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MEMORANDUM

TO: Tom Werner, Executive Director
Duluth Airport Authority (DAA)

FROM: Ryan Falch, PE (Lic. MN)

DATE: April 29, 2025

RE: DLH Watershed Boundaries Documentation
SEH No. 179456 14.00

This memorandum is to document and describe the processes to determine the watershed boundaries at Duluth International Airport (DLH). As part of the on-going airport-wide Stormwater Master Plan project, Short Elliott Hendrickson, Inc. (SEH) was contracted by Duluth Airport Authority (DAA) to investigate and compile a drainage master plan report to help facilitate improvements to the water quality treatments on airport property for existing infrastructure and future development projects.

As part of the initial stages of the study, SEH investigated and compiled information, such as record drawings from previous projects, City of Duluth utility linework files, LiDAR data from St. Louis County, and previous surveying efforts from airport projects. Due to the large scale of area needed for evaluation, assumptions and limitations were identified.

The following was used to determine the watershed boundaries:

- Five-plus workdays of onsite surveying was completed by SEH to capture prominent stormwater structure locations, pipe locations, material types, inverts, culverts, and natural drainage features.
 - Not all structures were captured due to scope and budget limitations
- DLH project record drawings (from current and past consultant designs)
- SEH DLH Base File (used for project designs)
- St. Louis County 1-FT LiDAR Surface Data

The following assumptions were made:

- Pipes with 1 unknown invert were assumed 0.5% slope to known invert.
- Pipes with 12-inch or larger pipes were incorporated into shapefile, some (not all) pipes less than 12-inch were included as well.
- Stand-alone culverts captured by DLH base file and Duluth GIS base file without size / material / invert were assumed to be 18-inch RCP with inverts rounded to the nearest foot based on LiDAR.

Based on the existing data available and field work efforts to capture stormwater networks, SEH is confident the watershed boundaries represent true flow patterns and watershed boundaries within the airport property.

Engineers | Architects | Planners | Scientists

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The attached zip folder contains all data used to determine the watershed boundaries, in GIS format. SEH does have CAD file available upon request.

Please let me know if you have further questions concerning the submitted data or the ongoing drainage master plan project.

Attachments: Basin Check Files (Compressed Folder)

c:

Kaci Nowicki, SEH
Shawn McMahon, SEH
Jeremy Walgrave, SEH
David Hoesly, SEH

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