | 00 | 87 | 00 | 00 | 00 | 00 |
| 24 | 00 | 00 | 00 | 00 | 88 | 00 | 00 | 00 | 00 |
| 25 | 00 | 00 | 00 | 00 | 89 | 00 | 00 | 00 | 00 |
| 26 | 00 | 00 | 00 | 00 | 90 | 00 | 00 | 00 | 00 |
| 27 | 00 | 00 | 00 | 00 | 91 | 00 | 00 | 00 | 00 |
| 28 | 00 | 00 | 00 | 00 | 92 | 00 | 00 | 00 | 00 |
| 29 | 00 | 00 | 00 | 00 | 93 | 00 | 00 | 00 | 00 |
| 30 | 00 | 00 | 00 | 00 | 94 | 00 | 00 | 00 | 00 |
| 31 | 00 | 00 | 00 | 00 | 95 | 00 | 00 | 00 | 00 |
| 32 | 00 | 00 | 00 | 00 | 96 | 00 | 00 | 00 | 00 |
| 33 | 00 | 00 | 00 | 00 | 97 | 00 | 00 | 00 | 00 |
| 34 | 00 | 00 | 00 | 00 | 98 | 00 | 00 | 00 | 00 |
| 35 | 00 | 00 | 00 | 00 | 99 | 00 | 00 | 00 | 00 |
| 36 | 00 | 00 | 00 | 00 | 100 | 00 | 00 | 00 | 00 |
| 37 | 00 | 00 | 00 | 00 | 101 | 00 | 00 | 00 | 00 |
| 38 | 00 | 00 | 00 | 00 | 102 | 00 | 00 | 00 | 00 |
| 39 | 00 | 00 | 00 | 00 | 103 | 00 | 00 | 00 | 00 |
| 40 | 00 | 00 | 00 | 00 | 104 | 00 | 00 | 00 | 00 |
| 41 | 00 | 00 | 00 | 00 | 105 | 00 | 00 | 00 | 00 |
| 42 | 00 | 00 | 00 | 00 | 106 | 00 | 00 | 00 | 00 |
| 43 | 00 | 00 | 00 | 00 | 107 | 00 | 00 | 00 | 00 |
| 44 | 00 | 00 | 00 | 00 | 108 | 00 | 00 | 00 | 00 |
| 45 | 00 | 00 | 00 | 00 | 109 | 00 | 00 | 00 | 00 |
| 46 | 00 | 00 | 00 | 00 | 110 | 00 | 00 | 00 | 00 |
| 47 | 00 | 00 | 00 | 00 | 111 | 00 | 00 | 00 | 00 |
| 48 | 00 | 00 | 00 | 00 | 112 | 00 | 00 | 00 | 00 |
| 49 | 00 | 00 | 00 | 00 | 113 | 00 | 00 | 00 | 00 |
| 50 | 00 | 00 | 00 | 00 | 114 | 00 | 00 | 00 | 00 |
| 51 | 00 | 00 | 00 | 00 | 115 | 00 | 00 | 00 | 00 |
| 52 | 00 | 00 | 00 | 00 | 116 | 00 | 00 | 00 | 00 |
| 53 | 00 | 00 | 00 | 00 | 117 | 00 | 00 | 00 | 00 |
| 54 | 00 | 00 | 00 | 00 | 118 | 00 | 00 | 00 | 00 |
| 55 | 00 | 00 | 00 | 00 | 119 | 00 | 00 | 00 | 00 |
| 56 | 00 | 00 | 00 | 00 | 120 | 00 | 00 | 00 | 00 |
| 57 | 00 | 00 | 00 | 00 | 121 | 00 | 00 | 00 | 00 |
| 58 | 00 | 00 | 00 | 00 | 122 | 00 | 00 | 00 | 00 |
| 59 | 00 | 00 | 00 | 00 | 123 | 00 | 00 | 00 | 00 |
| 60 | 00 | 00 | 00 | 00 | 124 | 00 | 00 | 00 | 00 |
| 61 | 00 | 00 | 00 | 00 | 125 | 00 | 00 | 00 | 00 |
| 62 | 00 | 00 | 00 | 00 | 126 | 00 | 00 | 00 | 00 |
| 63 | 00 | 00 | 00 | 00 | 127 | 00 | 00 | 00 | 00 |

**Bold** – point counts in 'Minimum classified point cloud classification scheme' (see table on previous page)

## – point counts in Classes beyond the minimum

## – disallowed point counts or bit flags per USGS spec

## – not all Class 0, Class 7, and Class 18 points flagged as Withheld

# DPH-14 Report on Point Classification - Continued

| Class | Total | MKP | WH | Overlap | Class | Total | MKP | WH | Overlap |
|---|---|---|---|---|---|---|---|---|---|
| 128 | 00 | 00 | 00 | 00 | 192 | 00 | 00 | 00 | 00 |
| 129 | 00 | 00 | 00 | 00 | 193 | 00 | 00 | 00 | 00 |
| 130 | 00 | 00 | 00 | 00 | 194 | 00 | 00 | 00 | 00 |
| 131 | 00 | 00 | 00 | 00 | 195 | 00 | 00 | 00 | 00 |
| 132 | 00 | 00 | 00 | 00 | 196 | 00 | 00 | 00 | 00 |
| 133 | 00 | 00 | 00 | 00 | 197 | 00 | 00 | 00 | 00 |
| 134 | 00 | 00 | 00 | 00 | 198 | 00 | 00 | 00 | 00 |
| 135 | 00 | 00 | 00 | 00 | 199 | 00 | 00 | 00 | 00 |
| 136 | 00 | 00 | 00 | 00 | 200 | 00 | 00 | 00 | 00 |
| 137 | 00 | 00 | 00 | 00 | 201 | 00 | 00 | 00 | 00 |
| 138 | 00 | 00 | 00 | 00 | 202 | 00 | 00 | 00 | 00 |
| 139 | 00 | 00 | 00 | 00 | 203 | 00 | 00 | 00 | 00 |
| 140 | 00 | 00 | 00 | 00 | 204 | 00 | 00 | 00 | 00 |
| 141 | 00 | 00 | 00 | 00 | 205 | 00 | 00 | 00 | 00 |
| 142 | 00 | 00 | 00 | 00 | 206 | 00 | 00 | 00 | 00 |
| 143 | 00 | 00 | 00 | 00 | 207 | 00 | 00 | 00 | 00 |
| 144 | 00 | 00 | 00 | 00 | 208 | 00 | 00 | 00 | 00 |
| 145 | 00 | 00 | 00 | 00 | 209 | 00 | 00 | 00 | 00 |
| 146 | 00 | 00 | 00 | 00 | 210 | 00 | 00 | 00 | 00 |
| 147 | 00 | 00 | 00 | 00 | 211 | 00 | 00 | 00 | 00 |
| 148 | 00 | 00 | 00 | 00 | 212 | 00 | 00 | 00 | 00 |
| 149 | 00 | 00 | 00 | 00 | 213 | 00 | 00 | 00 | 00 |
| 150 | 00 | 00 | 00 | 00 | 214 | 00 | 00 | 00 | 00 |
| 151 | 00 | 00 | 00 | 00 | 215 | 00 | 00 | 00 | 00 |
| 152 | 00 | 00 | 00 | 00 | 216 | 00 | 00 | 00 | 00 |
| 153 | 00 | 00 | 00 | 00 | 217 | 00 | 00 | 00 | 00 |
| 154 | 00 | 00 | 00 | 00 | 218 | 00 | 00 | 00 | 00 |
| 155 | 00 | 00 | 00 | 00 | 219 | 00 | 00 | 00 | 00 |
| 156 | 00 | 00 | 00 | 00 | 220 | 00 | 00 | 00 | 00 |
| 157 | 00 | 00 | 00 | 00 | 221 | 00 | 00 | 00 | 00 |
| 158 | 00 | 00 | 00 | 00 | 222 | 00 | 00 | 00 | 00 |
| 159 | 00 | 00 | 00 | 00 | 223 | 00 | 00 | 00 | 00 |
| 160 | 00 | 00 | 00 | 00 | 224 | 00 | 00 | 00 | 00 |
| 161 | 00 | 00 | 00 | 00 | 225 | 00 | 00 | 00 | 00 |
| 162 | 00 | 00 | 00 | 00 | 226 | 00 | 00 | 00 | 00 |
| 163 | 00 | 00 | 00 | 00 | 227 | 00 | 00 | 00 | 00 |
| 164 | 00 | 00 | 00 | 00 | 228 | 00 | 00 | 00 | 00 |
| 165 | 00 | 00 | 00 | 00 | 229 | 00 | 00 | 00 | 00 |
| 166 | 00 | 00 | 00 | 00 | 230 | 00 | 00 | 00 | 00 |
| 167 | 00 | 00 | 00 | 00 | 231 | 00 | 00 | 00 | 00 |
| 168 | 00 | 00 | 00 | 00 | 232 | 00 | 00 | 00 | 00 |
| 169 | 00 | 00 | 00 | 00 | 233 | 00 | 00 | 00 | 00 |
| 170 | 00 | 00 | 00 | 00 | 234 | 00 | 00 | 00 | 00 |
| 171 | 00 | 00 | 00 | 00 | 235 | 00 | 00 | 00 | 00 |
| 172 | 00 | 00 | 00 | 00 | 236 | 00 | 00 | 00 | 00 |
| 173 | 00 | 00 | 00 | 00 | 237 | 00 | 00 | 00 | 00 |
| 174 | 00 | 00 | 00 | 00 | 238 | 00 | 00 | 00 | 00 |
| 175 | 00 | 00 | 00 | 00 | 239 | 00 | 00 | 00 | 00 |
| 176 | 00 | 00 | 00 | 00 | 240 | 00 | 00 | 00 | 00 |
| 177 | 00 | 00 | 00 | 00 | 241 | 00 | 00 | 00 | 00 |
| 178 | 00 | 00 | 00 | 00 | 242 | 00 | 00 | 00 | 00 |
| 179 | 00 | 00 | 00 | 00 | 243 | 00 | 00 | 00 | 00 |
| 180 | 00 | 00 | 00 | 00 | 244 | 00 | 00 | 00 | 00 |
| 181 | 00 | 00 | 00 | 00 | 245 | 00 | 00 | 00 | 00 |
| 182 | 00 | 00 | 00 | 00 | 246 | 00 | 00 | 00 | 00 |
| 183 | 00 | 00 | 00 | 00 | 247 | 00 | 00 | 00 | 00 |
| 184 | 00 | 00 | 00 | 00 | 248 | 00 | 00 | 00 | 00 |
| 185 | 00 | 00 | 00 | 00 | 249 | 00 | 00 | 00 | 00 |
| 186 | 00 | 00 | 00 | 00 | 250 | 00 | 00 | 00 | 00 |
| 187 | 00 | 00 | 00 | 00 | 251 | 00 | 00 | 00 | 00 |
| 188 | 00 | 00 | 00 | 00 | 252 | 00 | 00 | 00 | 00 |
| 189 | 00 | 00 | 00 | 00 | 253 | 00 | 00 | 00 | 00 |
| 190 | 00 | 00 | 00 | 00 | 254 | 00 | 00 | 00 | 00 |
| 191 | 00 | 00 | 00 | 00 | 255 | 00 | 00 | 00 | 00 |

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